Moel-y-Gaer (Bodfari)

A small hillfort in Denbighshire, North Wales

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With contributions by
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Contents

List of Figures and Tables

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This report is dedicated to Jon Humble, a good colleague and friend who is greatly missed.

Introduction

The Clwydian Range in North Wales provides a spectacular upland landscape that contains a series of well-preserved Iron Age hillforts (Gale 1991; Brown 2004). These have been little studied and are poorly understood other than mainly through the pioneering work of the Heather and Hillforts Project run by Denbighshire County Council.[1] This had the broad ranging objectives of landscape and heritage management to encourage public understanding and participation in outdoor activities including archaeology. It concentrated on six hillforts within the Clwydian Range and Dee Valley Area of Outstanding Natural Beauty (AONB):[2] Penycloddiau, Moel Arthur, Moel-y-Gaer (Llanbedr) and Moel Fenli in the Clwydians and in the adjoining Llantysilio Mountains the sites of Moel-y-Gaer (Llantysilio) and Caer Drewyn, Figure 1. Topographic survey was carried out at each site together with differing levels of geophysical survey (Mrowiec 2011; summarised in Lloyd-Jones 2017 and Lloyd-Jones and Gale 2020).

The importance of hillforts is central to the understanding of the north Welsh Iron Age settlement record and has been emphasised for some time within a series of research agendas (Haselgrove *et al.* 2001; Gwilt 2003; IFA Wales/Cymru 2008), the latest version of which has recently been published online.[3] To stimulate continuing research in this area the Heather and Hillforts Project actively encouraged collaborative work which has resulted in a series of excavations and further survey. Geophysical survey has been carried out within the interior of Caer Drewyn by the Universities of Oxford and Bangor (Brown and Wintle 2008) and its environs including the small enclosed site of Moel Fodig (Karl and Brown 2010; Brookes 2010b). This was followed by further survey and excavation at Moel Fodig (Morton Williams *et al.* 2012) and survey at a second small enclosure, Fron Newydd (Brown and Karl 2011). Small-scale excavations were also carried out by the Universities of Bangor and Vienna to investigate the rampart at Moel-y-Gaer (Llanbedr) (Karl and Butler 2009). A single trench was excavated within the interior of Moel-y-Gaer (Llantysilio) by the Clwyd Powys Archaeological Trust in 2010 (Grant and Jones 2013). From 2012 a longer term project was carried out at Penycloddiau by the University of Liverpool with geophysical survey and excavations across the rampart and of a house platform in the interior (Mason and Pope 2012; 2013; 2015; 2016). Excavation on the slopes of Moel Arthur has taken place by CRAG (the Clwydian Range Archaeological Group).[4]

Moel-y-Gaer (Bodfari) is just north of the Heather and Hillforts project area and was not included in that work. With the encouragement of the landowners and after discussion with CADW and Fiona Gale of Denbighshire County Council, it was decided to carry out a campaign of survey and excavation that would help to incorporate the site into the wider research schemes described above and add to the growing corpus of information about the area. From the outset it was decided that Moel-y-Gaer (Bodfari) provided an opportunity for a relatively large-scale excavation compared to what has been carried out so far on Clwydian hillforts, and also as a testbed for the integration of a range of non-intrusive remote sensing techniques. Consequently, in the summer of 2011 topographic and extensive geophysical survey combined with morphometric analysis of LiDAR data was undertaken followed by seven seasons of excavation.

Moel-y-Gaer (Bodfari)

Bodfari is the lowest of the Clwydian hillforts at *c.* 200m, positioned outside the village of Bodfari, 5 miles north-east of Denbigh in the northern Clwydian Range (NGR SJ 0950 7080). It is situated

[1] http://www.clwydianrangeanddeevalleyaonb.org.uk/hillforts/ (accessed December 2021)

[2] For details of all hillforts mentioned in this paper, including references, see the *Atlas of Hillforts of Britain and Ireland*, online at https://hillforts.arch.ox.ac.uk (accessed December 2021)

[3] https://www.archaeoleg.org.uk/intro.html (accessed December 2021)

[4] https://cragnorthwales.wordpress.com/ (December 2021)

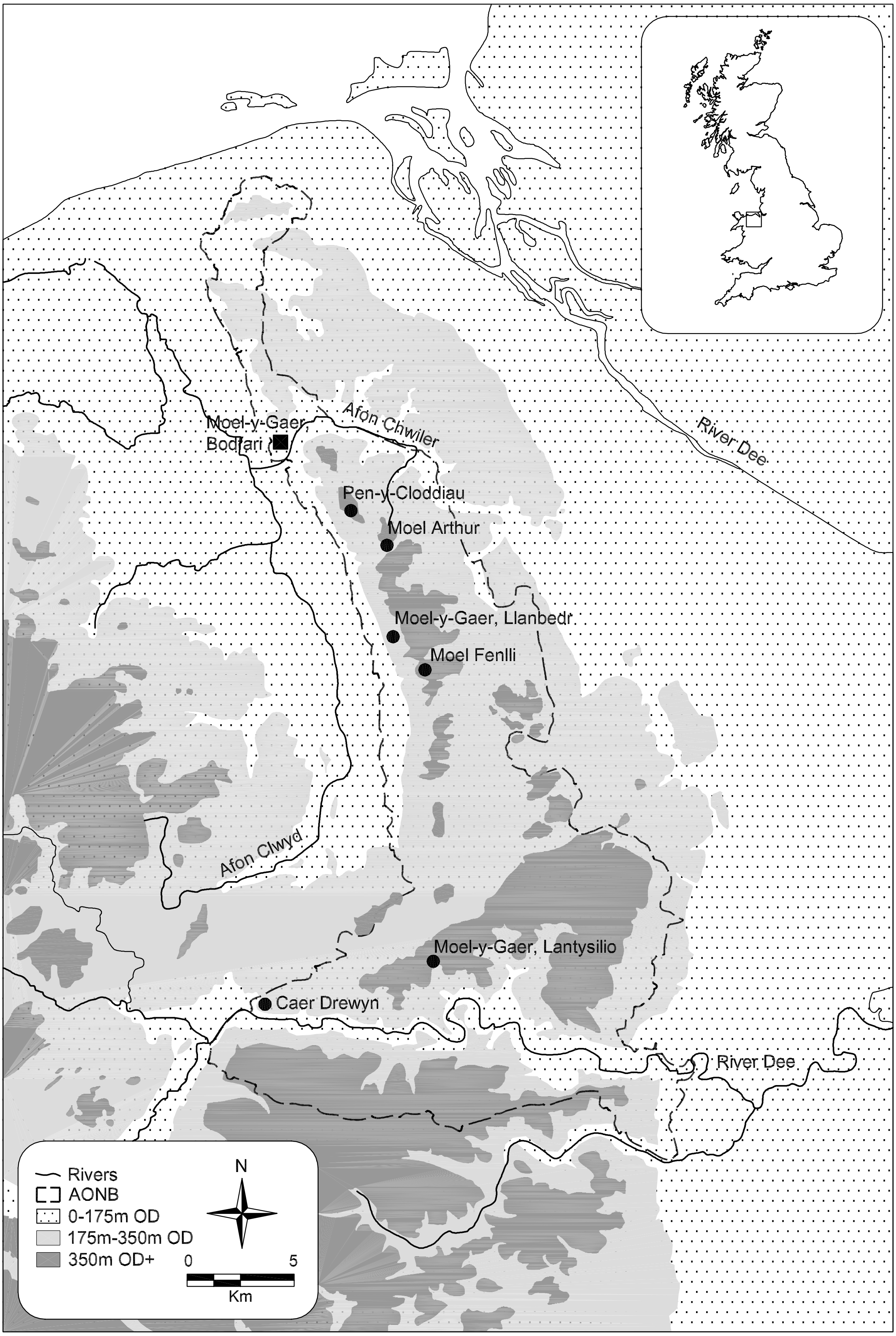

Figure 1. The location of Moel-y-Gaer (Bodfari), Denbighshire, and the six hillforts within the Heather and Hillforts Project.

Figure 2. Moel-y-Gaer (Bodfari) viewed from the north.

on the top of a discrete hill, Figure 2, strategically located overlooking the confluence of the Rivers Chwiler (Wheeler) and Clwyd with an enclosed area of *c.* 2ha. The site is a Scheduled Ancient Monument (CPAT HER PRN 102154, FL073) and the work reported on here was done under Scheduled Monument Consent.

The solid geology of the Clwydian Range, including Moel-y-Gaer (Bodfari), is Silurian mudstones and shale, a grey well bedded rock that is prone to shattering when exposed. This is in contrast to the Carboniferous limestone plateau which runs along the eastern side of the Clwydians and to the softer, and now much eroded, Triassic red sandstones of the Vale of Clwyd (Embleton 1957). Moel-y-Gaer (Bodfari) is a northern outlier of the main Clwydian Range separated by the Chwiler (Wheeler or Bodfari) Gap through which the river runs into the Vale where it joins the Clwyd. To the east of the Gap the valley is wider and shallower but the Gap itself is relatively narrow and deep, Moel-y-Parc which flanks the Gap to the south being 335m high compared to the hillfort at *c.* 200m on the north. The Gap breaks the main watershed of the region and was caused by the Bodfari Fault which runs across the shale outcrop creating a gap which was probably made larger by torsional movements and shattering of the shale during the Triassic resulting in a hollow (Brown and Cooke 1977).

The importance of this for the archaeology of Moel-y-Gaer (Bodfari) is that the Gap was exploited by ice during the last glaciation leaving deposits on the hilltop. Glaciation was severe in this area with two ice sheets meeting, the Welsh Ice from the west-south-west and the Irish Sea Ice from the east-north-east. Other than forming the rounded hill profiles of the Clwydians and the U-shaped cols and valleys, the drift deposits left by the ice sheets took two forms. In essence these tend to be fluvio-glacial deposits and landforms in the valley which are often stratified and the unsorted tills (boulder clays) of the higher areas including the limestone plateau. The natural deposits on the top of Moel-y-Gaer are mainly the red fluvio-glacial sands and gravels which are very variable

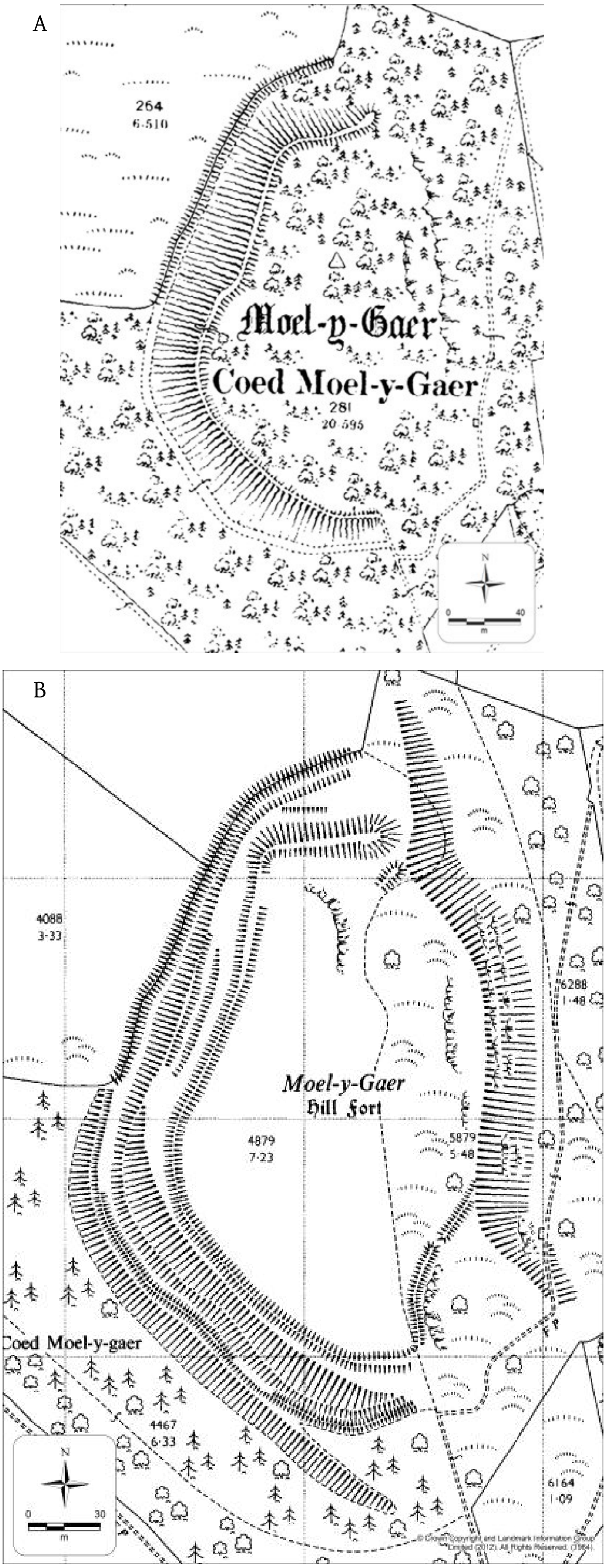

Figure 3. Ordnance Survey earthwork plans of Moel-y-Gaer (Bodfari), A) 1880s, B) 1964.

in constituents and structure deriving from the Bunter sandstone deposits in the Vale. There are also occasional patches of boulder clay and erratics of various sizes are scattered across the hilltop, mainly of limestone but of other rock types as well. The gravels are rounded and sub-rounded pebbles of pale grey limestone, siltstone, sandstone and occasional vein quartz and granite. If these deposits were originally laid down in the Chwiler Valley by ice moving through the Chwiler Gap, Peake (1961: 368) has argued that they could have been pushed up to the tops of the hills by ice movement, which may apply particularly to Moel-y-Gaer (Bodfari) as it is relatively low.

Before our survey work in 2011 there existed only a minimal earthwork plan by the Ordnance Survey from the late 19th century and a more detailed plan from 1964, Figure 3, showing the main features to be the western ramparts and ditches and the inturned entrance to the north. The northern entrance was planned and described as turning both inwards and outwards by Forde-Johnston (1976: 229, Figure 129).

Small-scale excavations were carried out within the hillfort in 1908 by Philip Stapleton and students of nearby St. Bueno's College with 'advice and direction' given by Professor J.L. Myers of Liverpool University who visited the site twice (Stapleton 1909: 234). This work was re-iterated by Davies in his corpus of Flintshire (1949). Stapleton excavated ten trenches in total although the exact positions of these are impossible to relocate from his published plan. His most significant and relevant conclusions are from three trenches all focussed on the western ramparts: a possible entrance through the central area of the inner rampart (his Cutting 4, Figure III); the V-shaped profile, '6 feet deep', of a ditch in the north-western area (Cutting 1, Figure II); the rear of a rampart with a stone wall '5 feet high' (Cutting 5), possibly the middle rampart in the central western area. In his conclusion Stapleton referred to the lack of finds, particularly Roman, (1909: 237) which is significant because of the suggestion that Moel-y-Gaer (Bodfari) could be the location of *Varae (Varis)*, the 'lost' Roman fort shown on the Antonine Itinerary (Davies 1949: 41). This argument is based on the number of Roman finds from in and around the village of Bodfari, but not from the hillfort, and the place name derivation although the Roman fort in question was probably located at St. Asaph (Silvester and Owen 2003).

Survey

John Pouncett

A 1m Digital Terrain Model (DTM) for a 1km tile corresponding to the hillfort was obtained from the Environment Agency through the Geomatics Group website. The DTM was downloaded as an ArcGIS ascii grid file and was imported into Landserf 2.3 for processing. Surface parameters (slope, aspect and mean curvature) were calculated at multiple scales of analysis and exported to ArcGIS 10. Morphometric analysis of the LiDAR data provided a basis for the topographic survey, Figure 4, mean curvature being the most useful and informative, Figure 5. As the survey took place during August when bracken was a significant problem in determining earthwork details with some areas inaccessible, the mean curvature plan was an invaluable aid. Checking of the topography and producing the hachuring were completed in March when the bracken cover was low, Figure 6. The topographic survey was undertaken at a scale of 1:500 using a Nikon DTM330 total station. A control network was established using a closed traverse and tied into the Ordnance Datum using a Trimble Global Positioning System. Earthworks and topographic features within the survey area were recorded by means of a series of readings taken at regular intervals along their length.

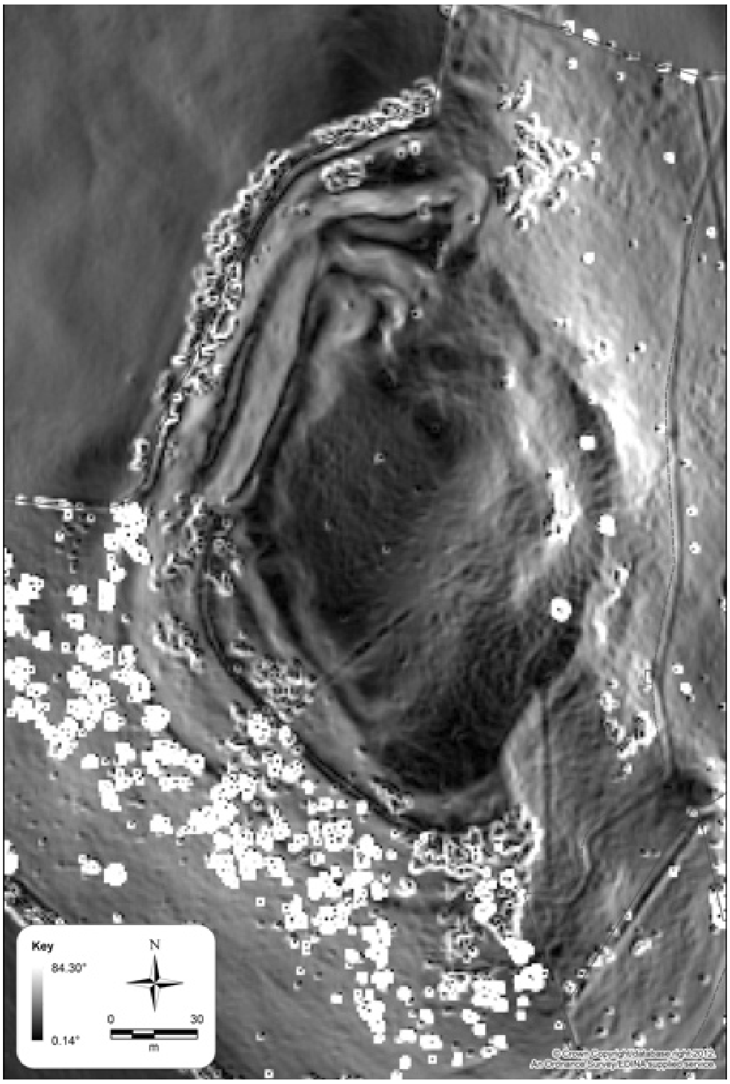

Figure 4. LiDAR image of Moel-y-Gaer (Bodfari).

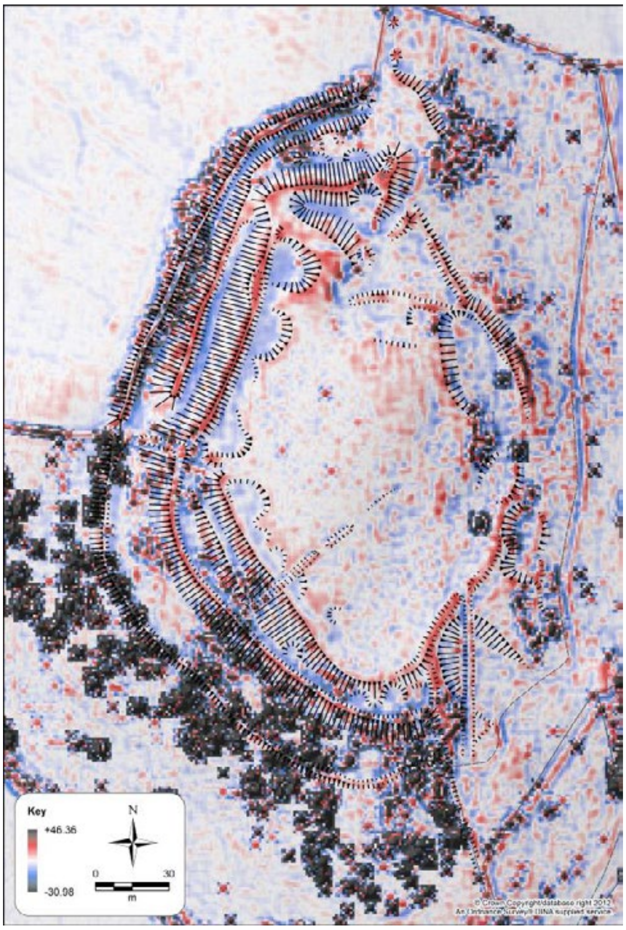

Figure 5. Mean curvature derived from LiDAR data with topographic survey overlain (red = convex slope, blue = concave slope).

Figure 6. Topographic survey of Moel-y-Gaer (Bodfari), overlain on LiDAR, showing contours.

Our topographic survey has shown significant differences to the Ordnance Survey plans although there remained several areas of uncertainty regarding the actual circuits of ramparts together with possible phasing which could only be resolved by excavation. In the north-western quadrant there is a good run of two ramparts with outer ditches and a counterscarp bank without a ditch. The inner rampart and ditch are the most massive so that the three get progressively smaller towards the outer side of the enclosure. Stapleton's 1908 trench located in this area (Cutting 1) is probably across the inner ditch. The north-western corner of the inner and middle ramparts is very disturbed probably due to more recent quarrying activity inside the inner rampart. All the way down the inside of the western inner rampart is a series of possible quarries and perhaps quarry hollows some of which may be of Iron Age date. On the inside of the northern inner rampart is a substantial quarry hollow which may have provided material for the Phase 2 alterations to the inturned northern entrance (see Trench 6 below). The northern entrance itself is inturned and slightly out-turned on its western side producing a possible rounded bastion overlooking the entrance passage, described by Forde-Johnston as T-shaped (1976: Figure 129).

Although the later Ordnance Survey map, Figure 3B, shows the two ramparts, ditches and counterscarp bank continuing down the south-western quadrant with the inner rampart at least uninterrupted, the actual configuration is not that simple. The central area of the western run of ramparts is very disturbed with a gap through all three features now providing a pathway and sheep-run from the lower slopes of the hill up into the interior of the hillfort. This was also the location of one of Stapleton's trenches (Cutting 4) which has added to the disturbance. In the south-western quadrant the current topography shows only a feint indication of the inner rampart at the top of the break of slope although its presence is indicated by both the LiDAR and the magnetometry. The middle rampart is still extant, Trench 3X below, and turns to run downhill at both its northern and southern ends although as suggested below these are later modifications. The inner rampart at its northern end of the south-western quadrant shows a slight inturn explored by Trench 5 below.

Excavation at various points along the western side of the enclosure has confirmed a two phase development of the ramparts. In effect this means that in Phase 1 the whole circuit was univallate while in Phase 2 the north-western quadrant became bivallate with a counterscarp bank by modification of the Phase 1 rampart and the addition of an outer rampart and ditch which only ran to the central point of the western circuit, Figure 6. The south-western quadrant remained univallate although the Phase 1 rampart was dismantled and its line was moved downslope with the addition of the counterscarp bank further down slope. The contours show that the approaches to the north-western ramparts are much gentler than the steep slope in the south-west which may account for the need for an extra rampart in that area and also for the increased height of the inner rampart. From here on the terms Phase 1 and Phase 2 ramparts will be used as described here.

The ramparts on the southern and eastern sides of the site are more difficult to identify and interpret due to a series of large hollows cut into hillside which could be either natural due to ice-plucking or quarries. There is evidence of at least one modern quarry on the south-eastern side with the foundations of a small rectangular stone-built building close to the footpath, shown on Figure 3A. The natural slope of the hilltop is much steeper on the east than in other directions. Again, the LiDAR does suggest a rampart on the eastern side and a short length has been identified running southwards from the eastern inturn of the northern entrance. At the southern end of the site a single bank continues the inner rampart and swings northwards along the eastern edge of the hilltop, Trench 4 below. The interior of the enclosure is domed with a high point at the north overlooking the northern rampart and entrance. The southern area of the interior is relatively level, Trench 3 below.

Geophysical surveys, both magnetic and electrical resistance, were carried out on a 20m grid aligned from north to south. Complete coverage of the interior and parts of the north-western inner rampart were achieved with magnetometry and partial coverage with resistivity. Magnetic

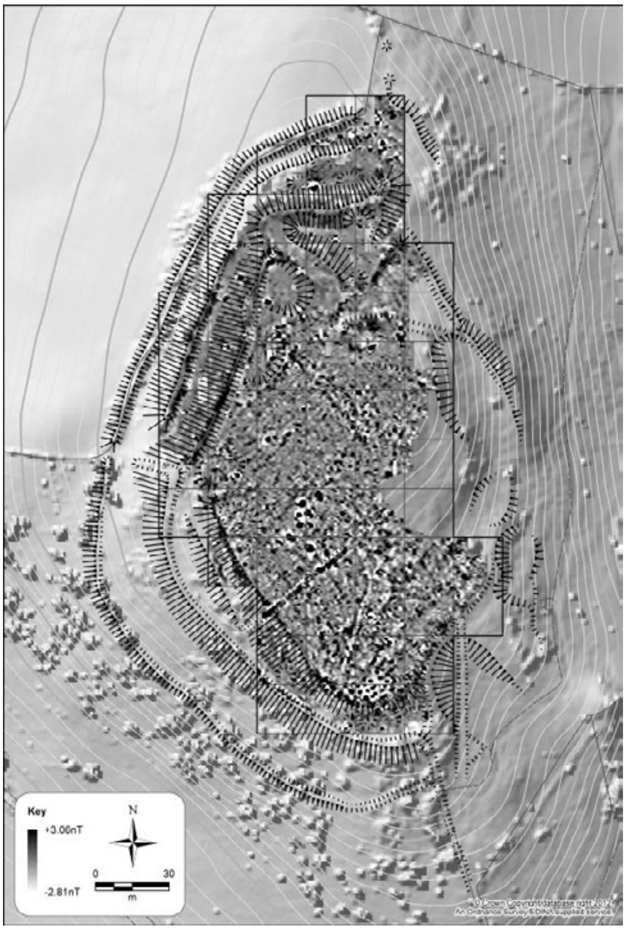

Figure 7. Magnetometry data overlain by the hachure survey.

survey, Figure 7, was carried out using a Bartington Grad601-2 dual sensor gradiometer, capable of measuring the magnetic field to the nearest 0.1nT. The survey area was surveyed by means of a series of zig-zag traverses, with a 1m separation between traverses (1 line/m) and readings taken at 0.125 m intervals (8 samples/m).

Resistance survey was undertaken using a Geoscan RM15D Advanced resistance meter system with a PA20 multi-probe array and a MPX15 multiplexer. Multiple probe configurations were used for each of the survey areas (interior, ramparts and Northern entrance):

- Twin Arrays, Figure 8A, – six mobile probes, configured to obtain readings from individual pairs of probes with 0.25m (0.125m offset), 0.50m, 0.75m, 1.00m, 1.25m and 1.50m probe separations, and one pair of remote probes.
- Wenner Array – two pairs of mobile probes with a probe separation of 0.50m.
- Double Dipole Array, Figure 8B, – two pairs of mobile probes with a probe separation of 0.50m.

Each survey area was surveyed by means of a series of zig-zag traverses, with a 1m separation between traverses (1 line/m) and readings taken at 1m intervals (1 sample/m). Survey data was processed using ArcheoSurveyor 2 and processed composites were exported to ArcGIS 10.

Two further remote sensing techniques were tried across the western ramparts, Electrical Resistance Tomography[1] and Ground Penetrating Radar. Both covered two widely spaced narrow transects and produced results that added very little to the understanding of the rampart or ditch characteristics.

[1] Carried out by Dr Ben Edwards, Manchester Metropolitan University.

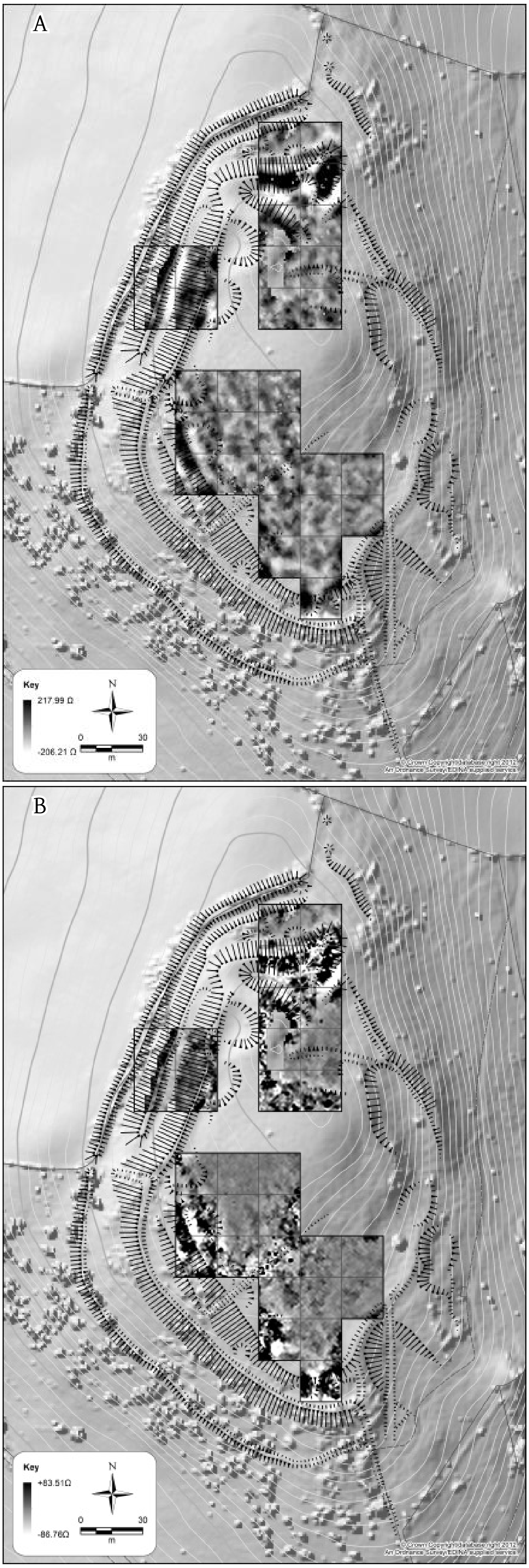

Figure 8. A) Resistivity data (Twin 0.5), B): resistivity data (Double-Dipole), both overlain on hachure survey.

Excavation

As specified in the Scheduled Monument Consent, the general aims of the excavation were:

1. To evaluate and interpret the earthwork survey and geophysical anomalies.
2. To evaluate and re-interpret excavations carried out in 1908 (Stapleton 1909).
3. To evaluate the threat of rabbit, sheep and root damage to the archaeological deposits.
1. To involve local people in the understanding of this and surrounding hillforts.

The interpretive focus was:

1. To gain evidence for the possible function(s) of the hillfort including: permanent or periodic occupation; domestic and ritual activities; the character of internal structures and features; and the character of the ramparts.
2. To establish a chronology and sequence for the hillfort including the interior and the ramparts, through relative phasing and if possible through radiocarbon dating.
3. To provide a comparative site to those within the Heather and Hillforts Project and other hillforts in the area and characterise similarities and differences.

Of the various geophysical surveys carried out magnetometry was the most informative, Figure 7. It can be seen that there is considerable background noise on the image with several distinct linear anomalies which probably represent fence lines associated with small-scale post-medieval agricultural activities. According to a local contact his family of two generations back used to grow

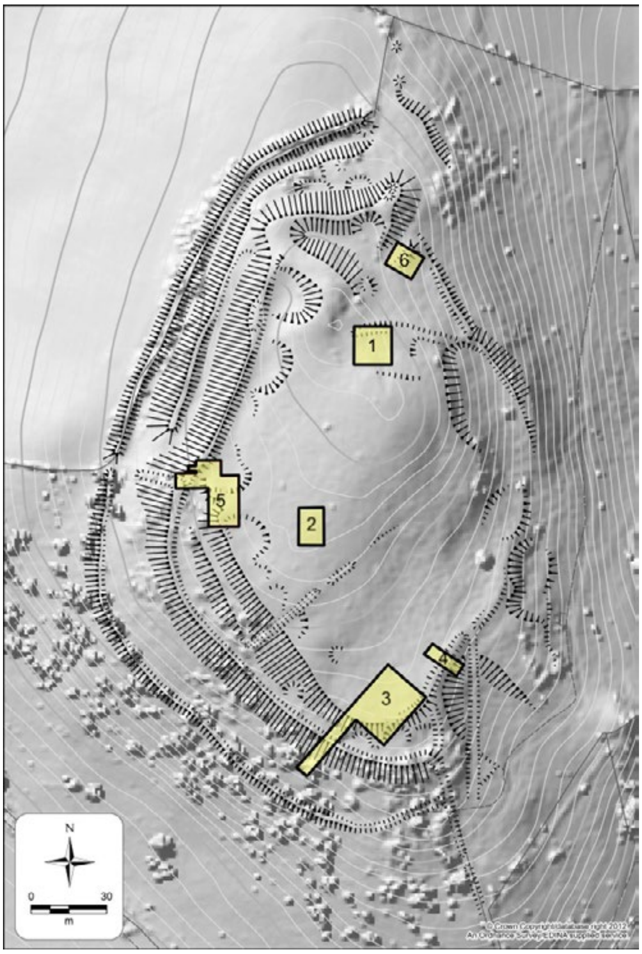

Figure 9. The location of excavation Trenches 1 to 6.

potatoes on the top of the hill. The Ordnance Survey map of the late 19th century shows the hillfort interior covered with trees, Figure 3A, which must have been removed before the potato growing period suggesting that many of the geophysical anomalies could be tree-throws. Even so, the topographical and geophysical surveys carried out in 2011 identified a series of areas of interest that formed the basis of the programme of excavation as follows, Figure 9:

Trench 1. A possible roundhouse positioned on a terrace inside the northern entrance. Excavation started in 2012 and was finished in 2016.

Trench 2. A group of circular geophysical anomalies in the centre of the hillfort. Excavation was started and completed in 2012.

Trench 3. A set of geophysical anomalies at the southern end of the hillfort with an extension across the Phase 1 and Phase 2 ramparts (Trenches 3 and 3X). Excavation started in 2013 and finished in 2016.

Trench 4. Across the possible southern inner rampart. Excavation started in 2014 and finished in 2015.

Trench 5. Located at a break through the western ramparts where in 1908 Stapleton opened a trench and claimed to have found an entrance. Excavation started in 2016 and finished in 2018.

Trench 6. Located to determine the character of the northern inturned entrance. Excavation started in 2017 and finished in 2018.

Trench 1

Trench 1 is located on an artificially levelled platform, Figure 10, that coincides with a circular geophysical anomaly suggestive of a roundhouse, *c.* 8m in diameter, Figure 11. Three quadrants

Figure 10. The location of Trench 1 on an artificially levelled platform, looking north towards the inturned entrance.

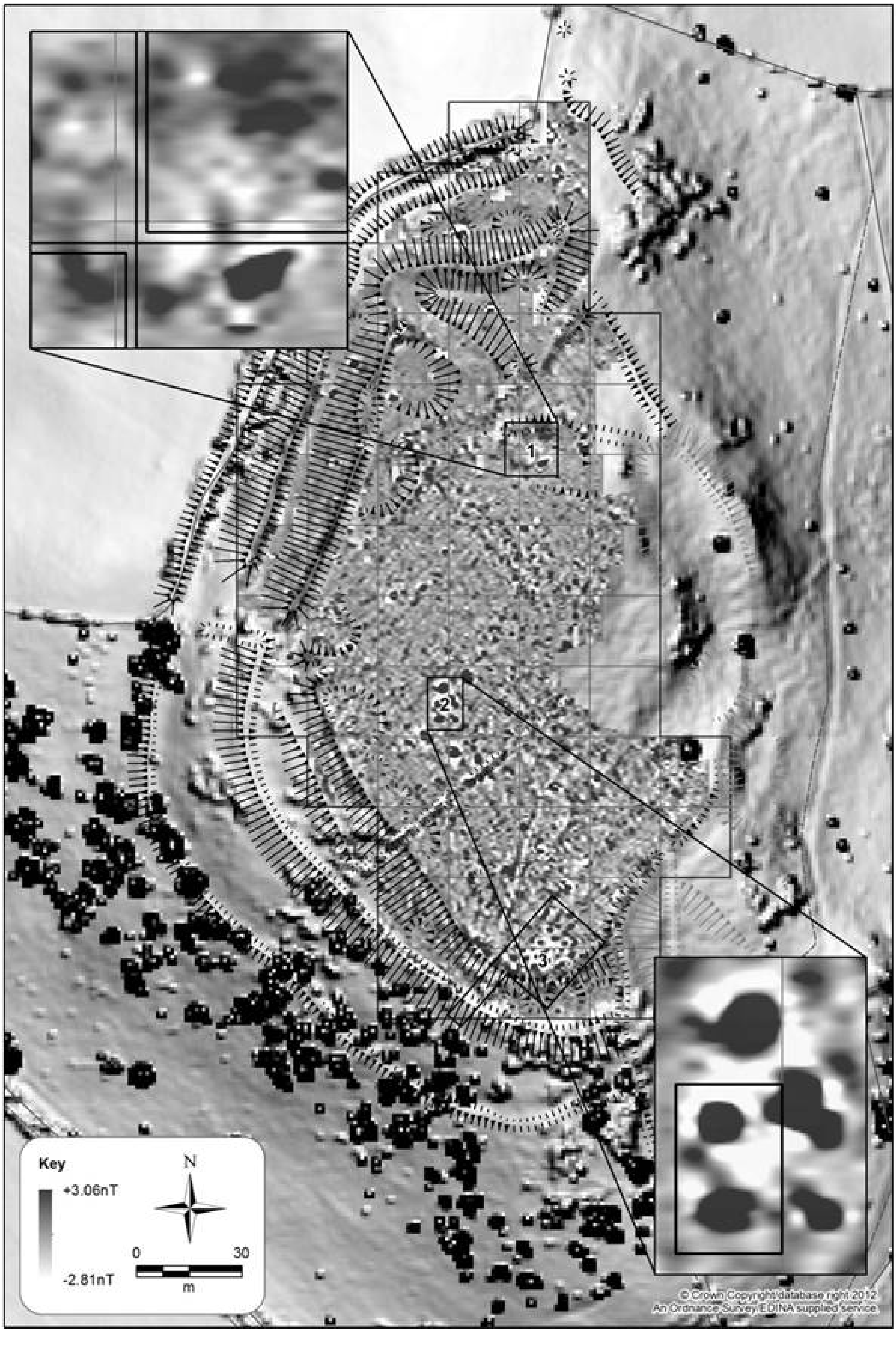

Figure 11. The magnetometry survey showing details of Trenches 1 and 2.

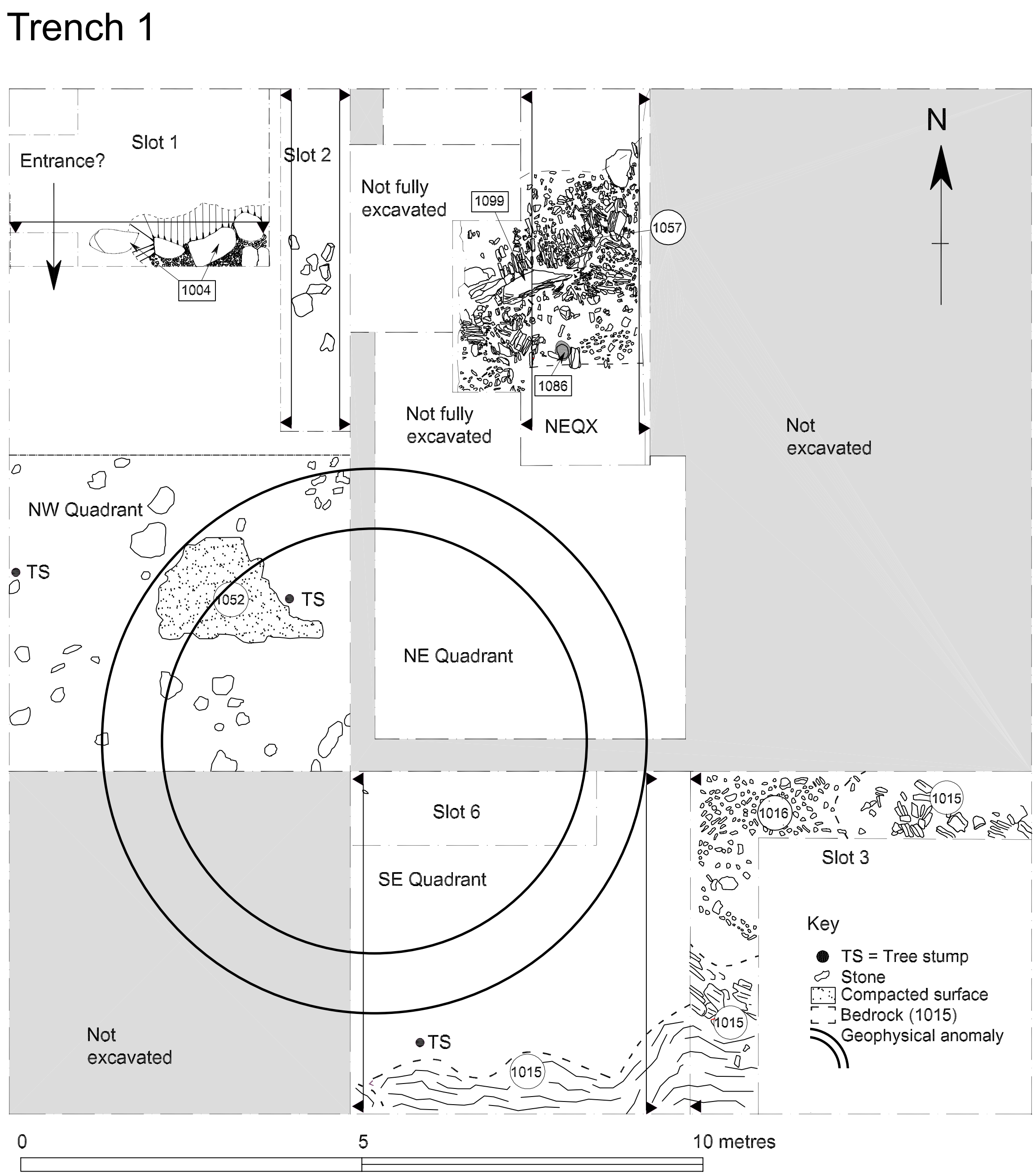

Figure 12. Trench 1: the location of the roundhouse, the excavated areas and the main contexts.

of the round house were excavated, North West (NWQ), North East (NEQ) and South East (SEQ), all 5m by 5m, intersecting at the centre of the circular anomaly. Within the NW quadrant two extra slots were excavated, Slots 1 and 2, within the SE quadrant Slot 3 and within the NEQ an extension to the north to include the bank (NEQX), Figure 12. Of three other excavated slots only Slot 6 is of interest, along the northern baulk of the SEQ. It was not possible to excavate the SW quadrant due to the excessive overburden to be removed caused by the slope and slumping of material at the rear southern face of the cut platform.

