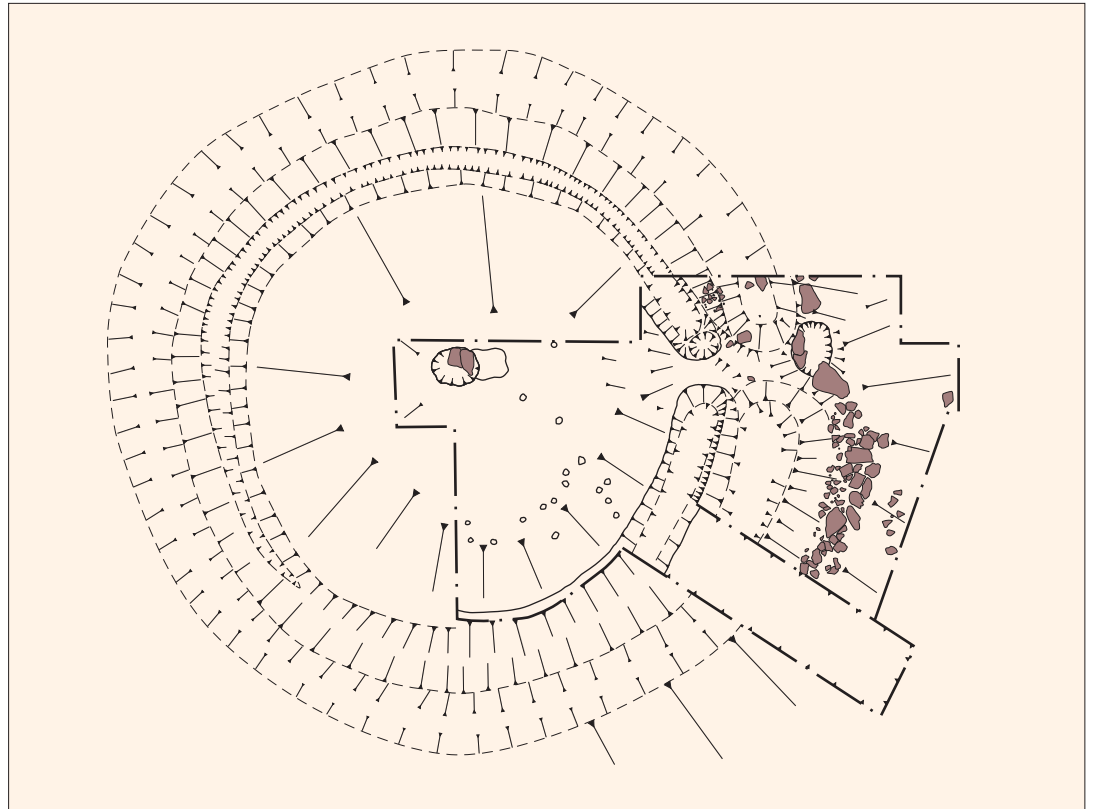


Loch Migdale, Sutherland Highlands, Scotland

Archaeological Evaluation and an
Assessment of the Results

Wessex Archaeology



Ref: 52568.03



December 2003

**LOCH MIGDALE, SUTHERLAND,
HIGHLANDS, SCOTLAND
ARCHAEOLOGICAL EVALUATION AND
AN ASSESSMENT OF THE RESULTS**

**Document Ref. 52568.03
December 2003**

Prepared for:

**Videtext Communications Ltd
49 Goldhawk Road
LONDON
SW1 8QP**

By:

**Wessex Archaeology
Portway House
Old Sarum Park
SALISBURY
Wiltshire
SP4 6EB**

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Summary

Videotext Communications was commissioned by Channel 4 to carry out an archaeological evaluation as part of the Time Team television series on the shore of Loch Migdale, Sutherland, Highlands (centred on NH 625 916).

The archaeological evaluation comprised a geophysical survey and trial trenches, which were located across a crannog, a henge and a hut circle. The opportunity was also taken to examine a number of additional features, including a cairn, two hollows and a shieling. The work was undertaken over three days in March 2003.

The crannog was examined by a team of four underwater archaeologists led by Dr Nicholas Dixon, Scottish Trust for Underwater Archaeology. Dr Dixon concluded that there was no doubt that the remains discovered underwater at Loch Migdale are those of an artificial island or crannog connected to the mainland by a narrow causeway. It was suggested initially that, on the basis of the tool marks on the timbers, that the crannog may be of Late Bronze Age date, though two radiocarbon determinations support an Iron Age date which is consistent with the evidence from many other crannogs.

The henge had an external bank and internal ditch and single, east-facing, entrance. The single entrance would allow it to be classified as a Class 1 henge but the small size, a mere 12 m diameter, is consistent with its classification as a mini-henge. Although no dating evidence was recovered, the monument is likely to date to the Later Neolithic or Earlier Bronze Age.

Examination of the hut circle was very limited and no dating evidence was recovered. It is likely to date to the prehistoric period. There was similarly no dating evidence from the cairn although the presence of a kerb and a central feature that may have held a timber post recalls prehistoric monuments such as ring cairns and kerb cairns. The recurrent association of henges and other ritual or funerary monuments is well known.

None of the three sites, the henge, the cairn or the hut circle has been firmly dated. It seems likely on morphological grounds, that the former is of Later Neolithic or Earlier Bronze Age date. The cairn and hut circle could also be of this date, and provide a domestic element to the Bronze Age landscape of which these more substantial monuments are only the immediately obvious elements.

The evaluation has produced important new information on the prehistory of the area. It is recommended that the results of this project are more widely disseminated through an appropriate level of publication in an academic archaeological journal.

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Acknowledgements

The evaluation was commissioned and funded by Videotext Communications. The collaborative role of Gordon Barclay and Rod McCullagh (Inspectors of Ancient Monuments, Historic Scotland) in the establishment, planning and monitoring of the work is especially acknowledged.

The geophysical survey was undertaken by John Gater and Emma Wood (GSB Prospection) and the topographic survey by Henry Chapman, University of Hull. Excavation strategy was conducted by Miles Russell (University of Bournemouth) and site recording was co-ordinated by Phil Harding, assisted by Steve Thompson of Wessex Archaeology. The land-based excavations were undertaken by the Time Team's retained excavators. All work on the crannog was directed, undertaken and recorded by Dr Nicholas Dixon and members of the Scottish Trust for Underwater Archaeology. The archive was collated and all post-excavation assessment and analysis undertaken by Wessex Archaeology including management (Roland Smith), reporting (Phil Harding), overview (Dr A P Fitzpatrick), environmental samples (Chris Stevens and Michael J Allen), radiocarbon dating (Michael J Allen) and illustrations (Mark Roughley).

The progress and successful completion of the work and this report have also benefited from discussion with specialists including Dr Alison Sheridan (Scottish prehistory) and Dr Francis Pryor (Neolithic and Bronze Age).

**LOCH MIGDALE, SUTHERLAND,
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1 INTRODUCTION

1.1 Description of the site

1.1.1 This report describes archaeological survey and evaluation undertaken by Time Team, as part of Channel 4's television series on three sites at the western (head) end of Loch Migdale, Sutherland, Highlands, Scotland (Figure 1). The three sites were:

- a putative henge monument at NH 6242 9160 (NMRS Number NH 69 SW 36)
- a mound believed to be a crannog located in Loch Migdale at NH 6259 9159 (NMRS Number NH 69 SW 39). The putative henge and crannog were listed on Historic Scotland's 'Non-Statutory List' for sites of schedulable quality.
- a hut circle at NH 6260 9182 (NMRS Number NH 69 SW 38) 280m north-east of the henge.

1.1.2 The opportunity was also taken to examine a number of additional features during the course of the fieldwork. These comprised a low cairn, 30m south-west of the henge, which was examined to establish whether it represented a previously unrecorded Bronze Age burial mound. Three additional features, two hollows and a shieling (a shepherd's summer hut) were also sampled to establish their date, relationship to the three principal sites and the range of additional activity that they represented.

1.2 Geology and topography

1.2.1 The three sites lie at the head of Loch Migdale (Figure 1). The geological base is mapped as Moine Thrust Nappe (British Geological Survey, 2000. Lairg. Scotland Sheet 102E. Solid and Drift Geology, 1:50,000 Provisional Series), which is covered by glacial deposits. The topography of the Loch Migdale valley is undulating and the henge is located on a low dry knoll in the base of the valley, at 40 m OD. The knoll is surrounded by poorly drained, boggy run-off courses that feed into the Loch. These lower slopes that occupy the fringes around the edge of the Loch are vegetated by rough moorland pasture with gorse while areas higher up are laid out to stone walled paddocks for permanent pasture.

1.3 The henge

1.3.1 The putative henge is approximately 80 m from the western shore of Loch Migdale, at about 40 m OD on a low, dry rise (Figure 1). It is 12 m in diameter, with an area

of 175 sq m (Figures 2 and 3). It consists of a level circular platform 6.70 m internal diameter, surrounded by a well-defined internal penannular ditch 1.1m wide and 0.2m deep, and external bank 1.2 m wide and 0.2 m high. Beyond the bank is a segmented shelf, which can be traced round the circuit of the bank. The bank is broken by a gap and narrow causeway across the ditch, 0.6 m wide, on the south-east.

- 1.3.2 The site has been recorded since the early 20th century (RCHAMS 1911) and was suggested to be a henge by Woodham (1952).

1.4 The crannog

- 1.4.1 The putative crannog, again noted by the Royal Commission (RCHAMS 1911) is approximately 60 m east of the western shore of Loch Migdale (Figure 1). It is an islet formed of boulders laid on clay, approximately 20 m in diameter. The Loch is shallow on the landward side of the islet, but deeper on the eastern side. The crannog is very close to the surface of the Loch. Its exact height depends upon seasonal variation, fluctuating between complete submersion and approximately 0.5 m above water. No causeway is immediately apparent between the crannog and the shore. It is possible that the site was occupied in 1630, as suggested in the project design (Videotext Communications 2003, 2). It is also thought that the crannog may be under threat from erosion, following the construction of a hydro-electric station at the eastern end of Loch Migdale in the 20th century, which had raised the level of the loch by approximately 2 m.

1.5 The hut circle

- 1.5.1 The hut circle at Ceannlocha is north of the putative crannog, at approximately 50 m OD on a south-facing slope leading down to the shore of the Loch (Figure 1). It too was recorded early in the 20th century (RCHAMS 1911, 26, no. 67). It is approximately 11.5 m in diameter, and is defined by a wall spread to about 2.5 m. The lower, southern, arc is destroyed, and no entrance is visible (OSFI: AA: 22.10.1969).

2 PREVIOUS ARCHAEOLOGICAL WORK

2.1 The henge

- 2.1.1 The putative henge was examined in 1970 by Dr Anthony Woodham, who examined the south-east quadrant of the monument with an extension, approximately 1 m square, to include the centre of the site (Figure 2). He also extended the trench to bisect and define the entrance causeway including the western bank and ditch terminus, although he did not excavate either of them. A section, approximately '3 ft' wide, was excavated through the bank 3 m south of the entrance although he did not excavate the ditch.
- 2.1.2 The excavation revealed that the peat turf, which covered the site, was approximately 0.15 m deep, beneath which was a patch of 'black earth with charcoal', forming a rim 'about 3 ft wide' around the central area. A scatter of quartz chips was discovered in the ditch at the southern edge of the monument, but no further

archaeological artefacts or features were found. There was no evidence of either pits or post-holes. The test trench across the bank revealed a selection of stones, interpreted as a continuous revetment encircling the bank. Beneath the peat and darker earth across the monument was yellow sand, interpreted by Woodham as natural geology. Embedded in this sand in the central test pit were two stones, again interpreted as natural features.

- 2.1.3 The archive from the excavation comprised a scaled plan at a scale of 1:20 (Figure 2) and a single sheet of notes. A full excavation report was not published though the site had been included previously in Woodham's assessment of a number of other related monuments in the region (Woodham 1952).

2.2 The crannog

- 2.2.1 No formal archaeological investigation had taken place on the putative crannog. The landowners, Rob Jones and Cara Flanagan, were aware that a local diver had examined the site and reported seeing submerged timbers on the island (pers. comm.). In advance of the Time Team investigation, Dr Nick Dixon undertook a preliminary dive on the site. He saw no evidence of timbers or other archaeological remains. He did, however, note that the size, shape, location and morphology of the islet, especially the steep gradient of its sides, were consistent with the theory that it is a crannog.

2.3 The hut circle

- 2.3.1 No known extensive archaeological investigation has taken place on the site of this hut circle. It was surveyed, and its presence noted, by the Royal Commission in 1911.

3 AIMS AND OBJECTIVES

- 3.1 The project offered the opportunity to evaluate the nature, condition and importance of a number of archaeological monuments within a specific area, and to attempt to interpret them in the context of the surrounding prehistoric landscape of the Loch Migdale area. The results would confirm provisional conclusions about their classification and add valuable information to the distribution, date and function of these classes of prehistoric monuments in northern Scotland. It would also assist in making decisions regarding the long-term management of the monuments.

- 3.2 Specific aims relating to each individual monument included:

The henge

- To establish that the monument should be classified as a henge by sampling the construction of the bank and any internal features.
- To recover any datable stratified material that might relate to the construction of the monument.
- To investigate the stratigraphy of the ditch and its terminals, in particular with regard to potential deliberate placed deposits associated with the putative henge.
- To establish the construction and layout of the entrance and causeway monument.

- To collect data relating to the position and alignment of any internal features, the entrance and any topographical features that may relate to the solar or lunar cycles.

The crannog

- To determine whether the islet should be classified as a crannog, to date its construction and duration of occupation and gather sufficient samples for radiocarbon dating.
- To evaluate the state of preservation, particularly the range and condition of organic remains, of the monument and to assess whether there is on-going erosion.
- To compile a contour survey of the monument including any causeway that may link it to the mainland.

The hut circle

- To establish the nature and preservation of the hut circle, its date and relationship to the henge and crannog.

4 METHODS

4.1 A project design for the work was compiled and provided by Videotext Communications (Videotext Communications 2003). Full details of the circumstances and methods are contained in that document and are summarised here.

4.2 The field work strategy to achieve the project aims and objectives was undertaken using a combination of an extensive magnetometer and resistivity geophysical survey across and beyond the henge and hut circle site and a series of hand dug excavations.

4.3 The general position of individual evaluation trenches on the land was formulated following discussion with Gordon Barclay of Historic Scotland. The excavation strategy on the crannog was determined by Dr Nick Dixon.

4.4 *The henge*

Woodham's 1970 quadrant and extensions was re-excavated (Figure 3). The area was extended by approximately 0.75-1.00 m, beyond his excavation, to reveal a limited area of undisturbed stratigraphy and expose clean sections. Any previously unrecognised internal features were excavated and ditch terminals examined to interpret fully the entrance. The section through the bank, as excavated in 1970, was re-excavated and recorded. No other parts of the bank were removed in order to restrict the damage to the upstanding earthwork.

4.5 *The crannog*

One trench (Figure 1, A), 2 m long and 1 m wide, was dug on the top of the mound in shallow water to discover any artefactual or construction remains associated with the possible habitation of the crannog.

4.6 One trench (Figure 1, B) of similar size was excavated on the east side of the mound beneath the water, using an air supply from the surface. This trench aimed to establish whether stratigraphy relating to the phases of construction of the crannog could be identified, to examine the possibility that earlier structural remains might

survive around the fringe of the mound and to test whether organic remains might be better preserved in deeper water.

4.7 A survey of the Loch bed between the mound and the mainland was undertaken using GPS to record the topography of any causeway.

4.8 *The hut circle*

One trench, 8.5 m long and 1 m wide (Figure 1, Area 3), extended westwards from the central point of the circle across a linear feature identified by the geophysical survey. This limited excavation was intended to identify and locate any internal features including a central hearth, recover datable artefacts and establish the character and relationship of the hut circle with the linear feature.

4.9 All archaeological deposits were recorded using Wessex Archaeology's *pro forma* record sheets with a unique numbering system for individual contexts. Trenches were located using a Trimble Real Time Differential GPS survey system. All archaeological features and deposits were planned at 1:20 and sections drawn at 1:10. All principal strata and features were related to Ordnance Survey datum and a photographic record of the investigations and individual features was maintained.

4.10 At the completion of the work all trenches were backfilled and earthworks reinstated using the excavated spoil from the trenches. All artefacts were transported to the offices of Wessex Archaeology where they were processed and assessed for this report. They are currently held at the offices of Wessex Archaeology pending final decisions on the degree of further work and the appropriate recipient museum.

4.11 The project was carried out over three days on 23rd, 24th and 25th April, 2003.

5 RESULTS

5.1 Introduction

5.1.1 Details of individual excavated contexts and features, and the results of environmental sample analysis are retained in archive.

5.2 Geophysical survey

5.2.1 A copy of the geophysical survey report (GSB Prospection 2003) is held in the archive. The report summarises the results as follows:

'Areas 1, 2 and 3 (Figure 1) were investigated by gradiometry and a small area of resistance was carried out over the henge site. The results show that within the henge, very few anomalies were discovered which is to be expected with such monuments. Anomalies typical of natural responses are present within the data. Ferrous responses in the data could be due to modern debris or igneous inclusions within the soil/drift.

An area (Area 2) towards the shore, opposite the crannog, was surveyed to investigate an accumulation of stones in an eroding bank. Results show that there

was an increase in magnetic response towards this area and excavation revealed a charcoal filled pit that corresponded with one of the strong anomalies. Other responses within the data (as with Area 1) are likely to be natural in origin.

A small area was investigated over the hut circle (Area 3) site. Again, the data show a linear band that is presumed to be natural in origin. Several responses correspond to the earthwork bank visible in the field. Several ferrous or igneous responses have also been noted.'