The interest within Trench 1 can be divided between the roundhouse and the enclosing bank[1].

[1] Dr Paula Levick supervised Trench 1 and this account is based on her interim report

The roundhouse

At the southern end of SEQ the face of the bedrock was exposed (1015)[2] as a steep cut with a considerable depth of stony colluvium accumulated up against it, (1010, 1041, 1043), and sloping down rapidly to the level area of the house platform. Approximately 1.6m maximum of colluvium was removed by hand from the western half of SEQ. An L-shaped slot was cut (Slot 3), 1m wide, along the western and northern baulks of the eastern half of SEQ to establish the depth and character of the stratigraphy and deposits. This showed bedrock at the southern and western ends,

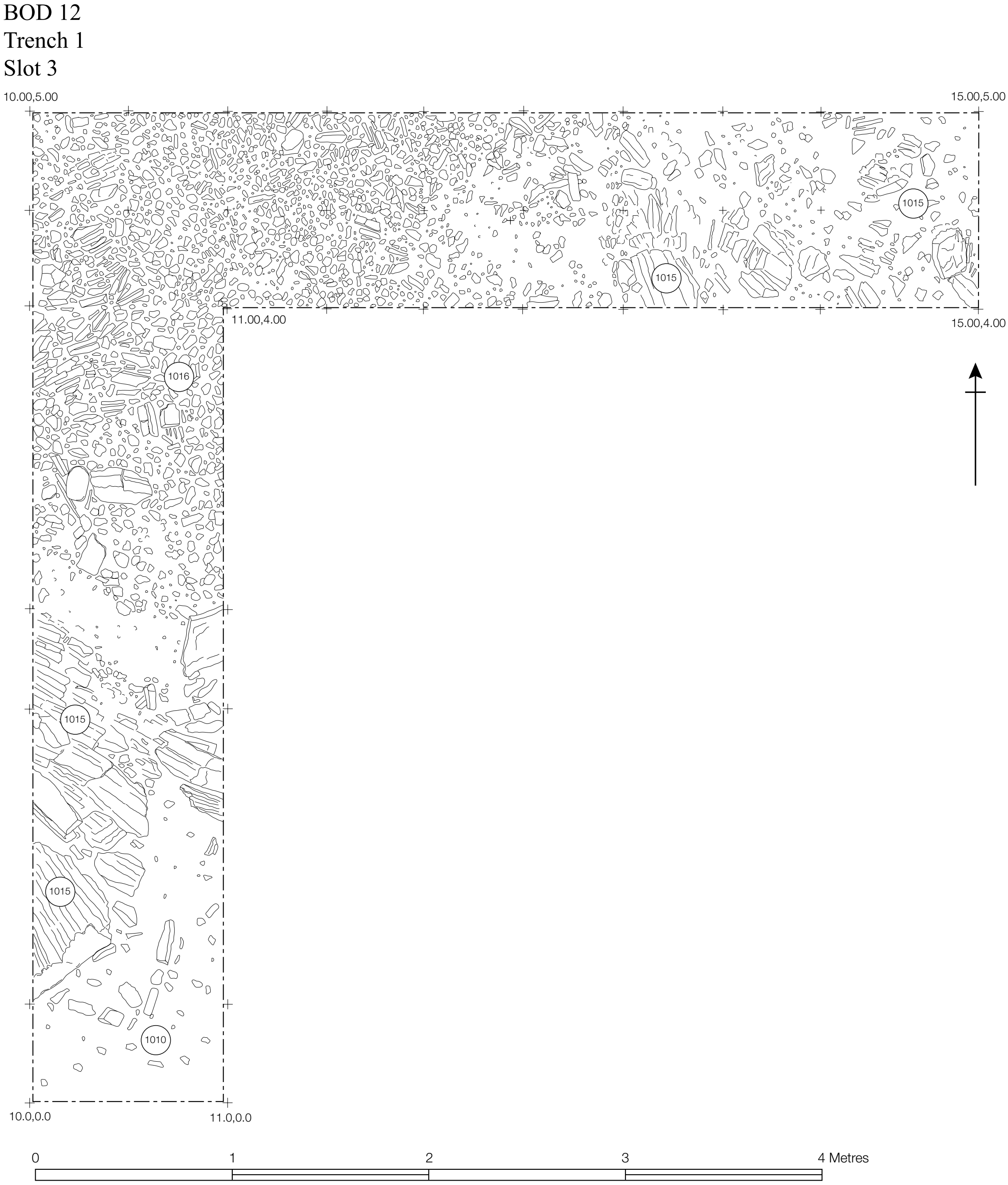

Figure 13. Trench 1, SEQ, slot 3: the cobbled surface (1016).

[2] For all drawings layer and fill context numbers are shown in circles, cut and structure numbers in rectangles. Drawn sections are indicated by a line with arrowheads.

(1015), overlain by shattered bedrock (1011), and in between the two areas of bedrock a level laid surface of rounded/sub-rounded and angular shale stones between 3 cm and 20 cm in size packed together within a clay/silt matrix (1016), Figures 13 and 14. Laying on this surface in patches was an organic dark layer containing very small charcoal flecks (1017), visible as a maximum of *c.* 8cm thick in the western section, Figure 15, but thinning rapidly to the east and ending *c.* 0.5m away from the section. Together these two contexts appear to be a laid surface around the exterior of the roundhouse with patches of occupation debris on its surface close to the house.

The baulk between Slot 3 and the SEQ was removed to check the relationship between (1016) and (1017) and their relationship to the roundhouse. A similar sequence of colluviation was present although the northern area was greatly disturbed by a post-colluviation cut feature, probably a large tree throw, (1048) Figure 16. Just to the south of this feature was a layer of loose shale gravel with what appeared to be tabular 'cobbles' laid within it, (1049), which could be a disturbed continuation of the laid surface (1016).

The evidence for the possible roundhouse itself was poorly characterised with little detail of the structural components. A series of dark red deposits with a high clay content were found in the NW and SE quadrants which approximately followed the line of the geophysical anomaly and were possibly partially responsible for it. In the main these were ill-defined deposits which merged with the natural colluvium being largely similar in texture and colour although containing more clay. In the SEQ the bedrock had been cut back against which were consolidated lumps of the material, (1064) Figure 17. Together these could represent the spread remains of roundhouse cob walling although there was no sign of any organic content.

Figure 14. Trench 1, SEQ, slot 3: view of the cobbled surface (1016) from the north.

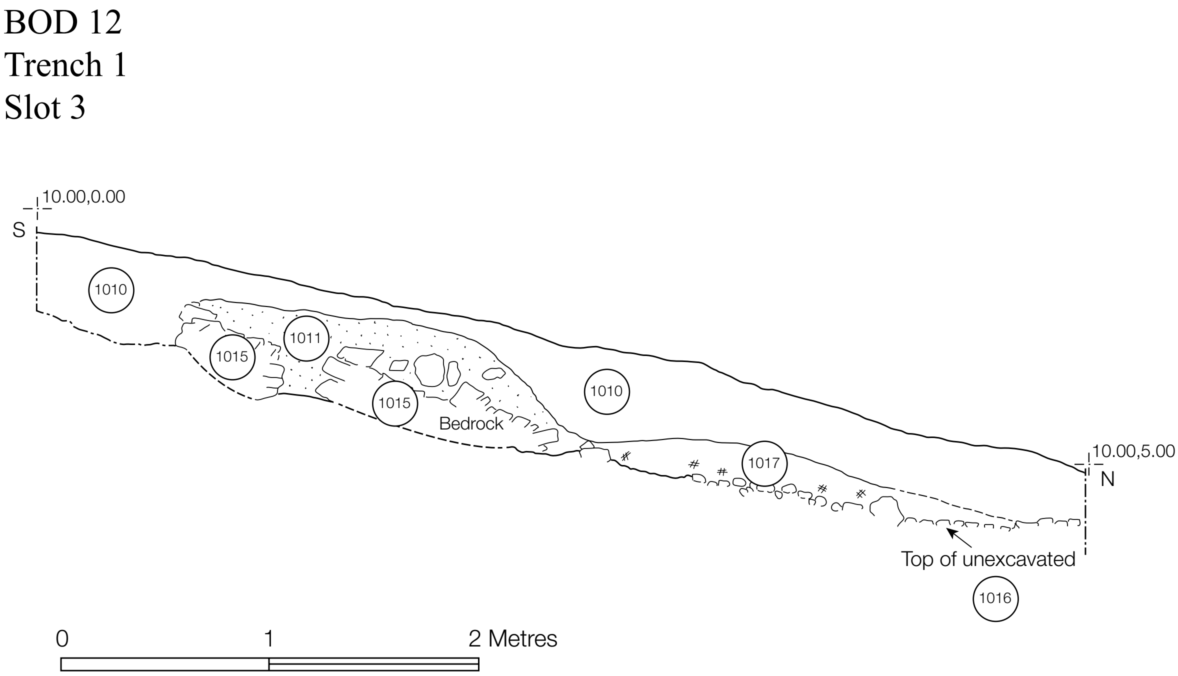

Figure 15. Trench 1, SEQ, slot 3: the eastern-facing section showing context (1017).

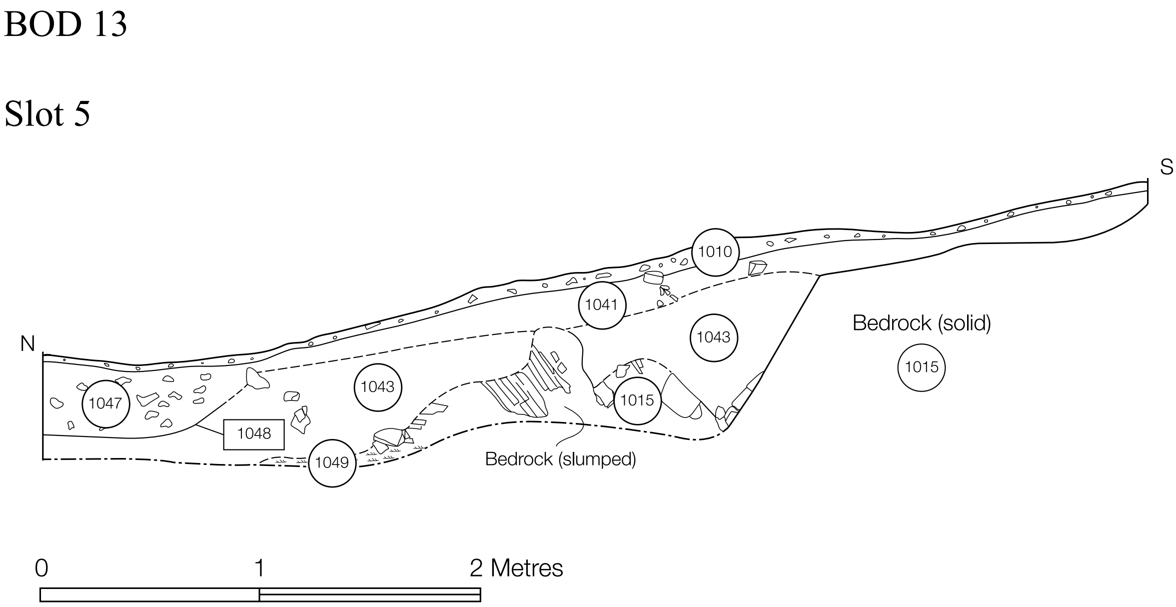

Figure 16. Trench 1, SEQ: the western facing section.

In the NWQ a hard compacted surface of light yellowish white silt with small stone inclusions (1052) was interpreted as an area of possible floor surface as it was largely contained within the line of the geophysical anomaly and the dark red deposits, Figure 18. The surface covered an area of approximately 1.4m by 1.7m and varied between 10cm and 15cm in thickness. There was no

Figure 17. Trench 1, SEQ: possible roundhouse wall material, (1064) against the cut back bedrock face.

Figure 18. Trench 1, NWQ: an area of the possible compacted roundhouse floor surface, (1052).

Figure 19. Trench 1, SEQ: a section through the possible hearth (1051) in the centre of the roundhouse.

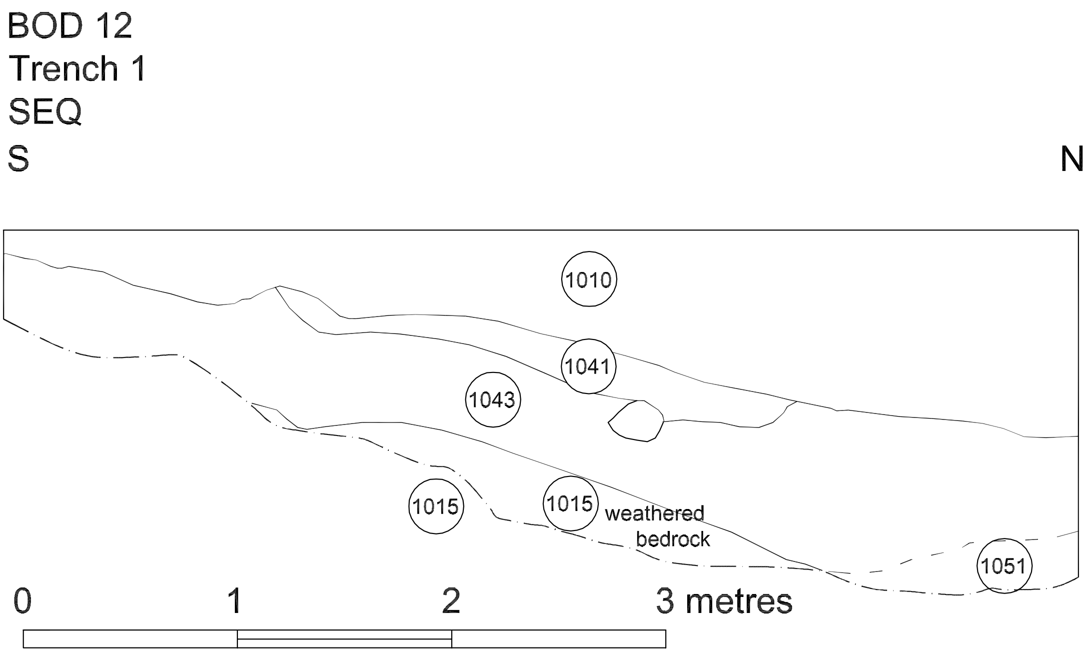

Figure 20. Trench 1, SEQ: east facing section showing the possible hearth (1051).

evidence for this surface in the NEQ or SEQ and as it spread across the line of the geophysical anomaly to the north-west this may represent flooring associated with an entrance into the roundhouse, its position suggested by a break through the terrace bank (see below). There was some indication that areas of the geophysical anomaly may represent mineralisation around the edge of this floor surface. Lying at the centre of the geophysical anomaly and at the junction of NWQ and SEQ was an area of hard clay which had possibly been exposed to heat (1051). It comprised dark red and orange red material with narrow lenses of black and grey clay with a maximum overall thickness of 20cm, Figure 19. This was an ill-defined patch of material that was not visible in plan and only seen in two sections, Slot 6 south facing and SEQ east facing, Figure 20. This deposit was possibly the remains of a central hearth within the roundhouse although if that was the case then it was not contained within any form of structure.

The bank

The bank is clearly visible on the ground as being 20-30cm high and running approximately east-west along the lip of the terraced house platform. The north-western quadrant, NWQ, was located to investigate the bank at the northern edge of the platform and its relationship with the roundhouse. Two exploratory slots were opened to gauge the depth of deposits and their character, Slot 2 running north-south measured 1m x 5m, and Slot 1 in the north-western corner of the quadrant, 2m x 3.75m.

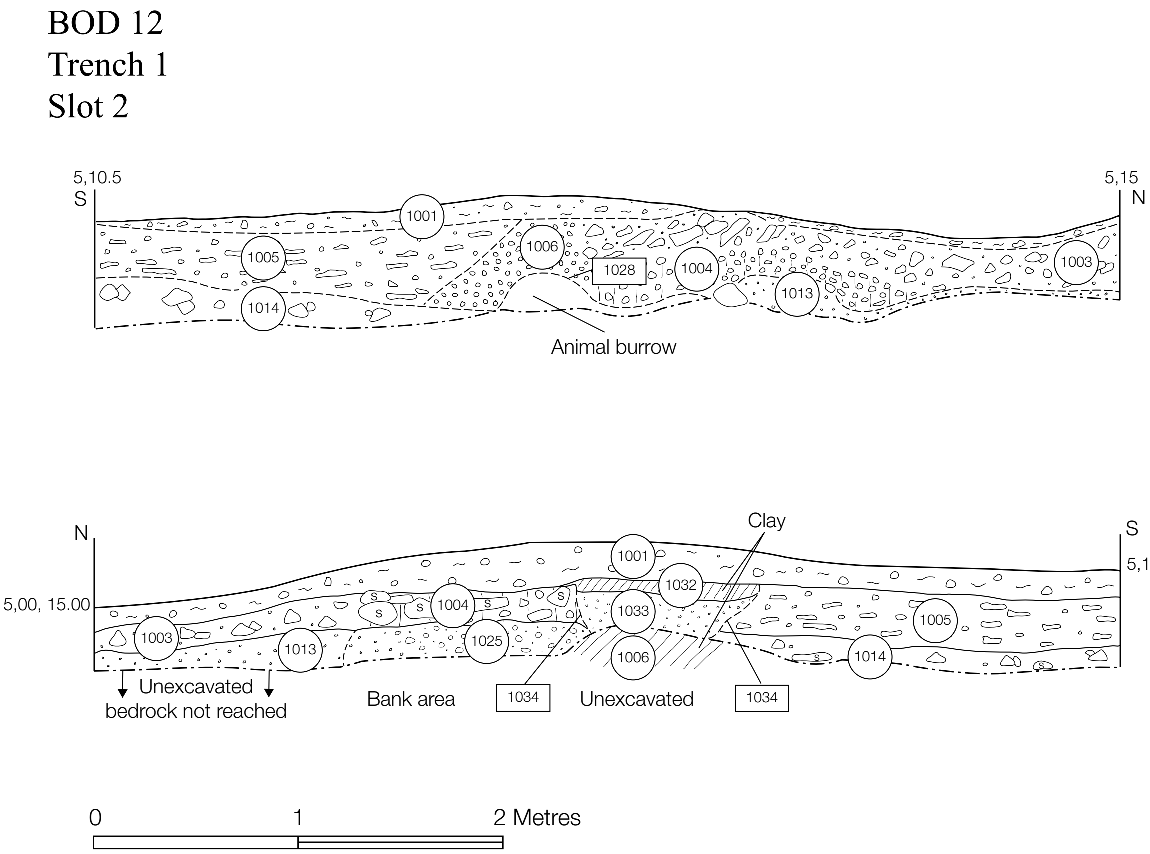

Figure 21. Trench 1, NEQ, slot 2: the eastern facing (top) and western facing sections showing the main contexts.

Figure 22. Trench 1, NEQ, slot 1: boulders and bank viewed from the north.

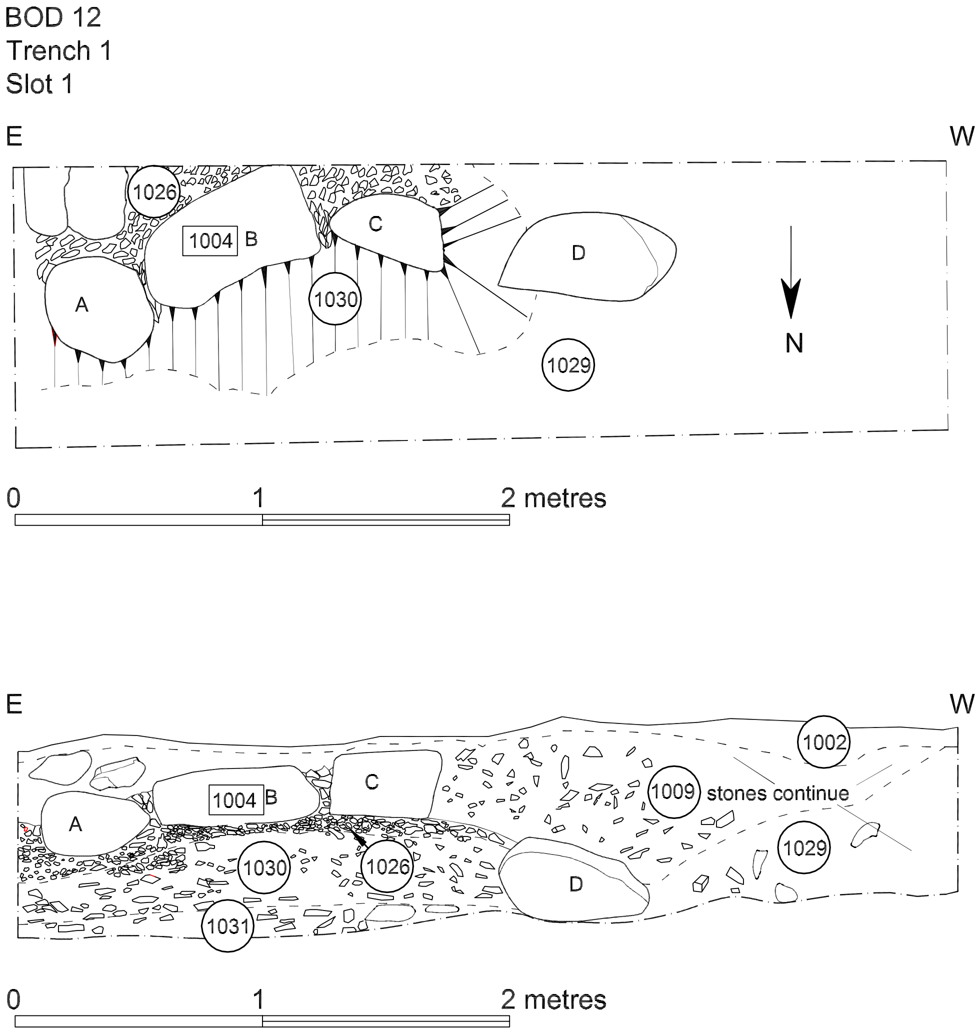

Figure 23. Trench 1, NEQ, slot 1: boulders and bank, top plan view, bottom section view.

In both slots the bank was identified as being comprised of different sized pieces of local shale in a soil matrix, some randomly loose and others seemingly intentionally laid. In Slot 2 larger pieces of tabular stone, between 5cm and 25cm, (1004) seemed to form a poorly consolidated and slumped outer face of the bank. Beneath this and forming the core of the bank (1025 and 1006), was a clay rich deposit with smaller stones partially disturbed by rabbit activity, Figure 21.

In Slot 1 the bank was topped by four large boulders (1004A, B, C and D), these were rounded limestone glacial erratics, the largest of which, B, measuring approximately 85cm long, 35cm wide and 20cm deep, Figures 22 and 23. The western most boulder, D, had slumped to the west and it is possible that this had fallen into the entrance gap leading to the roundhouse, the whole subsequently filled with stony colluvium (1009, 1029). Beneath the capping boulders the bank was similar in construction to its exposure in Slot 2 comprising layers of stony soil (1031, 1030 and 1026). The uppermost layer, (1026), underlay the boulders directly and contained small stones which seem to have been packed between the large stones. At the eastern end of the exposed bank larger stones laid flat behind the boulders suggested some form of further capping to the bank.

To the north of the bank deposits had accumulated against its front, Figure 21 (1003), overlying (1013), which was not fully excavated. The rear of the bank was complicated by a cut feature (1034), its filling topped with clay (1033/32) showing in the eastern section while in the western section a

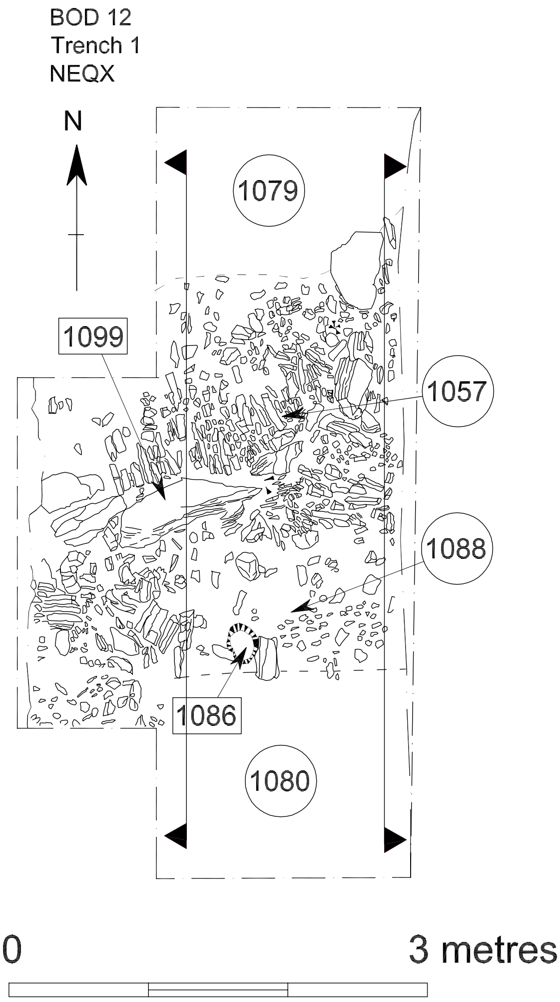

Figure 24. Trench 1, NEQX: the stone bank.

Figure 25. Trench 1, NEQX: one of the stone courses of bank material, (1057), the top of revetting stone (1099) is to the left.

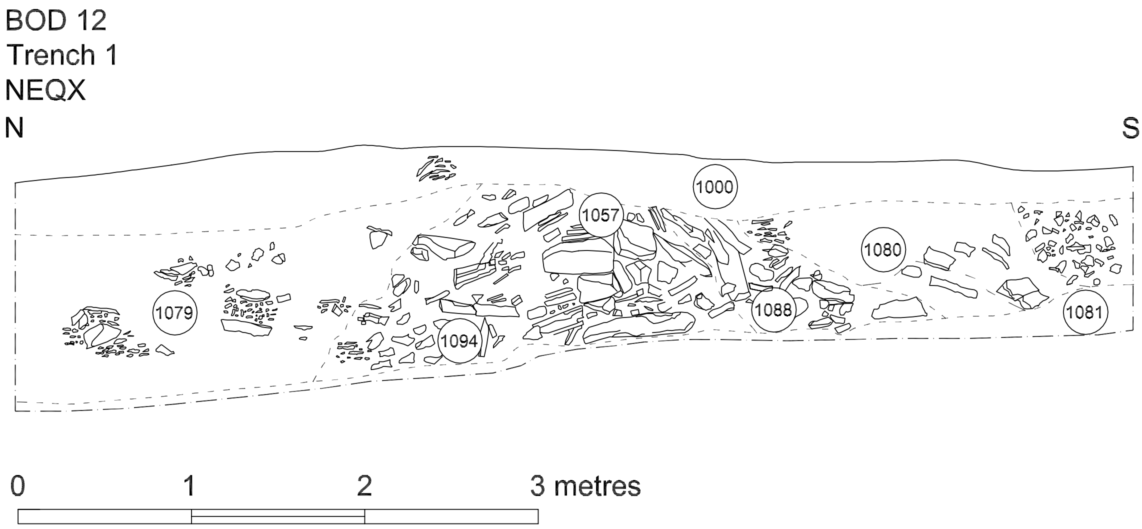

Figure 26. Trench 1, NEQX: the stone bank.

layer of clay (1006) appears to face the rear of the bank although this has been disturbed by rabbit activity in places. The cut feature is undated but stratigraphically it cuts into the rear of the bank and through the colluvial deposits which have accumulated up against it, (1005) overlying (1014). A stone spindle whorl, (SF 9), was found within (1005).

Further to the east, within trench NEQX, the bank continued but upon excavation was shown to have structural differences to the western section, mainly a higher concentration of laid stone, all local shale. On the top were four very uneven courses of tabular stones, possibly originally larger stones that had shattered, (1057), Figures 24 and 25. Beneath these the bank consisted of similar loose shale stones within a soil matrix as in the NWQ, (1094) Figure 26. The old ground surface was represented by a clean red/brown clay loam with few contained stones (1081).

On the southern, inner, edge of the bank were larger stones that formed a rear revetment for the bank material with two large upright ones being of particular interest, the largest (1099) measuring 95cm x 70cm x 15cm and the other 50cm x 40cm x 10cm, Figure 27. Deposit (1098) which was up against one of the revetting stones and a deposit within the primary level of the bank, Figure 28, produced several small pieces of cattle mandible which have been radiocarbon dated to 390-160 cal BC (95%, SUERC 64202), plus a single land snail. To the rear of the bank and up against the revetting stones was a layer of stony deposit which could either be tumble from the bank or originally stacked against the revetting face (1088). Positioned about 1.2 m inside the rear revetting stones was a posthole (1086) cut through the thinning tail of (1088), Figures 29 and 30. The posthole was elongated in shape, approximately 20cm x 35cm, with vertical sides 40cm deep. It contained a single fill (1085) and was surrounded by a circle of stones which appeared to be placed around the post when *in situ*. Deposit (1080) was various episodes of colluviation which had built up against the rear of the bank with (1079) and (1062) being similar at the front.

Figure 27. Trench 1, NEQX: one of the revetting stones (1099) at the rear of the bank.

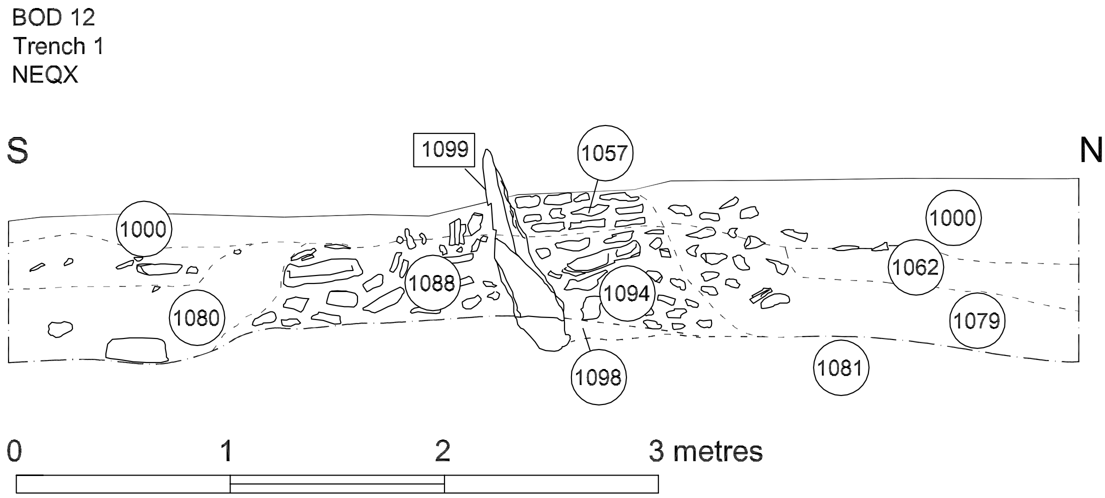

Figure 28. Trench 1, NEQX: the stone bank with revetting stone (1099).

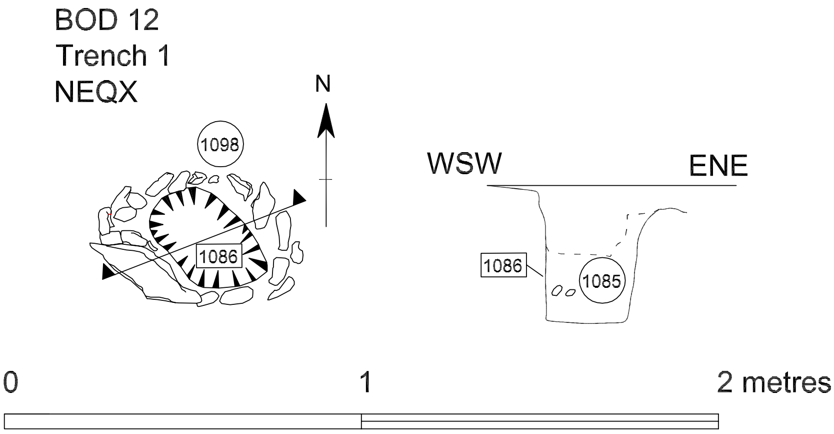

Figure 29. Trench 1, NEQX: posthole (1086) at the rear of the stone bank.

Despite the evidence for the roundhouse being inconclusive in many ways, it does seem likely that some form of structure is represented there. The artificially levelled platform is convincing as is the bank constructed around its northern lip. Taken together the various elements of evidence for the house suggest its likelihood, they are: the shape and size of the geophysical anomaly and that it is positioned on the platform; the areas of red clay corresponding to the anomaly that could be the remains of cob walls; the compacted surface which could be a floor and its position related to the possible entrance through the bank; the laid stone surface around the outside of the house to the south-east; the area of burnt material in the centre of the house, a possible fire or hearth; the stone spindle-whorl suggesting domestic activity. Based on the context of the radiocarbon date within the base of the bank this gives a *tpq* for the beginning of the bank construction to between 390 and 160 cal BC, a date that could also apply to the construction of the roundhouse on the embanked artificially levelled terrace. The radiocarbon date for the bank approximately matches those for the Phase 2 rampart in Trench 3X and the Phase 2 modifications of the northern entrance in Trench 6 (described below). It may be significant that when entering the hillfort through the northern entrance the roundhouse is immediately visible upslope.

Figure 30. Trench 1, NEQX: posthole (1086) at the rear of the stone bank.

Trench 2

Trench 2 measured 7.5m north to south and 5m east to west, located to investigate three of a larger group of circular geophysical anomalies, Figure 11. The shallow topsoil merged into a thick layer of stony natural (2001) which was not fully excavated across the trench although underlying bedrock was identified at a further depth of *c.* 0.5m in two small sondage in the north-western and south-western corners.

Three cut features were identified which matched the geophysical anomalies, (2002), (2005) and (2007), Figures 31 and 32. All three were cut from a level within (2001) although it was not possible to identify precisely where and, therefore, of where the old ground surface was.

Cut (2005) was sub-circular in plan with a maximum diameter of *c.* 1.4m and maximum depth of *c.* 20cm. Its base was irregular with bedrock exposed in places, it contained a single fill (2006) of material which was very similar to the overlying colluvium. Just to the south was cut (2007), a similar sub-circular shaped feature with a maximum diameter of 1.6m although much disturbed by rabbit and root activity. Due to this disturbance it was not possible to ascertain the original shape of this feature but its western edge, which was relatively undamaged, was near vertical and *c.* 0.4m deep cutting into bedrock towards the bottom. Again, it contained a single fill, (2008), which included fewer stones than the overlying colluvium with more clay/silt and flecks of charcoal. At the eastern edge of the trench, and half-sectioned by the trench baulk, was cut (2002), nearly circular but weathered at its top and sides to produce a variable diameter averaging 1.3m, Figure 33. This was cut through bedrock in places with an uneven base and contained two fills, (2003) overlying (2004), both containing more clay/silt than the colluvium and the uppermost containing large pieces of bedrock and stones. Within (2004) was found a piece of burnt stone.

BOD 12
Trench 2

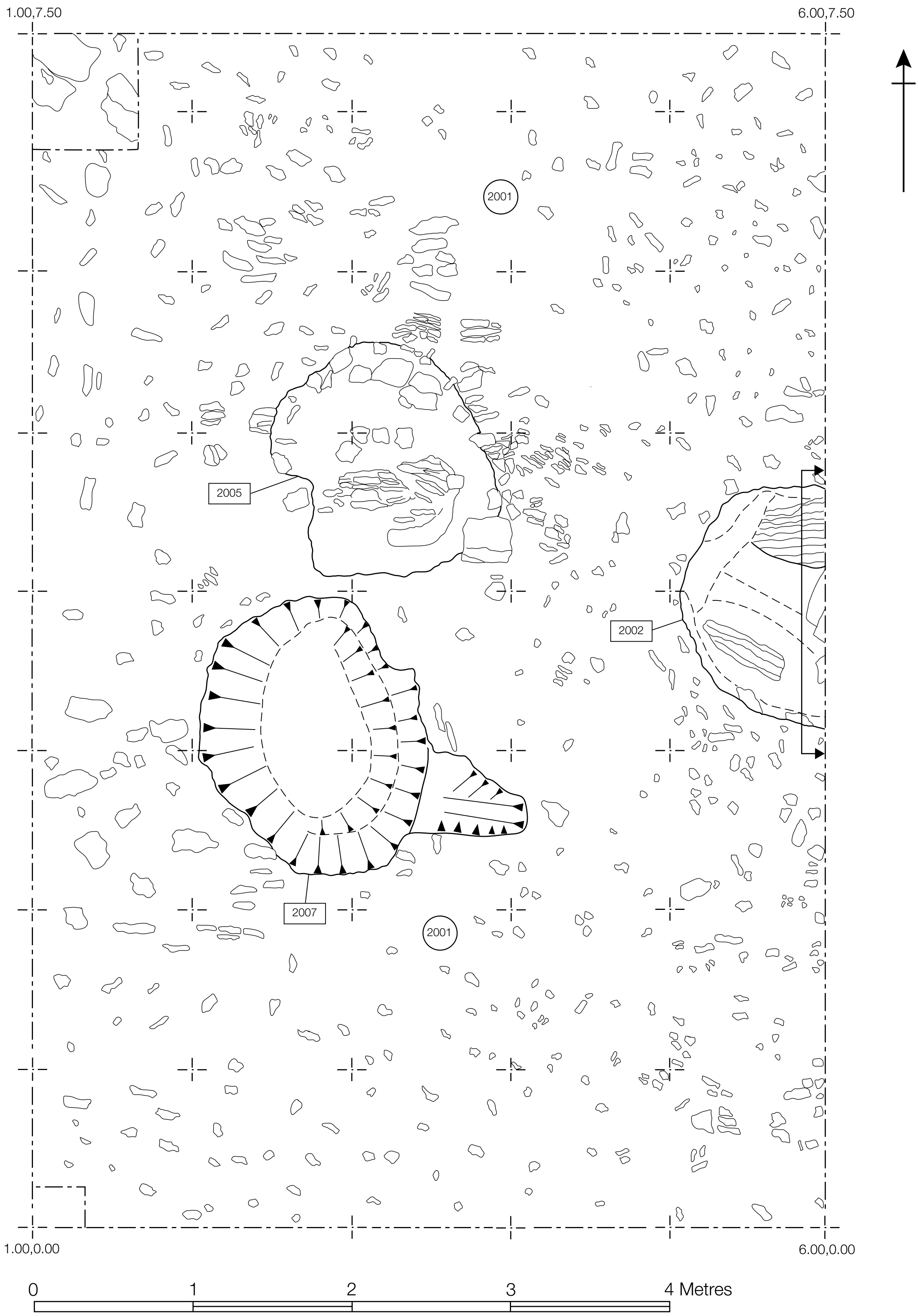

Figure 31. Trench 2: the main features.

Figure 32. Trench 2: fully excavated showing the three cut features identified by geophysical survey, viewed from the north.