5.3 Archaeological evaluation

5.3.1 The evaluation was divided into Areas 1, 2 and 3, matching the geophysical survey areas, to which sequential blocks of unique context numbers were allocated. Area 1 comprised the knoll where trenches were placed over the henge, the cairn, a hollow and a possible shieling (Figure 1). All numbers allocated to contexts in Area 1 are numbered from 100 and carry the prefix 1, however individual blocks of sequential numbers were not assigned to individual trenches in Area 1. Area 2 comprised a single trench across a hollow and all numbers are allocated from 200. Area 3 included numbers assigned to the trench across the hut circle and are recorded from 300.

5.3.2 The methods for the excavation and recording of the crannog are set out in Appendix 1 below.

5.3.3 Archaeological features in Areas 1, 2 and 3 were overlain by a mid to dark brown well sorted peaty topsoil, that averaged 0.15 m thick and represented a soil profile associated with well established unploughed pasture. Most features were filled with dark brown or grey-brown sandy silts derived from the bedrock. These fills were frequently peaty.

5.4 The henge

5.4.1 Within the henge, the trench measured approximately 4 m east-west and 4 m north-south, including an extension to the north-west around Woodham's central test pit (Figures 2 and 3; Plates 1 and 2). The trench was also extended to the south to incorporate Woodham's section through the bank and to expose the entrance area. This provided a trench area of 34.61 sq m.

5.4.2 The area of the 1970 excavation was visible across the monument and removal of the turf revealed a veneer of backfilled material (137) overlying the natural sand deposits in the interior of the henge. Beyond the areas of the former excavation the stripped area comprised a well-developed turf in a well-sorted dark brown peaty topsoil, 0.15 m thick. A thin black manganese enriched subsoil below the turf may have been the dark horizon identified by Woodham, which he interpreted as burning.

5.4.3 The interior

In the centre of the henge the two stones found by Woodham were relocated and found to form packing stones of a large post hole (117), which lay 0.5 m east of the true centre of the henge. This feature was sub-circular in shape, measuring 0.70 m north-south, 0.55 m east-west and 0.22 m deep with moderately sloping sides and a

flat base. A probable post pipe (136), approximately 0.17 m in diameter, filled with brown sandy silt lay to the north-west of the packing material (135), which included large sub angular boulders 0.25 m across. An area of fire-reddened/heat affected natural geology (116), approximately 0.45 m in diameter extended away from the south edge of the central post hole. There was no charcoal or ashy deposits. It is likely that this represents a single event of burning *in situ*.

- 5.4.4 A number of shallow circular stake holes was identified in the excavated quadrant of the henge. They averaged 0.10 m in diameter and 0.07 m deep with steep sides and concave bases and were filled with light brown silty sand. Although it is possible to postulate a number of alignments, including lines radiating from the central post hole, there is a clear ring of stake holes, 0.20-0.25 m apart, concentric with and approximately 1.20 m inside the inner lip of the ditch. There are no stake holes facing the general direction of the entrance.
- 5.4.5 *The ditch and bank*
Both rounded termini of the internal ditch were sectioned and segments of the ditch, approximately 1.5 m long, were totally excavated (Plates 2 and 3). The ditch on the west (107) was 0.70 m wide at the surface, 0.36 m deep and tapered to a profile 0.45 m wide at the base of the weathering cone, with steeply sloping sides and a flat base 0.20 m across. It was completely filled with undifferentiated mid grey-brown sandy silt (104), which was capped by a veneer of material (138), 0.04 m thick, derived from the slumped bank. There were no finds.
- 5.4.6 The east ditch terminus (110) was of similar depth and profile. The undifferentiated primary fill (143) was sealed by a deposit of material (142) that was derived from the bank to the south and by an upper layer of peaty sand (111). A possible post hole (140), 0.30 m in diameter and 0.15 m deep with steep sides and concave base, appeared to have been cut subsequently through the tertiary peaty sand, into the ditch terminus. There was no apparent post pipe, although stones in the fill may represent packing. There were no finds from the ditch terminus or the post hole.
- 5.4.7 A large oval post hole (112), which it was thought might post date the construction of the henge was found immediately west of the lip of the ditch terminus in the edge of the causeway. It measured 0.40 m long, 0.35 m wide and 0.23 m deep with steep sides and flat base and was filled with a central pipe (139), approximately 0.17 m in diameter with well-defined light yellow brown sandy silt packing (113) around the edge.
- 5.4.8 The outer bank of the henge was revealed and recorded in a single section exposed by re-excavating Woodham's bank section on the western side of the entrance. The bank survived as a well-defined feature, approximately 1.40 m wide and 0.25 m high, although the upper 0.15 m were formed by the overlying topsoil. The core of the bank consisted of a low mound of dark brown sandy silt (132) with frequent stones, approximately 0.10 m across, derived from the construction of the ditch. It survived as a bank 1.40 m wide and 0.20 m high. No trace of an old ground surface survived below the bank. The entrance between the banks was formed by a gap approximately 0.60 m wide. A single standing stone protruded through the tail of the east bank terminus (Figure 3 and Plate 3).

- 5.4.9 The outer edge of the bank was revetted by a façade of large sub-angular stone blocks (129), up to 0.40 m across, behind which were smaller stones averaging 0.10 m across. It is unclear whether this façade was constructed as a dry-stone or earthen bonded facade, now collapsed or whether it was designed as a rubble construction. It was visible in the eastern section of Woodham's trench but not in the west section and it is unclear whether it extended around the entire circumference of the bank or whether it was designed to enhance the entrance. It wrapped around the terminus of the west bank. Only the extreme west tip was exposed on the east side, although it appeared to continue beyond the entrance as a slight earthwork step, which lay outside the outer tail of the bank.
- 5.4.10 The entrance gap in the bank was filled by a large oval stone hole (118), which had originally held a standing stone (120), which is now snapped and recumbent in front of the stone hole (Plate 2). The stone hole, which lay towards the outer edge of the bank, measured 0.92 m long, 0.60 m wide and 0.30 m deep with steep sides and a flat base. The stump of the broken stone (120) was positioned against the north edge of the hole and was packed with large stones in a matrix of very dark silty loam. The top of the standing stone (120), which measured approximately 0.60 m long, had snapped at approximately ground level.
- 5.4.11 Calculations made from the reconstructed alignment formed by the axis through the central pit (117) and stone (120), which, if they were contemporary, equate to 120° magnetic, or roughly south-east, and coincide with the modern equinoctial solar calendar. Calculations made independently by Douglas Scott (pers. comm.) indicated that a sightline from the central post hole through the entrance of the henge gave an azimuth from true north of 92° and an altitude to the horizon of 2°, producing a declination of about 0°. This confirms that the entrance of the henge aligns with where the sun rises at the spring and autumn equinoxes, 21st September and 21st March.

5.5 The cairn

- 5.5.1 The cairn, which lay to the south-west of the henge, represents one of what were considered to be clearance cairns by the Royal Commission (1911, 26). The cairn was examined by means of two trenches radiating out at right angles to one another from the top of the cairn out to the north-east and south-east. These two arms were then joined to expose the entire south-east quadrant of the cairn, an area of 11.55 sq m (Figure 4 and Plate 4). The excavation was restricted to exposing and recording the rubble tumble of the collapsed cairn. The west of the excavation was extended twice to reveal the full extent of a central hollow and to examine a stone capped feature beyond the hollow.
- 5.5.2 The stripped area revealed a spread of rubble from the collapsed cairn (130). The rubble comprised mainly of large irregular blocks of sandstone and granite, up to 0.40 m across, lying within a peaty matrix. No rubble was lifted to examine the underlying old ground surface. In the north-west corner of the trench the line of a possible kerb suggested that the cairn may have been originally approximately 3.4 m in diameter.

- 5.5.3 A hollow in the surface of the cairn lay immediately west of the kerb. It was originally believed to have been the product of an antiquarian investigation, however, following the removal of the turf no disturbance was evident. The exposed layer was similar to that in the main area of tumble, although the stone rubble was less frequent.
- 5.5.4 A second feature (126) was investigated in an additional extension to the west. This extension, which measured 1 m square, revealed a small circular stone-capped area (125), approximately 0.30 m in diameter, immediately below the turf, which plugged the top of a feature (124). Seventy-one pieces of unworked stone (8,314g) from layer (125) have been retained with the archive. This feature was 0.36 m in diameter and 0.16 m deep with steep sides and a flat base. It appeared to have been cut into the fill of feature (126). The stone capping overlay a deposit of peat (123), which itself sealed a deposit of dark silt in which was the base of what was believed to be a wooden stake (121).
- 5.5.5 This wooden stake was examined by Maisie Taylor who reports that it ‘first appeared to be a piece of worked oak. The working was typically Bronze Age, probably with a socketed axe. This initial examination also suggested that the timber (which had no bark) was either roundwood squared down, or asplit timber. A problem arose, however, when the piece was more deeply examined, particularly in an attempt to settle whether it was or was not roundwood, and to confirm the initial species identification. Close examination showed that there was no wood structure, and that the piece was entirely composed of peat. As externally all the appearance was of worked wood, and as the piece was excavated from a fine sandy matrix (Francis Pryor pers. comm.), it has to be assumed that the peat formed in the void left when a timber post was removed from wet ground. The excavator reports that the surface had even more grain detail when first excavated, although it is now fast disappearing. There is a piece of stone near the ‘tip’ of the piece which, if the theory is correct, must have fallen into the hole when the timber was removed.’
- 5.5.6 The stake rested on a stone plinth comprising of two flat thin unworked stones (128), both of which are retained in the archive. 0.01-0.02 m thick. Feature 124 had been cut into the top of an earlier feature (126), which was not completely excavated but which appeared to be oval in plan, 1 m long, 0.67 m wide and 0.18 m deep. It was filled with dark brown peat and included large stones (127).