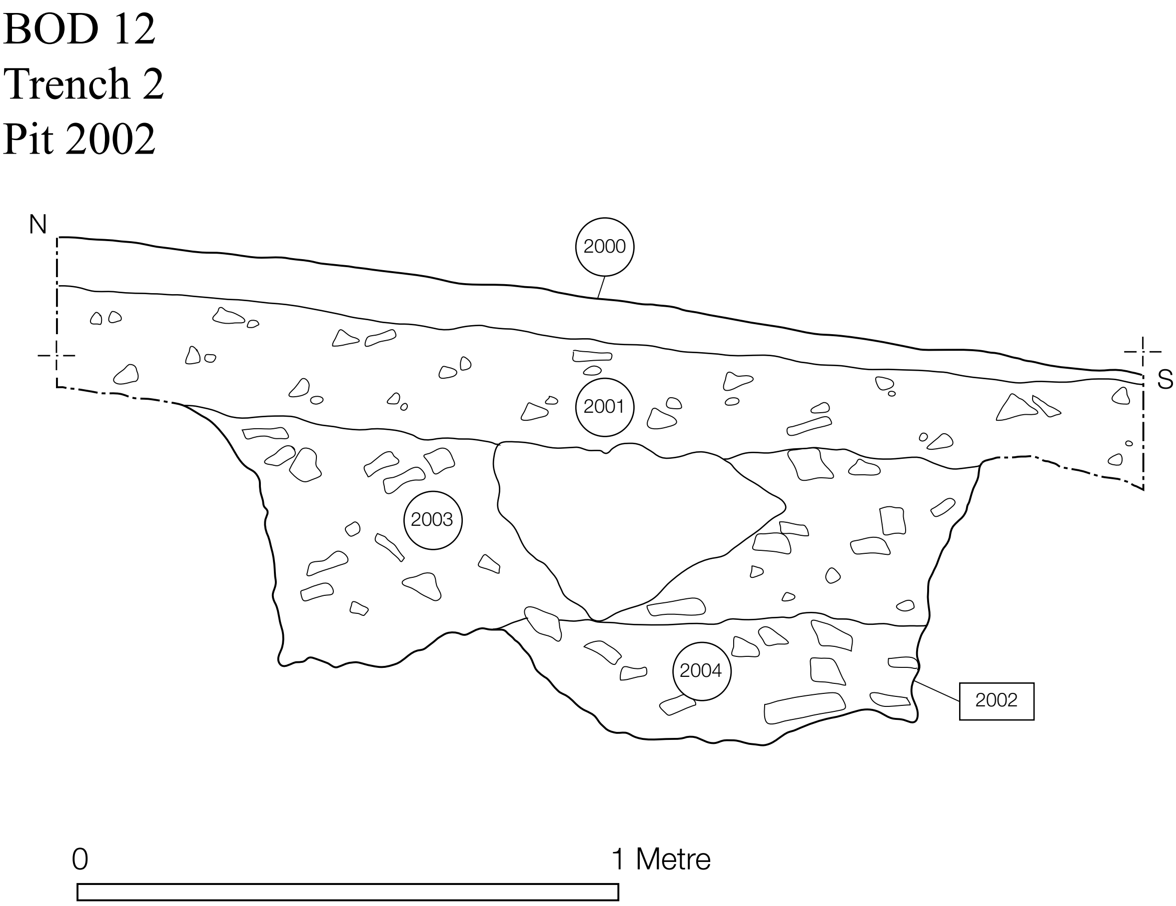

Figure 33. Trench 2: section of cut feature (2002), a possible pit.

Interpreting these three cut features in relation to the Iron Age occupation of the hillfort must remain inconclusive. It may be significant that on the First Edition Ordnance Survey map published in the 1880s, Figure 3A, the interior of the site is shown as being covered with trees all of which have been subsequently removed. Perhaps related to that activity, cut (2005) is probably a shallow tree-throw as may be (2007) although with the animal disturbance it is more difficult to be sure. Cut (2002) is the best candidate for a pit related to Iron Age activity within the hillfort based on its size and shape and this conclusion may be supported by the burnt stone in its basal layer. Alternatively, together with the charcoal flecks in nearby feature (2007), this may be associated with burning during tree removal in the 20th century. The positive outcome from Trench 2, however, is the verification of the geophysical techniques employed in identifying cut features even when they are of minimal depth as feature (2005).

Trench 3

Trench 3 lies in the southern, flat area of the hillfort, a location with panoramic views over the Chwiller and Clwyd valleys, Figure 34. The trench was located to test the depth and character of the deposits over this relatively flat area and also to investigate a wide grouping of geophysical anomalies that suggested cut features although no patterns were obvious. An area of 25m x 20m was chosen and divided into 5m squares of which six were fully excavated, 3B, 3D, 3E, 3F, 3G and 3Q, Figure 35. Trenches 3B and 3E revealed one tree throw in each but no archaeological features, while Trench 3Q contained evidence for the inner rampart and is discussed in the next section below.

The depth of bedrock varied considerably between the excavated areas in Trench 3 and overall there were very few archaeological features. To the south, areas D and G, there was little covering of soil over much of the areas although some depressions in the bedrock were filled more deeply with stony natural, Figure 36. The southern most trench, 3D, contained a single cut feature, (3017), oval in shape measuring approximately 20cm by 50cm and 25cm deep with near vertical sides cut

Figure 34. General view of Trenches 3E, 3B, 3G and 3D looking south over the Chwiler valley towards the Clwydian Range.

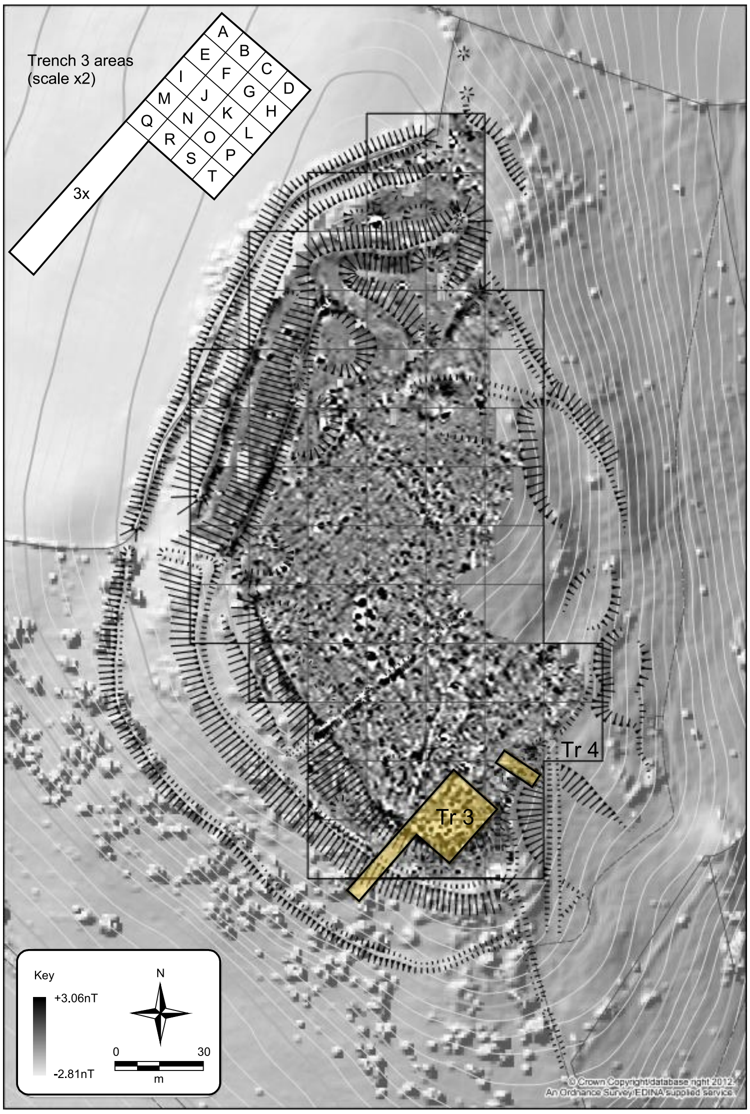

Figure 35. The location and layout of Trench 3.

through the natural (3048) with a flat bottom of bedrock (3059), Figures 37 and 38. This may be a double posthole showing the replacing of a post although this could not be confirmed by the single fill (3019). The next trench to the north, 3G, had a single posthole (3015) eroded at the top but with near vertical sides, approximately 35cm in diameter and 33cm deep, again cut from the same level with a flat bedrock base and a single fill (3019). Just to the south of this posthole was an area of flat, mostly rectangular stones between 10cm and 20cm long which appeared to have been laid flat and frequently aligned counter to the bedrock jointing (3045). This was not a natural feature and was possibly a post pad.

Trench 3F which adjoined 3G to the north had much deeper deposits of natural, mainly red/brown glacial sands. It contained a large tree throw (3057) which cut through a buried very low possible bank running approximately north to south across the trench (3055). The eastern side of the ridge was ill-defined but to the west it was a gradual dip which created a hollow *c.* 30 cm deep running the length of the trench (3056). This shallow hollow feature was filled with red/brown loam with few stones (3053) within which was found a stone spindle whorl (SF106). The dating of this feature is problematic, it was certainly there before the probably modern tree and due to the depth of relatively good soil here this flat southern area of the hillfort interior could have been exploited for post medieval and modern small scale agriculture. The spindle whorl adds little information as it could be redeposited.

Figure 36. Trench 3G with 3D background right, viewed from the north.

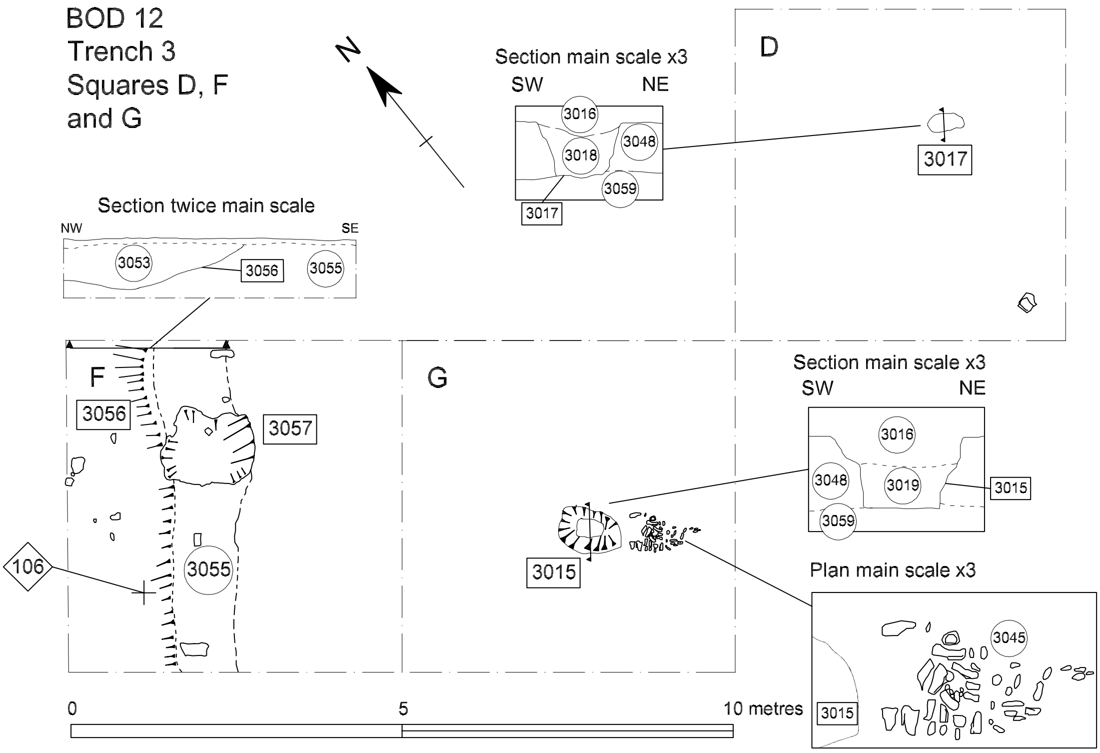

Figure 37. Trenches 3F, 3D and 3G: the main features.

Figure 38. Trench 3D: posthole (3017).

Trench 3X

The extension to Trench 3 (Trench 3X) runs approximately east-west across the suggested Phase 1 rampart at the break of slope, down the slope and over the extant Phase 2 rampart, Figure 39. This trench was 5m wide and approximately 30m long, across the Phase 2 rampart it was excavated in two 2.5m halves, the southern-most first. The intention was that information from the first half would inform the excavation of the second and help clarify what were complex materials, contexts and stratigraphical relationships.

It is worth saying something about the slope of the ground at Trench 3X and the south-western side of the hillfort in general. Observation suggests that the original slope may have had two natural changes of gradient, the sharp break of slope at the top of 3X, the position of the suggested Phase 1 rampart, and one at the inner side of the extant Phase 2 rampart. Clearly there has been alteration upslope of the Phase 2 rampart which has steepened the slope, this is mainly in the form of scarping of the bedrock. However, drawing a virtual line from the top of the slope to the presumed natural under the Phase 2 rampart shows a lesser slope than that running downhill from that point onwards. The counterscarp bank which is further downslope appears to be formed of a small bank with the natural slope being the same above and below it. Therefore, the Phase 1 and 2 ramparts were both constructed so as to take advantage of two natural breaks of slope.

To summarise the detailed account below, the Phase 2 rampart was constructed from shale fragments of differing sizes obtained from the bedrock, much material had slumped from the rampart both into the hillfort interior and downslope on the outside to fill the ditch and create the profile seen today. Within the shale was evidence for structure and phasing in the form of two originally vertical inner faces, Sub-phases A and B, and a single outer face with the void in between filled with rubble. Up against the second inner face was more material which was possibly some form of revetting bank rather than a third inner face. The rampart appears to have been

Figure 39. The view downslope towards the Phase 2 rampart from the Phase 1 rampart, now destroyed.

constructed on an artificially levelled terrace. On the inner side of the rampart the bedrock has been scarped upslope together with a shallow quarry ditch immediately inside the inner face while on the outside is a sloping berm and then a V-shaped rock-cut ditch. A later profiling of the inner face of the rampart is probably associated with post-medieval landscaping.

The constructional sequence is presented here in more detail[3] and refers to the main north-facing section drawing (Figure 40) and the photogrammetry image (Figure 41) together with more detailed drawings. Note that we use the term 'sub-phase' which here refers only to describe a sequence of constructional activities based on stratigraphical relationships, with no particular duration between sub-phases to be inferred; potentially sub-phases could be part of a contiguous period of construction or might be separated by short or much longer periods of time. The Phase 2 rampart in total is considered to be a single phase of the site sequence, Phase 2, as established in Trench 5 and discussed below.

Before the construction of the Phase 2 rampart attempts were made to create relatively flat surfaces upon which to position the dry-stone outer and inner walls, probably intended to improve the stability of the structure. Two important considerations added to the difficulties in interpreting the pre-rampart deposits: firstly the characteristics of the different layers were very similar in being various forms of red glacial till, sands and clays with varying amounts of pebbles. Consequently it was difficult to establish the differences between layers that were either *in situ* natural or redeposited natural used to level surfaces. Secondly, the thickness of individual deposits varied across the 5m width of the trench so that localised sequences could not be extrapolated

[3] This account owes much to Simon Maddison who worked on the excavation of Trench 3X and did most of the recording for it.

Figure 40. Trench 3X: north facing section.

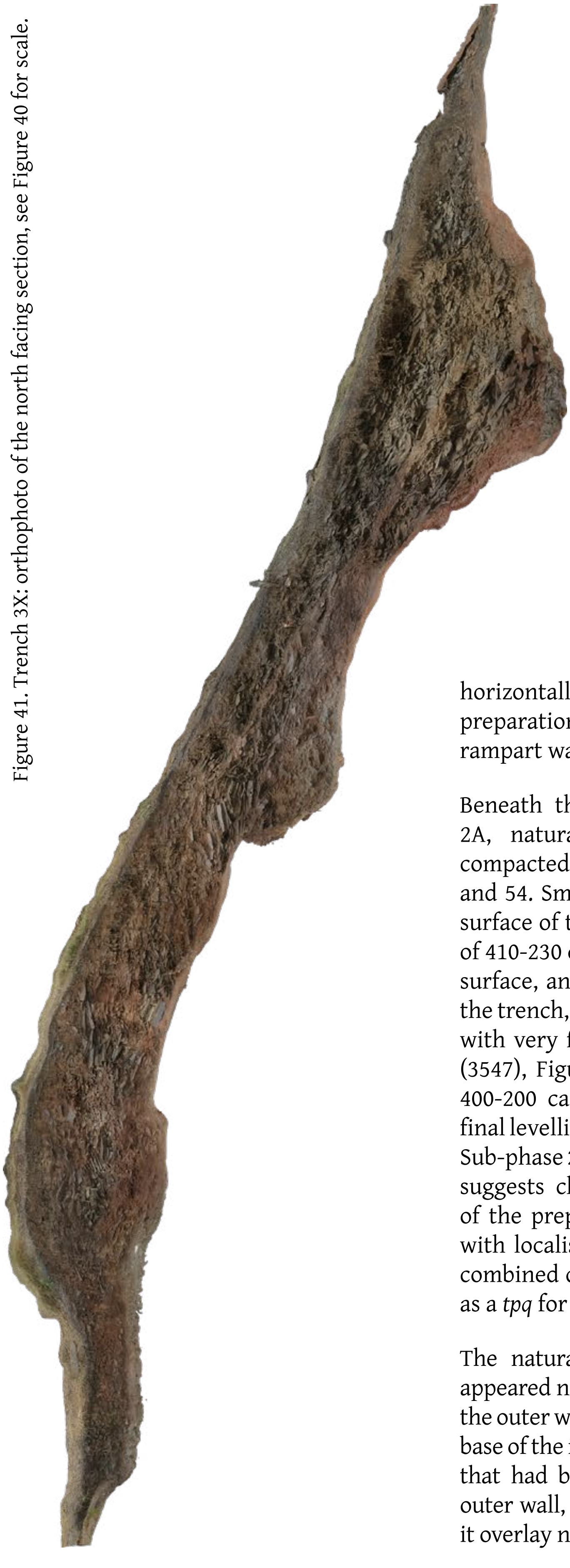

Figure 41. Trench 3X: orthophoto of the north facing section, see Figure 40 for scale.

horizontally. Given these caveats it is clear that some preparation of the ground took place before the rampart walls were constructed.

Beneath the first inner rampart face, Sub-phase 2A, natural deposit (3532/3020) was red/pink compacted material with few stones, Figures 40 and 54. Small pieces of charcoal found only on the surface of this deposit produced a radiocarbon date of 410-230 cal BC (SUERC-73571, 95%). Laid onto this surface, and more obvious on the northern side of the trench, was a thin deposit of sandy/clay material with very few stones and small pieces of charcoal, (3547), Figure 54, providing a radiocarbon date of 400-200 cal BC (SUERC-73572, 95%). This was the final levelling layer onto which the first course of the Sub-phase 2A inner facing wall was laid. The charcoal suggests clearing of the area by burning as part of the preparations to build the rampart together with localised levelling of the ground surface. The combined dates of 410-200 cal BC should be treated as a *tpq* for the beginning of rampart construction.

The natural sloped down to the outer face and appeared not to have been altered so that the base of the outer wall was approximately 1.2m lower than the base of the inner wall. Here deposit (3503) was natural that had been levelled to create a surface for the outer wall, overcutting the section here showed that it overlay natural deposits of till (3524) and (3509).

The outer face of the rampart was partially constructed on a foundation layer of rounded glacial erratics (3502) varying in size up to *c.* 40cm, Figures 42, 43 and 44. These were in the northern half of the trench whereas in the southern half the outer wall was built straight on to the levelled surface (3503). Here some chocking stones were wedged vertically into the underlying surface to provide some stability and stop the lowest layer of stones from slipping down slope, Figures 42 and 45. Despite considerable collapse of the front face, especially within the northern half of the trench, some choking stones were still steeply and firmly wedged in. The outer face of the southern half showed a carefully constructed dry stone wall still some 1m high in places (3500), Figures 43 and 46, whereas in the northern half of the trench only the foundation boulders remained *in situ*, the front face having completely collapsed. The facing stones were generally less than 30cm in size with many being considerably smaller. Although overall the walling was greatly disturbed with many stones clearly no longer in their original positions, it appears that they were originally positioned to have a flat face on the outside thus creating a relatively smooth wall face although there was no evidence of the facing stones being worked.

Behind this face flat stones had been placed, but with much less care, Figures 40, 41 and 47, and formed part of the central fill of the rampart which was a combination of loose stones and lenses of sandy clay (3042/3004). It seems that as the front face had been built up it was filled behind with loose rubble, perhaps more carefully laid just behind the face with some stones inter-locking with the facing stones. At various levels through the rampart rubble fill were thin layers of either clay

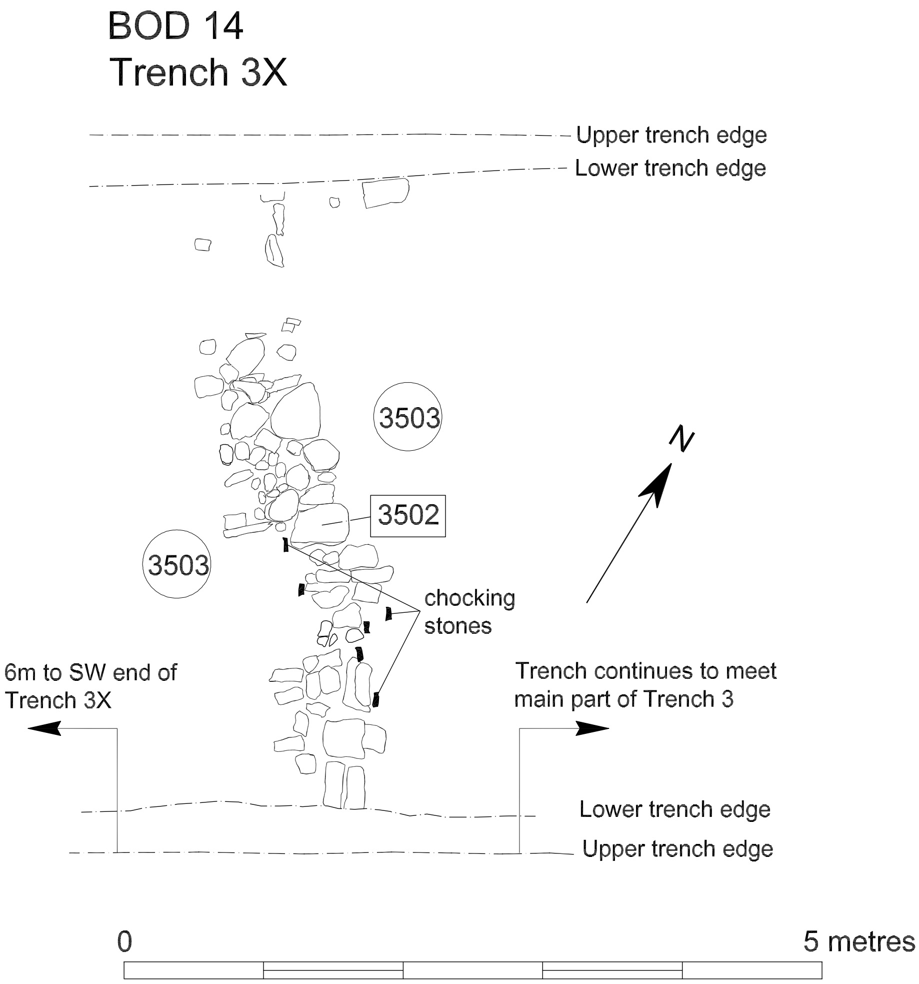

Figure 42. Trench 3X: the Phase 2 rampart outer face (3500).

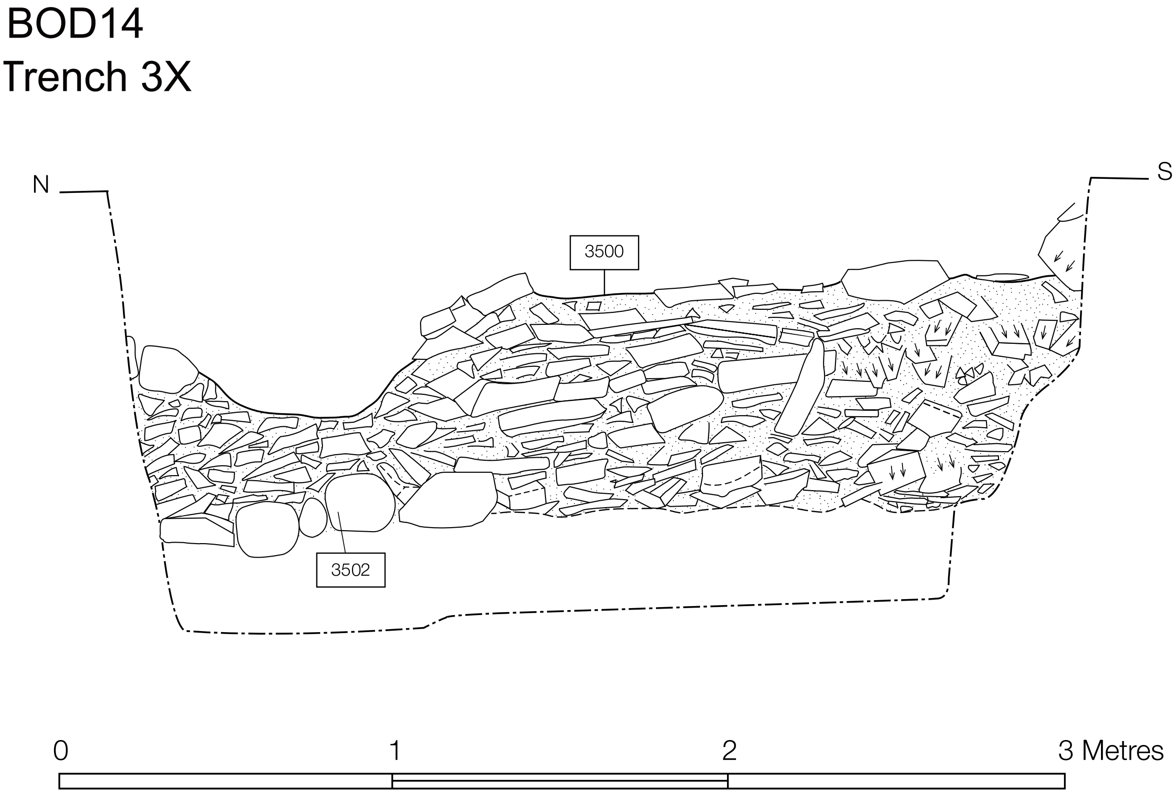

Figure 43. Trench 3X: the Phase 2 rampart outer face (3500).

Figure 44. Trench 3X: foundation stones (3502), the Phase 2 rampart outer face.

Figure 45. Trench 3X: chocking stones, the Phase 2 rampart outer face.

Figure 46. Trench 3X: the Phase 2 rampart outer face.

Figure 47. Trench 3X: detail from the orthophoto of the north-facing section.
The outer face of the Phase 2 rampart at centre right with rubble core to the left
including laid large flat stones immediately behind the face.

or possibly turves, probably laid to consolidate the fill. On the top of the fill a consolidating layer (3037) was sandy material with few stones, possibly a layer of turf.

Approximately 3m inside the rampart outer face was the Sub-phase 2A inner face (3041), Figure 48, built directly onto the prepared levelling surface (3547) which continued downslope as (3554). The construction of this was similar to the outer face being a neatly and carefully laid dry stone wall, Figure 49, surviving best in the northern half of the trench to a height of nearly 35cm maximum, Figure 50. Some of the larger stones, up to 40cm long, were positioned in the lower courses. As with the outer rampart face, the faces of stones were aligned to create a flat wall face. The loose rubble fill of the rampart, (3042), was continuous from outer face to inner face.

The Sub-phase 2B inner face (3005) increased the width of the rampart by up to 0.6m although this varied due to it not being on exactly the same alignment as the first phase face and being more exaggerated in the southern half of the trench, Figure 51. This was built on a layer of compacted clay with small inclusions of shale (3546/3021) which butted up against the Sub-phase 2A face and overlay natural (3532/3020). This suggests that it was laid down after the Sub-phase 2A construction and was either an intentional foundation layer or naturally accumulated from hill wash building up against the Sub-phase 2A face, Figure 54. Unlike layer (3547) which the Sub-phase 2A face was constructed on, (3546) contained no charcoal fragments.

The Sub-phase 2B rampart inner face was better preserved in the northern half of the trench where it stood to a maximum of 80cm in height, Figure 52, to the south it was largely collapsed. The face was as well constructed as the Sub-phase 2A face with a mixture of smaller and larger flat stones. Some stones were keyed into the rubble fill behind the face and a layer of larger flat stones were laid horizontally at the top of the face (3552) capping the rampart fill, Figure 53. Despite these attempts to construct a stable wall it is clear that collapse inwards occurred resulting in piles of scree-like material up against the bottom of the wall. Whereas the fill of the Sub-phase 2A rampart

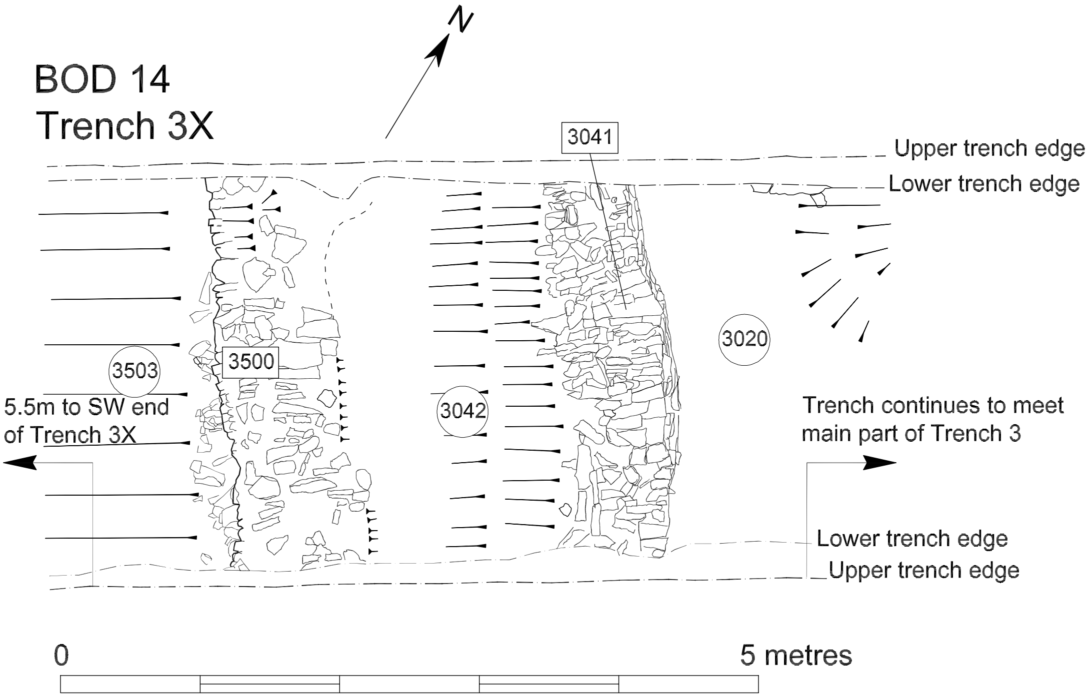

Figure 48. Trench 3X: the outer face (3500) and Sub-Phase 2A inner face (3041) of the Phase 2 rampart.

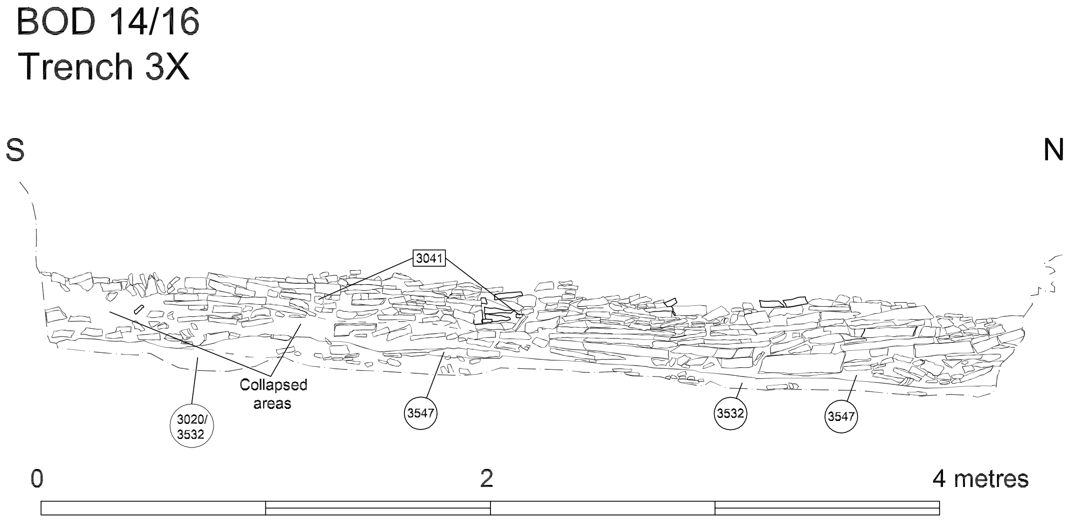

Figure 49. Trench 3X: the Sub-Phase 2A inner face (3041) of the Phase 2 rampart.

consisted mainly of rubble tipped between the outer and inner faces with minor layers of clay and possible turf (3042), the Sub-phase 2B construction was much more consolidated. This showed a definite upper layer of pink sandy clay up to 10cm thick over the rubble infill (3553) abutting the lower capping stones (3552), Figure 54. This overlay the Sub-phase 2A fill which was extended over the top of the Sub-phase 2A inner face to form the basal layer of the Sub-phase 2B fill.

Up against the Sub-phase 2B inner face was Sub-phase 2C material that is more difficult to interpret due to its haphazard construction (3519/3517). This could be a mixture of collapsed Sub-phase 2B wall stones and fresh material tipped up against the Sub-phase 2B face sloping down away from the

Figure 50. Trench 3X: the northern half of the Sub-Phase 2A inner face (3041) of the Phase 2 rampart.

Figure 51. Trench 3X: the Sub-Phase 2A (3041) and Sub-Phase 2B (3005) inner faces of the Phase 2 rampart.

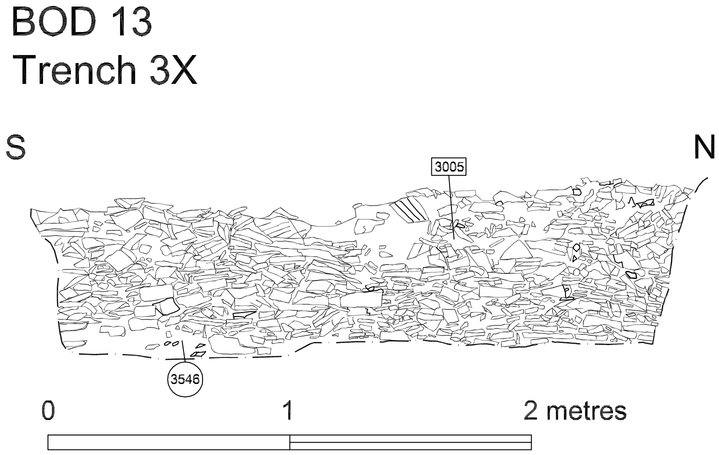

Figure 52. Trench 3X: the northern half of the Sub-Phase 2B inner face (3005) of the Phase 2 rampart.

Figure 53. Trench 3X: the northern half of the Sub-Phase 2B inner face (3005) of the Phase 2 rampart showing the capping stones (3552).

face. It has no indication of a possible outer face or laid top surface. At one point, however, there was a very crudely laid series of flatter large stones, up to 35cm, forming an approximate right angle to the Sub-phase 2B wall, (3530), Figures 54 and 55. This appears to have been some form of internal baffle within a revetting bank of stones up against the Sub-phase 2B face. It is likely that the baffle was constructed first with rubble, albeit containing some large stones, then being piled up against it on natural deposit (3548), with loose large stones and rubble then sloping down at the rear (3551/3552). Over the top of this revetting bank was a layer of red sandy clay containing small

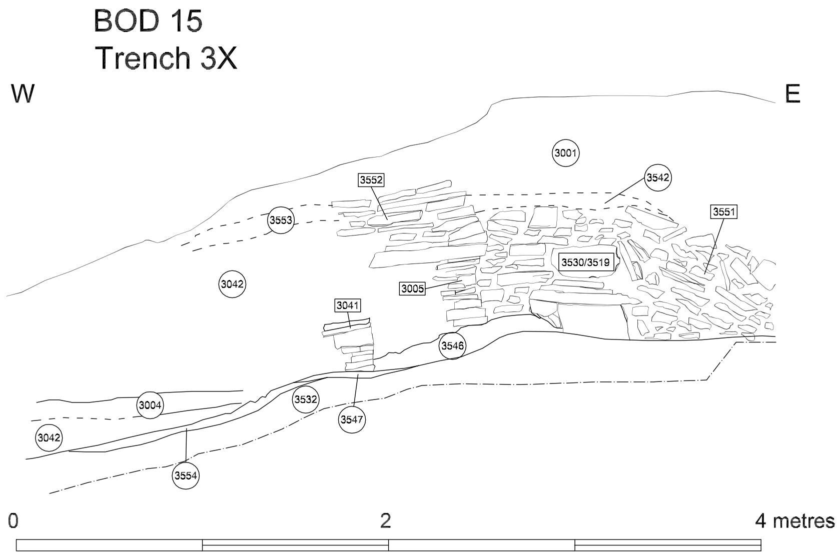

Figure 54. Trench 3X: the northern section showing the main contexts for the three Sub-phases of the inner faces of the Phase 2 rampart.

Figure 55. Trench 3X: the three Sub-phases of the Phase 2 rampart. The Sub-Phase 2A inner face is to the left of the scale, Sub-Phase 2B face to the right of the scale and the Sub-Phase 2C revettment to the right of that with internal baffle stones.

stones with a maximum thickness of 10cm, possibly a consolidating surface on the stone structure (3542).

Immediately outside the outer face of the rampart was a near horizontal berm approximately 2.5m wide, Figures 40 and 56. Natural layer (3503) had been levelled to create the flat berm running

Figure 56. Trench 3X: Phase 2 rampart berm. Left of centre in the section is the outer face of the rampart and the ditch cut is to the right. The berm is overcut showing natural beneath.

Figure 57. Trench 3X: Phase 2 rampart rock cut ditch.

under the outer face of the rampart which was constructed on it. In front of the outer face was a series of small rounded cobbles, averaging 8cm, set into the surface of the berm (3506). The berm led to a V-shaped rock cut ditch 4m wide at the top and 1.5m deep with the outer face less steep than the inner, (3501) Figures 40 and 57. This was filled with stones and soil forming very loose layers suggesting what may be two collapse phases. A lower layer of larger stones, (3512/3507) represents a first stage collapse which could have resulted from the outer face. Above this is a wash-down layer of silt suggesting a pause in the collapse, (3514), and then (3508) being made up of mainly smaller rubble perhaps representing the collapse of the rampart fill. The primary silting in the bottom of the ditch, (3510) results from rather than represents natural wash-down prior to any collapse.

The ditch would have provided much of the material used to build the rampart although there is no direct link between the ditch and the constructional phases. The other source of rampart material is provided by the scarping of the bedrock slope inside the inner face and Sub-phase 2C revetment. Here the bedrock slopes downwards and it can be clearly seen that blocks were prised off to form a shallow quarry hollow which runs between 2m and 3m from the inner face of the Sub-phase 2B rampart and is approximately 1.5m wide with a shallow U-shaped profile tapering into the upward slope of the bedrock with a maximum depth of 15cm, Figure 58. Although, like the main outer ditch, this cannot be stratigraphically related to any of the rampart phases it seems likely that the material for Sub-phases 2A and 2B would have come from the main ditch and that for Sub-phase 2C from the internal scarping due to its proximity. The other point to note is that the rampart appears to be entirely constructed of stone, earth and perhaps turves with no evidence for timbers either as vertical posts or horizontal lacing within its structure.

Figure 58. Trench 3X: quarry hollow/scarping upslope from the Phase 2 rampart.