5.6 Other features in Area 1

- 5.6.1 A trench, 2.5 m long and 1.70 m wide, was placed over the north-west corner of a small rectangular earthwork, with a depressed central area, that lay 20 m north of the henge. The trench revealed a structure consisting of two rows of irregular, unmodified boulders (102), up to 0.5 m across, which formed a coarse wall, approximately 0.60 m across, which was infilled in places by smaller stones. The single course lay directly on the natural dark brown peat topsoil (105), 0.06 m thick, around the central depression, which had been stripped of peat down to the natural bedrock. No artefacts or other datable material was found although it seems likely that it is a shieling.

5.6.2 A number of small circular hollows were present in Area 1. One representative example was excavated by means of a trench 2 m long by 1 m wide. It indicated that the hollow (114) was approximately 1.5 m in diameter and 0.60 m deep with shallow sloping sides and a flat base, approximately 1 m across (Figure 5). The basal fill of the hollow comprised a lens of very dark grey-brown/black silty peat (115), 0.07 m thick, which was overlain by the turf and peat forming the topsoil horizon (101). The date and function of this feature and others is unknown. They appear to have been dug and have filled naturally. Standing water in other examples indicates that they easily fill with water, which encourages peat development.

5.7 Area 2

5.7.1 A feature of similar appearance to hollow (114) in Area 1 was excavated on a natural mound. This feature was excavated in a trench 3 m long and 1.20 m wide. It showed that this feature (203) was also approximately 1.5 m in diameter and 0.30 m deep, with moderately sloping sides and a slightly concave base (Figure 6). The thin basal black silt (204), which was overlain by turf and topsoil, averaged 0.05 m thick and contained charcoal with a small fragment of metal slag and hammer scale. While there was no modification of the natural bedrock by heat to suggest that the intensity of burning was sufficient for metal-working, this demonstrates that the feature is much later than the henge. It is likely that much of the silting also relates to waterlogging and subsequent peat formation.

5.8 The hut circle

5.8.1 The trench across the hut circle at Ceannlocha measured 8.5 m long by 1 m wide and was positioned from the approximate hut circle centre as established on the ground, through the outer bank and to cross a strong geophysical anomaly beyond the hut circle (Figure 7). The trench would therefore evaluate the interior of the hut circle, establishing the presence of any internal features, hearths or datable material, question the relationship of the hut with the geophysical anomaly and test whether this feature was of a geological or archaeological origin.

5.8.2 A layer of fragmented and rounded stone (302), which probably resulted from wall collapse, in a dark brown peaty matrix, occupied the interior of the hut circle beneath the turf and over the natural bedrock. Two representative sondages, each 1m square were excavated through this material to establish the underlying stratigraphy. One was located at the centre of the hut circle, the other across the wall line. No finds indicative of occupation were found in either excavation. Eighteen nodules of unworked quartz (1,168g) were collected and retained.

5.8.3 The line of the wall (303) was approximately 0.90 m wide and defined by a single course of large rounded stones, up to 0.30 m across, which lay immediately over the natural bedrock. The material beyond the wall line was composed principally of wall tumble (304) in a sandy peat matrix. Near the base of the slope the trench fill was composed of a thin layer of peat (305), which filled a water logged run-off course towards the Loch. The identity of the anomaly identified by the geophysical survey was unresolved, although a layer of stone in a peaty matrix (306) was found at the base of the slope. This layer was planned and recorded but not fully excavated in the time available.

5.9 Environmental samples from Areas 1, 2 and 3

- 5.9.1 Five bulk soil samples were taken for the extraction of charred material. Two samples came from the henge, one from the cairn and one each from the hollows in Areas 1 and 2 (Table 1). The samples were taken to recover environmental evidence to assist in establishing the date, function and character of these features.
- 5.9.2 The five bulk samples were processed by standard flotation methods and the results are summarised in Table 1. The samples from the burnt bedrock within the henge and the pit within the cairn produced relatively small flots with little wood charcoal. The remaining three samples produced large flots over ½ litre in size, and high amounts of carbonised material. All the samples contained quite large quantities of roots, meaning that the amount of charcoal is considerably less than implied by the size of the flots. All the samples also contained the round fungal spores (fungal sclerotia) that appeared to be charred.
- 5.9.3 The sample from the stone hole (118) associated with the henge contained no identifiable plant remains and some wood charcoal. Much of this was rounded and some fragments of bark and possible roots. The material was poor in preservation showing signs of having been worked by water and biological action in the soil. Pit 124 contained many fragments of wood charcoal, with about 20+ fragments over 4 mm in size and therefore potentially identifiable.
- 5.9.4 The sample from hollow (114) contained a few charred tree buds, and a large amount of well-preserved wood charcoal of oak. Some of the pieces were rounded but these were relatively few in number. The sample from the Iron Age or later hollow (203) contained two fragments of cereal remains that were poorly preserved showing signs of probable reworking. It also contained several fragments of hazelnut showing a slightly better state of preservation. This sample also produced evidence for hammer-scale when tested with a magnet. Reasonable quantities of relatively well preserved wood charcoal were also recovered from hollow (203). While the hollow was not thought to be for metal working, it is evident that the charcoal and the hammer-scale may have come from such a source, even if re-deposited. However the charcoal did not show the usual signs associated with the high temperatures that metal-working usually creates.

Table 1: Samples assessed for charred remains

Area	Feature	Sample no.	Context	Sample Size (litre)	Flot ml	Roots %	Wood Charcoal	Other
1	Stone hole 118 associated with henge	104	119	20	1000	80%	Wood charcoal. Rounded fragments quite high. Poor preservation	Some fungal sclerotia
1	Burnt bedrock within henge	103	116	20	60	80	Almost none	1? Root. 20+ fungal sclerotia
1	Pit 124 in the centre of the cairn	None	123	1.5	125	50	Many small fragments	1 indet. 100+ fungal sclerotia
1	Hollow 114	101	115	10	650	20	Large amounts. Few rounded pieces. Some definitely oak	Several buds and many spores of fungal sclerotia.
2	Hollow 203	201	204	15	1500	30%	Well preserved	6 Hazelnut frags. 2 cereal grain indet.

5.10 The crannog

- 5.10.1 The crannog was examined during the course of the Time Team project by a team of four underwater archaeologists led by Dr Nicholas Dixon, Scottish Trust for Underwater Archaeology. The detailed results of their investigation are set out in a document that is appended to this report as Appendix 1. It was suggested initially that, on the basis of the tool marks on the timbers, that the crannog may be of Late Bronze Age date. However the radiocarbon determinations would support an Iron Age date, which is consistent with the evidence from many other crannogs (Barber and Crone 1993; Miller 2002).
- 5.10.2 The topographic survey of the Loch bed located an elevated ridge of material approximately 4 m wide that rose approximately 1 m from the Loch bed. This feature lay approximately 2 m below the present Loch surface, which represents the increase in the water level that resulted from the construction of the hydro-electric station at the Loch. It is fairly certain that the ridge would formerly have been dry and represents the causeway to the mound, although there was nothing to indicate the date of its construction. It may have a direct relationship to the use of the undated hollow containing iron smithing debris excavated in Area 2.
- 5.10.3 Dr Dixon's report concludes that:

'there is no doubt that the remains discovered underwater at Loch Migdale are those of an artificial island or crannog. It is not possible to say whether the site was initially a free-standing timber island, as proved to be the case at Oakbank Crannog, or was a mound of material deposited in the Loch and occupied. It is unfortunate that no substantial timber piles that could have supported a free-standing structure were uncovered but it is hardly surprising given the restricted size of the area opened.

If the site is indeed of Late Bronze Age date it is the only one from that period so far identified in Scotland. As the remains of a settlement site, it can give a very clear picture of life in the region in prehistory. It is most likely that major elements of the structure are still preserved underneath the stones of the mound and they will be embedded in the organic material left by the occupants. This will almost certainly include details of the way of life of the people who lived on the crannog including evidence of their domestic utensils, agriculture, food processing, animal husbandry, environmental exploitation and many more aspects of life in the Bronze Age'.