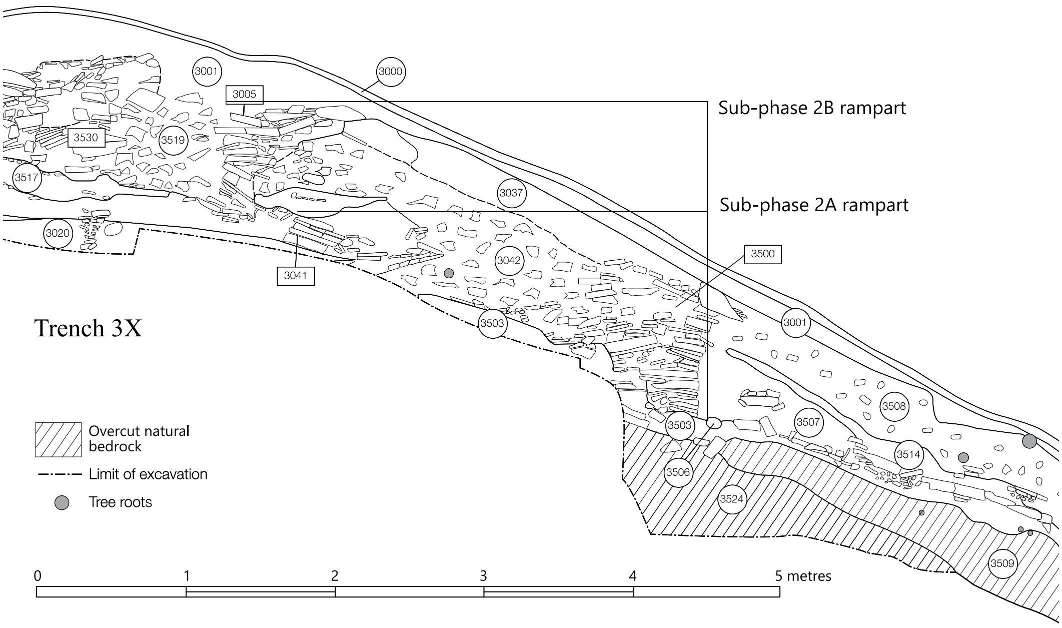

Figure 59. Trench 3X: the two main sub-phases of the Phase 2 rampart showing the possible height of the front faces and rampart widths.

Figure 59 shows a possible reconstruction of the size of the rampart during Sub-phases 2A and 2B. This assumes that the rampart top was flat as suggested for Sub-phase 2B by the flat topping stones and sandy/clay layer (3552/3553) and Sub-phase 2A by the soil turf layers within (3004). Allowing for the unknown loss of material from the height of the outer face due to collapse, Sub-phase 2A would have formed a platform 2.8m wide and approximately 1.3m high at the outer face with only a low wall on the inside. Sub-phase 2B saw a considerable increase in size of the rampart both in height and width involving an approximate doubling of the amount of stone used. If the Sub-phase 2B rampart top was horizontal and the inner face was the height of the capping stones (3552), its width would have been approximately 3.2m and the height of its outer face 2m. This design means the rampart would have used the natural slope to exaggerate the size and appearance of the rampart when approaching from downslope while retaining a low inner face to minimise material and effort. This suggested size of the rampart is supported by the amount of stone filling the ditch with the larger stones in the first collapse layer (3512) representing the increased height of the Sub-phase 2B outer face.

On the inner side of the Phase 2 rampart is a possible post-medieval alteration related to landscaping of the woodland to the west of the hillfort (discussed further below). This consisted of a steepening of the Sub-phase 2C bank showing more clearly in the southern section of Trench 3X, Figure 40. The cut face (3520) had small flat stones laid on its surface and continued into a shallow ditch inside the rampart (3505) filled with stone-free silt (3504).

Upslope from the Phase 2 rampart, and at the upper break of slope, is the position of the Phase 1 rampart. This is suggested running along the break of slope down the south-western and southern edges of the enclosed area by both a strong negative anomaly in the magnetometry (Figure 7) and also in the LiDAR plot (Figure 4). This was excavated at the junction of Trenches 3X and 3Q. The Phase 1 rampart had been heavily robbed and damaged by rabbit activity with some boulders from the foundation levels remaining *in situ* (3045) laid directly onto natural till (3043), Figures 60 and 61. There were also two large flat stones, *c.* 60cm in size, which appear to have been misplaced

Figure 60. Trench 3Q: the Phase 1 rampart.

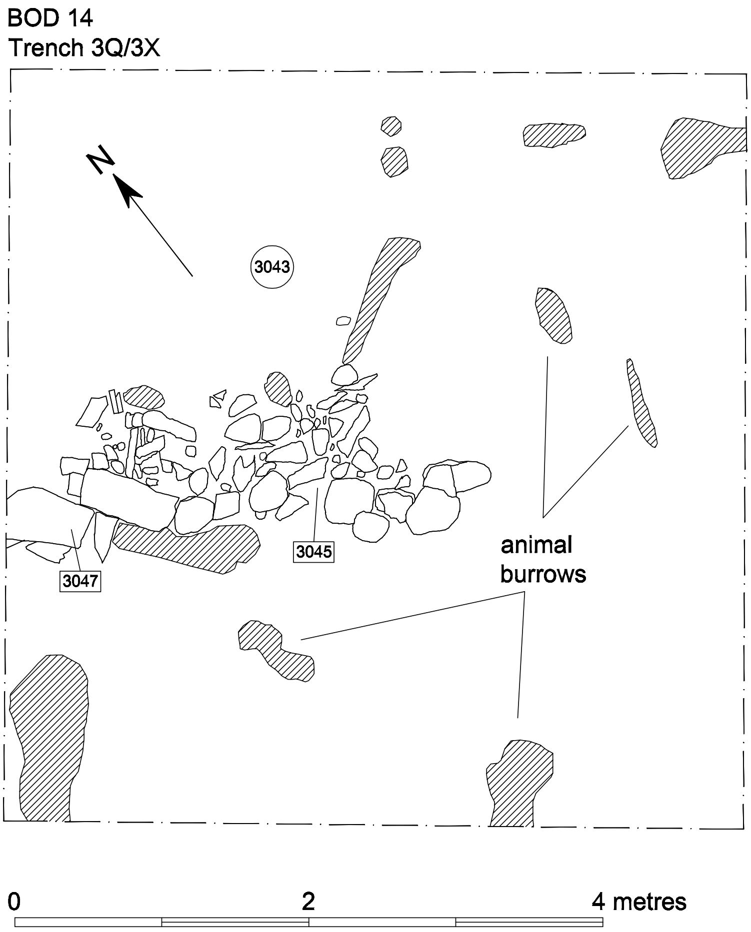

Figure 61. Trench 3Q: the Phase 1 rampart showing the main contexts.

facing stones (3047). In the north facing section, Figure 60, rubble which may have formed the core of the rampart was revealed which together with the boulders suggests a rampart width of approximately 3m.

Trench 4

Trench 4 measured 2m by 15m although only the eastern most 7m was excavated fully. It was located at the break of slope at the southern end of the site, Figure 9, where the LiDAR and magnetometry surveys indicated the possible Phase 1 rampart, Figures 4 and 7. As with the Phase 1 rampart in

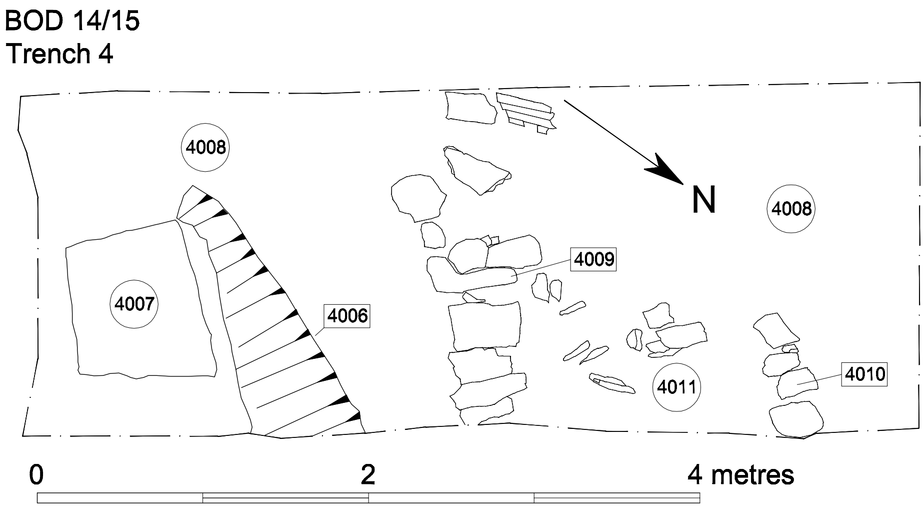

Figure 62. Trench 4: the Phase 1 rampart showing the main contexts.

Figure 63. Trench 4: the Phase 1 rampart.

Trench 3 this had been heavily robbed with only parts of the lowest course, and in one place two courses, of the outer and inner face surviving, Figures 62 and 63.

The outer face (4009) consisted of flat stones up to 45cm long laid side by side directly on to the bedrock (4008) continuing across the full width of the trench. The inner face only survived in the north of the trench with four laid stones (4010) before the bedrock became very rough and

Figure 64. Trench 4: the cut bedrock on the outer side of the Phase 1 rampart.

Figure 65. Trench 4: a tool mark on the cut bedrock, outer side of the Phase 1 rampart.

higher. In between the two faces were some smaller loose stones which may have been part of the rampart fill (4011). On the outer side of the rampart the bedrock was cut sharply away at an angle to the outer face (4006), Figure 64. It isn't clear whether this cut was associated with the rampart although possible tool marks in the cut face suggest it is of human origin, Figure 65, and perhaps unfinished as a large block (4007) was still in place. The suggested width of the rampart in Trench 4 is just over 2m.

Trench 5

Trench 5 was positioned over a break through the central area of the western ramparts with views over the Vale of Clwyd, Figure 9. At this point the northern run of the inner (Phase 1 and 2) rampart deviates to the west to line up with the extant rampart running south which is the Phase 2 rampart as excavated in Trench 3X, Figure 66. It is the existence of the gap through the ramparts at this point which attracted Stapleton in positioning a trench here in search of an entrance in 1908. While his plan is not detailed enough to locate his trench exactly (Stapleton 1909: Figure I) it can be seen to be the largest of his 'ten cuttings' and to be positioned within the gap just to the south of the north-western inner rampart. He claims to have found an entrance running between two stone-faced rampart terminals with a 'line of stones across the gap' (*ibid*: 236, Figure III).

Our trench measured a maximum of 26m north-south and 27m east-west although the western edge was ill-defined due to the land falling away steeply together with surface scree and rubble. A large area in the central eastern area of the trench was devoid of any archaeological evidence with the bedrock very close to the surface showing a complete lack of features cut into it. Due to this

Figure 66. Trench 5 positioned over a break through the western ramparts viewed from the west (from the collections of the National Monuments Record of Wales: © Copyright: Paul R. Davis. O'r casgliadau o Gofnod Henebion Cenedlaethol Cymru)

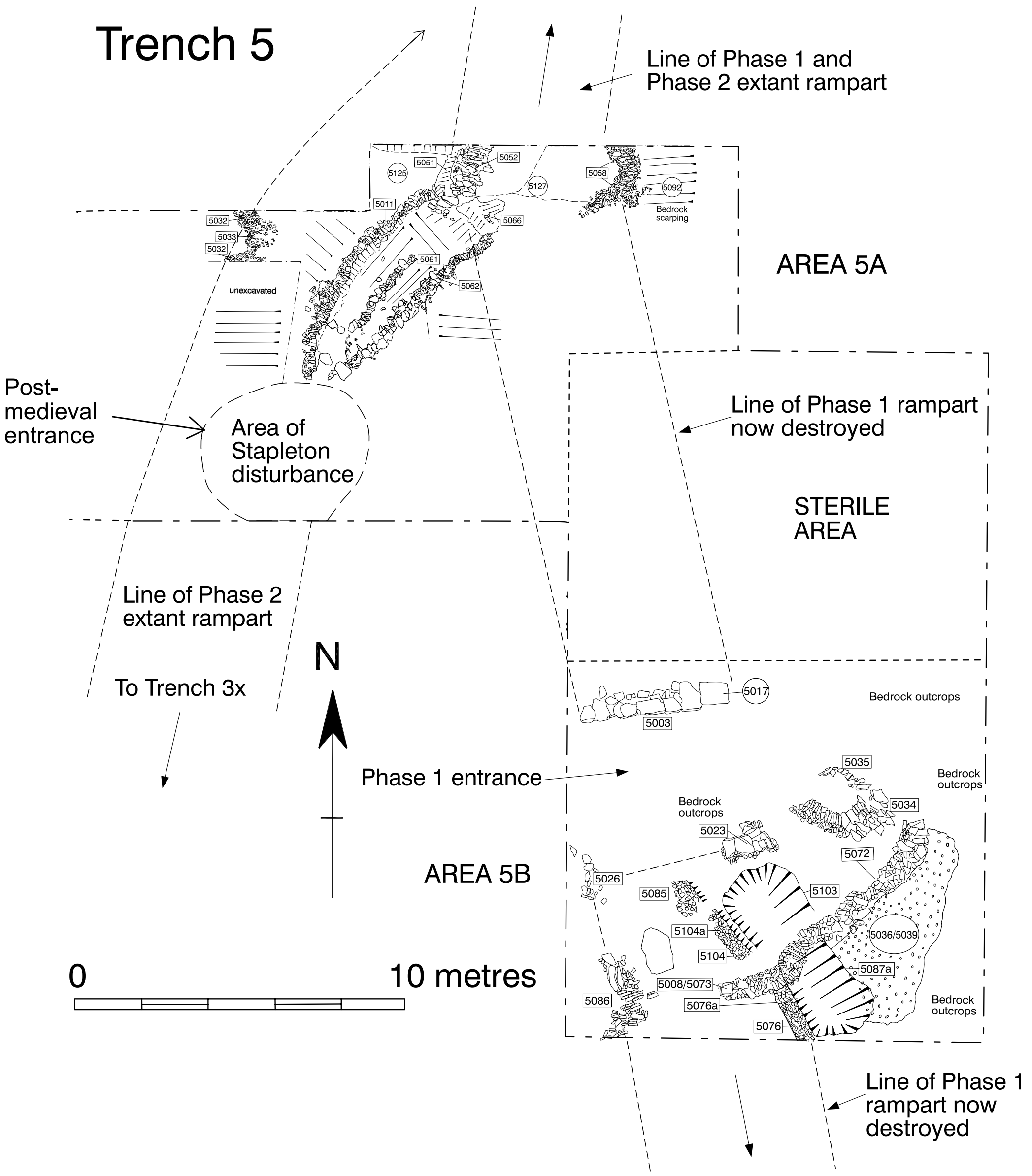

Figure 67. Trench 5: showing the main excavated features and the suggested relationship between the Phase 1 and Phase 2 ramparts.

Trench 5 was divided into two areas, 5A to the north and west and 5B to the south. These two areas could not be linked stratigraphically.

Trench 5 revealed a Phase 1 entrance in Area 5B which was probably partially inturned with an entrance recess (possible guard chamber), the rampart was largely removed south of the entrance whereas to the north in Area 5A it remains as the extant inner rampart as seen today. This was joined to the Phase 2 rampart which curved to the west and ran southwards west of the now disused entrance and thus blocked access to the interior, Figure 67. The Phase 2 rampart in this area is largely destroyed to create a post-medieval route into the enclosure interior.

Area 5A[4]

This area of excavation revealed both the Phase 1 and Phase 2 ramparts. Evidence for the Phase 1 rampart was confined to the major east-west section with the area between this and the Phase 1 entrance in Area 5B being largely devoid of archaeology. The Phase 2 rampart also showed in the main section where it was constructed over the top of the Phase 1 structure and with both continuing northwards as a single enlarged rampart. Just south of the section the Phase 1 rampart was cut obliquely by the inner face of the Phase 2 rampart which then ran in a different direction to the Phase 1 rampart as exposed in Area 5B southwards towards Trench 3X. This area is key to understanding the relationship between Phases 1 and 2 in this central western area of the enclosure although the evidence is difficult to interpret with any certainty. While the Phase 1 rampart has been largely removed, much of the Phase 2 rampart has also been destroyed in this area to produce a gap probably to provide post-Iron Age access from the relatively gentle slopes below. In addition the line of the Phase 2 rampart in an area just before it joins the extant rampart has been destroyed by Stapleton's trench of 1908.

Phase 1

To the inside of the Phase 1 rampart the bedrock had been worked to leave a jagged face with sharp edges sloping downwards in a westerly direction (5092), Figures 68 and 69. Only a short length of this was exposed so it could be due to scarping as in Trench 3X (above), or a more regular quarry hollow as in Area 5B (below) which shows a hollow with rounded ends. Either way this appears to be working of the bedrock just inside the line of the rampart probably for the provision of rampart material.

A short length of the Phase 1 rampart front face was excavated between the main east-west section and the point where the Phase 2 rampart cut through the Phase 1 rampart from the south. The lower section, (5051), was well constructed stonework with some large stones up to 85cm long and 8cm deep used as horizontal stretchers with smaller orthogonal headers between. This lower section was *c.* 80cm high and *c.* 1.6m long at its base, Figures 70 and 71. The upper section, *c.* 90cm at its widest and a maximum height of 70cm, was of a different build with smaller stone sherds,

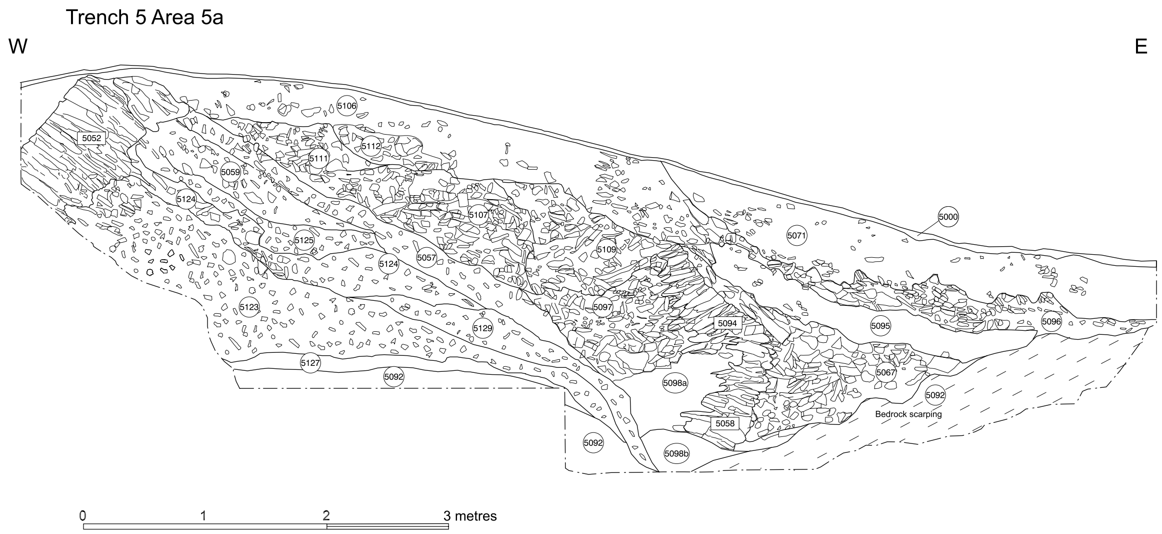

Figure 68. Trench 5, Area 5A: main east-west section.

[4] Area 5A was supervised by Paul Reilly assisted by Simon Maddison and the account presented here is based on their records.

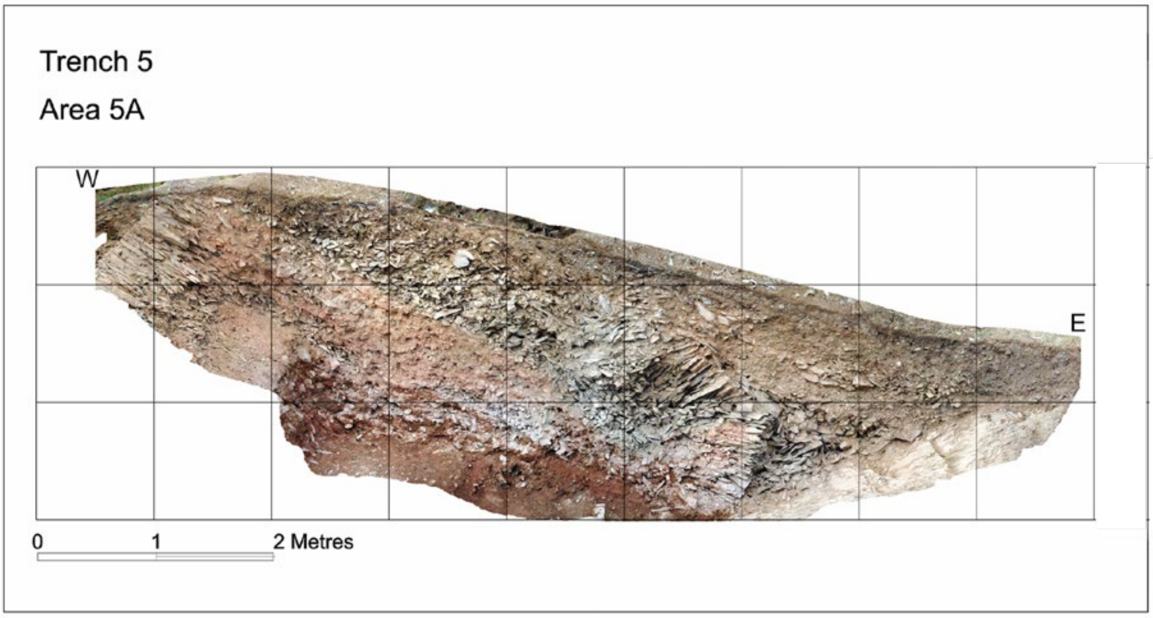

Figure 69. Trench 5, Area 5A: orthophoto of the main east-west section with 1m grid.

30cm to 50cm long, laid horizontal from the face into the depth of the wall, (5052). This upper layer was bonded by a white/grey hard sandy clay and capped by a continuous layer of orthogonal flat stones, Figure 72.The whole face was battered with (5051) being *c.* 20 degrees from the vertical and (5052) at approximately 35 degrees. The front face was constructed on a layer of brown/red sandy clay containing small pieces of rubble (5125). This was not natural but a laid layer to create a level surface upon which the front section of the rampart was constructed.

The outer face of the Phase 1 rampart was keyed into a series of layers which formed a revetting bank behind the face sloping down to finish at the scarped bedrock, Figures 68 and 69. If there was originally any form of inner revetting wall it was probably replaced by the Phase 2 structure described below. The rampart layers were built onto a thin layer of red/grey clay containing grit,

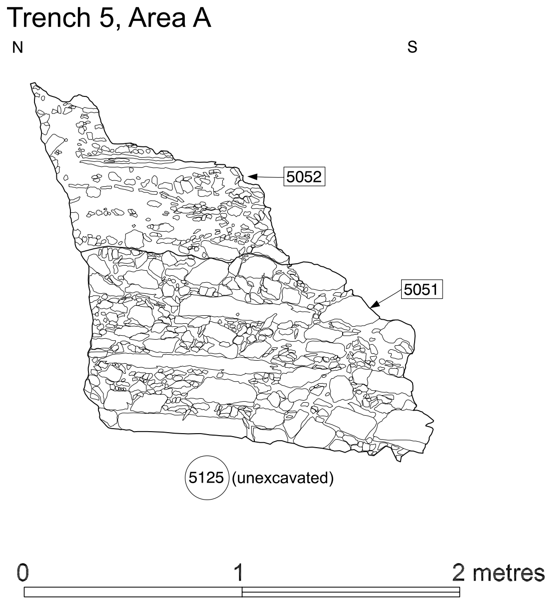

Figure 70. Trench 5, Area 5A: the Phase 1 rampart front face (5051/5052).

Figure 71. Trench 5, Area 5A: the Phase 1 rampart front face (5051/5052).

Figure 72. Trench 5, Area 5A: the capping stones of the Phase 1 rampart front face, top left (5052).

natural (5127) which overlay the bedrock (5092). Between this point and the front face, *c.* 1.5m to the west, the bedrock sloped steeply downwards thus requiring the deposition of (5125) to create a level surface upon which to construct the western end of the rampart including the outer face.

Above (5127) a series of six layers formed the sloping revetting bank (5123, 5124, 5129, 5125, 5059 and 5057). These all consisted of slightly different variations of rubble with the average stone size being 10-15cm, contained within dark red/brown sandy clay. There was some evidence that the red clay was laid within and on top of the layers of rubble as a bonding mechanism. These rubble layers represent individual dumps of material probably all originating from approximately the same source. The top layer (5057) runs from the top of the outer face (5052) which is keyed into it suggesting a single phase of building for this early rampart which measured *c.* 4.5m in width.

Phase 2

Changes to the Phase 1 rampart are evident in the main east-west section, Figures 68 and 69, and in plan to the south of the section, Figure 73. The section shows the rampart to be increased in height with the addition of a rear revetting wall while at the same time it is truncated by a new Phase 2 rampart joining it from the south. The lower section of the Phase 1 rampart outer face appeared not to have been very weathered which suggests that the Phase 2 alterations took place relatively quickly after the building of the Phase 1 rampart thus covering the face.

The rear revetting wall consists of a lower (5058) and upper (5094) part although probably of a single build. The lower section was constructed over the top of the scarped bedrock which continues beneath it and onto a levelling layer (5098b) comprising a soft pink sand matrix with few small stones. This same material is packed behind the lowest part of the wall covering the top layer of the Phase 1 rampart (5057). The upper part of the wall is battered at an angle of 20 to 30 degrees from the vertical with stones keyed into the rampart layer immediately behind it (5097). This battering, seen mainly in section, was probably the original design and created a sloped consolidated surface onto the rampart. Both sections of the wall were constructed from large flat laminar stones laid

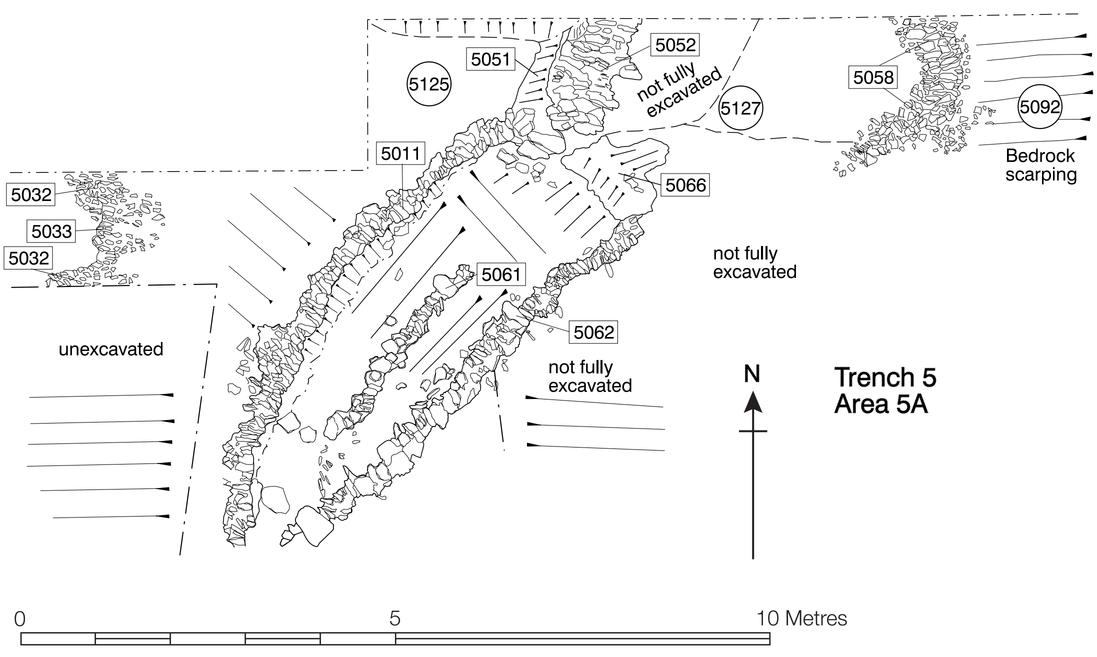

Figure 73. Trench 5, Area 5A: the main contexts. The main east-west section is to the north.

Figure 74. Trench 5, Area 5A: the Phase 2 rampart rear revetting wall (5058 and 5094).

directly on top of each other with an average size of 30cm x 10cm x 5cm thick, Figure 74. The lower part was *c.* 70cm high and the upper part *c.* 90cm long. The lower part of the wall had slumped forward so that it was no longer vertical. Immediately in front of the wall was a layer of loose stones of a similar size and character to those used for the wall (5067), lying on the scarped bedrock and covering the lower section of the wall and continuing against the upper section. This could either be an accumulation of stones fallen from the wall or deposited as an attempt to stop the lower section from slumping inwards and collapsing.

A series of layers were added to the revetting bank of the Phase 1 rampart which increased it in height by approximately 60cm but also gives the impression of creating a stepped surface upslope from the rear revetting wall. The added material appears to be behind the Phase 1 front face while not covering it. The five layers are (5111, 5112, 5109, 5107 and 5097) and they all differ from the lower Phase 1 layers by containing looser rubble with a greater content of larger stones up to *c.* 15cm in size. The layers also lack the red/brown clay content of the lower layers with the stones being in a grey sandy matrix showing signs of individual dumps of material from the same source. The layers above the stepped surface of the Phase 2 rampart, and in front of the revetting wall, (5106, 5108 and 5071), and those down into the quarry hollow at the rear of the Phase 2 rampart, (5096 and 5095), represent erosion deposits from the rampart with material washing down.

The Phase 2 inner face (5011) can be seen to cut across the Phase 1 outer face (5051/2), Figures 73 and 75. There is a hint that the rear revetting wall (5058) is curving westwards at its southern end so this could possibly be curving around to meet (5011) and thus produce a continuous inner face although actual evidence for this was not found. From its intersection with the Phase 1 outer face the inner face of Phase 2, (5011), clearly curves away southwards to meet the extant rampart which heads southwards towards Trench 3X.

Figure 75. Trench 5, Area 5A: the Phase 2 rampart inner face (5011) cutting the Phase 1 rampart outer face (5051).

Figure 76. Trench 5, Area 5A: the Phase 2 rampart inner face (5011).

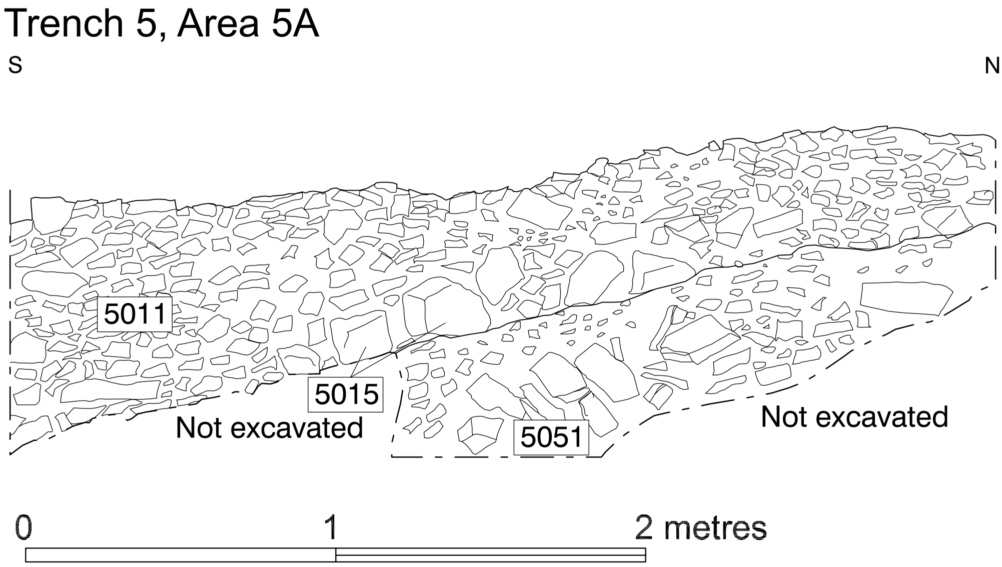

Figure 77. Trench 5, Area 5A: the Phase 2 rampart inner face (5011).

Approximately 7m of the Phase 2 inner face (5011) was exposed reaching a maximum height of *c.* 70cm although reducing in height towards the disturbed area to the south where it disappears, Figures 76 and 77. The face consisted of dry stone shale stones averaging 15cm x 5cm x 2cm in size laid orthogonally to the face to bed into the fill of the rampart. In one section of the face a series of large round boulders were incorporated into the base of the face, (5015), the largest being *c.* 25cm. Underlying the Phase 2 inner face was a layer of large, loose stones averaging 80cm x 25cm x 15cm which were obviously not carefully laid but rather in a jumbled mix of orientations, (5015). This appeared to be a levelling layer upon which to construct the Phase 2 rampart and due to the size and haphazard laying of the stones may have been Phase 1 rampart material that had been pulled down slope and spread around. Some of the stones had flat faces and were very similar in size and shape to the header stones within the Phase 1 front face (5051).

A short length of the Phase 2 rampart outer face, (5033) was exposed when the Area 5A trench was extended downslope to the west in a slot 1.5m wide. At this point the Phase 2 rampart was *c.* 3m wide. This dry-stone wall was similar in character to the inner face but was extremely unstable and had largely collapsed outwards and downslope (5032), Figures 78 and 79, similar to the outer face in Trench 3X. The fill of the Phase 2 rampart consisted of tips of rubble, best shown where they butted up against the front face of the Phase 1 rampart (5051/2). The sequence of tips (5113 to 5121) were all of a consistent character differing only in the amount of rubble compared to the matrix, Figures 80 and 81. It is possible that the upper layers (5114, 5115 and 5116) may have contained tumble from the capping of the Phase 1 rampart (5052) as the matrix contained white/grey material similar to the proposed bonding together with laminar angular stones as in (5052). The outer face of the Phase 2 rampart was curving around to meet the Phase 1 outer face somewhere north of the excavated east-west section although the exact point of contact was not established.

It is likely that the Phase 2 rampart as described here is the same phase as the cutting of the Phase 1 rampart due to the similarity in build of faces (5058, 5011, 5033) and the Phase 2 inner and outer faces as shown in Trench 3X. All of these are different in character to the large stone stretcher and header construction of Phase 1 (5051) although this is outer rather than inner face.

Inside the inner face of the Phase 2 rampart were two stone built linear features running approximately parallel to it at 1m and *c.* 2m distance, Figure 73. These both had limited cohesion

Figure 78. Trench 5, Area 5A: the Phase 2 rampart outer face (5033) and collapse (5032).

Figure 79. Trench 5, Area 5A: the Phase 2 rampart outer face (5033) and collapse (5032).

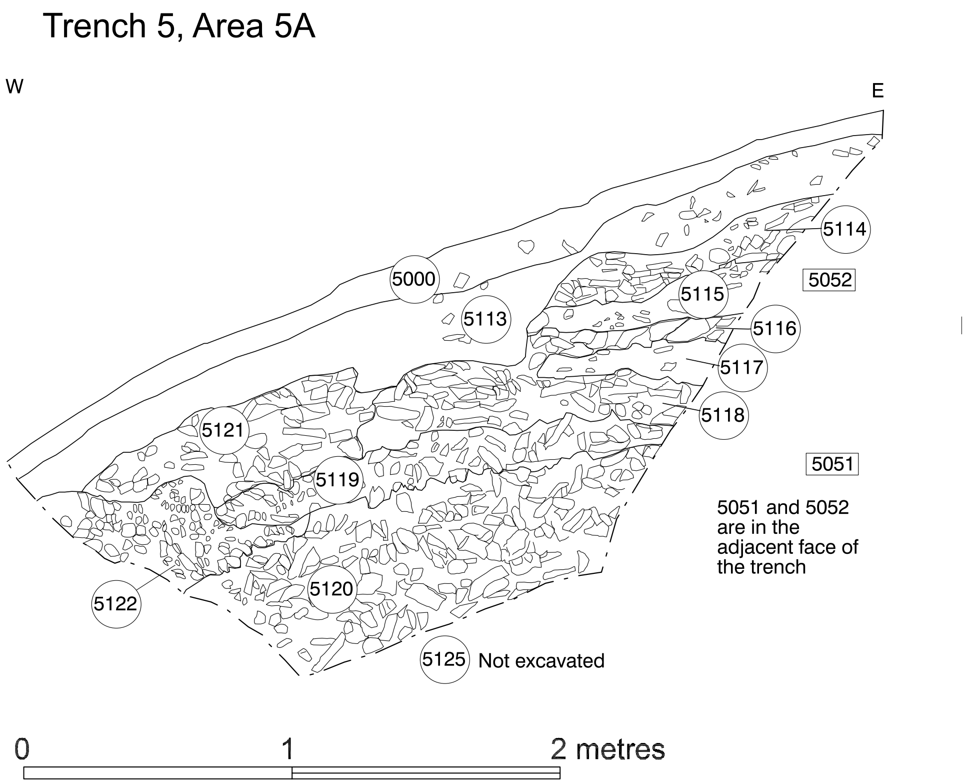

Figure 80. Trench 5, Area 5A: Phase 2 rampart fill against the Phase 1 rampart outer face (5051).

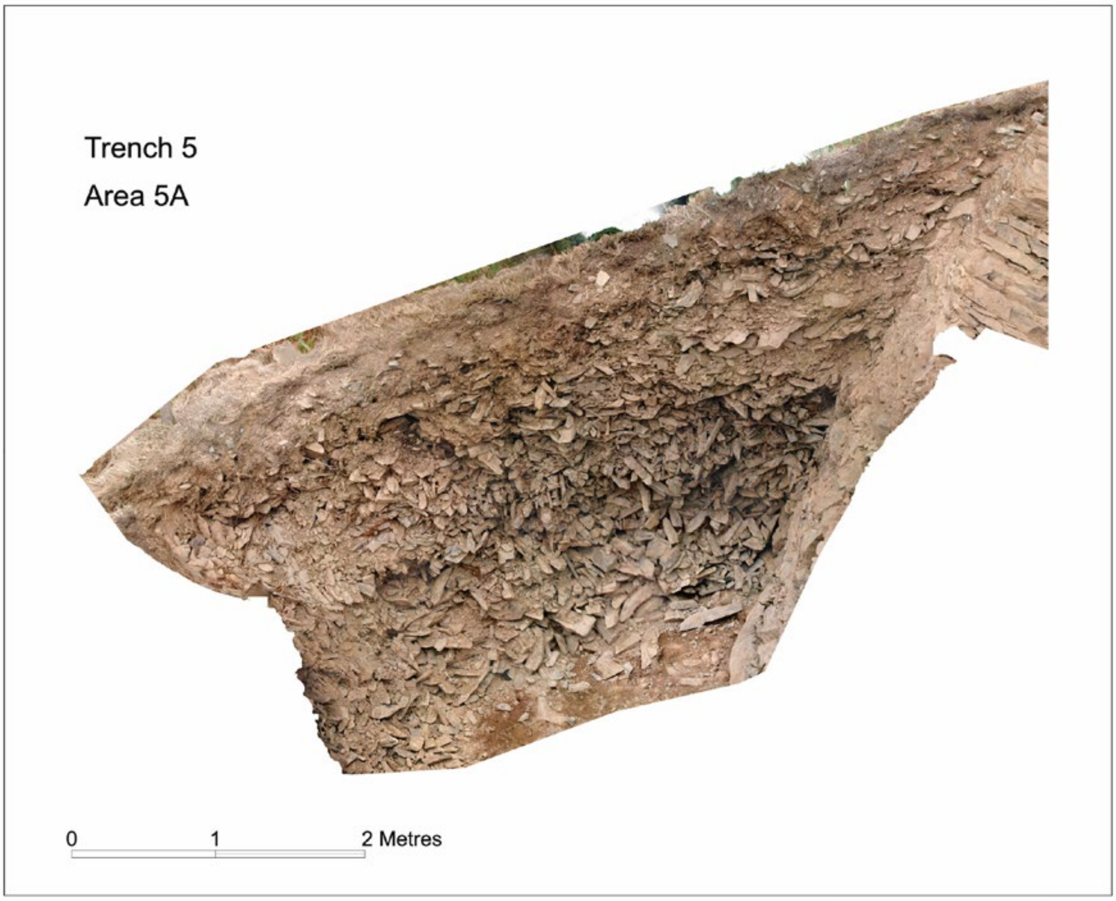

Figure 81. Trench 5, Area 5A: orthophoto of the Phase 2 rampart fill against the Phase 1 rampart outer face, to the right (5051).

and lacked the structural integrity of Phase 2 rampart faces seen in this trench and in Trench 3X. Feature (5061) was the shorter and lower of the two, approximately 3m long and a maximum of two courses high. The stones were generally larger than those of the main sections of the inner face reaching sizes up to 40cm. The longer and higher feature (5062) was approximately 6m long and 60cm high at its highest point composed mainly of small stones with occasional larger boulders. While these two features appear to be associated with the Phase 2 rampart their function is not clear. They could be something to do with intended or implemented modifications of the rampart, perhaps widening it as in Trench 3X, perhaps as a response to the outer face partially collapsing. To the northern end of (5062) feature (5066) was different in composition and texture to its surroundings. It comprised an area of hard white clay, *c.* 1m by 1m maximum, which seemed to link (5062) to the inner core of the main rampart.

Interpretation of this area is made difficult by the level of damage to the deposits when the gap through the Phase 2 rampart was created to provide post-Iron Age access to the interior. This has resulted not only in the lowering of the rampart itself but also the mixing of deposits so that features were identified within a mass of rubble with little differentiation between possible archaeological contexts. Adding to this is the possibility that Phase 1 rampart material from both areas 5A and 5B has been spread around following the dismantling and destruction of this feature. A large amount of stone must have been moved and it has been suggested above that underlying the Phase 2 rampart was a layer of Phase 1 rampart stones (5051) which had been pulled downslope to create a level foundation layer. It is clear from the material at the base of (5011) that, as in Trench 3X, there was collapse of the inner wall and a build up of scree at its base.

Area 5B[5]

Area 5B measured 12m east-west and 11m north-south. It covered features shown in the earthwork and geophysical surveys suggesting a slight entrance inturn and a quarry hollow on the inside of the Phase 1 rampart, Figure 82.

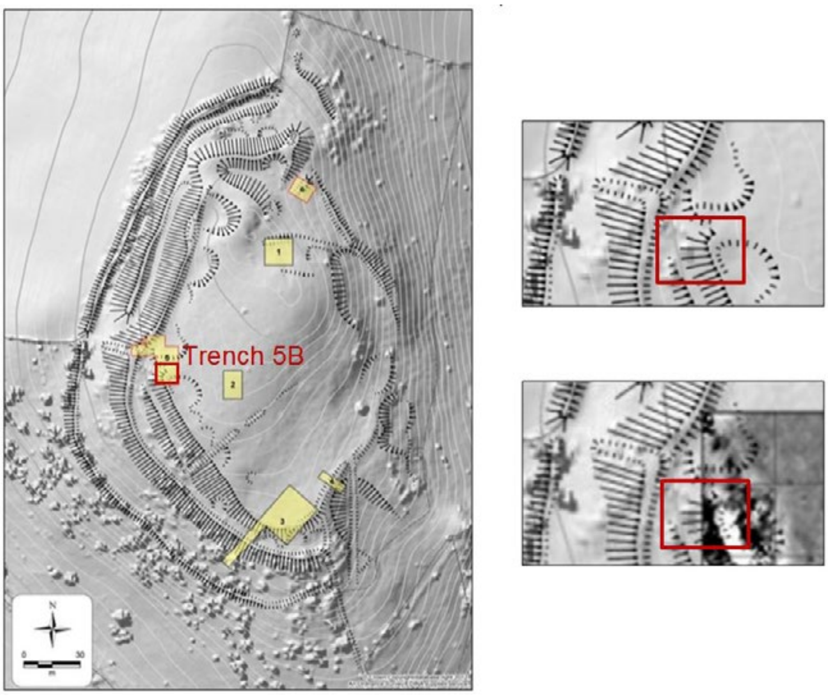

Figure 82. Trench 5, Area 5B: location and the slight inturn of the Phase 1 rampart shown on the earthwork and geophysical surveys.

[5] Area 5B was supervised by Sally Taylor and the account presented here is based on her records.

All of the features in area 5B are assigned to site Phase 1 and can be sub-divided into four sub-phases of activity. Before the earliest evidence of activity the bedrock was seen to frequently outcrop through widespread granular layers formed from weathered rock and limited pedogenic processes (5045, 5090 and 5101). These deposits, whilst probably accumulating naturally, may have formed contemporary land surfaces for the first phases of activity.

Sub-phase 1A (Figure 83)

This period represents the building of the Phase 1 rampart with an internal quarry hollow and an entrance which takes different forms on its northern and southern sides, the latter having an inturn and small recess.

Either side of a baulk running north-east to south-west, was feature (5087a/5103) cut into bedrock (5087/8). To the east this cut through natural deposit (5101) and scarped the bedrock to an angle of approximately 45 degrees levelling off at the bottom to natural deposit (5090) on the western side. In effect this created a quarry hollow running inside the Phase 1 rampart and parallel to it. The bedrock was roughly scarped, Figure 84 leaving a hollow sub-rectangular in plan with rounded

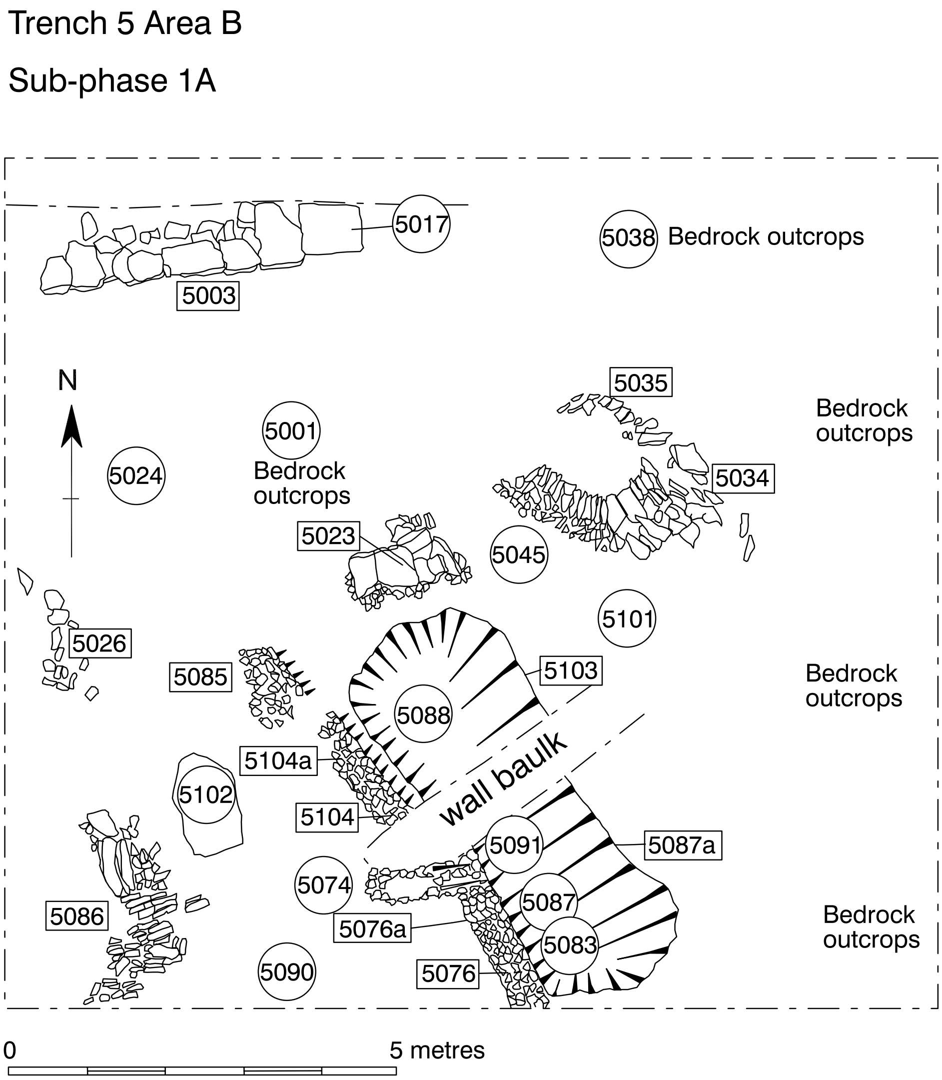

Figure 83. Trench 5, Area 5B: Sub-phase 1A, main contexts.

Figure 84. Trench 5, Area 5B: the scarped bedrock forming the eastern face of the shallow quarry hollow (5087a/5103).

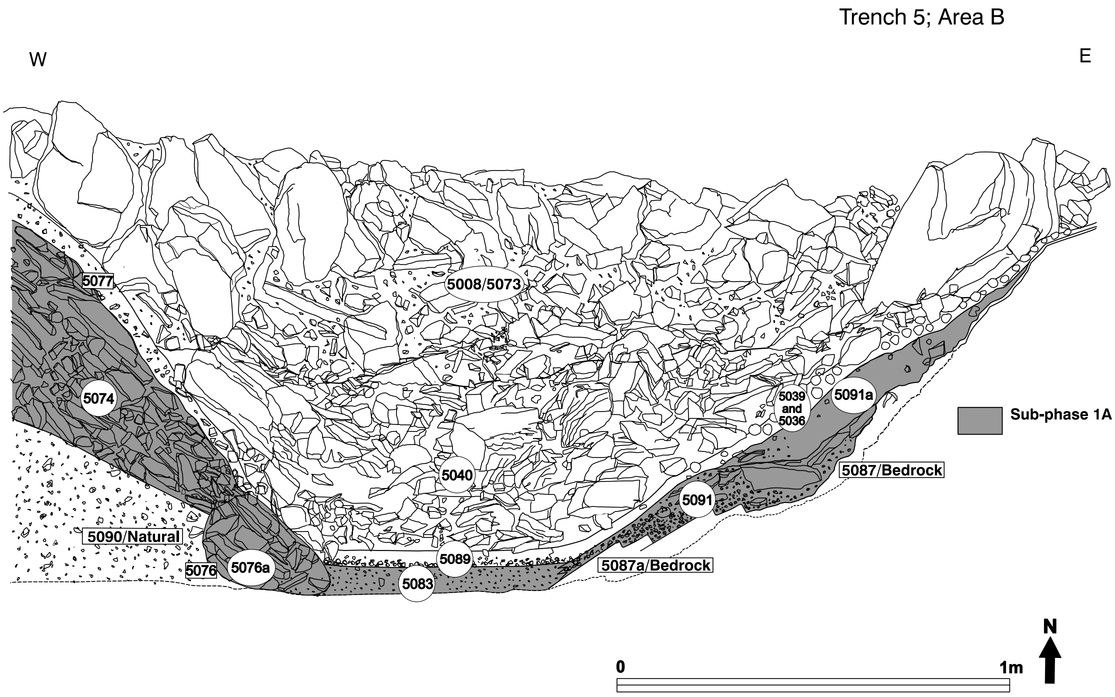

Figure 85. Trench 5, Area 5B: the fill of the quarry hollow (5087a/5103).

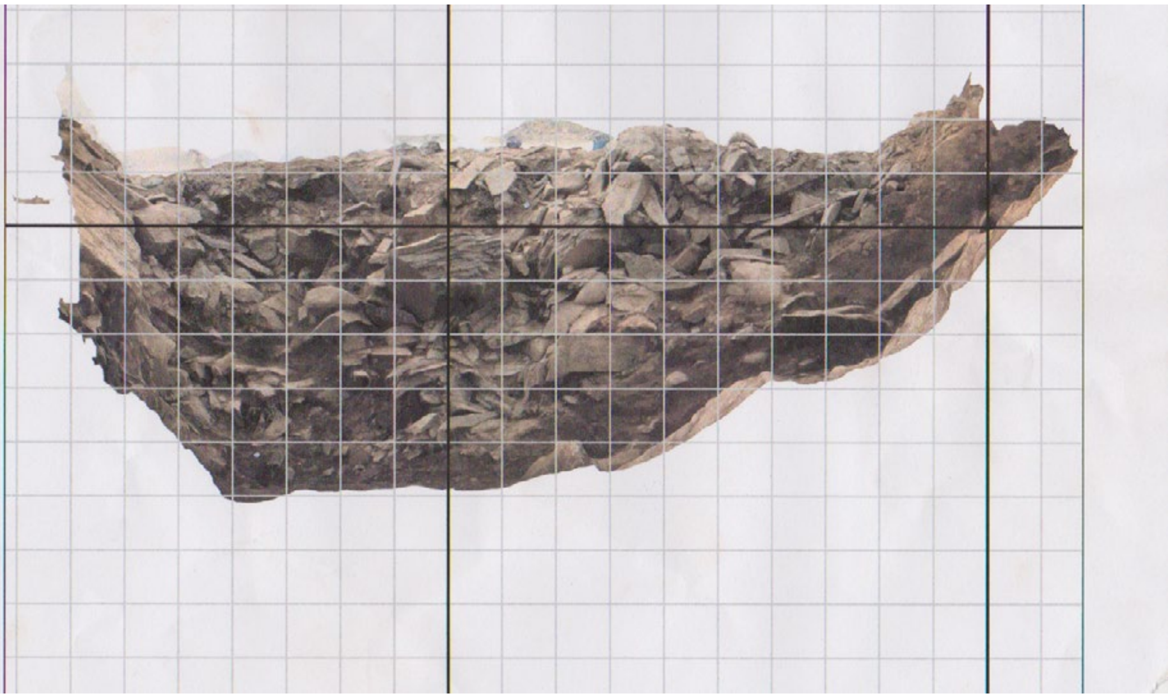

Figure 86. Trench 5, Area 5B: orthophoto of the fill of the quarry hollow (5087a/5103), 10cm/1m grid.

ends measuring approximately 5.5m long, 2.2m maximum width and 80cm at its deepest point, Figure 85 and 86.

The evidence for the Phase 1 rampart is minimal due to subsequent destruction although the lines of the inner revetting face and possible outer face are suggested. Positioned either side of the baulk, (5104) to the north and (5076) to the south were a series of broadly aligned features cutting into layer (5090) alongside the western side of the quarry hollow. These cut features were filled with linear structures (5104a and 5076a), formed of compacted rubble with a clay matrix. Further to the north-west, linear feature (5085) sat directly onto the bedrock, also aligned with (5104a) and (5076) and similarly comprised of compacted and consolidated rubble in a clay matrix. These three features (5076a, 5104a and 5085) represent the truncated remains of the rampart inner face following the natural contours of the hillside and running along a break of slope. Based on the section through the Phase 1 rampart shown in Area 5A, it is probable that these features are associated with the rear of the sloping rampart revetting bank rather than being a substantial vertical inner face. The line of the inner edge of the rampart running along the western edge of the quarry hollow suggests that it narrowed as it approached the entrance gap.

Downslope and to the west, linear features (5026 and 5086) sat directly on the bedrock, broadly aligned with one another. This is all that remains of the outer face of the rampart, both were formed of collapsed linear arrangements of laid shale stones. (5086) was the most substantial surviving up to 40cm high incorporating larger tabular stones up to 60cm long laid perpendicular to the direction of the structure with one possible larger basal stone, Figure 87. The width of the suggested Phase 1 rampart is between 3m and 4m.

Just to the east of (5086) a sub-rectangular feature (5102) comprised a red-brown matrix with frequent lumps of yellow-green clay and charcoal, material that was different to the rubble of the rampart fill. The stratigraphy in this area was very unclear although this feature did appear to represent pre-rampart activity rather than being within the rampart fill. It clearly was not a natural layer extending beneath the rampart. The charcoal from the fill of (5102) produced two

Figure 87. Trench 5, Area 5B: the Phase 1 rampart outer face (5086).

radiocarbon dates from branchwood, probably the same branch, of 1380-1130 cal BC (SUERC-97703, 95%) and 1390-1130 cal BC (SUERC-97707, 95%). While these dates are suspiciously early for the construction of the Phase 1 rampart they do provide a *tpq* for some form of activity in the area whether or not associated with preparations for rampart building.

In the north-western quadrant of Trench 5B two linear structural features (5003 and 5023) were formed of stepped arrangements of large tabular blocks, combined with some rounded large cobbles. Whilst (5023) was collapsing and less than half the length of (5003), both features appeared to be similarly structured walls, aligned parallel with one another. (5003) was approximately 2.8m long comprising a maximum of three courses high with the largest stones up to 60cm x 35cm x 15cm, Figure 88. At the eastern end of structure (5003), a 25cm square area of very dark compacted fine-grained organic matrix (5017) was detected, which may represent a shallow turf and soil layer lying directly on the bedrock. These are the remnants of the terminal ends of the rampart forming an entrance into the hillfort with a passage approximately 3.5m wide, Figure 89. The ground surface between these two features was largely shallow outcrops of fractured bedrock, some of which appear to have been smoothed on the upper surface (5024) possibly by footfall. A search for similar smoothing of rock along the same trajectory to the east revealed nothing, due to very heavy disturbance from bioturbation (tree-throw and animal burrowing) in the north-east section of Trench 5B (5038). The remains of the rampart running south of (5023) are described above but nothing survives immediately north of (5003) other than slightly scarped bedrock which represents the line of the rampart running towards the main east-west section described in Area 5A.

Figure 88. Trench 5, Area 5B: the northern side of the Phase 1 entrance passage (5003).

Figure 89. Trench 5, Area 5B: orthophoto of the Phase 1 entrance passage.

Figure 90. Trench 5, Area 5B: the Phase 1 entrance recess (5034/5035).


Figure 91. Trench 5, Area 5B: the Phase 1 entrance recess undergoing excavation (5034/5035).

To the east of structure (5023), approximately 1.5m away, features (5034 and 5035) displayed curvilinear arrangements of parallel shale stones up to three layers high, packed with small-scale rubble, Figures 90 and 91. These are both part of the same structure which suggests a small recess associated with the entrance. The northern curve of (5035) showed more signs of collapse, probably due to the proximity of the heavily turbated area in the north-eastern section of the trench. (5034) was better preserved and together they create an internal circular space of approximately 1m diameter with an entrance gap facing into the entrance passage.

During this phase the quarry hollow began to silt up, having provided stone for the rampart construction its use was now over. At the southern end, structure (5076a) was abutted by (5083), a consolidated dark red-brown primary fill with frequent gravelly inclusions, directly overlying the quarried rock face (5087a), Figure 85. This layer is a silty matrix incorporating weathered rock slipped down from the quarry face above. Nearer to the baulk the primary fill changed; here, (5091), comprised of a partially consolidated granular red-brown matrix containing frequent stone inclusions. As the eastern side of the quarry sloped upwards, the primary deposition became thinner, finer in composition and more consolidated; (5091a) was a red-brown silty-clay deposit with only occasional granular inclusions. Near to the baulk, structure (5076a) was partially covered by the sloping collapse from structure (5074), a linear feature of unconsolidated rubble with a fragmented clay matrix, possibly representing an element of the rampart structure.

Sub-phase 1B (Figure 92)

This period shows evidence that the rampart had been at least partially demolished with a series of clay layers deposited over its remaining basal layers and covering the bottom and sides of the quarry hollow which was then filled with rubble. To the east a low wall was constructed with a pebbled surface butting up against it.

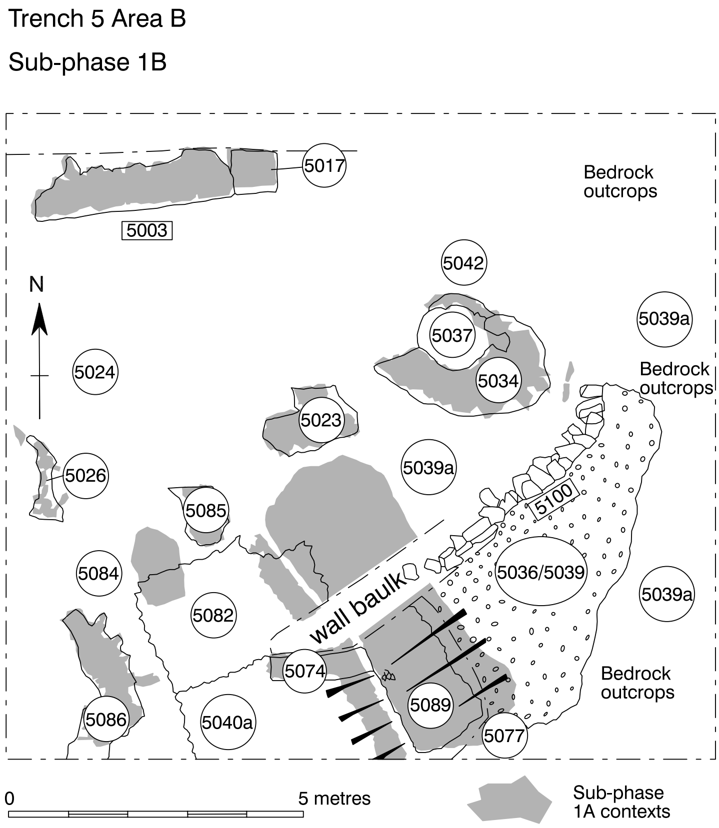

Figure 92. Trench 5, Area 5B: Sub-phase 1B, main contexts.

The base of the quarry ditch was covered by a consolidated yellow/orange clay fill with small sub-angular stone inclusions (5089) laid above primary fill (5083), abutting linear structural features (5076a and 5074). This deposit continued up the western slope of the quarry profile, (5077), covering (5074).

In the eastern and central areas of Area 5B, bedrock and primary deposits of weathered bedrock (5045 and 5101) were covered by a widespread layer of solidly compacted pale orange-brown clay (5039a). A linear structural feature of laid large sub-rounded and tabular stones (5100) was built directly onto this clay layer, running north-east in a straight line, perpendicular from the quarry edge where it started, before curving north to partially encircle structural feature (5034) which was still in use. Almost the entire south-eastern edge of this probable wall (5100) was abutted by a further clay layer (5039) of very similar composition to (5039a), but set with frequent uniformly-sized small, pale coloured, rounded pebbles (5036). This surface continued down the eastern side of the quarry hollow, Figure 93, to meet basal layer (5089). To the north-west of wall (5100), the sub-circular area contained by structural features (5034 and 5035) was filled by a compacted pale yellow clay (5037) abutting both internal faces of both features.

Figure 93. Trench 5, Area 5B: pebble surface (5036) and wall (5100) under excavation.

The quarry hollow was then filled and levelled off by a thick layer of partially-consolidated rubble (5040) including large angular shale pieces with a loose pale orange-brown matrix with very frequent small shale inclusions and some rounded stones. Many modern roots and voids were evident in (5040) and at the base of the deposit an accumulation of organic material had formed of soft, very dark brown-black silt with frequent small shale inclusions. Charcoal from close to this deposit on the surface of underlying layer (5089) gave a radiocarbon date of cal AD 880-1020 (SUERC-97702, 95%). Considering the nature of context (5040) this charcoal is likely to be intrusive and while it may indicate some early medieval activity it is not considered to be relevant to the sequence being discussed here.

Layer (5040a) covered the west side of the quarry and extended northwards building up against structure (5074). To the north of the wall baulk, features (5104), (5104a) and (5101) were covered by a similar thick layer of partially consolidated rubble (5082) comprising a red-brown coarse matrix with very frequent shale inclusions, with voids and mats of fine roots. To the west and north of (5040a and 5082), a further rubble deposit (5084) spread downslope, surrounding and partially covering structural feature (5085) and thinning out downslope to abut and partially cover structural features (5026 and 5086). North of structural features (5034 and 5035), in the area of disturbance by bioturbation, a possible tree-throw hollow had been partially filled with compacted pale-yellow clay (5042) forming a sub-rectangular deposit.

Sub-phase 1C (Figure 94)

This period is distinguished by building up and lengthening the short wall constructed in Sub-phase 1B to extend over the filled-in and levelled quarry hollow; the entrance recess was also partially remodelled suggesting that the entrance was still functioning as a throughway. Further accumulations of clay indicate possible stasis and land surfaces.

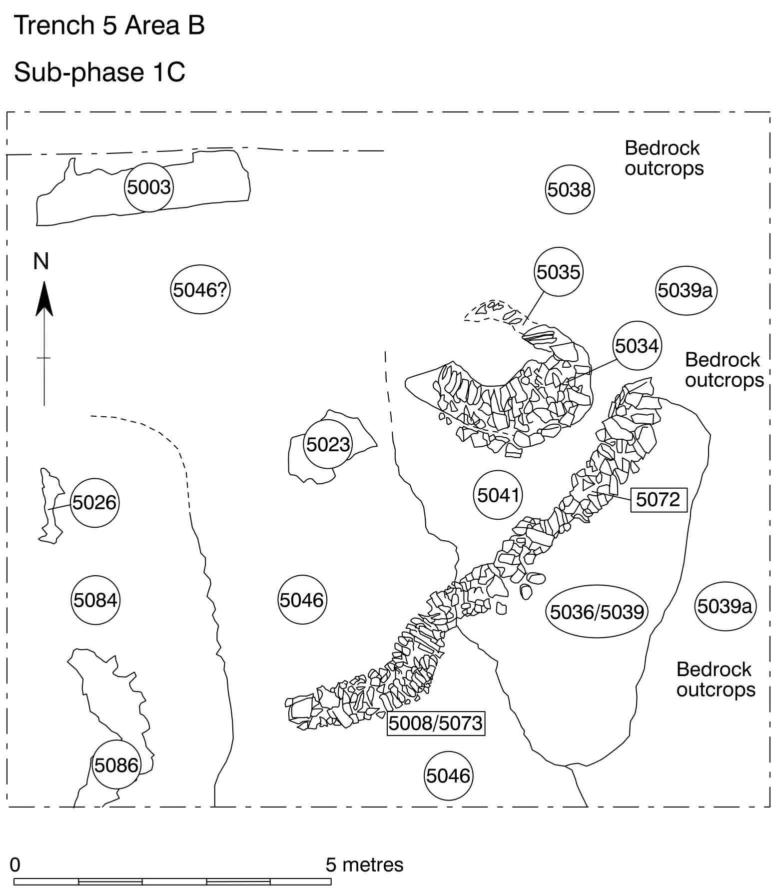

Figure 94. Trench 5, Area 5B: Sub-phase 1C, main contexts.

Structure (5100) from Sub-phase 1B was made higher and extended to the west to run over the filled in quarry hollow. This was in three builds that joined together, (5072) to the east, (5008 and 5073) to the west. In plan, (5073) follows the line of structure (5074) beneath, and incorporates (5008) before changing direction to the north-north-east to meet up with structure (5072). The overall effect is of a fairly straight wall running from north-east to south-west, with a bow-shaped curve at the southern end. (5072) reached a height of 40cm using irregular shale pieces and blocks in a random or sub-parallel arrangement; some rounded stones were also incorporated. On the south-east side, this construction partially overlay clay layer (5039) and inset pebbles (5036). On the other side of the wall, and above the existing clay layer (5039a), which ran under the wall (5100), a further layer of clay developed on the north-west side, abutting wall (5072) along its entire edge. Between the wall and the entrance recess layer (5041) was characterised by hard compaction, a strong orange-brown colour, infrequent small shale inclusions and the presence of charcoal. This context may represent a land surface between the wall and entrance recess (5034). (5041) abutted the main portion of the recess wall, but where this feature had been remodelled to a limited extent, (5034)'s structural changes lay over (5041). The charcoal from (5041) produced a radiocarbon date of 740-400 cal BC (SUERC-97701, 95%) providing a *tpq* for the remodelling of the recess.

To the south-west, structures (5100 and 5072) were extended over the filled in quarry ditch by a wall of two-deep parallel laid rectangular shale pieces with some rounded stones at the upper levels (5008/5073), Figure 95. This part of the extended wall was built up to 90cm and consolidated with a hardened orange-brown clay matrix, it lay directly above clay layer (5077) and structure (5074) to the west of the quarry ditch and over the rubble fill (5040).

Figure 95. Trench 5, Area 5B: structure (5008/5073/5072).

Surrounding the southern end of the wall (5008/5073) and extending north towards the probable entrance, a further extensive layer of clay (5046) was deposited over pink clay layer (5077), rubble layers (5082 and 5040) and possible rampart structure (5085). (5046) comprised a hard-compacted pale grey-orange clay with very infrequent small shale inclusions; this thinned slowly across the entrance area itself. Abutting wall (5008/5073) on both sides, (5046) could represent a land surface which formed after the construction of the elevated wall, similar to (5041) to the east into which it grades.

Sub-phase 1D (Figure 96)

This period represents the final series of activities in this area, comprising extensive coverage of the western and central areas by rubble and the later placement of a post in the vicinity of the hillfort entrance.

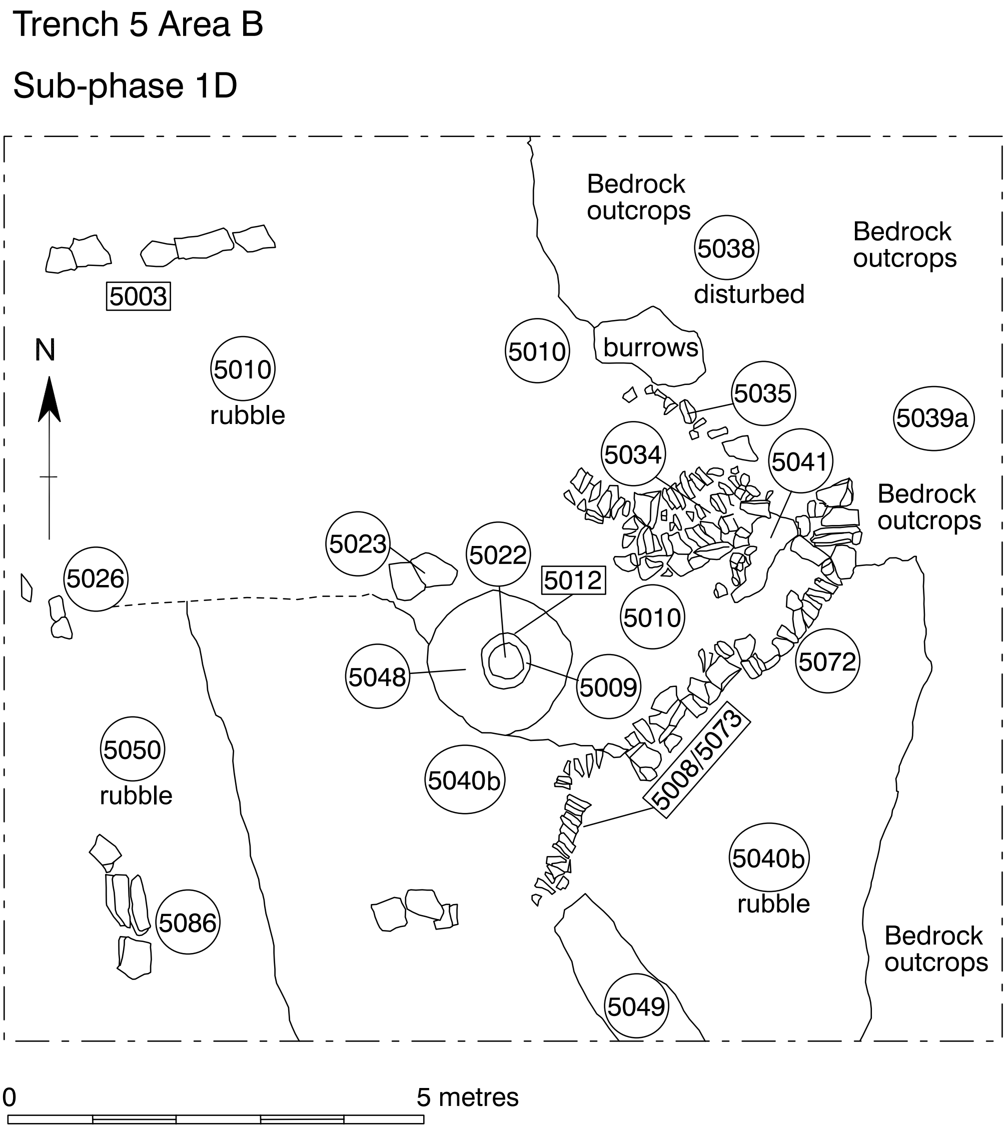

Figure 96. Trench 5, Area 5B: Sub-phase 1D, main contexts.

Layer (5010) was a widespread deposit of loosely-compacted red-brown matrix with very frequent shale and rare rounded stone inclusions, extending from the entrance area to the recess/guardhouse and wall. This rubble, likely to be from degraded rampart, finally levelled out the residual dip above the quarry hollow to the north of the wall and built up around structures (5072 and 5034) so that they were only partially visible above (5010). To the west and south of the wall, a further rubble deposit (5040b) built up around wall (5008/5073), almost concealing the structure.

Next to the south-eastern edge of entrance structure (5023), a posthole (5012) was cut into rubble (5010 and 5040). This cut feature was circular with sloping sides, 80cm in diameter and 40cm deep, cutting through the rubble layer and into the top of clay layer (5046) below, Figures 96 and 97. There were two fills, (5009) represents the main fill of the posthole, comprising a compacted mid-brown silty clay containing some packing stones; (5022), a dark brown organic fill with vertical sides was likely to represent the post pipe. Around the margins of the post hole cut (5012) was a 2m wide circular feature of compacted red-brown clay, rising up to a cone shape at the upper level (5048). This could represent packing of clay around the outer margins of the posthole and post, perhaps stabilising the post.

In summary, Trench 5 showed in Area 5A that the Phase 1 rampart consisted of a well built outer face behind which layers of relatively small-stoned rubble bonded by red sandy clay sloped steeply downwards to the quarried/scarped surface of bedrock. It was built onto a levelling surface at the western end where the bedrock sloped steeply downwards. Area 5B showed an almost completely dismantled rampart with an internal quarry ditch and an entrance inturned on one side with a small recess. Nothing of Phase 2 occurred in Area 5B as the Phase 2 rampart ran along a different line to the west thus cutting off the Phase 1 access route into the interior. In Area 5A the Phase 1 rampart was increased in height with a stepped surface and a revetting rear wall in Phase 2. The early rampart was also truncated by the Phase 2 inner face as the later rampart changed direction to run further southwards. The Phase 2 rampart had dry-stone shale inner and outer faces of a similar build to those excavated in Trench 3X. The area between Areas 5A and 5B is archaeologically sterile where a very thin topsoil lay directly on bedrock so that the line of the Phase 1 rampart towards the entrance passage can only be estimated as in Figure 67.

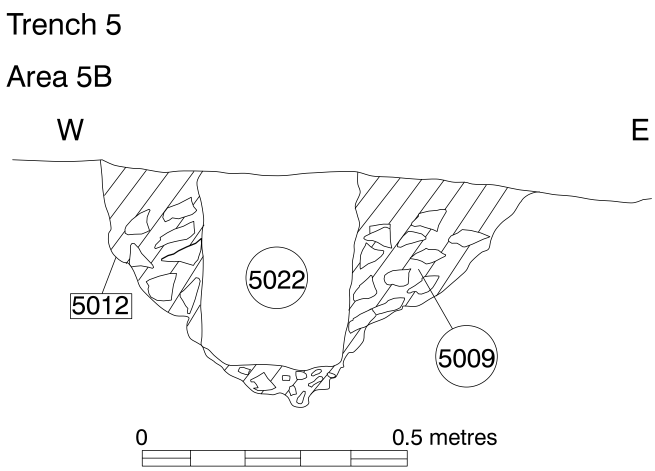

Figure 97. Trench 5, Area 5B: posthole (5012).

Trench 6

A 12m x 10m trench was positioned over the eastern leg of the northern inturned entrance first recorded by a 1964 OS topographic survey and visible today as a slight turf-covered bank that drops away steeply to the east. The opposing western inturn of the entrance is terminated by an outcrop of bedrock with the resulting entrance passage appearing to be between 8 and 10m wide on the surface, Figure 98. Both inturns show on the enhanced LiDAR plot, Figure 99. Excavation showed that the final phase of the eastern inturn was hooked creating a large recess facing into the passage. Evidence for an earlier phase rampart and possible entrance lay below.[6]

Topsoil averaged a depth of 10cm over this trench although in the south-western corner, the inner upslope area of the entrance passage, it was much shallower and the flat surface of the bedrock (6001) displayed signs of wear and weathering which appeared to be the result of traffic using the entrance, Figure 100. Possible tool marks were also identified indicating that the bedrock in this area of the entrance passage had been levelled giving it a much smoother appearance when

Figure 98. The inturned northern entrance viewed from the interior, the western inturn to the left, behind the figure, is much higher than the eastern to the right.

[6] Dr Paula Levick supervised Trench 6 and this account is based on her records.

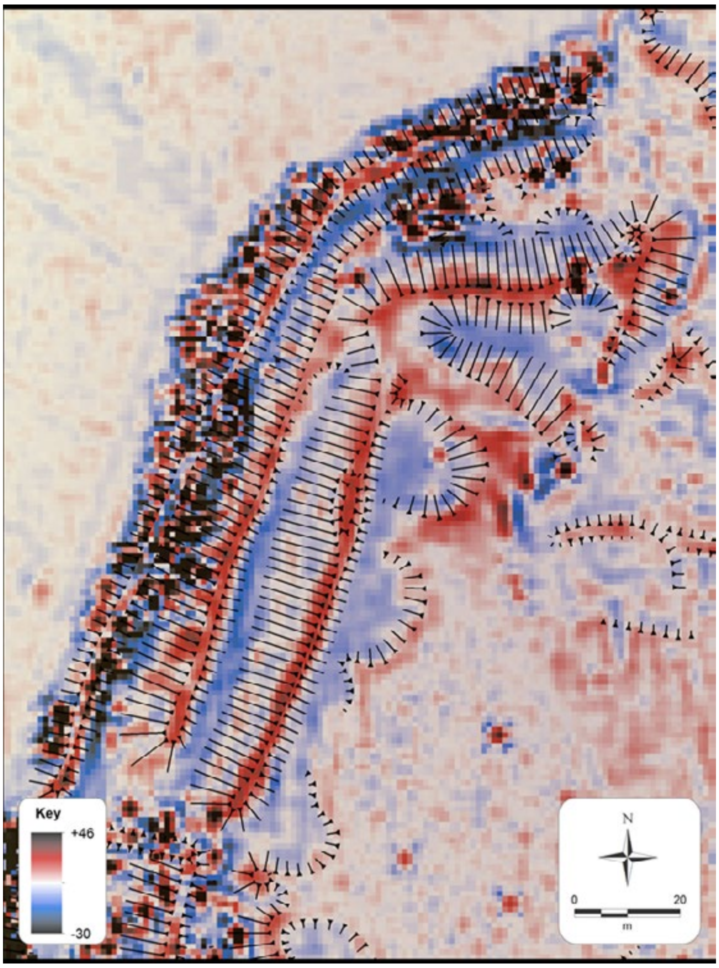

Figure 99. Enhanced LiDAR plot of the northern inturned entrance (top right) showing ramparts in red and the large quarry hollow inside the northern rampart (blue).

Figure 100. Trench 6: bedrock (6001) in the entrance passage showing signs of erosion due to traffic.

Figure 101. Trench 6: the main contexts.

Figure 102. Orthophoto of Trench 6 nearing the end of excavation.

compared to the bedrock exposed further to the east. This trench contained a large amount of mudstone rubble in various layers much of which could have originated from the quarry hollows nearby to the west inside the northern rampart. Figures 101 and 102 show the main features of the trench which are described in detail below.

Phase 1

In the last season of excavation, mainly due to a lack of time, a 2m wide slot (Slot 1) was excavated along the northern baulk of Trench 6 to establish the depth of archaeological deposits. The results were surprising in that an early phase of rampart/entrance inturn was uncovered running north-

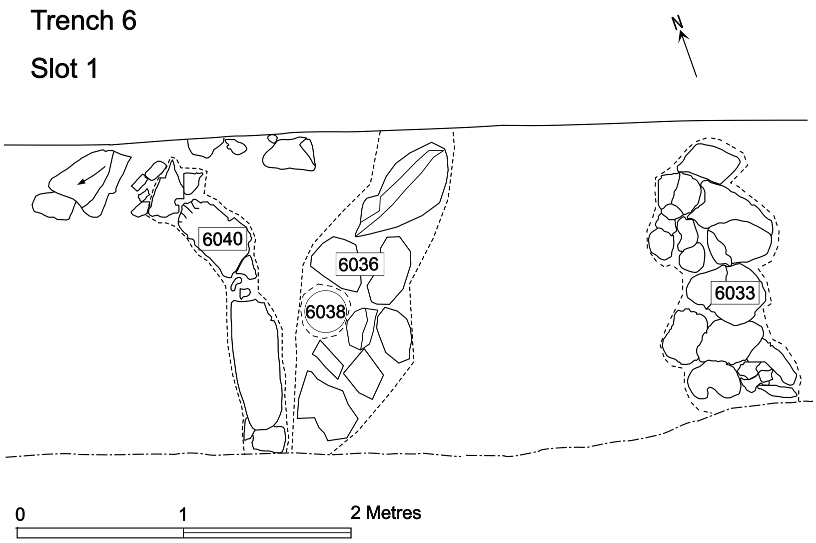

Figure 103. Trench 6: the Phase 1 rampart as shown in Slot 1.

Figure 104. Trench 6, Slot 1: the Phase 1 rampart inner face (6040).

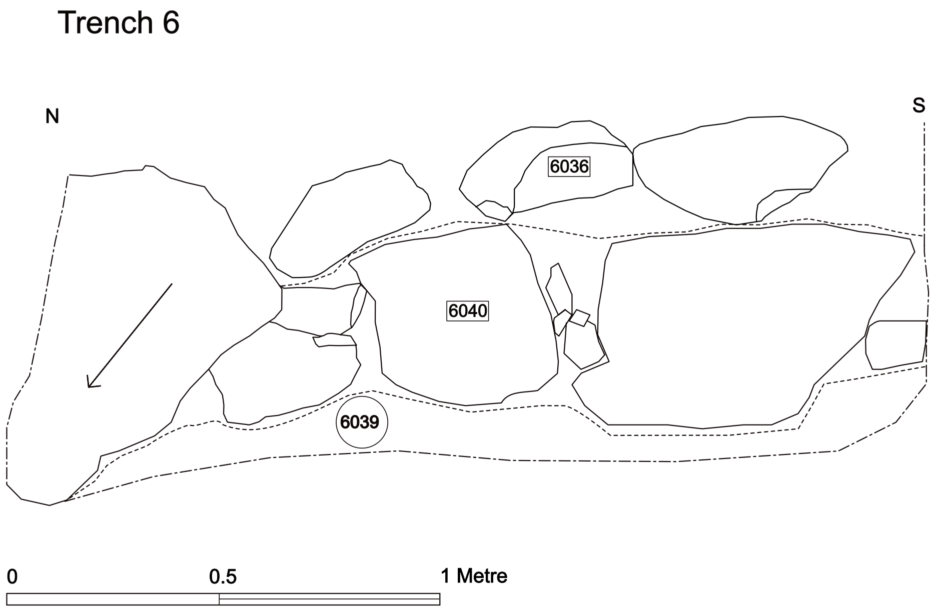

Figure 105. Trench 6, Slot 1: the Phase 1 rampart inner face (6040), section view.