5.11 Waterlogged wood from the crannog by Maisie Taylor

- 5.11.1 Two pieces of wood from the excavation of the crannog were examined. The half split oak (T001) was in poor condition, having at some time been dried out, and no surface detail survived. The trimmed roundwood (T005) was in excellent condition and remained waterlogged since deposited. The working of (T005) was slight, with no clear toolmarks and it is not possible to offer any comment. A sample was taken for species identification and has been retained. The location of these stakes is illustrated on page 15 of Appendix 1.

5.12 Radiocarbon dates for the crannog

- 5.12.1 The two pieces of waterlogged wood (T001) and (T005) were selected for radiocarbon dating. The sample (T001) was one of the largest pieces of wood amongst a quantity of wooden debris. It is assumed, therefore, to be a part of the construction and activity on the crannog. The second sample was a vertical roundwood stake. This was one of only a few vertical, or near vertical, stakes and is assumed to be a part of the general activity. As there was no coherent pattern for the stakes, it is uncertain if it is contemporary with the wooden debris. It may have been punched through this layer from higher, and later, in the stratigraphic sequence. Despite the possible ambiguity of the constructional relationship of these items to the activity represented by the wooden debris, the results provide absolute dating on the worked items.
- 5.12.2 In each case the timbers were examined and a sample of the outer available 10 rings was removed for AMS (accelerator mass spectrometry) dating. The sample of the roundwood stake (T005) contained sapwood and thus the latest growth was dated. The wood species of the plank was identified as oak. It is not certain how close the sample was to the sapwood, and thus it is not certain how close the result is to the felling of this timber.
- 5.12.3 The results of the two items represent two separate individual events, probably separated by over 400 years. This indicates that activity associated with the wooden debris (T001) is dated to around 800-420 cal BC and belongs to the Late Bronze Age or Iron Age.
- 5.12.4 The roundwood stake (T005) is, however, probably at least 300 years later, and probably nearer 650 years, later than (T001). This indicates activity at this site later in the Iron Age, and may indicate that the vertical roundwood stake has been punched through the stratigraphy into this layer from higher up the sequence.
- 5.12.5 The two results provide δC^{13} ‰ results within the expected range for waterlogged wood. In both cases the last available 10 rings were dated. For the stake (T005) as sapwood was sampled we can be sure that result (40 cal BC to cal AD 140) dates the felling and use of this stake. Although the last available 10 rings of (T001) were sampled, we are less sure of how these relate to the felling date of the timber. The result is a *terminus post quem* date and the activity it represents is at, or after the determination of 515±40 BP (800-420 cal BC).

Table 2: Radiocarbon dates calibrated using OxCal v2.15

Timber No	Material	lab no	result no	δC^{13} ‰	Result BP	cal date
T001	Worked wood ?plank (<i>Quercus</i> sp.).	R28281/2	NZA-18102	-27.74	2515±40	800-420 cal BC
T005	Wood stake (?species)	R28281/1	NZA-18101	-27.6	1957±40	40BC-AD140

5.13 Environmental samples from the crannog

- 5.13.1 Nine samples for waterlogged material were recovered from the crannog. The samples were taken to provide information on the environment and economy of the site. Laboratory flotation was undertaken with the flots retained on a 250 µm mesh and residues on a 0.5mm mesh. Residues were fractionated into 5.6 mm and 0.5 mm fractions before storing in sealed containers with Industrial Methylated Sprits (IMS).
- 5.13.2 The samples were examined under a microscope to determine if waterlogged material occurred, with some preliminary identification. The results are summarised in Table 3. The original sample size is given alongside the size of the flot after they had been floated.

Table 3: Environmental samples processed for waterlogged material

Area	Context	Sample Number	sample size	flot size	residue	Presence of Waterlogged Material
A	003	S01	1200 ml	250 ml		1 x <i>Rumex</i> sp. No other waterlogged. Large quantity of fine roots. Dried – Some charred.
A	006	S02 1m - 1.85m	0.5 L	20 ml	No residue	No waterlogged. Large amount of fine root material. Dried – Some charred.
A	007	S05	10 ml	10 ml		No waterlogged. Dried – Small amount of charred.
B	004	S04	1000 ml	500 ml		Waterlogged: Lots of wood fragments & twigs. 2 x sheep/goat droppings. Frg. hazelnut shell. Bud x 1, seed indet. x 1. Bracken 'leaf' x 1.
B	004	S01	800 ml	1000 ml	No residue	Waterlogged: Twigs and wood still present. Leaves (bracken) ++, <i>Ranunculus</i> arb, <i>Cirsium</i> ?. Moss fragments. Indet seeds +. Fragment of hazelnut. goat/sheep dropping.
B	004	S03	1300 ml	1000 ml		Waterlogged: Wood. Lots of twigs, some bark and leaves. Bracken with goat dung. <i>Viola</i> sp. Hazelnut shell frags ++. Identifiable seeds + Rodent/ goat dung/seed indet.
B	004	S02	0.5 L	250 ml		Waterlogged: Lots of twigs. Bracken. Hazelnut frgs. <i>Sonchus ? asper</i> x 1. <i>Carex</i> sp. (sedge) x 1.

- 5.13.3 The three samples from Area A contained almost no waterlogged material and were dried and examined for carbonised material. Given the large amount of roots, it is likely that the few seeds in these samples are modern. The samples did contain reasonable quantities of charred material of a distinctive nature. They contained no cereal remains or identifiable seeds. They contained also little wood charcoal. They did contain large lumbers of root stems and soil fungal spores. Fragments of charred organic matter were also present. These could have been animal dung, bread or general organic 'mush'. The latter would seem more probable.
- 5.13.4 The four samples from Area B contained reasonable quantities of waterlogged material. This was primarily wood fragments, bark and twigs. Other remains included fragments of hazelnut (*Corylus avellana*), and pinnules or fronds of

bracken, (*Pteridium aquilinum*) which were relatively common. Seeds of plants were less common, although buttercup (*Ranunculus* sp.), sedge (*Carex* sp.), violet (*Viola* sp.) and sow-thistle, (*Sonchus* cf. *asper*) were all identified. All could be indicative of waste or rough grassland.

- 5.13.5 Very few insect remains were present, although single finds and some fly pupae were seen in some of the samples. Some of the waterlogged samples also contained sheep or goat dung identified by their gross morphology. At least one had split open, compressed fragments of grasses could be seen inside.
- 5.13.6 It is assumed that the hazelnuts represent those deliberately collected for food, rather than localised vegetation. No markings were found on the shells indicating the means by which the shell was broken, but neither were teeth marks seen as resulting from rodent gnawing.
- 5.13.7 Bracken is thought to be used as roofing material or perhaps for flooring, and was probably the most abundantly collected plant represented in the samples, although again it is possible it came from localised vegetation.
- 5.13.8 No waterlogged cereal remains were seen, although it is possible that some straw fragments may be present. Grain rarely survives by waterlogging and if free-threshing crops were brought to the site as relatively clean grain then we might not expect to find such remains.
- 5.13.9 A few other unidentified seeds were found and it is possible that a more detailed examination of the samples might reveal remains of other utilised plants. Those that were recovered probably came from the local environment rather than from cereal processing.
- 5.13.10 The presence of goat or sheep dung may be of some interest as it is possible that they may indicate the presence of animals within the crannog itself. Their presence may also be from their use for fuel or for daub.

6 CONCLUSIONS: AREAS 1-3

6.1 The henge

- 6.1.1 The re-examination of the putative henge in Area 1 broadly supports Woodham's original interpretation of the monument as a henge (Woodham 1952). It has an external bank and internal ditch and single, east-facing, entrance. The single entrance would allow it to be classified as a Class 1 henge but the small size, a mere 12 m diameter, is consistent with its classification as a mini-henge (Harding and Lee 1987, 37-9).
- 6.1.2 Mini-henges have, superficially at least, much in common with segmented ring ditches and there is a concentration of them in north-east Scotland around the Cromarty Firth and the Black Isle (Harding and Lee 1987, fig. 24).

- 6.1.3 The presence of what may be a ring of stake holes, and perhaps a radial division, a central feature that may have held a post or a standing stone, and the standing stone at the entrance all refer to well known features in henges, albeit much better known on a larger scale (Barclay 1983; Harding and Lee 1987).
- 6.1.4 The standing stone at the entrance would have effectively blocked access to the interior and this suggests that there were at least two structural phases. While the stone 118/120 might be contemporary with the presumed upright in the central pit, it may indicate a reworking of the monument with which both post hole 112 within the lip of the eastern ditch terminal, and the stone kerb 129 might be contemporary. The scatter of quartz chips in the ditch noted by Woodham finds parallels in Scottish funerary monuments. The evidence for burning in the centre of the monument in the form of the charcoal noted by Woodham and the heat affected area observed in 2003 are also widely seen on funerary monuments.
- 6.1.5 The apparent presence of a kerb and at least one standing stone resonates with the increasingly apparent typological and chronological complexity of Bronze Age funerary monuments in northern Scotland in which the standing stones may be one of the closing acts of the sequence at what have been thought to be well understood classes of monument (e.g. Bradley 2000; Bradley *et al.* 2002).
- 6.1.6 Although a direct relationship cannot be inferred, the proximity of the Migdale hoard of Early Bronze Age metalwork immediately to the north-east should be noted. This find is one of the earliest and largest hoards of metalwork in Scotland, which also contained jet buttons, and was found during blasting of a granite knoll on moorland between 1895 and 1901 (Anderson 1901; Clarke *et al.* 1985, 302-3).