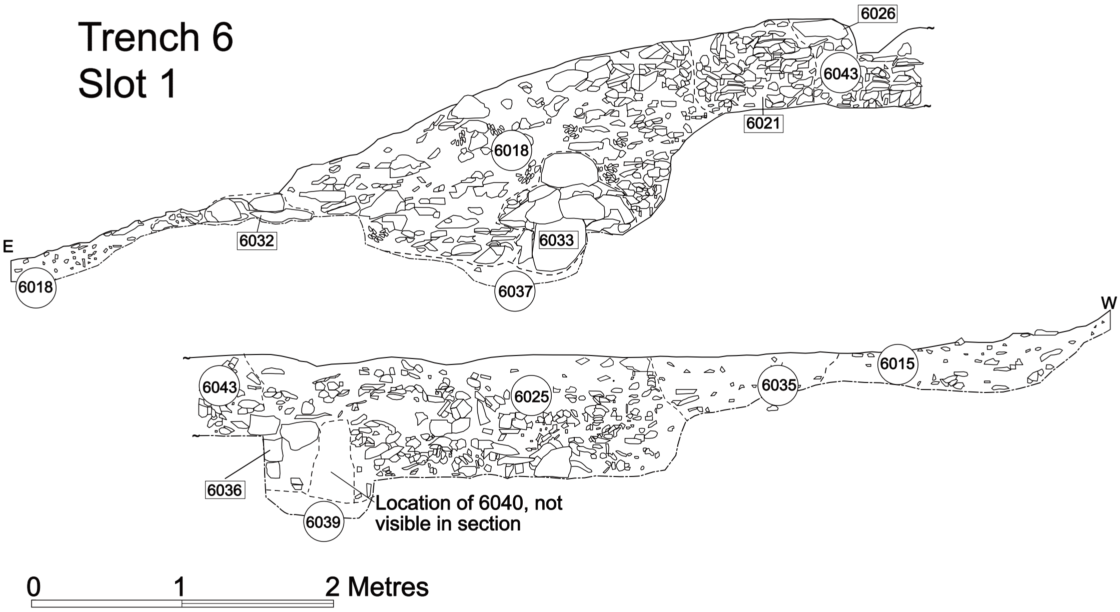

Figure 106. Trench 6: north facing section of Slot 1 showing the Phase 1 rampart inner and outer faces.

south with a width of approximately 3.6m between the inner face (6040) and the outer face (6033), Figure 103.

The inner face as exposed in Slot 1 comprised three large dressed limestone blocks, the most northerly of which appears to have fallen on its side and was partially embedded into the baulk, Figures 104 and 105. From north to south the stones measured 45cm x 10cm x 70cm; 48cm x 45cm x 20cm and 75cm x 50cm x 42cm. All three appear to have been deliberately dressed on the outer face only.

Figure 107. Trench 6, Slot 1: the Phase 1 rampart outer face (6033).

Between the large stones was a packing of smaller mudstones. The rampart face overlay (6039) a red brown stony deposit with small rounded and sub-rounded stone inclusions up to 5cm in diameter which probably represents the Iron Age land surface, Figure 106. This deposit is similar to (6037) underlying the outer face (6033) but with fewer of the larger inclusions.

The outer face (6033) survived as two courses of sub-rounded limestone boulders and conglomerates, some showing evidence for glaciation, the maximum dimensions of the largest being 40cm x 50cm and the smallest 30cm x 20cm, Figure 107. These are reminiscent of the foundation boulders at the base of the middle rampart as excavated in Trench 3X. Underlying these is natural deposit (6037), with inclusions of pea gravel 1-2cm in diameter, and clay in patches throughout together with large stones varying in size up to 30cm x 10cm x 5cm.

The core of the Phase 1 rampart at this point was made up of rubble and larger stones which were much disturbed, superficially at least by a large tree throw (6005), showing no indication of structure. The main two components were a layer of smaller stones (6021) and to the west (6043) comprising fractured mudstones of approximately 20cm or less within a light reddish-brown sandy matrix. A concentration of larger stones, (6036) Figure 108, behind and on the inside of the inner face of the rampart could be disturbed rampart fill or more stones from the face itself. They were not coherently organized when excavated and lay on a north-east/south-west alignment. The group consisted of seven large stones of both local and erratic type, some rounded, others angular, and approximately 20 similar stones, but of smaller size. The largest of the stones was a flat slab which measured 60cm x 40cm x 8cm, the smallest an erratic 30cm x 25cm x 25cm with the remaining smaller stones measuring up to a maximum size of 40cm. Within (6036), between the stones and partially covering some of them, was a discrete deposit of dark red-brown soil with a

Figure 108. Trench 6, Slot 1: the disturbed Phase 1 rampart fill (6036), removed from the front of the rampart face to the west.

large number of charcoal fragments (6038). Charcoal and a wheat grain from this layer produced radiocarbon dates of 390-170 cal BC (SUERC-97709, 95%) and 370-160 cal BC (SUERC-97710, 95%,) respectively. These are broadly consistent with Phase 2 dates from Trenches 1 and 3X and represent a *tpq* for the building of the Phase 2 inturn and a *taq* for the demolition of the underlying Phase 1 rampart.

Phase 2

The excavated eastern inturn of the Phase 2 entrance was defined by a low dry stone wall on its western and southern sides and ran north to south for approximately 8m in the centre of Trench 6 before curving to the west to create a hooked form in plan. To the west was the entrance passage and to the east, starting approximately 0.6m east of the north-south defining wall, the ground sloped steeply downwards, Figure 109.

Before constructing the Phase 2 inturn the area of the entrance passageway was levelled by the dumping of a large amount of rubble covering the Phase 1 inner face and northern area of the passageway. It seems likely that this material was moved from the quarry hollow inside the northern rampart, around the western inturn which includes outcrops of bedrock, and then spread over the area to be built on. The filling of the entrance passageway created a relatively flat surface on which to build the Phase 2 entrance inturn. As shown in the southern section of Slot 1, Figure 106, at this point the material was over a metre deep and consisted of several deposits of shattered mudstone. At the western edge and sloping downwards from the western inturn, was a random arrangement of mudstones embedded within a clay matrix (6015) and (6035) much disturbed and possibly altered by the presence of a large tree throw at that end of Slot 1. The upper layer across the passageway was a homogenous deposit of brash consisting of local mudstone with very little soil (6025) covering much of the levelled area. The stones were mostly rectangular, ranging in size from 6-18cm in length and approximately 2-6cm thick. The depth of this layer increased towards

Figure 109. Trench 6: overview from the north-west showing the trench under excavation. Slot 1 is to the left containing the Phase 1 evidence, and the Phase 2 inturn with entrance passage is to the right.

the east. In the south of the trench in the area of the passageway the deposit was thinner and overlay a compacted surface of yellow sandy clay with inclusions of rounded and sub-rounded quartzite river pebbles (6010) which thinned to the bedrock surface (6001). The bulk of the infill was mostly loose, shattered local stone with a small number of rounded river cobbles or erratics (6025) covering an area of at least 6m east to west and 5.4m north to south. It comprised some hundreds of stones with no apparent alignment *c.* 20cm long but narrow; thousands of 5-10cm stones in patches grading to a shale gravel in the north.

This act must have involved the dismantling of much of the Phase 1 structure and this is evident from the spread of core material downslope to the east (6018). This comprised small stones with larger blocks of mudstone and erratics and is possibly a dump of material used for the revetment of the inturn where the ground drops steeply away, some of the larger blocks of stone and rounded erratics possibly originating from the Phase 1 structure. A line of stones [6032] running approximately north-west to south-east was observed in the eastern extent of Slot 1 consisting of several large limestones, all erratics, some sub-rounded, others showing evidence for glaciation in the form of striations on the surface, Figure 110. This seems likely to have been the downslope revetting wall of the inturn showing in the deeper excavation of Slot 1 and heading to join wall (6011) to the south. The rest of the trench in the east was not fully excavated and over much of its extent deposit (6018) had tumbled downslope.

The main walls of the Phase 2 inturn, (6026), (6022) and (6023) had retaining faces constructed from mudstone blocks some of which retained their original size and shape although most had shattered into smaller stones. There is no indication of how high the walls were originally with only the basal courses surviving to a maximum of 40cm high with much being lower. The north-south wall,

Figure 110. Trench 6, Slot 1: Phase 2 possible revetting wall (6032).

(6026) at its northern end was constructed on disturbed and redeposited Phase 1 rampart fill (6043) which was still *in situ* behind the front face (6040). This comprised a few stones greater than 20cm in size but most much smaller in a reddish brown soil. The wall itself, (6026), Figures 111 and 112, extends southwards for 4.75m from the baulk in the north, where it has been disturbed by tree throw (6005). Behind the front face the fill of the wall consisted of mudstone and limestone blocks with smaller levelling stones between, it now survives as layers of mainly fractured, disorganized stones. The maximum size of stone is 60cm wide by 15cm thick. It forms a wall approximately 1m wide although some slippage has occurred on the steep eastern side where the outer edge is less well-defined. Forming the eastern part of (6026) is a terrace of rectangular fragments of mudstone 10-20cm in length aligned east-west and where exposed in section approximately 60cm thick. It can be seen in section to the east of [6023], the east-west wall in the south, and appears to continue southwards beyond the wall where it was assigned context number (6016) (discussed below).

The claw-like end of the inturn has a northern wall (6022) and a southern wall (6023) with fill in between (6027), Figure 113. Surviving as a low wall approximately 40cm high, (6023) it faces toward the interior of the hillfort and comprises a lower course of well-formed mudstone blocks 30-50cm in length above which the stonework becomes less consolidated. It lies on a 3cm thick deposit of red-brown sandy silt (6030) which in turn lies directly on uneroded bedrock (6000). The north-facing wall (6022) is largely destroyed with its line suggested by fragments of stone, it forms a sharp corner with (6026) and joins (6023) in the west to form a rounded terminal, Figures 114 and 115. The stones at the terminal end of the inturn show a better state of preservation than those in the joining walls suggesting that they all could have been larger originally and more carefully selected. Between the two walls is a fill of fragments of local stone (6027), aligned in the same direction as the bedding plane of the larger blocks of the outer walls. At the terminal end of the inturn is a posthole (6031) which has slightly cut into the walls suggesting that it was in position before the end of the wall was constructed around it. It measured 40cm by 50cm and 55cm deep

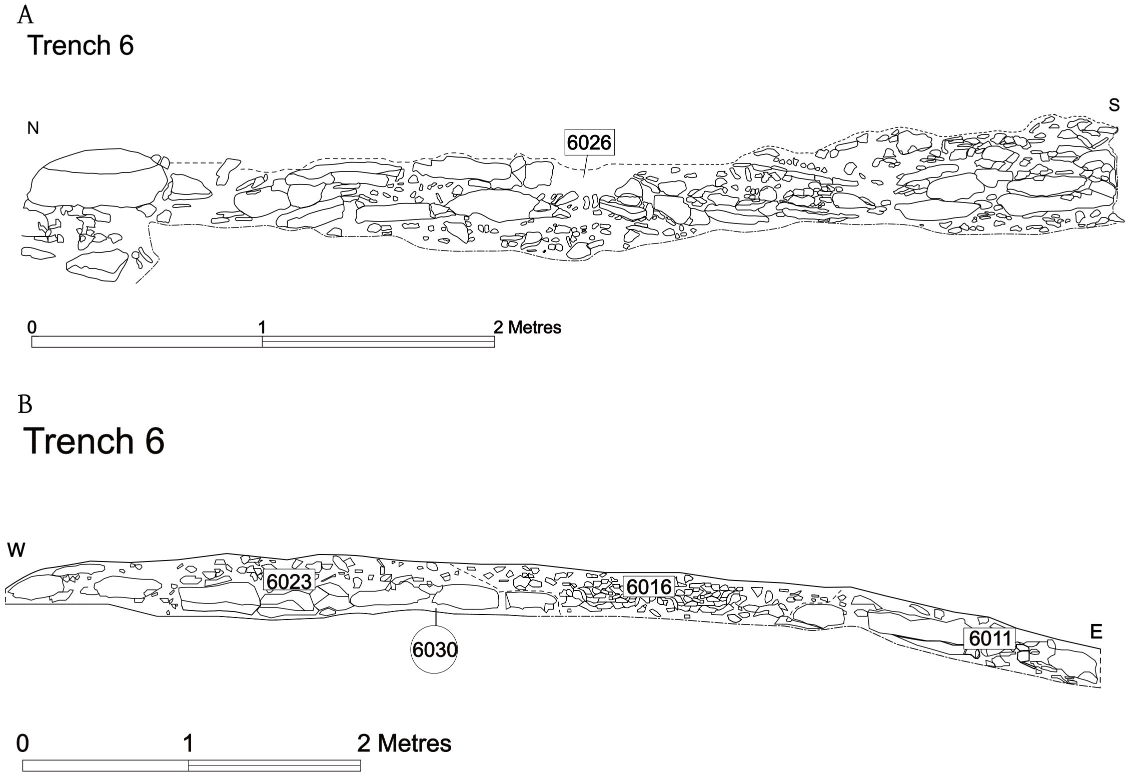

Figure 111. Trench 6: Phase 2 inturn walls, A) (6026), B) (6023).

Figure 112. Trench 6: orthophoto of Phase 2 inturn wall (6026), 1m grid lines.

with vertical sides with a single single fill (6034) comprising rectangular pieces of mudstone 18-28cm in length, placed vertically, possibly the remains of post-packing within a dark black-brown matrix of organic material, dissimilar to the overlying deposits, Figures 116, 117 and 118.

Lying directly to the north of (6022), at the lowest course, was a row of laid mudstones (6019) aligned north-south, Figures 113 and 119, possibly the remains of a laid surface within the inturn. This could have originally been several courses deep but now reduced to a single layer of undisturbed stones 15-20cm in length following the line of the outer face of the wall for 1.8m, with a width of 60cm. This area was disturbed by the roots of small gorse bushes but was possibly overlain by

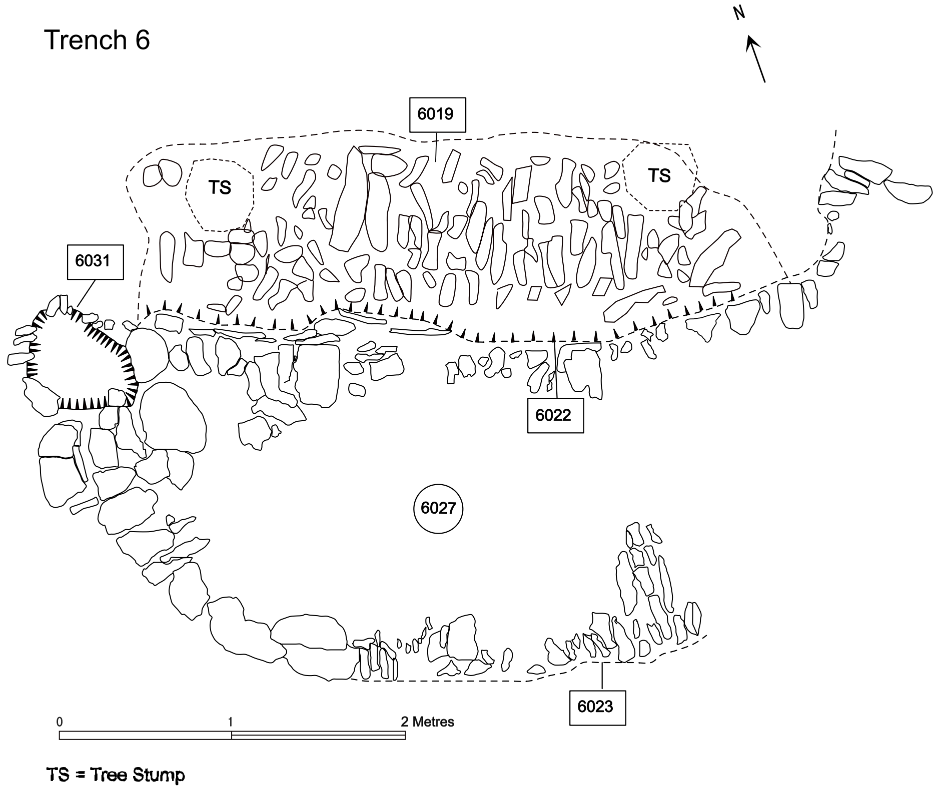

Figure 113. Trench 6: the hooked terminal end of the Phase 2 inturn.

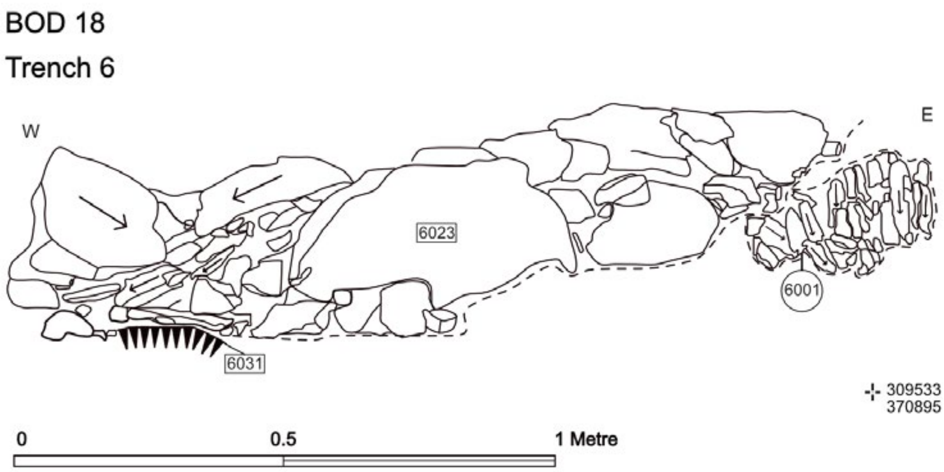

Figure 114. Trench 6: the terminal end of the Phase 2 inturn.

(6014), a similar deposit. Beneath (6019) was a red-brown sandy silt (6029) similar to (6030) and probably a foundation deposit.

To the east of the southern wall (6023) and seemingly continuing its line was a roughly laid wall of mudstones (6011) measuring approximately 40-60cm wide and 2.5m in length, Figure 111B. Continuing eastwards downslope, the stonework is less coherent on the steep slope and some of the larger boulders have probably moved from their original position. The alignment continues

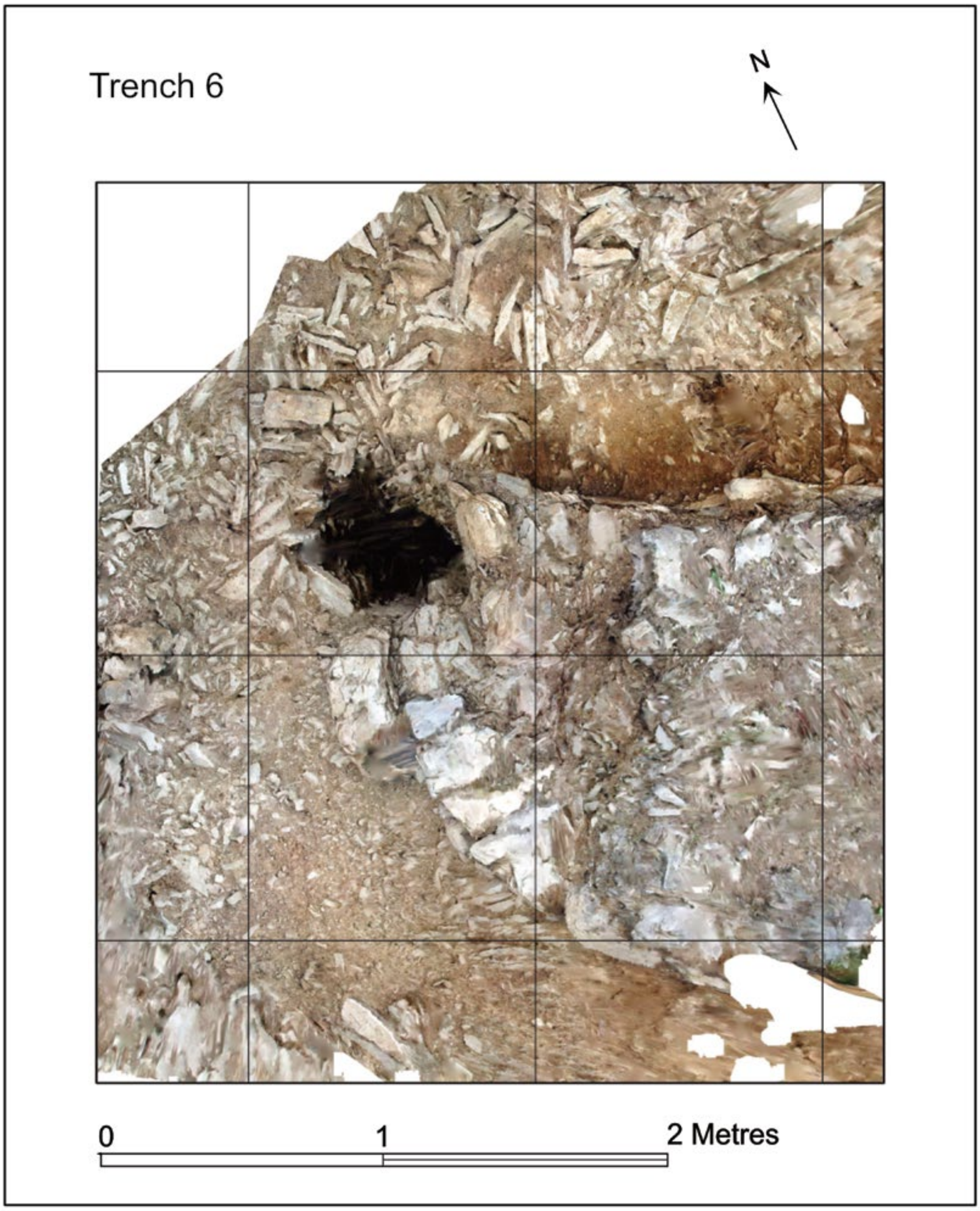

Figure 115. Trench 6: orthophoto of the terminal end and posthole (6031) of the Phase 2 inturn.

as individual stones to the eastern extent of the trench and may be the remnants of a southern revetting wall for (6018) although this area was not fully excavated.

To the south of (6023) and (6011) a stony area was explored (6016), although not fully excavated, as it was different to the surrounding deposits and formed a distinctive edge with (6041) to the west and (6042) to the east, Figure 120. Deposit (6016) was a layer of rectangular mudstones of between 10-20cm in length on an east-west alignment, embedded into an orange-red sandy clay matrix and appeared to have been intentionally laid. The arrangement is approximately 2m wide and continues into the baulk in the south of the trench. This deposit is visible on geophysics as a faint north-south anomaly although its interpretation is unclear. To the east was a deposit of small cobbles (6042) at least 50cm wide extending where excavated into or under the extension of the east-west wall (6011). The cobbles at 5-10cm are smaller than those in (6016) but were embedded

Figure 116. Trench 6: the terminal end and posthole (6031) of the Phase 2 inturn from the south.

Figure 117. Trench 6: the posthole (6031) pre-excavation.

Figure 118. Trench 6: the posthole (6031) post-excavation.

Figure 119. Trench 6: the laid surface (6019).

into a similar sandy clay matrix. To the west of (6016) was a hard band of sandy clay (6041), approximately 25cm wide running into the baulk in south of the trench, very fine grained with pea gravel 5mm or less. Due to a lack of time this area was not fully excavated and the relationship between these deposits and the inturn are unclear.

In summary, interpretation of the Phase 1 evidence is difficult with such a small section of rampart exposed. Its orientation, however, running north-south, together with its mismatch with the topography suggests that it was not part of a rampart running along the western side of the hill and turning to meet the east-west rampart on the western side of the entrance. It seems more likely that this is an early entrance inturn on the same line as the Phase 2 inturn. Supporting this interpretation is that the only other occurrence of large worked blocks similar to (6040) are found in the Phase 1 entrance in Trench 5, (5003 and 5023) perhaps indicating an architectural similarity between Phase 1 entrances. It may also be significant that the second block from the north appears to be curving towards the entrance passage perhaps suggesting a narrowing towards an actual gate. The Phase 2 evidence is clearer and shows the construction of a claw-shaped inturn built onto the levelled surface covering and incorporating the Phase 1 structure. Its shape creates an entrance passage with a large recess on its eastern side within the claw, partly with a laid surface (6019), which narrows at the point of the single exposed gate posthole (6031). The north-south component (6026) was built to enclose the passageway to the west while its eastern side sloped steeply downwards culminating in a revetting wall (6032). The western inturn of the northern entrance was not excavated and is likely to be of a different design as large outcrops of bedrock are incorporated into it and visible in the modern entrance passage.

Figure 120. Trench 6: surface (6016) to the south of the Phase 2 inturn.

Environmental

Michael J. Allen and Alan J. Clapham

Bulk soil samples were submitted to Allen Environmental Archaeology (AEA) for analysis together with hand-picked charcoal samples with the main intention being to identify charcoal suitable for radiocarbon dating from contexts that were considered significant for the dating and phasing of the hillfort's ramparts, entrances and roundhouse terrace.

A selection of 22 bulk samples from the 2015, 2016 and 2018 seasons were provided for mass flotation and assessment of the charred plant and charcoal remains (Table 1). Samples had been recovered from a range of different contexts considered to be relevant to obtaining material to date and phase the hillfort and activities associated with it, also to gain information on the wider palaeo-environment and land-use. While there was no direct evidence from the excavation for wooden structural components within the ramparts or elsewhere, it was recognised that analysis of the charcoal may provide information otherwise. The samples were of: surfaces/floors/deposits associated with entrances (8); deposits associated with ramparts (6); quarry hollow fills (4); posthole fills (2) and possible old land/ground surfaces (2). They comprised seven plastic sampling tubs (10 litres), 18 medium sized bags (*c.* 3-5 litres) and 12 small bags (*c.* 1- 2 litres) approximating to 150-180 litres in total.

Table 1. List of bulk samples processed with context information.

Trench	Sample	Est vol (L)	Feature	Context	Information
BOD15					
1	1.19	4	Layer	1098	Primary layer of terrace bank
BOD16					
3X	307	16	Layer	3532	Layer below Phase 2 rampart
3X	311	5	Layer	3547	Layer below Phase 2 rampart
BOD18					
5B	5B.1	0.5	Layer	5090	Natural layer cut through by Phase 1 quarry hollow
5B	5B.2	1.5	Layer	5089	Basal layer of Phase 1 quarry hollow
5B	5B.3	0.25	Layer	5089	
5B	5B.4	0.25	Surface	5101	Pre Phase 1 rampart surface may be natural
5B	5B.5	0.25	Surface	5037	Surface abutting entrance wall feature
5B	5B.6	0.25	Fill of cut feature	5102	Pre-Phase 1 rampart feature
5A	514	17	Layer	5125	Phase 1 rampart foundation layer
5A	521	4	Layer	5127	Phase 1 rampart foundation layer

Trench	Sample	Est vol (L)	Feature	Context	Information
5A	5.25	10	Rampart?	5066	Feature associated with Phase 2 rampart
5A	5.26	10	Rampart	5057	Phase 1 rampart fill
6	6.5	1	Surface	6019	Surface associated with Phase 2 entrance
6	6.6	10	Layer	6029	Layer below 6019
6	6.7	20	Layer	6030	Foundation layer same as 6029?
6	6.8	13	Layer	6030	
6	6.9	4	Fill	6034	Top fill of Phase 2 gate posthole
6	6.10	0.75	Fill	6034	Bottom fill of Phase 2 gate posthole
6	6.11	7.5	Layer	6037	Natural? Layer beneath Phase 1 rampart face
6	6.12	1	Rampart	6038	Within Phase 2 rampart
6	6.13	8	Layer	6039	Stratigraphically similar to 6037

Assessment

Samples less than 1.5 litres were processed by bucket wash-over flotation in the AEA laboratory facilities. Sample material >16mm was processed with flots retained on 250/300µm mesh, and residues fractionated into >0.5mm, >2mm and >4mm and dried. Larger samples (2.8 to 22 litres) were processed by mass flotation in a modified Siraf tray flotation tank (designed by AEA) with flots retained on 250µm and residues on 0.5mm, 2mm and 4mm mesh. All residues were dried; those >4mm were sorted for artefacts and ecofacts which are retained and recorded and the sorted residues were discarded. Flots were dry sieved and fractionated into >4mm, >2mm and <2mm fractions; any charcoal and charred plant remains >4mm and >2mm were separated and recorded (Table 2).

Methods

Any material from the flots, and material supplied that had been sorted from the residues, was scanned under x6.1-x55 magnification using a Leica stereo-binocular microscope. The presence of charred plant and charcoal remains is recorded. The volumes of flot are the charred remains and modern rooty material separately, and the presence of various charred remains and charcoal are recorded.

Results (Table 2)

Overall there is paucity of crop plants (ie, cereal caryopses, legumes and cereal chaff eg, lemma, rachis fragments, spikelet forks and glume bases) from all trenches and all phases.

No cereal or food plant remains were present in any of the sampled contexts except context 6038 (within the Phase 2 rampart of the northern entrance) where cereal grains of *Triticum* spp. were present, and some rare chaff consisting of one glume base and one spikelet fork (see report by A.

Table 2. Assessment of charred plant and charcoal remains. Key: ?C = 1-5; rw = Roundwood. Analysis: C = charcoal; P = charred plant remains

Trench and Feature	Context	Sample	vol proc (litres)	Flot vol (ml) Charred / roots	grain	legume, pea, lentil	weed seeds / chaff	charcoal >4mm pieces	charcoal <2mm (ml)	Notes	analysis
PHASE 1											
6: Beneath rampart face	6037	6.11	8	+ / 40	-	-	- / -	-	2	Rare fcc	-
6: Beneath rampart face	6039	6.13	10	+ / 50	-	-	- / -	3	1	-	
5A: Rampart foundation layer	5125	514	17	600 / +	-	-	- / -	1000	225	fine comminuted charcoal	C / C14
5A: Rampart foundation layer	5127	521	3.4	+ / 2	-	-	- / -	-	+	-	-
5A: Rampart fill	5057	5.26	10	50 / +	-	-	- / -	3	3	-	-
5B: Pre-rampart surface	5101	5B.4	0.18	<1 / 10	-	-	- / -	-	>1	rare fine comminuted charcoal	-
5B: Surface abutting entrance wall feature	5037	5B.5	0.3	<1 / 10	-	-	- / -	-	-	rare fine comminuted charcoal	-
5B: Natural layer cut through by quarry hollow	5090	5B.1	0.28	< 1 / 5	-	-	- / -	-	> 1	fine comminuted charcoal	-
5B: Basal layer quarry hollow	5089	5B.2	0.9	<1 / 30	-	-	- / -	25rw	3	rare fine comminuted charcoal	?C
5B:	5089	5B.3	0.3	<1 / 10	-	-	- / -	1	>1	rare fine comminuted charcoal	-
5B: Fill pre-rampart feature	5102	5B.6	0.18	1 / 5	-	-	- / -	3	1	fine comminuted charcoal	-
PHASE 2											
1: Primary layer of terrace bank	1098	1.19	2.8	+ / 30	-	-	- / -	8	1	-	
3X: Pre-rampart surface	3532	307	15	+ / 175	-	-	- / -	25	5	Some fine comminuted charcoal	?C
3X: Pre-rampart surface	3547	311	3.6	+ / 75	-	-	- / -	30	6	-	?C
5A: Feature associated with rampart	5066	5.25	9	+ / 75	-	-	- / -	1	-	-	-
6: Layer below 6019	6029	6.6	10	+ / 450	-	-	- / -	1	-	Only roots no fcc	-
6: Same as 6029	6030	6.7	22	+ / 600	-	-	- / -	1	+	Only roots no fcc	-
6:	6030	6.8	15	+ / 50	-	-	- / -	+	+	-	-
6: Within rampart	6038	6.12	0.25	7 / 35	4	-	?C / -	28	7	Much comminuted charcoal	C ?P
6: Stone surface	6019	6.5	1.35	- / 175	-	-	- / -	-	-	-	-
6: Gate posthole top fill	6034	6.9	3.4	+ / 125	-	-	- / -	2	-	-	-
6: Gate posthole bottom fill	6034	6.10	0.3	<1 / 10	-	-	- / -	2	>1	rare fine comminuted charcoal	-

Clapham below). A few possible charred weed seeds were also present in this sample. No chaff was recognised in any of the other samples.

In contrast readily identifiable charcoal >4mm and >2mm fragments were present in most (91%, n20) samples, but with clear and immediately obvious roundwood or twiggy fragments only present in one sample (context 5089). Few if any were obviously single-entity deposits and could not, with any certitude, be related to specific events, or context/function-related activity. Larger quantities of charcoal (>25 fragments) were present in five contexts: context 6038; context 5125 (Phase 1 rampart foundation layer); context 5089 (basal layer of Phase 1 quarry hollow) and contexts 3532 and 3547 (both layers below the Phase 2 western rampart). Charcoal from context 6038 included *Corylus* sp. (hazel) and *Sambucus nigra* (elder) (identified by A. Clapham).

Hand-picked charcoal samples

A series of 25 hand-picked charcoal samples from 14 contexts were submitted for analysis, Table 3, together with one hand-picked land snail. All samples were carefully unwrapped and initially tipped on to a 0.5mm mesh sieve and washed under a gentle stream of warm water. The removal of stubborn adhering soil was assisted by the application of dilute hydrogen peroxide (H_2O_2) which often, but not always, 'cleaned' the charcoal fragments. If the sample contained soil and fine stones it was washed into a large glass laboratory beaker, water added, and the charcoal floated off onto a 0.5mm mesh sieve. Any resilient soil crumbs were disaggregated by the application of, or soaking with, diluted hydrogen peroxide. If significant quantities of residue was still present this was

Table 3. List of hand-picked charcoal samples ordered by context.

Year	Context	Sample no.	>4mm (no.)	>2mm (ml)	>0.5mm + / -	context comment
BOD12	1003	1.5	7	2	+	Layer up against front of Phase 2 bank
BOD12	1005	1.2	2	+	+	Layer up against rear of Phase 2 bank
BOD12	1017	1.3	2	-	-	Layer above laid cobbled surface, Phase 2
BOD16	1057	1.43	4	+	+	Top laid stones on Phase 2 bank
BOD16	1081	1.39	10	1	+	OGS beneath Phase 2 bank
BOD15	1088	1.15	12	1	+	Layer up against rear of Phase 2 bank
BOD15	1088	1.16	18	2	+	
BOD13	3021	3.1	12	1	+	Layer below Phase 2 rampart
BOD16	3532	300	-	+	+	Layer below Phase 2 rampart
BOD16	3532	301	-	+	+	
BOD16	3532	302	-	+	+	
BOD16	3532	303	-	+	+	
BOD16	3532	304	-	+	+	
BOD16	3532	306	4	+	+	
BOD16	3532	316	-	+	+	
BOD16	3547	312	1	+	+	Layer below Phase 2 rampart
BOD16	3547	313	-	+	+	
BOD16	3547	3.308	1	-	-	
BOD16	3547	3.310	1	-	+	
BOD14	4011	4.1	6	+	+	Phase 1? rampart fill?
BOD14	4011	4.2	24	1	+	
BOD17	5010/5B	504	3	+	+	Phase 1 layer
BOD18	5041/5B	511	3	1	+	Phase 1 rampart modification layer
BOD18	5089/5B	513	5	+	+	Phase 1 quarry hollow fill
BOD18	5102/5B	517	38	4	+	Pre-Phase 1 rampart feature

dried and sorted for charcoal >2mm under x6.1-x55 magnification with a Leica stereo-binocular microscope. All washed/sieved charcoal samples were dried individually then dry sieved to >4mm, >2mm (readily identifiable fractions) and >0.5mm fraction, and quantified. The >4mm and >2mm fraction were sorted and most roots and fine stones removed; the >0.5mm fraction was bagged unsorted.

It is assumed that in most cases the samples relate to a single piece of isolated charred wood. The hand-picked charcoal data indicates that the quantity of charcoal (in terms of recorded fragments) is very variable. In some cases there is clearly not enough charcoal to obtain species identification, nor confirm that the fragments are not heartwood. This applies to most samples from context (3532). Even in one instance where four fragments >4mm are present (sample 306), this probably represents a single small piece of charred wood, and could be residual (or intrusive) from other undefined events. The same is true of samples beneath the Phase 2 inner face (3547).

Most samples produced charcoal > 4mm which could be identified to species and dated although it is likely that none, or very few, are contextually suitable to provide useful radiocarbon dates of any defined archaeological events. Unless any sample is of an identified structural timber, a clear patch of *in situ* burning, from a patch of discarded fire/hearth waste, or directly related to a specific archaeologically recognisable or defined event, then regardless of the quantity of charcoal present, it is generally not suitable for providing an archaeologically useful date. Any radiocarbon assay would provide the date of the growth of the timber selected, but not of its use in relation to the any specific phases of construction, settlement or destruction of the Iron Age hillfort. Samples of charcoal from rampart fill are, for instance, not structurally part of the rampart, and relate to pre-rampart activities that have been encapsulated in the rampart construction. These can only provide a *terminal post quem* date for the rampart, where the possible offset is unknown.

Although the palaeo-environmental value of the identification of single pieces of wood charcoal is low, collectively this may have some value. Charcoal identification, however, is a time-consuming, and a thus costly process, as every small fragment must be fractured and examined in two planes to secure a species identification and define the nature of the wood. On balance, except for species identification from selected samples for radiocarbon dating, resources were considered better spent elsewhere.

Three samples of charcoal were selected on contextual grounds for consideration for radiocarbon dating, Table 4. There was no clear taphonomic relationship between the charred remains and the event requiring dating. Further all the material was hand collected during the excavation and this tends to result in a very biased selection of the larger, more robust, commonly oak charcoal, and isolated fragments are often residual charcoal items. The identification to species, but more significantly analysis of the wood anatomy can indicate short-lived items (ideally young roundwood typically >10 years) which are suitable for radiocarbon dating given the contextual caveats.

Also typical of handpicked charcoal is that most is heartwood, and as oak can live for 350-450 years, the charcoal items may be centuries older than the date of use and burning. Nevertheless after fastidious and careful examination of charcoal wood the best pieces from each sample for dating

Table 4. The charcoal samples chosen for radiocarbon dating.

Year	Context	Sample	>4mm (no.)	>2mm (ml)	context comment
BOD18	5089/5B	513	5	+	Phase 1 quarry hollow fill
BOD18	5102/5B	517	38	4	Pre-Phase 1 rampart feature
BOD18	5041/5B	511	3	1	Phase 1 rampart modification

were selected although none are ideal. Pieces were re-examined specifically to look at ring type and curvature to assess relative age:

Context 5102 (sample 517) *Quercus* heartwood: there are only two wide growth rings which suggests it was fast growing and, therefore, probably relatively young and may have come from a small branch.

Context 5089 (sample 513) *Quercus* heartwood: more than seven narrow growth rings, which suggests that it probably comes from a more mature part of the tree, either a large branch or trunk wood

Context 5041 (sample 511) *Quercus* knotwood: badly distorted, large knot suggests that this is from a large branch or from the trunk itself, being knotwood it is difficult to be sure of the identification but oak fits best, the number of growth rings is very difficult to determine due to the distortion of the growth pattern.

Assessing the wood anatomy for age is difficult, needless to say than none is short-lived, young roundwood with short age offsets (<10 years), and the age of the knotwood is particularly difficult to assess. The best items are typically >50 years, but that from context 5102 may be <20 years, Table 5.

Table 5. The considered age range of the selected charcoal items.

Context	Sample	Identification	Anatomy	Age
5102	517	Quercus	heartwood branch	c. 10-15 years
5089	513	Quercus	heartwood mature tree branch or trunk	c. / < 70 years
5041	511	prob. Quercus	Knot; large brank of trunk	Est. 40-70+ years

The best charcoal in terms of age-offset is clearly that from context (5102). Whether it is a residual item from earlier activity or related to the constructional activity of the Phase 1 rampart is stratigraphically unclear. Isolated items of handpicked charcoal could relate to such activity, or be residual from a number of other events. The suitability of the charcoal for dating, therefore, relies on the archaeological context and interpretation of taphonomy, rather than solely the identification and age-offset. Nevertheless, from the identifications and exanimation of wood anatomy that selected from context (5102) is the best of the items submitted.

The land snail

A single land snail from context (1098), a layer at the base of the roundhouse terrace bank in Trench 1, was present as a part of the hand-collected items. This was *Cepaea hortensis* one of the largest and most robust of the *c.* 118 British species. A single snail has no palaeo-ecological significance, and further *Cepaea* spp. are catholic or intermediate species in terms of their ecology so provide no palaeo-environmental hints. Its survival here is due to it being the largest and most robust pre-Roman taxa in the British fauna, and its presence and preservation may signify a more calcareous local micro-environment for context.

Charred plant and charcoal remains

A single sample (6.12, context 6038) from the pre-phase 2 rampart of the hillfort was analysed for charred plant remains. Charred plant remains were present but in low numbers, low diversity, and poorly preserved. The charred remains consisted of charred grains and chaff of a glumed wheat, indeterminate cereal grains along with the remains of possible straw or wild grasses were also identified. Non-cultivated remains included bracken, vetches, sheep’s sorrel, and a possible pheasant’s eye achene. Due to the paucity of charred remains it is difficult to determine the agricultural activity associated with the hillfort. Although, the presence of the cereal remains, and chaff do suggest the possibility of the cultivation/storage of crops within the vicinity.

Methods

From the samples assessed, a single sample from the 2018 season (6.12, 6038) was selected for full analysis. The sample was sorted using a low-powered (x8-x56) stereomicroscope and the remains identified using the author's own reference collection and Cappers *et al.* (2006). Non-cultivated plant nomenclature follows Stace (2019) and for the cereal crops Zohary *et al.* (2013).

Results

The results are shown in Table 6. The processed sample was dominated by modern roots and charcoal fragments, most of which were too small to identify with any precision. Charred plant remains were present but in low numbers and diversity. The charred remains were also poorly preserved, suggesting the possibility of some residuality.

Table 6. Charred plant remains identified from sample 6.12, context 6038
(* submitted for radiocarbon dating)

Sample no		***6.12***
Context		***6038***
Description		***Rampart***
Sample volume (ml)		***1000***
Charred plant remains	**Common name**	
Cereals		
Triticum sp. (glumed)	wheat	
Grain		3*
spikelet forks		1
glume bases		3
Indeterminate cereal remains		-
grain fragments		11
Cereal/Poaceae		-
culm nodes		35
culm internode fragments		256
culm bases		5
Wild plants		
Pteridium aquilinum	bracken	-
pinnule fragments		4
cf. *Adonis annua*	pheasant's eye	-
achene fragment		1
Vicia sp.	vetches/tares	-
cotyledon		1
Rumex acetosella	sheep's sorrel	-
achene		1
Asteraceae	daisy family	1
capitulum fragment		-
Poaceae	grasses	-
Small caryopsis		1
Miscellaneous remains		
dicotyledonous root fragments		3
Cenococcum geophilum sclerotia	soil fungus	17
Charcoal remains		-
Corylus avellana roundwood	hazel	3*
Sambucus nigra roundwood	elder	1

Cereal remains were present in low numbers and consisted of three grains, a single spikelet fork and three glume bases of a glumed wheat (*Triticum* sp.). Given the age of the hillfort the wheat most likely represented is emmer wheat (*Triticum turgidum* ssp *dicoccum*) but the possibility of spelt wheat (*Triticum aestivum* ssp *spelta*) cannot be ruled out. Apart from the fragments of unidentifiable cereal grains these were the only cereal remains identified from this sample. Possible cereal straw in the form of culm nodes, internodes and culm bases were also present but due to the overlap in size the remains may well be of wild grasses or a mix of cereals and wild grasses.

Wild plant taxa identified included bracken pinnules (*Pteridium aquilinum*), fragments of possible pheasant's eye (*Adonis annua*), vetch (*Vicia* sp.), sheep's sorrel (*Rumex acetosella*), a fragment of an unidentifiable *Asteraceae capitulum* (flower base) and a small-seeded grass. Other remains included charred roots and the sclerotia (resting bodies) of a soil fungus *Cenococcum geophilum*.

Prior to full analysis, this sample was selected to provide material suitable for radiocarbon dating and the three wheat grains and a piece of hazel (*Corylus avellana*) roundwood charcoal were selected. Other taxa identified within the charcoal remains in the sample include elder (*Sambucus nigra*). Oak (*Quercus* sp) heartwood, large branch wood fragments were noted during full analysis.

Discussion

It is difficult to interpret the charred plant remains with regards to agricultural activity, economic activity, and the wider environmental context of a site from a single sample however, it is still possible to produce a tentative interpretation of the charred plant remains. The presence of charred cereals, in this case grains and chaff of wheat (either emmer or spelt) along with the indeterminate cereal remains does suggest the possibility of cereal cultivation in the area, along with crop processing and storage activities on the site. This can only be confirmed by further sampling and perhaps excavation of the interior of the hillfort which may expose features associated with grain storage.

The other charred plant remains, consisted of single finds of a possible pheasant's eye achene fragment, an achene of sheep's sorrel, a grass seed, and a fragment of a daisy family flowerhead. The former is usually associated with crop cultivation and may well be linked to the cereal remains while the others are often associated with grassland, the find of sheep's sorrel suggesting that the soil was acidic in nature. The find of possible wild grass remains (culm nodes, internodes, and culm bases), the soil fungus and charred roots may suggest the burning of turf rather than any association with agricultural activity.

Charcoal

Four short-lived charcoal items were identified and were suitable for radiocarbon dating provided their taphonomy and relationship to the identified event was clearly defined.

1. Hazel (*Corylus* sp.) roundwood charcoal consists of 9+ growth rings
2. Hazel (*Corylus* sp.) roundwood charcoal consists of 9+ growth rings and is most likely from the same twig/branch as 4.
3. Hazel (*Corylus* sp.) roundwood consists of 4+ growth rings and bark is present.
1. Elder (*Sambucus nigra*) roundwood consists of 5+ growth rings

The charcoal within the sample was, in general, of a small size and consisted of roundwood of hazel and elder, with some heartwood or larger branch wood of oak. It most likely represents the burning of scrub present on the rampart or prior to its construction although the possibility of the charcoal arising from domestic fires cannot be ruled out. The interpretation presented above can only be tentative given that only a single sample has been analysed. With the resilience of charred plant remains the possibility of the assemblage representing some 'background flora' cannot be ruled out.

Conclusion

The interpretation of the charred plant assemblage from a single sample can at best be limited. It is possible that the assemblage studied here may indicate cereal cultivation, processing and storage at the site, the burning of turf in preparation for construction or just 'background flora'. The overall lack of cereal remains seems to be real despite the relatively restricted range of sampled contexts examined. This tends to suggest a lack of discard of food waste into domestic fires, and lack of typical domestic activities; grain storage, crop processing and food preparation. In contrast, there is clearly burning as most samples contain some, to very large quantities, of wood charcoal. Some of the wood charcoal probably derives from domestic burning, but some could derive from destruction of wooden ramparts and post elements around the hillfort circuit. The archaeological context, rather than the palaeo-environmental record, will resolve these.

Processing Archive

Copies of the processing records and the original AEA reports are lodged with the site archive. The flotation sample flots (2 x plastic bags) and selected hand-picked charcoal samples (1 plastic tub) are available on request. The latter have been fractionated and rebagged (*c.* 100 plastic bags) but each bagged fraction returned to the original labelled bags.

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Radiocarbon dating and chronological modelling

Derek Hamilton

A total of nine samples from archaeological contexts associated with the archaeological deposits on the Moel-y-Gaer (Bodfari) hillfort were processed for radiocarbon dating by Accelerator Mass Spectrometry (AMS). The samples consisted of single entities (Ashmore 1999) of charcoal, charred grain, and an animal bone. The samples were submitted to the Scottish Universities Environmental Research Centre, East Kilbride where they were pre-treated and measured as described by Dunbar *et al.* (2016).

The SUERC lab maintains rigorous internal quality assurance procedures, and participation in international inter-comparisons (Scott 2003; Scott *et al.* 2010) indicate no laboratory offsets; thus, validating the measurement precision quoted for the radiocarbon ages.

The results are presented (Table 7) as conventional radiocarbon ages (Stuiver and Polach 1977). They have been calibrated using the internationally agreed terrestrial calibration curve (IntCal20) of Reimer *et al.* (2020) and the OxCal v4.4 computer program (Bronk Ramsey 2009a). Simple

Table 7. The radiocarbon dates.

Lab ID	Context	Context description	Material dated	δ13C (‰)	δ15N (‰)	C:N	Radiocarbon age (BP)	Calibrated date (95% confidence)
SUERC-64202	1098	Primary layer within Phase 2 bank around roundhouse	Animal bone: cattle; mandible	−21.9	6.1	3.3	2199 ±32	390–160 cal BC
SUERC-73571	3532/ 3020	OGS/levelling layer beneath Phase 2 rampart	Charcoal: not analysed	−27.1			2289 ±31	410–230 cal BC
SUERC-73572	3547	Same as SUERC-73571	Charcoal: not analysed	−24.3			2279 ±31	400–200 cal BC
SUERC-97701	5041	Level associated with Phase 1 entrance recess	Charcoal: Quercus sp.; knot or large branch/trunk; >40–70 years	−25.4			2412 ±25	740–400 cal BC
SUERC-97702	5089	Low fill of Phase 1 rampart quarry hollow	Charcoal: Quercus sp.; mature heartwood; >70 years	−24.9			1102 ±25	cal AD 880–1020
SUERC-97703	5102	Within/below Phase 1 rampart	Charcoal: Quercus sp.; branchwood; <15 years	−24.4			3007 ±25	1380–1130 cal BC
SUERC-97707	5102	Same as SUERC-97703	Charcoal: Quercus sp.; branchwood; <15 years	−24.7			3017 ±25	1390–1130 cal BC
SUERC-97709	6038	Levelling of Phase 1 rampart/ construction of Phase 2 entrance inturn	Charcoal: Corylus avellana; roundwood	−26.5			2217 ±25	390–170 cal BC
SUERC-97710	6038	Same as SUERC-97709	Charred grain: Triticum spp.	−25.0*			2186 ±25	370–160 cal BC

calibrated results are presented at 95% confidence intervals (unless otherwise noted) in plain text and rounded outward to 10 years. The *italicised* dates presented in the text below are posterior density estimates derived from mathematical modelling of archaeological problems and have been rounded outward to five years. These dates can change with the addition of new data or when the modelling choices are varied.

Methodological approach

A Bayesian approach (Buck *et al.* 1996; Hamilton and Kenney 2015) has been applied to the interpretation of the chronology of the archaeological activity that was revealed through excavation at Moel-y-Gaer (Bodfari). Although simple calibrated dates are accurate estimates of the radiocarbon age of samples, this is not, usually, what archaeologists really wish to know. It is the dates of the archaeological events represented by those samples, such as the start and end that are of particular interest. The chronology of this activity can be estimated not only by using the absolute dating derived from the radiocarbon measurements, but also by using stratigraphic relationships between samples and the relative dating information provided by the archaeological phasing.

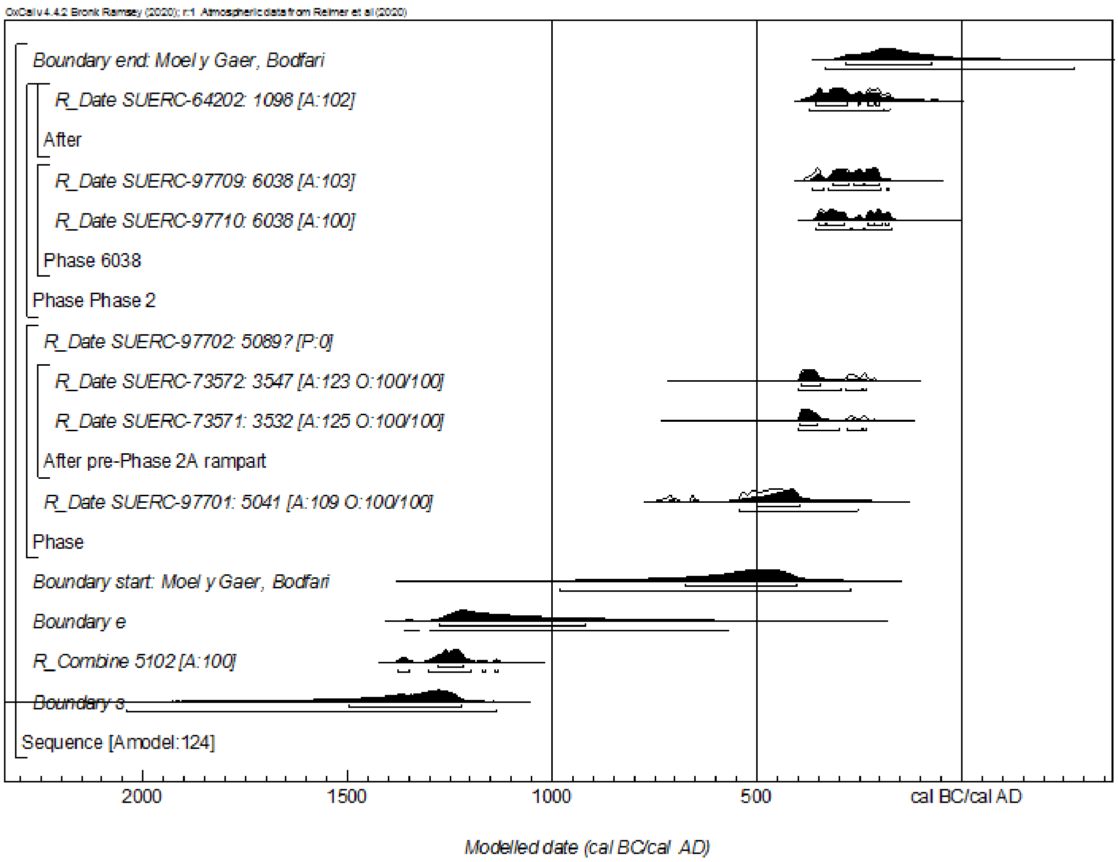

Figure 121. Chronological model for the dated activity at Moel-y-Gaer (Bodfari). Each distribution represents the relative probability that an event occurred at some particular time. For each of the radiocarbon measurements two distributions have been plotted, one in outline, which is the result of simple radiocarbon calibration, and a solid one, which is based on the chronological model use. The other distributions correspond to aspects of the model. For example, '*end: Moel y Gaer, Bodfari*' is the estimated date that activity ceased at the site, based on the radiocarbon dating results. The large square 'brackets' along with the OxCal keywords define the overall model exactly

The methodology used here allows the combination of these different types of information explicitly, to produce realistic estimates of the dates of archaeological interest. The posterior density estimates produced by this modelling are not absolute, rather they are interpretative estimates, which can and will change as further data become available and as other researchers choose to model the existing data from different perspectives. The technique used is a form of Markov Chain Monte Carlo sampling and has been applied using the program OxCal v4.4[1]. Details of the algorithms employed by this program are available in Bronk Ramsey (1995; 1998; 2001; 2009a) or from the online manual. The algorithm used in the models can be derived from the OxCal keywords and bracket structure shown in Figure 121.

Samples and models

Two samples of oak branchwood charcoal were dated (SUERC-97703 and -97707) from the fill of a sub-rectangular feature (5102). The stratigraphy was not clear enough to establish whether (5102) was within the rampart fill or a pre-rampart deposit, although it was not a natural layer extending beneath the rampart. The two results are statistically consistent (T'=0.1; ν=1; T'(5%)=3.8; Ward and Wilson 1978) and could be the same actual age. Given the species and overall descriptions are the same, it is likely these two samples came from the same original charred branch and so they have been combined prior to calibration to produce mean 5102 (3012 ±18 BP). The date is considerably earlier than the other dates from the hillfort, which suggests the dated context is from activity that predates that associated with the first rampart.

A knot or large branch of oak charcoal was dated (SUERC-97701) from a layer (5041) between the wall and entrance recess (5034). As part of the remodelling of the recess overlay (5041), the date provides a *tpq* for this event, while also providing dating evidence for the earlier phase of activity associated with the hillfort.

There are two radiocarbon measurements (SUERC-73571 and -73572) on fragments of unidentified charcoal from contexts (3532/3020 and 3547, respectively) that formed spreads on the surface beneath the inner face of the Phase 2A rampart. The lack of identification of sample element (i.e. roundwood vs trunkwood) and species usually results in such results being used as *termini post quos* for chronological models, but the stratification of the samples beneath the Phase 2A rampart also provide a *tpq* for the construction event that signals that phase of activity.

A radiocarbon date (SUERC-64202) was made on a fragment of cattle mandible recovered from the fill (1098) of the bank and lying against the revetting stones. Only a few small fragments of bone survived, and these were the only bone fragment recovered from the entire excavation. The highly fragmentary nature of the samples in the context make it likely they are redeposited and so the date provides a *tpq* for the construction of the bank.

There are two radiocarbon results (SUERC-97709 and -97710) on hazel roundwood charcoal and a charred wheat grain, respectively, recovered from a discrete fill (6038) within and partially covering the stones of (6036). The two measurements are statistically consistent (T'=0.8; ν=1; T'(5%)=3.8) and could be the same actual age, which provides supporting evidence to the overall security of the deposit. The results, therefore, provide a *tpq* for the construction of the inturned Phase 2 entrance and *taq* for the demolition of the Phase 1 rampart.

There is a final result (SUERC-97702) from a fragment of oak heartwood recovered from the lower fill of a Phase 1 quarry hollow. The result is 9th or 10th century cal AD and most likely intrusive. It has been excluded from any modelling, but is shown in Figure 121.

[1] (http://c14.arch.ox.ac.uk/) accessed November 2021

The chronological model for Moel-y-Gaer (Bodfari) has three primary elements. The earliest dates for the model are from the two measurements on oak branchwood in (5102). Since there is ambiguity as to whether the feature is part of the earliest hillfort or from activity that predates the hillfort, the model simply provides a date estimate for the death of the sample in the feature.

The features more closely related to the hillfort have been placed into two general phases of activity. The earlier phase is represented by the sample from the fill (5041) between the wall and entrance recess, while the two samples from spreads (3532/3020) and (3547) beneath the Phase 2A rampart likely derive from earlier activity on the site despite being part of the activity associated with preparations for the Phase 2A rampart. The intrusive result in the bottom of the Phase 1 quarry hollow (5089) also forms part of this element of the model, though it has been excluded from the formal modelling. The later phase is represented by the dates on the cattle bone in the fill (1098) of the bank and the charcoal and grain in the deposit (6038) associated with the inturned Phase 2 entrance.

Since SUERC-73571, -73572, and -97701 are all from unidentified or longer-lived timber pieces, these have been included in the model using the Charcoal Outlier Model of Bronk Ramsey (2009b). Furthermore, since SUERC-64202, -73571, and -73572 are most likely on residual material, they have been included as *tpq* using the After command in OxCal.

Results

The model described above has good agreement between the radiocarbon dates and the archaeological phasing (Amodel=124).

The model estimates the activity associated with (5102) dates to the period *1380–1130 cal BC* (*95% probability*; Figure 121; *5102*), and probably *1280–1215 cal BC* (*68% probability*).

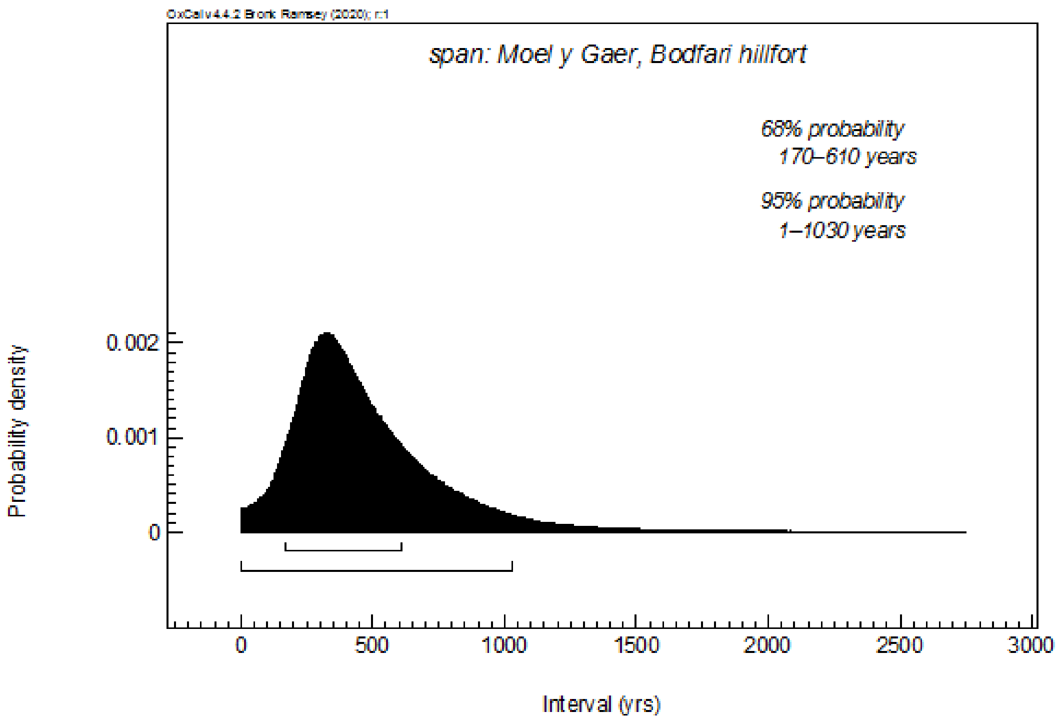

Figure 122. Span of the primary hillfort activity in the model shown in Figure 121.

The main dated phase of hillfort activity began by *985–270 cal BC* (*95% probability*; Figure 121; *start: Moel y Gaer (Bodfari)*), and probably by *675–400 cal BC* (*68% probability*). The activity ended in *335 cal BC–cal AD 275* (*95% probability*; Figure 121; *end: Moel y Gaer (Bodfari)*), and probably in *285–75 cal BC* (*68% probability*).

The overall span of the dated hillfort activity was *1–1030 years* (*95% probability*; Figure 122; *span: Moel y Gaer (Bodfari) hillfort*), and probably for *170–610 years* (*68% probability*).

Discussion

The chronology for Moel-y-Gaer (Bodfari) is more complicated than most for interpreting, due in large part to the combination of samples whose date can be securely associated with their deposition and those that are either *tpq* for their respective context or potentially suffer from an in-built age offset (i.e. 'old wood effect'). While the overall precision for the probabilities associated with the start and end of the dated activity is low, there are a few samples that were selected because their respective contexts were *tpq* for events of interest.

The date (SUERC-97701) on the knot or large branch of oak charcoal from a layer (5041) between the wall and entrance recess (5034) provides a *tpq* of *545–255 cal BC* (*95% probability*; Figure 121; *SUERC-97701: 5041*), and probably *500–395 cal BC* (*68% probability*), for the remodelling of the recess.

The later of the two dates (SUERC-73572) on the spreads beneath the Phase 2A rampart, suggest it was constructed after *400–230 cal BC* (*95% probability*; Figure 121; *SUERC-73572: 3547*), and probably *395–345 cal BC* (*68% probability*).

The cattle bone in the bank suggests it was dated after *375–175 cal BC* (*95% probability*; Figure 124; *SUERC-64202: 1098*), and probably *360–200 cal BC* (*68% probability*).

The later date (SUERC-97710) from fill (6038) provides a *tpq* for the inturned Phase 2 entrance and *taq* for the demolition of the Phase 1 rampart of *360–170 cal BC* (*95% probability*; Figure 121; *SUERC-97710: 6038*), and probably of *350–175 cal BC* (*68% probability*).

The Spindle whorls

Other than the two spindle whorls reported here a third was 'found in Bodfari Camp' in the 19th century (Wynne Ffoulkes 1851) although there is no further information about it.

The two spindle whorls from the excavation were not made available for study by the landowners. The brief report below is based on working photographs taken during the excavation, Figure 123, on the assumption that full analysis and recording would be possible. It is clear that weight and dimensions would have been a useful addition to this report if those could have been recorded.

> 'The photographs show two thick disc-shaped whorls with a relatively wide diameter, one, SF9, with convex sides and the other with straight sides. These can be defined as Form B2/stone and Form B1/stone respectively (Walton Rogers 2020: 96-7). These are common shapes to be found in Iron Age sites of North Britain and North Wales: over thirty similar whorls were found, for example, in and around the roundhouses at Parc Cybi, Holyhead, Anglesey (Walton Rogers 2018). Each whorl will have been slotted on the end of a spindle and used to spin yarn for textiles and cords.' (Penelope Walton Rogers[1] pers. comm.)

Although stone spindle whorls are common in both form and occurrence across Wales and the Marches they do vary in the number found per site perhaps suggesting that spinning was more commonly practiced in certain places. For example, excavations at the nearby hillfort of Moel Hiraddug only produced a single broken spindle-whorl of local siltstone (Brassil *et al.* 1982: Figure 15) whereas at Y Briedden nineteen stone spindle whorls were found of which two came from late Bronze Age deposits, six from Iron Age contexts and two from Romano-British or later levels (Musson 1991: 156) giving a flavour of the chronological spread of these objects. The whorls

Figure 123A. Photographs taken of the two spindle whorls during excavation.

[1] The Anglo-Saxon Laboratory, York

Figure 123B and C. Photographs taken of the two spindle whorls during excavation.

were both conical (drilled from one side) and biconical (drilled from both sides), varied in size and weight from 18g to 120g, and were all made from local stone either a volcanic ash or a fine-grained sandstone. Another nearby example is Dinorben where at least six spindle whorls found from within and around houses were classified as disc-shaped and made from stone. Others were made from pebbles of which there were at least 11 examples and at least nine made from pottery (Gardner and Savory 1964: 79 and Figure 30). Three of the stone examples were decorated with incised patterns perhaps showing the importance of these personal items. Further afield at the hillfort of Castell Caer Seion, Caernarvonshire, eleven stone spindle whorls were found , three unperforated so unfinished. These were all associated with occupation dated to 400-200 BC, specifically three roundhouses and although the basic whorl design is similar the range of stone used included slate, sandstone, volcanic rock and gritstone (Griffiths and Hogg 1956: 78).

Discussion

Here we consider the evidence from Moel-y-Gaer (Bodfari) in relation to the 'core group' of Clwydian hillforts, namely Penycloddiau, Moel Arthur, Moel-y-Gaer (Llanbedr) and Moel Fenlli together with Moel-y-Gaer (Llantysilio) and Caer Drewyn to the south of the Clwydians in the Llantysilio range and included in the Heather and Hillforts Project. Also included here is Moel Fodig, a small hillfort close to Caer Drewyn and not included in the Heather and Hillforts Project and Moel Hirradug, the northern most hillfort of the group and the only site on limestone (Brassil *et al.* 1982). Of equal importance to Moel Hiraddug in terms of excavation, and paired with it on the limestone band at the mouth of the Vale of Clwyd, is Dinorben (Gardner and Savory 1964; Savory 1971a; Savory 1971b). The Clwydian sites can be seen as part of the wider pattern of hillforts stretching through the Welsh Marches and Cheshire (Britnell and Sylvester 2018) and where relevant some of these further afield sites will be mentioned.

It is generally accepted that many hillforts started as univallate enclosures with later multivallate enhancements either replacing or adding to the original single circuit (Davies and Lynch 2000). Forde-Johnston (1965) suggested this development for all six of the Clwydian hillforts based on surface evidence (except for Moel Hiraddug which was the only site with excavation at that time other than the minor nineteenth century diggings of Wynne Ffoulkes at Foel Fenlli, Moel-y-Gaer (Llanbedr) and Moel Arthur). For example at Moel Fenlli the univallate enclosure is given an additional bank and ditch to the north and east, at Llanbedr the possible annex to the north and east could be later additions and at Moel Arthur an extra rampart and ditch can be seen to the north. Forde-Johnston argues that these later additions are positioned to reinforce and strengthen the defensive capabilities at the areas of easiest access to the enclosure, in his thinking areas of weakness and, therefore, more prone to attack. Similarly at Dinorben, to the west of the Vale, the siting is on a naturally well defended hilltop with steep slopes around the northern areas but with three ramparts and ditches across the gentle approaches to the south (Gardner and Savory 1964: Figure 2).

A more recent interpretation of enhanced earthworks at certain areas of a hillfort's circuit is provided by Driver (2013; 2016; 2018) whose work is focussed on Ceredigion although he argues that dominant themes can be identified in the architecture and construction of some hillforts across Wales regarding their entrances and key aspects of their defences. Building on a range of earlier studies that show how many individual hillforts were not designed to be defensible (for example in Hamilton and Manley 2021), Driver demonstrates how the visual impact of entrance and rampart features when approached and seen from the exterior could portray symbolic power. With so few hillforts having seen any excavation Driver's approach is based largely on the topographic details of an individual hillfort's surroundings in relation to its architecture.

The importance of earthwork survey in understanding the subtleties of the positioning of hillforts and their architectural features is shown by Guilbert (2018). He is surely right to argue that close contouring (2m interval and if possible 1m as he suggests) is essential to appreciate the relationship between the natural topography and the works resulting from the hillfort-builders intentions and labour. These days moving beyond essentially two-dimensional hachure plans is greatly aided by LiDAR although Guilbert's argument is still valid if we want to try and appreciate how the hillfort-builders coped with the irregularities of a hilltop. While Ford-Johnston's plans of the six Clwydian hillforts (1965) only include contours on three of them, and then with an interval of 100 feet, Bodfari is a hachure plan only. This fails to show that the shape of the enclosure is determined by the elongated shape of the hill top oriented north-south with the northern end remaining unenclosed. This area provides a gentle approach to the northern entrance which has a bastion-like feature on the outer side of its western inturn. The gentle slopes outside the ramparts continue around the north-western corner and along the north-western quadrant before becoming much steeper to the south-west, south and all of the eastern side. It is in the north and north-west that the inner rampart of the univallate enclosure is enlarged and an extra rampart and ditch added, which together with the newly constructed inturned entrance with bastion would provide an ostentatious frontage to people approaching from the north. The interior of the enclosure also seems to be carefully chosen with a high point at the northern end which overlooks the northern and north-western ramparts, the entrance, and beyond to the coast in the north and over the Vale of Clwyd to Snowdonia in the west. The southern half of the interior slopes gradually downwards and offers distant views over the Chwiller valley and the Clwydian range with Penycloddiau clearly visible. This sloping interior with a dominant high point at one end is mirrored at Dinorben where the plan with contours at an interval of 25 feet show the summit to the south is over 30m higher than the northern end of the enclosure (Gardner and Savory 1964: Figure 2)

The generally accepted architectural development of ramparts in northern Wales is from walled or box-type, either entirely stone-built or stone with timber framing, to embanked or dump-type (Davies and Lynch 2000: 155; Gardner and Savory 1964 for an early discussion of rampart changes). In north-west Wales, Waddington (2013) has shown that of the 18 excavated hillforts ten are stone built and the remainder are embanked, that is an earth and stone bank rather than a faced wall. At an individual site the change from one rampart type to another is often referred to as sequential phases of building. The use of the term ‘phases’, however, can be misleading when discussing the building, maintenance and rebuilding of hillfort ramparts and structures within them, implying defined periods of activity with periods of inactivity in between. If hillforts were in constant use over a long period of time while major changes could be described as phases it is likely that minor alterations and additions to ramparts took place at much more regular intervals. This may even have been annually if the site was only occupied at certain times of the year rather than permanently.

While the sequence at Bodfari suggests two major phases, Figure 124, the radiocarbon dates and excavated evidence show a more continuous series of changes that result in Phase 2. The two phases are not from box to dump rampart but from a stone-faced rampart with rear revetting bank which is replaced by a box rampart for a part of the circuit. It seems that in Phase 2 different configurations of rampart were in existence at the same time with the multivallate north-western quadrant being different to the south-western quadrant which is univallate with a counterscarp bank downslope. The Phase 1 rampart is best represented in Trench 5, Area 5A, where the front face is well constructed using larger slabs as stretchers to gain more facing per stone with others laid as headers which bonded the revetment into the core of the bank. Further bonding was visible at the top of the wall where a layer of long stones were embedded into the bank and bonded by a white lime-rich clay. Both the use of header stones and lime bonding were also present at nearby Penycloddiau where the available stone is equally poor for building being very prone to splintering and shattering (Pope pers. comm.).

In both phases at Bodfari the rampart was of different construction in the north-western quadrant compared to the south-western quadrant, the former being larger and more impressive as discussed above, perhaps for reasons of defense, ostentation or both. In Phase 1 the rampart just described in the north-west was joined to what appears to be a small stone-built box rampart as shown in Trenches 3X and 4 in the south-west. In Phase 2 the north-western rampart was enlarged in size and fronted by another rampart, ditch, and counterscarp bank while in the south-west the Phase 1 rampart was dismantled and replaced downslope with a box rampart and ditch. Figure 124 also shows a much later phase representing possible post-medieval landscaping. This involved the scarping of the rampart as shown in Trench 3X and the addition of banks running downslope at the mid-western and south-western points. Within this enclosed area are ‘exotic’ trees such as Scots Pine which do not occur elsewhere on the hill although the early OS map, Figure 3A, does show mixed woodland in this enclosed area and across the interior of the enclosure.

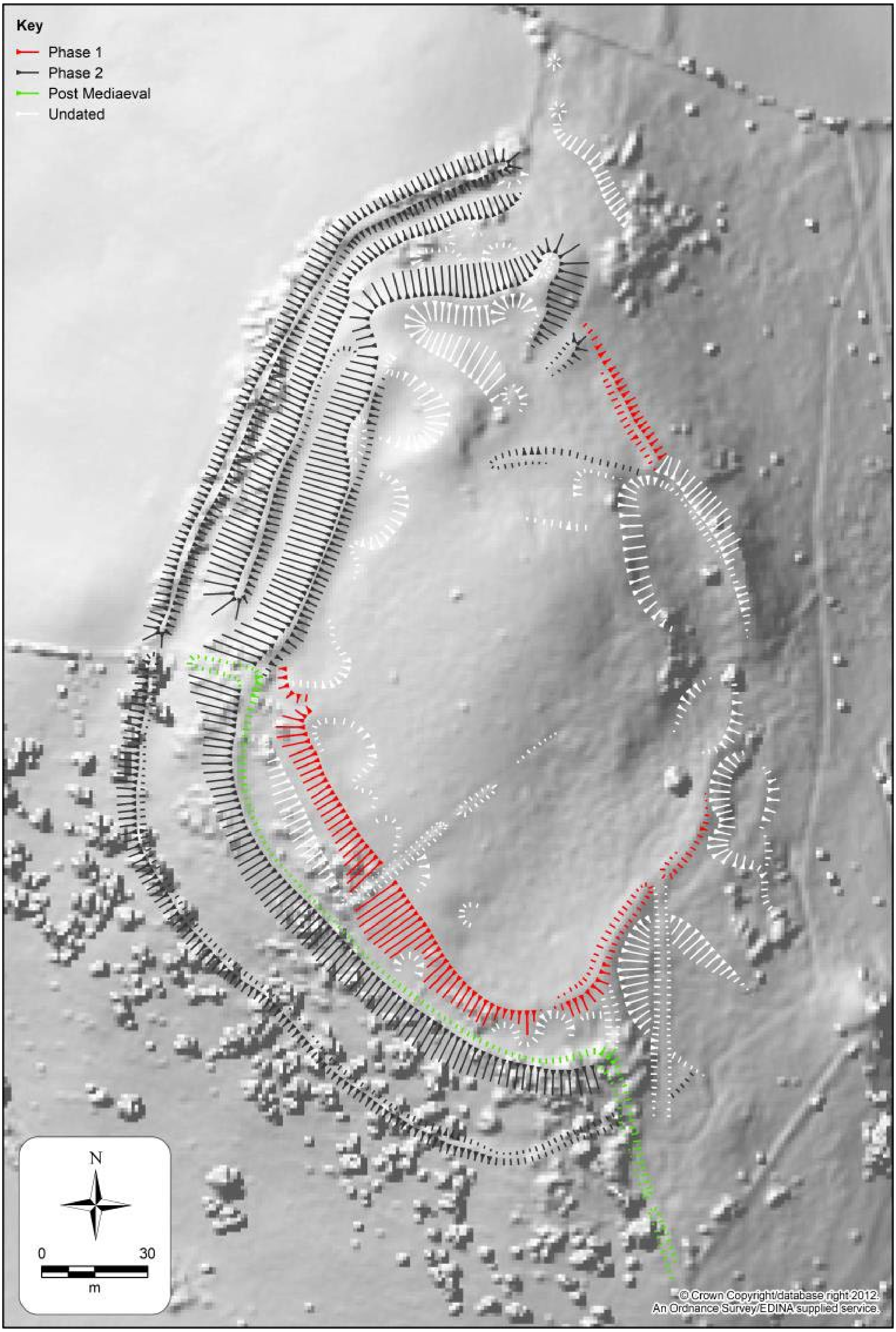

Figure 124. Earthwork plan showing the possible first phase univallate enclosure (red), phase 2 (black) and the post-medieval landscaped enclosure (green).

The Bodfari radiocarbon dates suggest a more complicated sequence of events than a simple two phase development (Hamilton above). Accepting that all of the charcoal dates at least are not associated with events to date the context they are from such as constructional timbers or hearths, and are, therefore, *terminus ante/post quem* dates, they still give a relative sequence that indicates a series of constructional activities taking place that constitute the ramparts and entrances of the two phases. The dates in this discussion are modelled at 68% (Hamilton above).

The two dates from Oak branch wood charcoal underlying the Phase 1 rampart in Trench 5, Area 5B, give very early dates of 1280-1215 cal BC (68%). If associated with the rampart construction, which they probably are not, these are suspiciously early when compared with other sites in Wales producing pre-800 dates possibly for rampart construction such as the two Powys sites of Y Breiddin and Llwyn Bryn Dinas with early dates of ninth/eighth century and possibly nearby Moel Hiraddug. Further afield the two Pembrokeshire promontory forts of Porth y Rhaw and Dale point are also part of this small group of Welsh hillforts with pre-800 radiocarbon dates. Even so, these early Bodfari dates may represent some activity on the hilltop and it is curious that the material is in a feature directly underneath the rampart. Campbell (2021; Forthcoming) has collated the evidence for Late Bronze Age activity at Welsh hillforts and shown that, as at Bodfari, most of it seems to represent a pre-rampart phase. Her list of sites includes Dinorben, Ffridd Faldwyn and Y Breiddin and confirms the recognition of Late Bronze Age pre-hillfort activity at hilltop sites suggested over a wider area by McOmish (2018).

The precise dating of the first phase rampart remains elusive although the dates do suggest that it was earlier than the Phase 2 alterations. The date associated with the Phase 1 entrance recess is 500-395 cal BC (68%) providing a *tpq* for the remodelling of the recess and a *taq* for the earlier Phase 1 rampart building. It is possible that this is the date for the Phase 1 rampart construction although more likely that it is a later modification of the Phase 1 entrance as suggested by the stratigraphy in Trench 5 Area 5A thus placing the construction of the rampart earlier.

The major changes to the rampart configuration which saw the Phase 2 alterations took place gradually over possibly two centuries as suggested by the radiocarbon dates. The construction of the stone-built box rampart in Trench 3X has a *tpq* of 395-345 cal BC (68%) with its subsequent increase in width and addition of a rear revetting bank indicating that work on it continued for an unknown length of time afterwards. Part of the Phase 2 alterations was the work carried at the northern entrance. From the limited excavation at depth in Trench 6 it is not possible to say whether a Phase 1 entrance existed at this point but the levelling of the area and the construction of the Phase 2 hooked inturn are dated by Hazel roundwood and a charred grain of wheat. These give a *tpq* of 350-175 cal BC (68%) for the construction of the inturn which is also a *taq* for the demolition of the Phase 1 rampart here. The position of the roundhouse and its artificial terrace in relation to the northern entrance suggest that its construction was part of the overall design of the approach and entry into the enclosure. The date from a piece of cattle bone within the primary layer of the bank around the roundhouse gives a *tpq* for its construction of 360-200 cal BC (68%). These dates indicate that the Phase 2 modifications as seen in Trenches 1, 3X and 6, took place within a two hundred year span between 395 and 175 cal BC showing that it wasn't a single phase of building but rather a sequence of changes.

Overall these dates suggest building and modification of the ramparts and internal structures at Bodfari spanning a period from approximately the late fifth/early-sixth century to the late third/ early second century cal BC with the initial building of the Phase 1 rampart possibly earlier. The following brief review of vallation, phasing and dates will attempt to fit the Bodfari dates into the regional picture of hillfort development.

Davies and Lynch (2000) argue for a four stage sequence - earliest 800-550 cal BC, early 550-400 cal BC, middle 400-150 cal BC and late 150 to the Roman occupation. The earliest hillforts are often defined by a palisade with examples in the Marches such as Old Oswestry (Varley 1948) and also at Ffrid Faldwyn in Powys (O'Neil 1942; Guilbert 1981). Moel-y-Gaer (Rhosesmor), with 21 radiocarbon dates, also has a first phase palisaded enclosure with roundhouses probably dating to the 8th/7th centuries cal BC (Guilbert 1975). This was replaced by rampart A *c.* 800-540 cal BC which was refurbished *c.* 370 cal BC and then rebuilt as rampart B *c.* 360 cal BC (Horn 2019). At Dinorben the series of excavations through the 20th century have shown a sequence of palisades that pre-date the timber laced rampart which are dated to 770-400 cal BC, suggesting that the palisades could be 9th-7th centuries (Gardner and Savory 1964; Savory 1971a; Savory 1971b; Guilbert 1980).