6.2 The cairn

- 6.2.1 The interpretation of the cairn is less certain than that of the henge. Again the presence of a kerb and a central feature that may have held a timber post recalls monuments such as ring cairns and kerb cairns, some of which are also very small and which are often funerary monuments. The recurrent association of henges and other ritual or funerary monuments is well known (e.g. Barclay 1983; Barclay and Russell-White 1993). However, it should be noted that the proximity of the undated cairn at to the henge at Migdale might be misleading as what may be a post-improvement shieling lies nearby.

6.3 The hut circle

- 6.3.1 The dating of hut circle is problematic. This type of site was often neglected in the past (e.g. Ritchie 1997, 48-54) to the extent that it can only be said of the Ceannlocha example that the evidence currently available would not be inconsistent with a date in the prehistoric period. A number of mounds in the vicinity, perhaps clearance cairns, were noted nearby by the Royal Commission early in the 20th century.
- 6.3.2 The fact that many of these huts may very well be Bronze Age in date is well shown by extensive survey and excavations between Bonar Bridge, immediately to the west

of Loch Migdale, and Lairg to the north, notably at Achany Glen (McCullagh and Tipping 1998).

6.4 The context of the sites

- 6.4.1 None of the three sites, the henge, the cairn or the hut circle has been firmly dated. It seems likely on morphological grounds, that the former is of Later Neolithic or Earlier Bronze Age date. The cairn and hut circle could also be of this date, and provide a domestic element to the Bronze Age landscape of which these more substantial monuments are only the immediately obvious elements.

7 RECOMMENDATIONS FOR FURTHER WORK

- 7.1 Time Team's three day evaluation of a series of monuments at Loch Migdale has produced significant new information on the prehistory of the area. This information merits further dissemination through the publication of a summary note in an appropriate archaeological journal such as the *Proceedings of the Society of Antiquaries of Scotland*. Dr Nicholas Dixon should have the opportunity to consider the additional information on the results of the radiocarbon dating and the environmental sampling before a summary note is published.
- 7.2 In addition the results of the project should be provided to *Discovery and Excavation in Scotland 2003* and a copy of this report and the geophysical survey report should be lodged with the Royal Commission on the Ancient and Historical Monuments and Constructions of Scotland, along with a paper copy of the project archive.

8 THE ARCHIVE

- 8.1 The archive, which includes all materials, written, drawn and photographic records relating directly to the investigations undertaken, is currently held at the offices of Wessex Archaeology under the code 52568 (LM 03). It is intended that, in accordance with the wishes of the Treasure Trove Advisory Panel Secretariat, the excavated material and records will eventually be deposited and curated by The National Museum of Scotland or by a suitable local museum. The paper archive will be curated by Royal Commission on Ancient and Historical Monuments and Constructions of Scotland.

The paper archive is contained in a lever arch ring binder file. It includes:

Project Design

A copy of this report

The GSB Prospection geophysical report including a record of all data, plots of the results, interpretation with detailed comments and conclusions.

The excavation archive includes:

- 4 A4 context index sheets
- 56 A4 context record sheets
- 2 A4 graphics register sheets
- 7 A1 drawing sheets
- 5 A3 drawing sheets
- 8 A4 drawing sheets
- 5 A4 Photographic register sheets
- 5 A4 Levels record sheets
- 24 A4 Survey records

Loch Migdale Crannog – a report by Dr Nicholas Dixon, Scottish Trust for Underwater archaeology

Wessex Archaeology Environmental Assessment report

Radiocarbon dating report and certificates

The photographic archive includes:

- 35 colour transparency slides
- 88 monochrome photographs
- 65 colour negatives and prints

In addition to the environmental materials described in this report, the following materials are also contained in the archive:

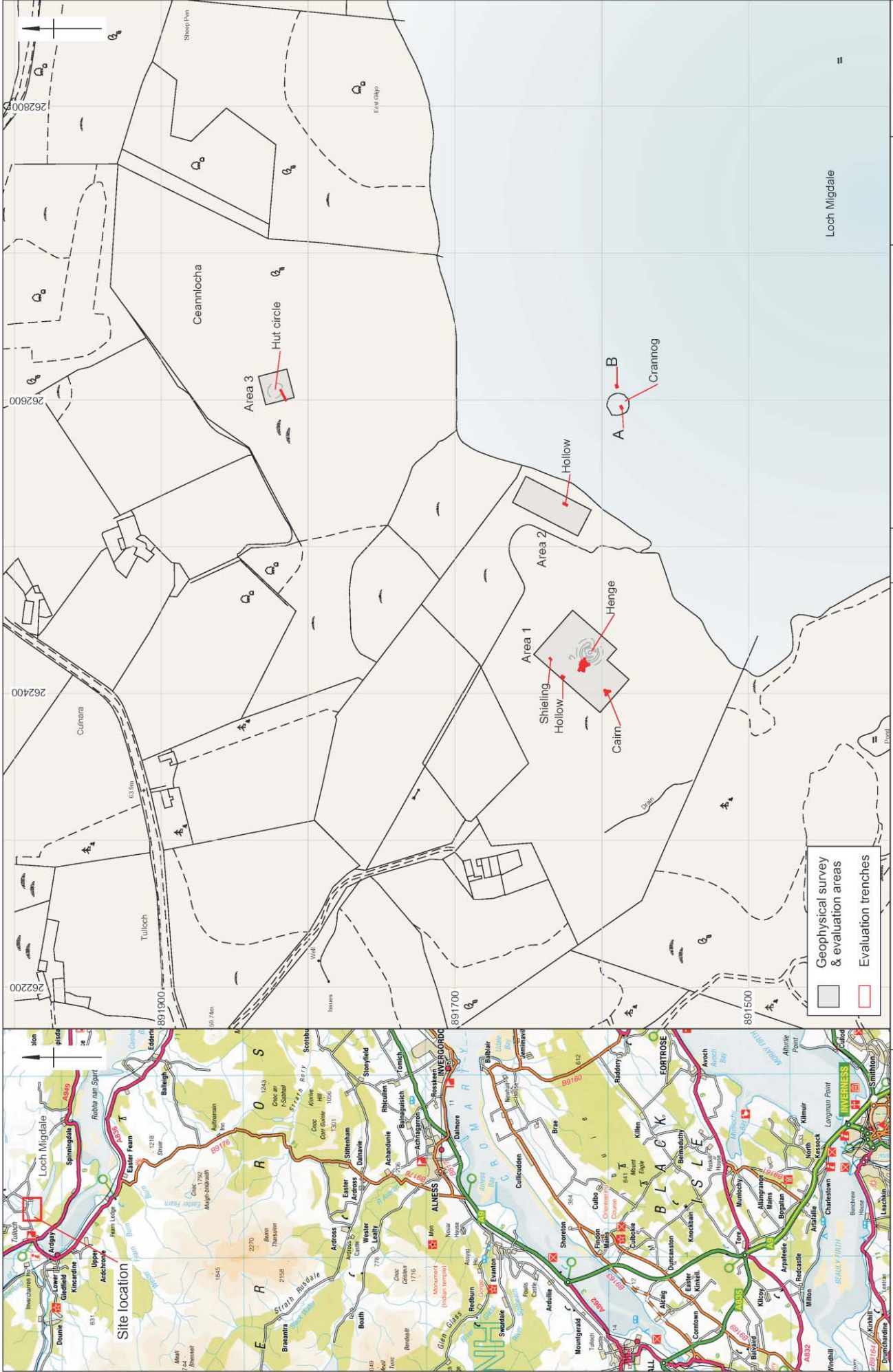
Context	Animal Bone	Unworked stone
121	-	-
125	-	71/ 8314g
128	-	2/ 184g
302	-	18/ 1168g
Trench B, unstrat.	16/ 12g	1/ 4g
SF01, Area B	1/ 12g	-
Totals	17/ 24g	92/ 9670g

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Videotext Communications 2003 'Proposed Archaeological Evaluation at Loch Migdale'
Unpublished Project Design