The early phase of hillfort building and alteration sees the increased use of box ramparts both entirely stone built and timber-laced invariably univallate as at several of the sites cited above, not least Ffrid Faldwyn and Dinorben. Within the Clwydians only Moel-y-Gaer (Llanbedr), Penycloddiau and Moel Hirradug have seen excavation of ramparts. At Llanbedr earthwork survey has suggested several phases with the eastern entrance being made more complex although excavation has shown the rampart to be of a single phase, faced with stone with burnt material in the middle that has been deposited there rather than burnt *in situ* (Karl and Butler 2009). There are five radiocarbon dates two of which are from the rampart fill (507-486 cal BC) and one from the front face of the rampart (507-433 cal BC) (Lloyd Jones 2017) which makes the site early and probably earlier than the Bodfari Phase 2 box rampart but possibly contemporary with the Phase 1 rampart. Penycloddiau is bivallate for much of its circuit, univallate in parts, with four lines of banks to the north. The recent excavations have shown the rampart to be *c.* 4m wide with inner and outer stone faces and a brash core, the outer face being better worked than the inner. Re-facing in places shows that the rampart was refurbished at least once although whether this can be called a second phase is questionable. Interestingly, and unusually, the rampart has an original lime capping and a metalled surface between it and the outer ditch which seems to have been an external walkway (Mason and Pope 2015; 2016; Pope pers. com.).

Moel Hirradug is a complex site which has an equally complex history of investigation with a series of interventions starting in 1872 when quarrying of the hill began, summarised by Brassil *et al.* (1982). It probably began as a single enclosure hillfort (*ibid*: 81) but in its final form has up to three lines of ramparts and ditches on the southern and eastern sides and one on the more precipitous western side. The ramparts are close together to the north but further south they separate to form an eastern enclosure alongside the main western enclosure. Excavation of the northern rampart in the early 1960s showed a stone faced structure with rubble infill approximately 4m wide. With the threat of further quarrying in 1979/80 the middle and outer ramparts and ditches and counterscarp bank were excavated. Both the middle and outer ramparts were of box construction with varying levels of evidence for inner and outer stone revetting walls and rubble fills, the outer being between 1.7m and 2.5m wide while the middle was wider at 3.7m to 4m. Developmental phasing is uncertain and the only radiocarbon dates are from the 1970s for the fill of the blocked main entrance, from mid-8th to 4th centuries cal BC making this another possible early site.

At Moel Fodig, further south in the Llantysilios, a single rampart was of stone construction although little was left standing and appeared to the excavators to have been intentionally pushed into the ditch. Within a roundhouse excavated in the interior were two sherds of late Bronze Age/early Iron Age pottery, 9th-7th centuries, which makes this a very early site. The evidence suggests that this enclosure was short lived and due to its proximity to the much larger Caer Drewyn may have been superseded by this site. Carn Drewyn itself is univallate with a large tumbled stone rampart faced with stone blocks in part and an earthen rampart of different character in other areas (Gardner 1922). It has been suggested by survey (Brookes and Laws 2006a) that these represent different phases with the stone rampart overlying the earlier earthen one with, perhaps, a third phase extension shown by another possible rampart going downslope on the western side.

The middle Iron Age, 400-150 cal BC, is characterised by the introduction of multivallation and the Bodfari evidence fits this dating. This includes more complex entrances, and often an increase in the size of the enclosed area. Ffridd Faldwyn, for example, shows this sequence with an increase in size from 1.2ha to 4ha and Moel-y-Gaer (Rhosesmor) was re-occupied and the rampart rebuilt in the 4th century. Of the unexcavated hillforts in the Clwydians it is difficult to assign phases within this suggested sequence from earthwork survey alone as discussed above. Moel Arthur, for example, is massively bivallate on its north eastern side but univallate to the south and west with a very slight rampart (Brookes and Laws 2006b). Moel Fenlli is similar in being bivallate for much of its circuit with massive ramparts to the east and north (Brookes and Laws 2006a). Moel-y-Gaer (Llantysilio) is superficially of a comparatively simple design being univallate for its entire circuit (Brookes and Laws 2007b) with radiocarbon dates from houses within it, see below, dating to the mid 4th to 3rd centuries cal BC suggesting that the move to multivallation was not seen at every site.

In North Wales the evidence for late occupation is problematic and often dependant on material culture rather than structural elements. Within the Clwydians at Moel-y-Gaer (Llanbedr) a single sherd of Roman pottery was found during the 1840s excavation (Wynne Foulkes 1850a; Karl and Butler 2009) and at Moel Fenlli two hoards of Roman coins were found in 1816 and 1845 after heather burns (Gardner 1921; Wynne Ffoulkes 1850b). To the north at Moel Hirradug several artefacts including fragments of shield fitments show activity at the site during this period while at Dinorben more convincing evidence for Roman and post-Roman activity was found. There is no evidence for Roman activity within Bodfari.

An integral element of the design and architecture of a hillfort's enclosing works are the entrances which obviously form the focus for people arriving into and leaving the interior. As such they have shown also to be a focus for activities including design modifications, and thus produce evidence for phasing and sequencing resulting in them being a target for excavation.

The influential ABC scheme for the Iron Age as laid out by Hawkes (1931; 1959) included discussion of ramparts and entrances for each of the suggested phases. This reinforced the idea of a general sequence from simple to more complex forms, early entrances being some form of simple gap and later examples being more complex with inturns and out-turns sometimes with barbicans and outworks also represented (*ibid*: Figure 7). The profound impact of this scheme on hillfort studies in southern Britain lasted for thirty or so years and underpinned interpretations of excavated and surface evidence. One, of many, examples was Varley's analysis and discussion of Welsh Marches hillforts based on excavation results from 12 sites. Fitting this evidence into the ABC scheme, he suggested 'successive types of entrances' (Varley 1948: Figure 4) with a three-phase development from simple gap, through incipient inturns and overlapping types, to various forms of full inturns and out-turns, and finally to barbicans, both simple and complex. This model of increasing complexity of entrance forms went together with a similar development of rampart numbers from univallate to various forms of multivallation.

Avery's introduction to hillforts included a section on entrances together with a diagram showing entrance terminology based on excavated evidence (1976: Figure 4), because he considered that entrances now appear 'merely as grass-grown gaps in ramparts' (*ibid*: 16). He described variations from simple gaps to forward and rearward extensions to create entrance passages (equivalent to out-turns and inturns). These ideas were greatly expanded in his study of Southern British hillfort defences (Avery 1993) which collated information from 150 excavated sites and included very detailed discussion of entrances. His emphasis throughout reflected his military thinking that saw entrances as a part of a defensive system and thus on how their design and architecture related to attack and defence. According to Avery, entrances '...are not complex, and interest therefore focuses on the tactics' (*ibid*: 3), the combination of an estimation of tactics of assault and resistance combined with the evidence providing the key to the 'development of systems of tactics'' (*ibid*: 92).

Cunliffe's general account is chronological, describing the development of entrances from simple to more complex forms with dates where available for these (2005: 365-374). Similarly, Brown (2009: 57-66) and Harding (2012: 75-87) discussed the same principal characteristics of entrances and the same developmental scheme, again based on excavated evidence. Underpinning all of these synthetic discussions are the results from excavations of entrances at individual sites and it has been by collating these details that regional and wider developmental sequences have been established. An example is provided by Stanford's (1971) overview of the entrance evidence from the Welsh borderland hillforts of Croft Ambrey, Credenhill Camp and Midsummer Hill in Herefordshire and Ffridd Faldwyn in Powys. Although the general sequence from simple to complex entrance forms can be supported for many areas where excavated evidence is available, the 'classic', frequently cited, examples show a large variation in their design and constructional features.

Bodfari has two entrances, the western one being fully excavated and the northern one partially excavated albeit revealing enough detail to enable an interpretation. Neither fits comfortably into the suggested scheme although it could be argued that while the northern entrance may have started simple and became more complex the western one seems not to have had a simple gap phase but was constructed *de novo* with a southern inturn and small recess. The first phase of the northern entrance was only partially revealed in a two metre wide slot and while it was constructed from large stone blocks, as was the western early rampart terminal, it was not possible to determine the characteristics of the entrance or indeed whether it was an entrance at all.

Both entrances are inturned, albeit in different forms, the western one only on its southern side and the northern one on both sides with the western leg surviving as an unexcavated earthwork. Guilbert (1979) has drawn attention to the simple early entrances which were subsequently replaced by more complex versions at the nearby sites of Dinorben, the south-east entrance and at Moel Hiraddug, the main inner gate. Although not directly comparable to Bodfari in entrance form, and also showing the later entrance to be constructed to one side of the earlier one rather than being a modification of it, these sites do show that within the area there was a trend in entrance developments towards increasing complexity of design.

The Dinorben and Moel Hiraddug examples illustrate two aspects of entrances that are present at Bodfari and of importance more generally. The first is the inturning of the ramparts to form an entrance corridor and the second is the introduction of entrance recesses of sufficient scale to accommodate one or more people within the inturns (often called guard chambers). The two are related as the inclusion of entrance recesses requires the inturning or thickening of rampart ends to accommodate them. These are not universal features of Welsh hillforts, however, with only approximately 20% of the 626 confirmed sites having at least one inturned entrance (Lock and Ralston 2017; 2022: Chapter 5) and those having recesses number far fewer.

The most recent discussion of the evidence for guard chambers is Bowden (2006) who suggests that these features should perhaps be called 'entrance recesses' rather than the traditional, and value-laden term 'guard chambers' (cf Gardner and Savory 1964; Avery 1993: Chapter 16). The military interpretation originated from Gardner's (1910; 1926) excavations at Pen y Corddyn Mawr, Denbighshire, which he saw as part of the 'Cornovian school of military architecture' adopted by the neighbouring Deceangli tribe (Gardner and Savory 1964: 90).

Entrance recesses are sometimes observable from surface evidence as hollows or indentations within the entrance inturns, for example Forde-Johnston recognised 'about 15' sites in England and Wales with such evidence (1976: 227), all associated with inturned entrances. While some of his cases are problematic, others such as the north-eastern entrance at Moel Arthur in the Clwydians are unambiguous as here the entrance inturns have opposing hollows producing a claw-like form in plan. At Penycloddiau the southern entrance is inturned with surface evidence for two offset recesses which do not face each other, the eastern inturn bending in a claw-like fashion. Other possibilities close to the Clwydian area based on surface evidence alone are the east gate at Moel-y-Gaer (Rhosesmor), the pronounced inturned western gate at Castell Cawr, Conwy which may have a single recess and the elongated north-eastern entrance of Caer Drewyn also possibly with a single recess.

As Bowden noted (2006: 426) the overall distribution of entrance recesses has not changed significantly since Gardner and Savory's map of the 1960s (1964: Figure 15) showing the main concentrations to be in north Wales and the Welsh Marches. Bowden (2006: Table 1) identified recesses, and possible recesses, at 40 entrances at 35 sites in England and Wales. Some hillforts with recesses on one entrance do not display them at all their entrances. At Moel Hiraddug, for example, only three of the six identified entrances have evidence for them. One rare example of a hillfort with multiple entrances where all were equipped with guard chambers is The Wrekin in Shropshire.

Excavation has revealed that generally speaking recesses are sub-circular or rectangular in shape although some are more irregular in plan. Bowden's distribution map, (2006: Figure 1), shows that the rectangular type dominates in the Welsh Marches, for example the main entrance at Titterstone Clee and the south-west entrance at the Wrekin, and the sub-circular type elsewhere except in north Wales where there is a mixture of the two. Equally there is some variation in their size, with sub-circular examples being between 3.5m and 6m in diameter while rectangular chambers vary between 3m by 2m and 8m by 5.5m (*ibid*: 428). The dating of these features is perhaps not surprisingly problematic due to the absence of directly related radiocarbon dates. Stanford's early attempt to fit them into a chronological scheme for the development of Herefordshire hillforts and those of the wider region suggested the period *c.* 325-275 BC for stone built guard chambers, with timber built ones being earlier (1971: 44). As shown by Bowden (2006: 426) no new radiocarbon dates are available since Guilbert's (1977: 47) discussion of the three then available for Rainsborough Camp, Northamptonshire, and Croft Ambrey, Herefordshire which suggested a construction period within the later 5th and earlier 4th centuries uncalibrated BC. Bowden (2006: 426) seems to be correct in suggesting that guard chambers are never present in every constructional phase of any fort; probably all that can be said is that typically they do not belong to the earliest or latest phases so are in the main likely to be Middle Iron Age rather than Early or Late. According to the *Atlas of Hillforts* less than 2.5% of hillforts with recorded entrances have recesses (Lock and Ralston 2017; 2022 Chapter 5) so perhaps their prominence in the general hillfort literature is exaggerated. Many hillforts and their entranceways seemed to have worked without a perceived need for recesses whatever their function was; they were only considered an essential element of hillfort design at some entrances for a short period in the Iron Age in certain areas especially North Wales and the Welsh Marches.

Turning to the Bodfari entrances there are no clear parallels although some general comments can be offered. The recess associated with the western entrance is circular and small and if this did function as some form of 'guard chamber' then it is unlikely to have accommodated more than one person at a time. Its form is similar, albeit smaller, to the north-western gateway at Moel Hirradug (Brassil *et al.* 1982: Figure 29), just over one metre compared to three to four metres in diameter. Both have restricted entrances opening out into the gateway passage and are inside the main gates. Its size calls to mind the small rectangular recesses at Rainsborough Camp, Northamptonshire, where just inside the western inner gate are an opposed pair of small rectangular recesses interpreted as sentry boxes with associated large semi-circular guard chambers (Avery *et al.* 1967: plate XXII).

The hooked inturn of the Phase 2 northern entrance is designed to maximise the effect of the topography sloping away on its eastern side resulting in an inturn wall of only just over a metre in width. Whether the space produced by the inturn and its hooked end could be called a guard chamber or recess is debatable although it is certainly a well-defined enclosed space facing into the entrance passage. The evidence for it being floored at its southern end, which may have covered the whole interior originally, suggests that the space was meant to function in some way as an integral part of the entrance. Assuming there is an outer gate at the northern end of the passage to go with the inner one as partially excavated, then the recess sits between the two gates in a position to monitor in some way traffic entering and leaving the hillfort. As an entrance feature it may have performed a similar function to the 'open bays' included in Bowden's list of hillforts with recesses (2006: 424) although his only two examples are Danebury and St Catherine's Hill both in Hampshire.

As noted by Forde-Johnston (1976: 229, Figure 129), the inner rampart at the northern entrance turns both inwards and outwards to produce an elongated passage flanked for about 30m on its western side. The bulge to the north could be interpreted as a form of bastion positioned to enhance the approach to the hillfort entrance as well as possibly for defensive reasons. This is a form of Forde-Johnston's 'club-ended entrance' which can show as surface evidence as a thickening of rampart ends either both sides or just on one side of an entrance (*ibid*. 224). An example clear to see due to the stone wall preservation is the south-western entrance at Tre'r Ceiri where both rampart ends thicken to approximately double the ramparts width. When discussing the Period II bastion at Dinorben , a projecting curved wall, Gardner and Savory (1964) suggest that bastions started as unilateral features, i.e. on one side of the entrance only, and then became bilateral showing a similar development to guard chambers. Driver (2013; 2016) has shown the importance of bastions as one of the architectural elements that enhance an entrance and create an impressive approach to the gateway. His examples in Ceredigion range from the single bastion on the Phase III south gate at Pen Dinas and the free standing bastion flanking the left hand side of the main gateway at Castell Grogwynion.

There is a considerable literature concerning the evidence for later prehistoric houses (circular and other forms) and their interpretation within a range of settlement types across the British Isles although for a discussion concentrating on houses within hillforts see Lock and Ralston (2022: Chapter 6). One significant early offering is that by Savory who mapped the evidence for houses within Welsh hillforts (1976: Figure 9), differentiating between hillforts with round and rectangular structures; and including approximate numbers. He incorporated all the evidence likely to have been broadly contemporary with hillfort use, not simply Iron Age. In all, data for *c.* 80 hill- and promontory-forts were included, and a key and very clear distinction was between sites with numerous rectilinear features (four-posters were included) distributed in the Marches from Midsummer Hill to Moel Hiraddug; and the forts in the remainder of Wales, for which circular structures – usually present in smaller numbers - dominated. It is now considered unlikely that many of the rectangular structures considered by Savory to be houses were such rather than ancilliary buildings. Both Pope (2003) and Harding (2009) have subsequently offered detailed accounts of roundhouse studies in Britain, dealing with differing architecture, building techniques, interpretations and proposed reconstructions and drawing regional distinctions based on the differences between the range of post-built and stone-built structures encountered.

The *Welsh Roundhouse Project* expanded the earlier work of Pope from North Wales to cover the whole of the country (Ghey *et al.* 2007). The project database only comprised excavated roundhouses, a total of 750 from 189 sites, including hillforts. An emphasis within the work was on dating, with 428 dates available from 72 sites, resulting in a chronology of houses and settlements. The importance of hillforts is implied in the work rather than being explicit: for example, 75% of the houses from north-east Wales come from the three excavated hillforts of Dinorben, Y Breiddin and Moel y Gaer (Rhosesmor). Overall, roundhouses in Wales are shown to be rare before the Late Bronze Age, but continue in use and to be constructed thereafter well into the first millennium AD. Ghey and collaborators' histogram (*ibid*: Figure15) makes plain that favoured architectural features vary considerably across the country.

Although the evidence for the Trench 1 house is somewhat lacking there is enough for it to be compared with other houses known from the immediate and wider area. Davies and Lynch (2000: 158) state that in general the known timber-built roundhouses in Wales are between seven and eleven metres in diameter constructed of wattles daubed with clay. The most informative nearby site for roundhouses is Moel-y-Gaer (Rhosesmor), Flintshire, excavated in 1972-3 (Guilbert 1975: 1976). Here in Phase 1 twenty two post-built roundhouses were identified closely packed together with porches. The post-rings vary between 4.3m and 7.4m in diameter and only one house retained the evidence for the outer wall which if applied to the others would give floor sizes of between 6.5m and 11.5m. Seven houses had remains of central hearths shown as 'reddened areas of natural clay' (*ibid*. 308) and charcoal from one produced a radiocarbon date of 900-430 cal BC (95% probability) (Horn 2019), the wide range due to a combination of 1970's technology, the calibration plateau and the effects of bulk sampling. This house is partially overlain by the Phase 2 rampart and may have belonged to a pre-rampart palisaded enclosure. Phase 2 sees a change in house building technique to stake wall roundhouses with post-built porches of which eleven were excavated. These had diameters of between 5.6m and 8.0m.

Moel Hirradug shows an interesting, and important, combination of stone-built and timber-based roundhouses through surface and excavated evidence (Brassil *et al.* 1982). Stone roundhouses are common in parts of North Wales, Garn Boduan and Tre'r Ceiri on the Llyn peninsular being the classic examples (Hogg 1960), but as Brassil *et al.* point out (1982: 22) this is west of the Conwy Valley with them being rare in Conwy itself. At Moel Hirradug the surface remains of these structures, so-called hut circles, are spread across the western enclosure with one having been excavated in 1961 revealing the circular low bank to be the remains of a rubble wall (*ibid*: 30). Two more well preserved examples of stone-wall roundhouses, Huts F and F3, were excavated in the early 1960s, with internal areas of 8.6m and 6.5m respectively. These were substantial structures with walls of approximately 1m thick with internal and external facing and rubble infill, internal stone hearths and postholes and a range of material culture. The other form of surface evidence are hut platforms, artificial terracing into a slope to form a flat area, often circular, onto which can be constructed a roundhouse whether stone-built or timber-based. These are numerous at Moel Hirradug throughout the eastern enclosure and parts of the western enclosure. In 1979/80 further rescue excavations in the face of quarrying revealed a ring-slot roundhouse (*ibid*: 68) which was slightly flattened in plan and measuring 6.6m by 6.2m. This was constructed on a platform and the house was built up against the rock cut scarp similar to the situation at Moel-y-Gaer (Bodfari), and here at one point the excavators suggesting that the rock face formed part of the rear wall of the house (*ibid*: 74).

A closer example of excavated timber-based roundhouses is those at Moel-y-Gaer (Llantysilio) excavated by the Clwyd-Powys Archaeological Trust in 2010 (Grant and Jones 2013). Earthwork and geophysical survey (Brooks and Laws 2007b; 2009) indicated 20 possible roundhouses with 11 on platforms. The 20m by 3m trench revealed the drip gully of an earlier house with stones set on edge within the gully, a possible pit containing bread wheat cereal grain, the gully of an internal division, a possible post-pad and a hammer stone. The second house was later and on a raised platform which partly overlay the first house. This had decayed wattle and daub walling and, like the first, was 7m in diameter. Three radiocarbon dates came from an occupation deposit sealing roundhouse 2 (362-171 cal BC), an occupation deposit pre-dating roundhouse 1 (345-351 cal BC) and the fill of roundhouse 1 drip gully (388-206 cal BC), at 95.4% giving a range of late 4th to early 3rd centuries cal BC. At the small hillfort of Moel Fodig two houses were identified by geophysical survey (Brookes 2010a) with one being shown by excavation as having a wall slot gully, internal postholes and a stone-lined pit/hearth/fire pit (Moreton *et al.* 2012).

House platforms as surface evidence are common across the Clwydian hillforts but vary greatly in numbers for each site. At Penycloddiau a total of 33 platforms and 49 'circular hollows' which are a similar type of feature have been identified (Jones 2004), plus more by geophysics some with suggested attached yards (Edwards in Mason and Pope 2013; Mason and Pope 2016). Excavation of one roundhouse platform concluded in 2017 and details are awaited although the structure's wall was likely of an organic nature (*ibid*; Pope pers. com.). At Moel Arthur there are only two or three platforms and these cluster around the inturned entrance of the hillfort (Brooks and Laws 2006b), a similar position to the terrace and house at Bodfari. Moel-y-Gaer (Llanbedre) has 15 house platforms (Brooks and Laws 2007a), Moel Fenlli the much larger number of 61 and Caer Drewyn eight platforms together with possible stone foundations within the annex (both in Brooks and Laws 2006a).

The Bodfari house seems to be of an unusual constructional technique compared to the above, not stone built or obviously timber-based but possibly of some form of cob-wall construction. According to Smith (2018) in north-west Wales timber houses tend to be early and replaced by stone-built houses with clay-walled construction, a possible parallel to Bodfari, being rare. His two examples are at Bryn Eryr, Anglesey, and Bush Farm, Caernarfon, both of the 2nd century BC and later replaced by stone-walled houses in the Roman period. Even so, the Bodfari house does fit with some more general regional characteristics. At 9m diameter its size is within the known range, the central hearth may match the 'burnt clay' evidence from Moel-y-Gaer (Rhosesmor), and it's location up against the artificially cut rear face of the platform is similar to that at Moel Hirradug. The Bodfari dates for the house, albeit the bank surrounding it, are in line with the only other dates for houses from the immediate area, those from Moel-y-Gaer (Llantysilio) at 4th to 3rd centuries cal BC.

Conclusion

In terms of the overall understanding of the Bodfari hillfort together with the others on the Clwydian range it is difficult to come to a firm conclusion on why it was built and what it was used for. Alcock (1965) has suggested that the larger hillforts of the Clwydians - Penycloddiau, Moel Hirradug and Moel Fenlli - all overlook a stretch of fertile valley so could be a focus for different communities living in the lowlands. This, of course, need not exclude the other smaller hillforts and argues for them not to be permanently occupied which the Bodfari evidence supports. He suggests that they could have served different uses such as places of refuge, places for religious, social and political gatherings, and were perhaps nodal points for exchange and/or the centres of elites. The model of hillforts being a central place serving a dispersed community where they could come together at certain times of the year and take part in community events is one which has been much discussed since Alcock (for example Sharples 2010; Lock and Ralston 2022: Chapter 9). Integral to this argument is the collaboration of different households from the surrounding area as a form of community cohesion centred in part on the building and maintenance of the hillfort's ramparts and entrances as well as the actual uses of the enclosure. Some hillforts, such as Bodfari, show evidence for few houses within them suggesting that people from the wider area must have been involved in their construction rather than being an internal community. As shown in the reconstruction work of the stone ramparts at Tre'r Ceiri on the Llyn peninsular the task of rampart building may not have been as onerous as is imagined. Here, based on rebuilding lengths of the stone wall it has been estimated that the entire circuit could be constructed by 100 people in 20 days (Smith 2018). As the Bodfari rampart circuit is approximately the same size as Tre'r Ceiri these figures are of interest despite the ramparts at the two sites involving different stone-based constructional techniques.

The idea of hillforts as centres for community activities is more easily supported in areas such as Wessex and parts of the Marches where there is convincing evidence of contemporary farmsteads around the hillforts where the population would live. In the areas around the Clwydians this is problematic as very few later prehistoric settlements are known with Manley (1991) identifying only 60 likely sites in total from a large area including the Vale of Clwyd and the Maelon extending eastwards to the Cheshire Plain, the Denbigh Moors to the west and the Berwyn Mountains to the south. More recent work has confirmed these small numbers of farmsteads in the Vale when compared to other areas with dense distributions of hillforts such as the Welsh Marches (Britnell and Silvester 2018). In north-east Wales small earthworks which can be interpreted as defended homesteads have been identified on the slopes of the upper Dee Valley and to the east of the northern Clwydians while similar sites may be represented by the few cropmarks from within the Vale. This stands in stark contrast to nearby areas such as north-western Wales where a range of settlement sites exist alongside hillforts including defended enclosures, open and enclosed settlements and individual roundhouses together with field systems (Smith 2018: Waddington 2013). The paucity of farmstead sites in the Vale is emphasised when compared further with Britnell and Silvester's 'central area' which includes the Upper Severn valley where the ratio of large hillforts:small hillforts:enclosures is 1:5:30, very different to the situation in the Clwydians and the Vale.

While there is little evidence for aspects of the agricultural economy being practised at Bodfari the better preservation offered by the limestone at nearby Dinorben provides an insight into possible activities within the wider area. At Dinorben many animal bones were found showing that domesticated cattle, sheep, pig, horse and dog were being kept together with wild boar and deer being hunted (Gardner and Savory 1964). The single piece of animal bone from Bodfari shows the presence of cattle in the area. Spindle whorls at both Dinorben and Bodfari show that sheep were present and their wool was being used. One at Bodfari and several at Dinorben being found near or within roundhouses suggests the spinning of wool and, therefore, perhaps extended lengths of stay there. While there is no mention of actual grain at Dinorben the presence of querns and rubbing stones imply the processing of grain perhaps imported into the hillfort from lower areas more amenable for its cultivation although cereal growing at higher levels is suggested by the evidence from the Moel Llys y Coed mire pollen analysis in the Clwydians (Grant 2008). Wheat grains from Bodfari and the Moel-y-Gaer (Llantysilio) house, suggest that in the summer at least the high areas of the Clwydian hills were well used by Iron Age people with crops being taken into the enclosures. Further afield in another upland region there is evidence for increased agricultural activity in the Berwyn Mountains during the Iron Age (Bostock 1980).

The impact of the seasons on habitation in this area should not be underestimated as living on the higher areas of the Clwydians in winter would have been harsh. This is suggested by the positioning of houses in more sheltered areas behind the ramparts as at Penycloddiau and Llantysilio for example. One activity which may have brought together the communal use of hillforts at certain times of the year and agricultural activities is transhumance, using the higher pastures for summer grazing and moving the animals, and people, back to the lower areas in the winter. The Moel Llys y Coed pollen data also showed increased grazing during later prehistory which could be related to hillfort building and use and is more likely to be summer grazing than all year round. It is not clear to what extent the number of suggested houses within any of the Clwydian hillforts indicates either permanent or periodic occupation. At Penycloddiau, for example, evidence suggests over 80 houses (Jones 2004) and at Llantysilio possibly 20 within a smaller area (Brookes and Laws 2007b; 2009) but even these relatively high numbers when averaged out over the lifespan of the hillfort could represent a low density of occupation at any one time. It is possible, of course, that short term occupation, especially during the summer months, could have been in more flimsy houses that leave little or no trace in the archaeological record.

Hillforts are such a diverse form of monument in terms of siting, size, morphology, dating and available evidence that it is dangerous to generalise interpretation across the whole cohort. Recent work has shown there to be more than 4,000 sites in Britain and Ireland including nearly 700 in Wales (Lock and Ralston 2017; 2022). The range of possible interpretations has been extensively discussed over the last decades and usefully summarised by Cunliffe (2006), albeit a Wessex centred perspective, which includes the ‘traditional’ view that hillforts were defensive structures. While hillforts may have had many different uses which changed over their lifetimes it is perhaps more useful to look at groups of spatially inter-related sites at a more regional or sub-regional scale such as the Clwydian group and as Driver has done for sites in Ceredigion (2013; 2016; 2018). For the small Clwydian group if defence was a primary purpose then it raises questions of population levels for surely a reasonable number of people would be needed to both defend and attack any one of these sites, especially the larger ones such as Penycloddiau. And herein lies one of the many contradictions raised by hillforts – while it is reasonable to assume that fairly high numbers of people would have been involved in the construction and maintenance of the ramparts, ditches and entrances, the evidence for where they lived, either within the hillfort or in the surrounding area, often does not suggest such numbers.

In 1909 Philip Stapleton’s concluding remarks on his diggings at Bodfari included: ‘If anything can be learned from an exploration which yielded nothing in the shape of a find, it is perhaps that Moel-y-Gaer was at least never occupied by the Romans. Further than this the evidence will not carry us’ (Stapleton 1909: 237). It is interesting that his focus is entirely on ‘finds’ rather than the structural elements of the ramparts and ditches that he uncovered. While we can agree that the hilltop was not occupied by the Romans, the evidence from these excavations has taken us further towards understanding the character of the hillfort although definitive interpretations, as with other hillforts, must remain elusive.

Artists in residence

For two weeks each summer from 2013 – 2018 artists Simon Callery and Stefan Gant worked alongside the archaeologists producing experimental art work directly informed by the excavation of the hillfort.

An exhibition called 'Rhych' was curated by Nia Roberts at Oriel Plas Glyn y Weddw, Llanbedrog on the Llŷn peninsula from July 27th 2018 until the 23rd September 2018, coinciding with the final season of excavation. An art and archaeology public study day took place in the gallery on the 28th July. Speakers were Kenneth Brassil, Simon Callery, Stefan Gant, Gary Lock and Rees Mwyn.

From the exhibition press release;

> 'In this exhibition Callery and Gant present one work each accompanied by an archaeological field drawing from Bodfari. These artworks have been informed by a sustained encounter with the archaeological excavation and its recording methods. The works do not depict the site so much as reveal the impact of the process of excavation on contemporary landscape-based art. The resulting painting (Callery) and drawing (Gant) confront landscape as material rather than image.'

Simon Callery

Contact paintings

This residency was an opportunity to further my long-term project of making landscape-based painting informed by archaeological fieldwork. Being involved with previous hillfort excavations at Segsbury Camp and Alfred's Castle (Bonaventura 2011; Bonaventura *et al.* 2003; Callery 2004; 2014), I had initiated the painting process on site and completed the works off site in my studio in London. My plan for Bodfari was to try to close the gap between the site and the studio and to align my painting process more closely with the excavation process. I wanted to find ways to respond as directly as possible to the excavation and for the decisions that define the character of the paintings to be made under the same conditions as the diggers at work.

This part of North Wales occupies a significant place in British art history. The Welsh painter, Richard Wilson (1714 – 1782), recognized as one of the first artists to use landscape as a subject in its own right, had lived at Llanferres, 10 miles south of Bodfari. He was an important influence on a young Turner, whose first independent painting trip took him up through Wales in 1792. Conditions on Moel-y-Gaer were close to perfect for working in the landscape. From the top of the hill unobscured views lead north to the Irish Sea, south along the Clwydians and west to Snowdonia. With a tip of the head it is possible to relate the features of Moel-y-Gaer to the broader landscape. This way of looking, so integral to the hillfort experience, mirrors an important aspect of the painting process; where attention to detail must be held in balance with the whole at all times. In combination the cultural and physical qualities of this part of Denbighshire established the right context in which to probe the parameters of landscape-based painting.

I brought on site 50m of 183cm wide, 15oz cotton duck canvas, pre-washed in my studio (to remove the industrial starch) and cut into 3m lengths, a box full of 2kg bags of dry pigment (predominantly earths) and 10kg of rabbit skin size. In response to the colour of the soils and sub-soils revealed during the first days of the excavation, I mixed up buckets of iron-based pigments; Mars Yellow, Mars Black, Caput Mortuum and Red Oxide. I then brushed or sponged it into the canvas when the distemper medium (powder pigment and rabbit skin glue size) was hot, resulting in a wide range of greens, browns and reds.

Figure 125. Simon Callery at work, Moel-y-Gaer (Bodfari), July 2015.

My intention was to be as direct as I could. As soon as a trench was fully excavated and recorded, I would throw lengths of my coloured canvas onto the surface. Crawling across the sheets on my hands and knees with pencil and knife, I marked, cut and punctured the fabric where I could feel contact with the prominent features of the archaeological surface underneath, Figure 125. I made decisions quickly and cut down the completed sheets into smaller parts immediately. As the hillfort was relatively secluded I left all the cut and marked canvas out to be softened by the wind and the rain.

To a painter an archaeological trench appears quite familiar. It behaves as a framing device or window onto the excavated surface it contains, similar to a stretched canvas. What is unfamiliar is the complexity of the spatial depth of the excavated trench and the awareness that the void created by removing material has equal agency with what remains. Through archaeology I had begun to recognize the expressive potential of incorporating actual spatial depth in a painting and I wanted to develop this further as an integral element of the work. The extending of trenches during the excavation process, for example Trench 3 to 3X, alerted me to the value of altering the overall shape of a painting at any point during the painting process. Wanting this freedom and needing to find a way to create an internal physical space in the paintings led me to reject the use of the traditional stretcher - the rigid structure that sets the dimensions and depth of the canvas - and to work only with loose and un-stretched sheets which could be stitched together later to complete the work. As a consequence, the painting was no longer something that occupied a part of a physical structure but was the physical structure itself.

At the end of each season I would roll up all the cut and marked canvas and take it back to the studio to be stitched. Over the 5 seasons I produced 7 large-scale paintings with the material generated at Bodfari. The largest of all of them is called 'Country Register', Figure 126. I think of this painting as a contact painting. This 5m long x 2.5m high work has many punctures in the front surface, both

Figure 126. Simon Callery: *Country Register*. 2018. © Simon Callery. All Rights Reserved, DACS/Artimage 2021.

large and small, revealing another set of marked and perforated canvasses hanging inside. The sides are open and the scale of the painting encourages the viewer to walk along the length of the work and to experience it in motion. The canvas hangs under an aluminium right-angle bracket, which holds the internal void open and allows the fabric and the loose canvas attachments on the front face to fall and find their position under gravity.

Working on this excavation in North Wales fundamentally changed my painting. My connections with the established conventions of landscape-based painting were severed and replaced by physical equivalents; line was not drawn with a brush but was cut with scissors or a knife. The role of colour was recast as a material in its own right and not a medium for picturing and depth was realized as actual physical space instead of an image-based illusion. The result is painting to be experienced with all our senses, not just visually. They operate as a record of direct contact with the surfaces of the excavation and as a register of the physical landscape rather than as a depiction of it.

Stefan Gant

The artwork 'phygital palimpsest' resulted from a residency sustained over a five year period enriched by a unique exchange between artists, archaeologists, curators and the dramatic, elevated position and excavation site at Moel-y-Gaer. As a contemporary drawer, the work emerged through interdisciplinary dialogues with field archaeology, spatial archaeology and poignantly an experiential encounter with the excavation site and the location's past. The residency was set to unlock the potential to create something anew and activated a reconfiguration and progression of an established drawing practice.

Figure 127. Stefan Gant at work, Moel-y-Gaer (Bodfari).
© Simon Callery 2019.

The first experience of the excavation site presented a distant orchestra of rhythmical sounds resonating from the trenches as trowelling actions from the excavation team acted out on the various trench surfaces. This sonic encounter provided a catalyst leading to an investigation into excavation processes. Tacit and haptic enquiry with surfaces, a subject of mutual interest between field archaeologist and drawing practitioner became a new focus to generate a body of work; trowelling and drawing were realised as different expressions of the same mode. Both audio recordings and observational pencil studies followed, Figure 127, exploring trowelling actions and the recognition of discreet gestural interactions varying from each excavator from the vantage point of the trench edge. The studies revealing trowelling authorship whilst visualising the excavation process and embodied encounters.

Trowelling was perceived to be an expanded notion of drawing; both excavator and artist reciprocating cyclical actions of marking, touch and reflection upon a surface. The drawing allowed a point of entry into the immersive cyclical excavation process on a deeply experiential and temporal level. Here, drawing transported the artist's consciousness of space through the hands of the excavator giving access and entry to explore and transpose through the shared experience. Drawing compositions portrayed the countless unfolding inflections, dragging through past landscapes and giving a voice to the event being acted out. This process also recognised an emerging taxonomy of trowelling signatures, still under investigation today. Drawing and excavation present a shared language, profoundly synergised through a transit of rhythmical mark-making activity, immersion and critical reflection. Trench contexts and trowel translate simply through pencil and paper assisting the artist to get their 'eye in' so to speak.

My drawing practice persists in exploring the confluence of drawing with new technology and so reflexively, curiosities would be drawn to the technology used on site. The excavation employed a plethora of spatial archaeological technologies, with associated integrated data sets generating unimaginable levels of supporting surface analysis and visualisation. This curiosity and dialogue resulted in discovering methods to intersect drawings with artificial data environments. Pencil marks became translated into pixels reconfigured through various digital platforms with orthophotograph and topographical data in GIS, synthesising new visualisations. Discovering this process realised new potential directions for practice and research. Meanwhile, theoretical underpinning found nourishment through conversations with members of the archaeological team, Dr Paul Reilly concerning the 'phygital' (physical and digital) (Gant and Reilly 2017) and the notion of palimpsest with Professor Gary Lock. Phygital drawing was later coined as a descriptor that talked to this discourse of contemporary drawing.

Between 2016 and 2018 imagery generated through the GIS 3D viewport was developed back in the studio, recomposing a collective of phygital drawings derived from the excavation process. The resulting image presented an abstract landscape, ethereal and ambiguous, appearing to be in a state of temporal media flux, Figure 128. Discernible as land matter, the work talks to mediated material states and emphasises a state of material suspension that was unquestionably influenced by the elevated position of Moel-y-Gaer and immersion in trenches. The notable mutation of drawing into pixels talks to the relationship between humans and emergent material and immaterial contexts;

Figure 128. Stefan Gant: *Phygital Palimpsest* at Oriel Plas Glyn y Weddw. © Stefan Gant 2019.

visual language past and present, dramatised through the exploded drawing. The work also provokes consideration to the time we live in, a time of the so called 'post-digital' epoch; pertinent conversation in fields of archaeology and fine art practice. By exploiting a genealogical tree of media tools from pencil to satellite data the artwork talks to the breadth of recording tools and vast material and immaterial convergences that our shared disciplines choose to employ. The digital image developed over many months was finally realised using a Lambda colour digital C-Type printer, employing specially selected paper to present the greatest immersive visual experience.

Unusually the artwork provoked attention within the discipline of archaeology as to what happens when we allow the transgression of disciplinary strictures. The image is multivalent though could equally propose an abstract, non-cartesian record of agency and thinking through assemblage and deconstructive processes. The significance of the residency was further consolidated by the artwork winning the 'People's Choice Award' category at the *Lumen Prize* (2019), Global Award for Art and Technology, selected by the Tate Gallery, Serpentine Gallery, Media Lab China, FutureEverything and Goldsmiths University, London. Most recently, the work was headlined by Professor Doug Bailey[1], San Francisco State University, USA. Phygital Palimpsest is testimony to the unique, shared dialogues forged between practitioners and the special qualities that the site of Moel-y-Gaer affords.

1 https://www.artarchaeologies.com/ (accessed January 2022)

Community involvement

The Bodfari excavations were committed to involving local people and those from further afield in the work of the team and in the understanding of the site and its wider prehistoric context. Working with Fiona Gale, the then County Archaeologist for Denbighshire, each summer we held an Open Day and walks to and from the site as part of the Council for British Archaeology's annual Festival of Archaeology. Open Days typically attracted around 50 people who had guided tours and explanations of the site.

We also welcomed volunteers to take part in the excavations, partly through the project website and through CBA publicity. Between 20 and 25 people were registered each year with 10 to 15 working with the core team each day. Many were local people, some with experience gained through local archaeological societies such as the St. Asaph group and CRAG (Clwydian Range Archaeological Group), although many were complete novices. For some volunteers from abroad this was their first visit to North Wales, people from America, New Zealand, Sweden, France and Germany. Training was given in archaeological techniques such as trowelling, context recognition and recording, planning and section drawing as well as more specialised techniques including magnetic susceptibility sample processing, digital surveying and geophysics.

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Moel-y-Gaer (Bodfari) is the northernmost of a series of hillforts atop the Clwydian hills in north-eastern Wales. Nine seasons of survey and excavation have revealed details of Moel-y-Gaer's ramparts, entrances and interior. This small hillfort started with a single rampart, later to be enlarged on the western side with an extra rampart and ditch. The second phase rampart was constructed of dry-stone walling and increased in width at least once. It was shown to be very different in character to the earlier rampart. An early western entrance was no longer used in the later phase, which saw the construction of an inturned entrance to the north. There is little evidence for occupation within the enclosure although a single roundhouse was constructed facing the northern entrance. Radiocarbon dating establishes all the second phase activity within the Middle Iron Age with the first phase rampart being somewhat earlier. Discussion situates Moel-y-Gaer (Bodfari) within current understandings of the later prehistoric settlement record for north-eastern Wales paying particular attention to hillforts.

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