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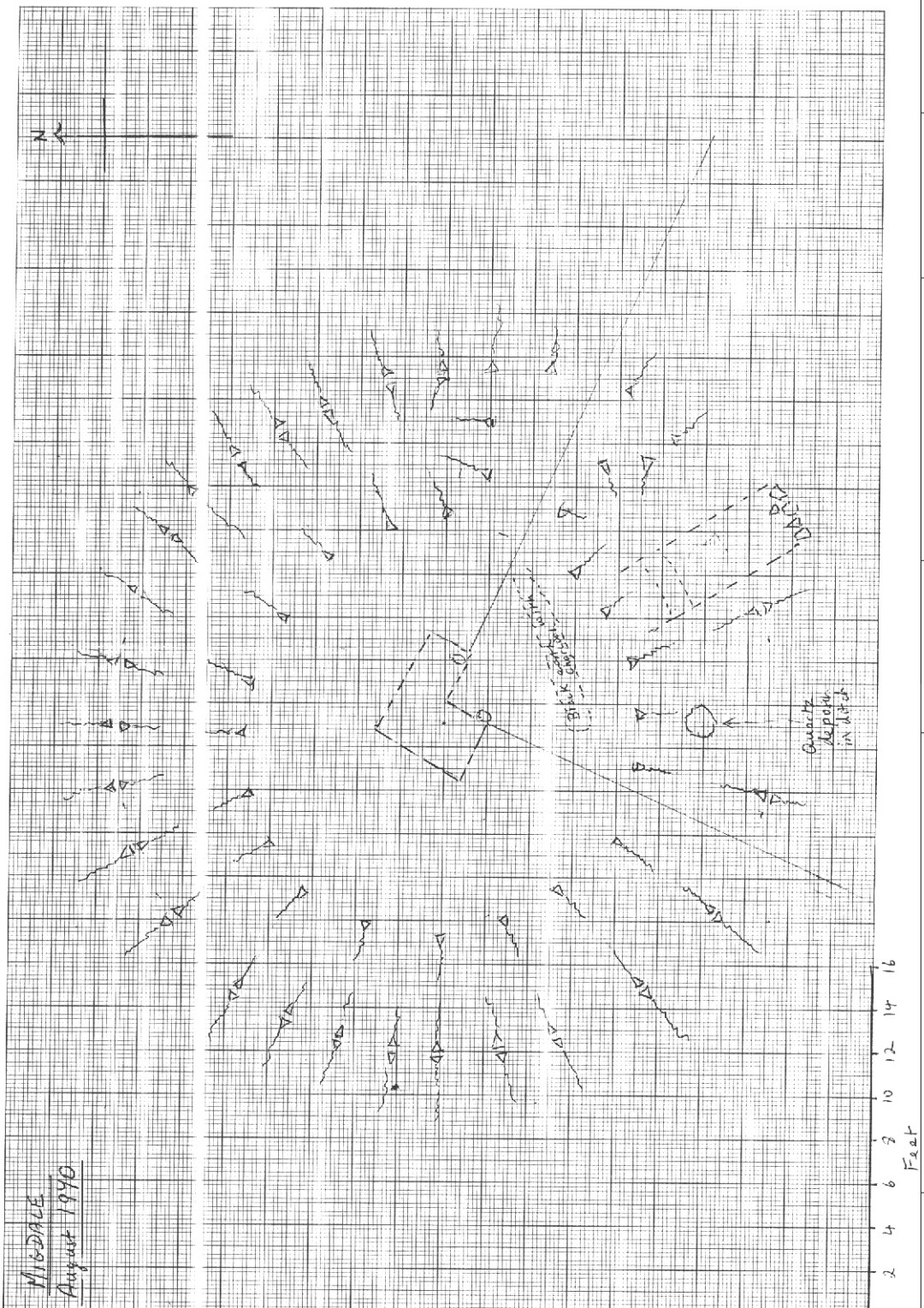


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Location map

Wessex Archaeology

Figure 1



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Woodham's 1970 excavation plan (Courtesy of RCAHMS)

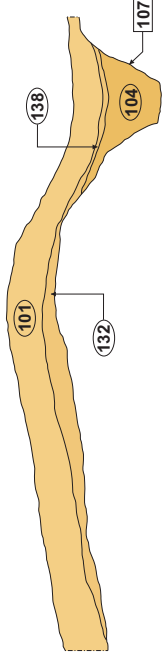
Figure 2

The Henge

Section A

S
N

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41.5mOD



'standing stone'

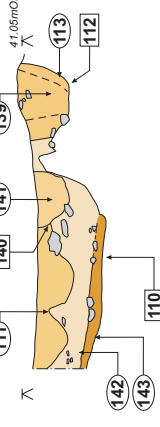
Section B

S
N

Section B

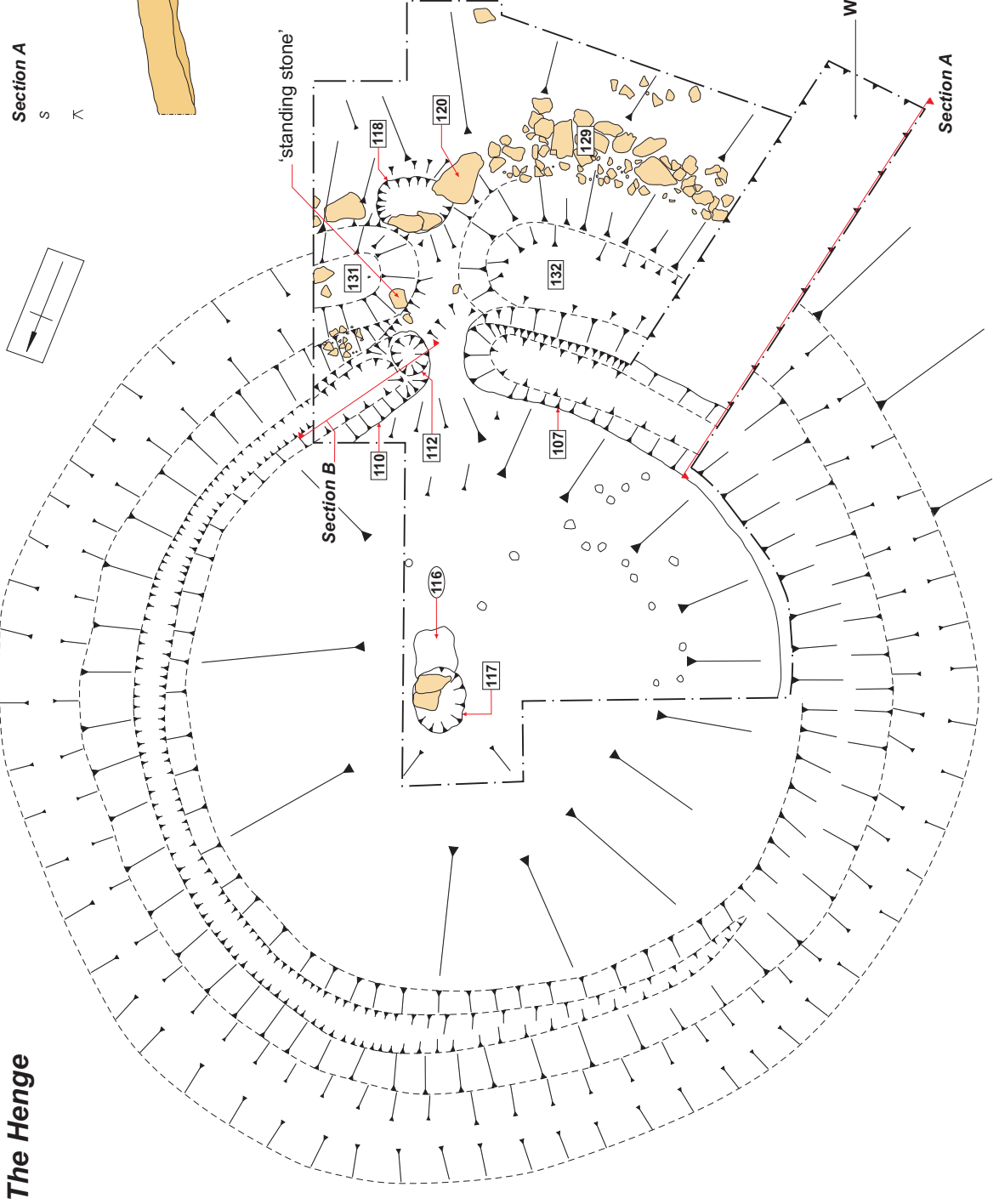
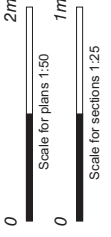
S
N

S
41.06mOD



Woodham's 1970 bank section

Section A



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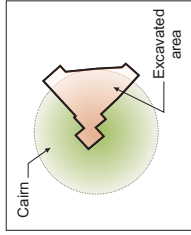
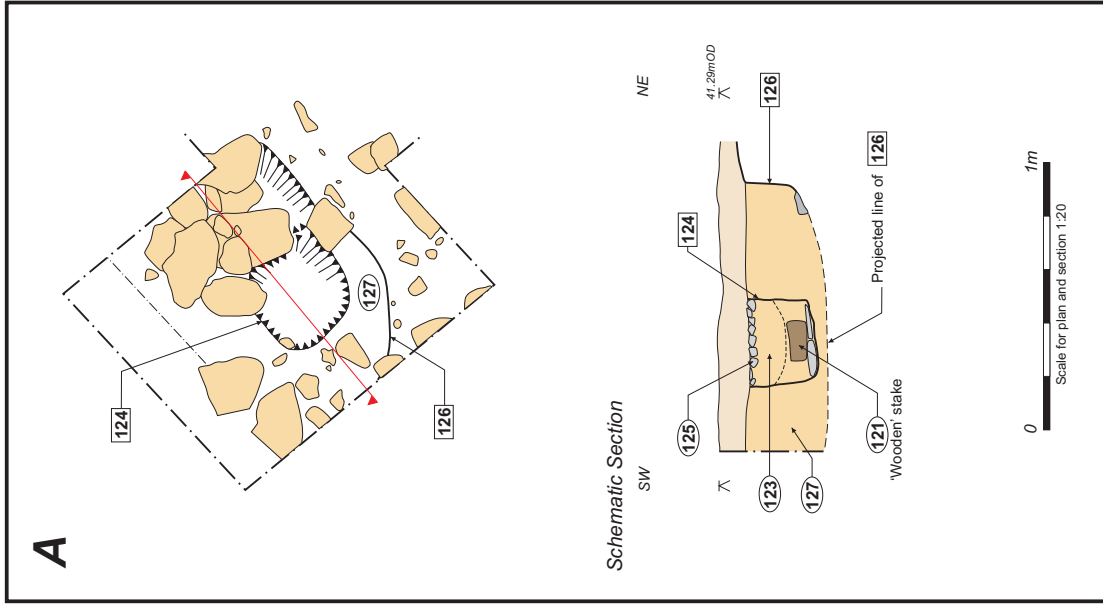


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The henge: plan and sections

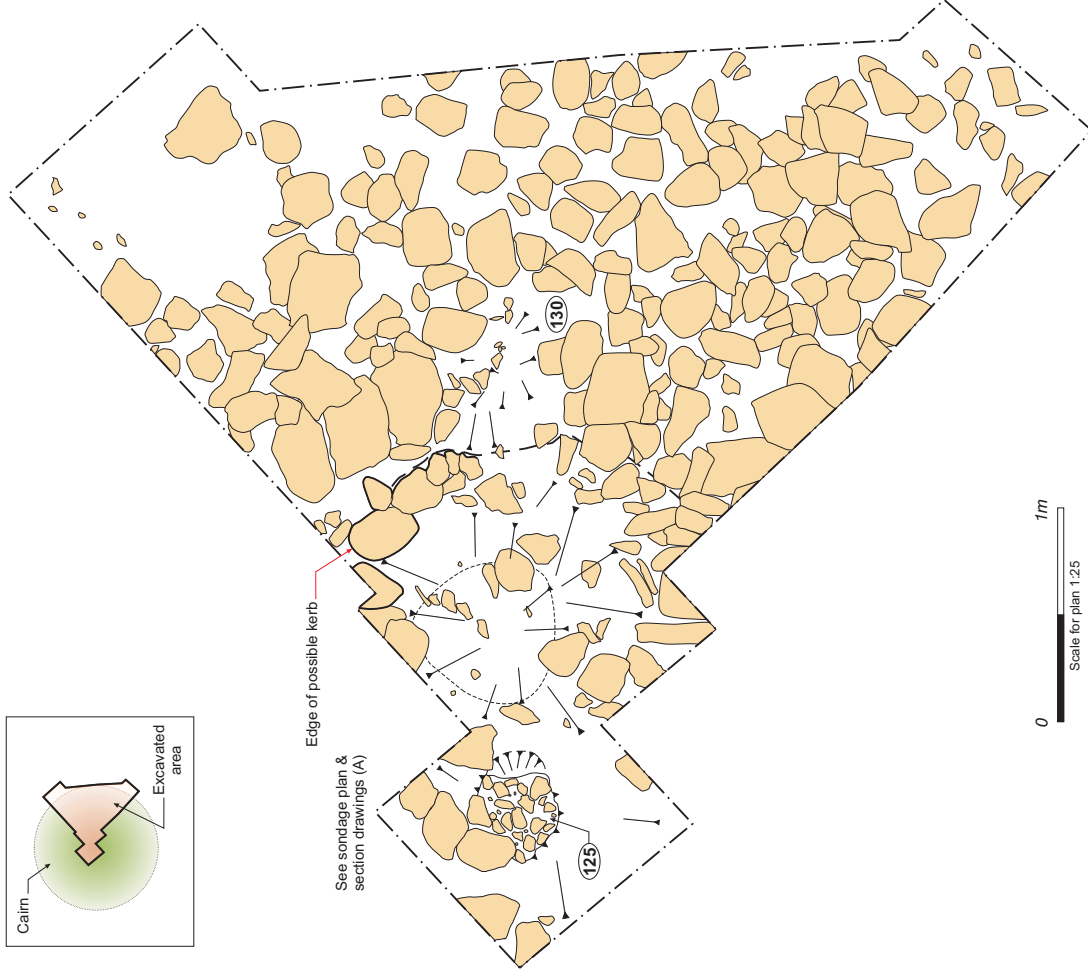
Figure 3

The Cairn



See sondage plan & section drawings (A)

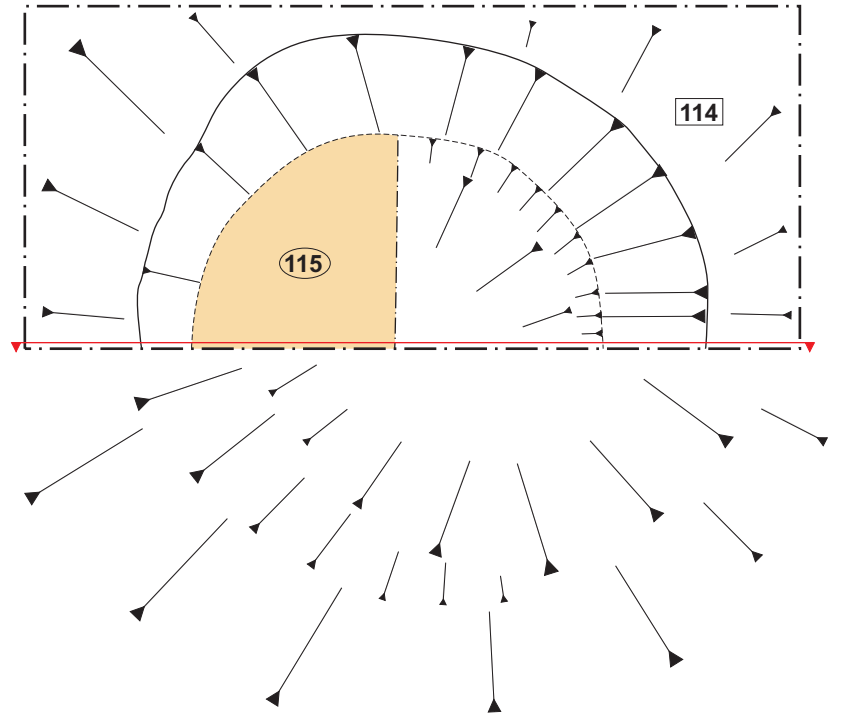
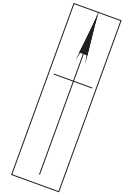
Edge of possible kerb



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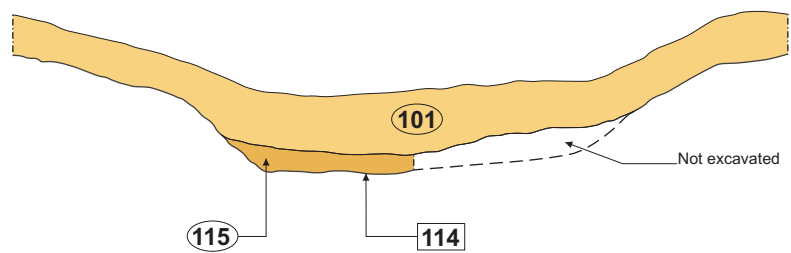
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The Hollow in Area 1



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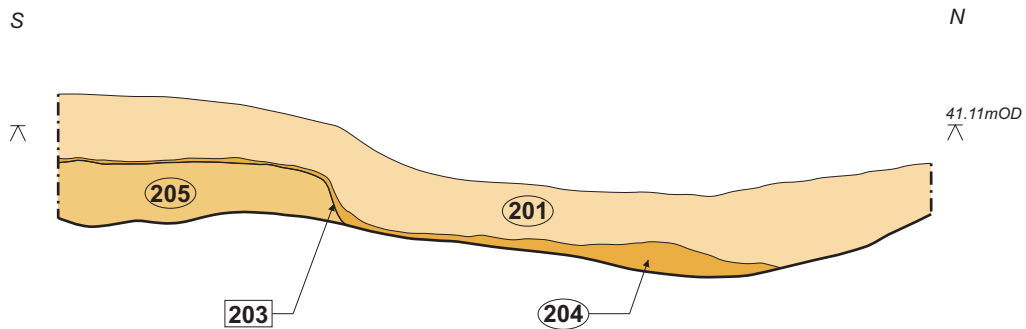
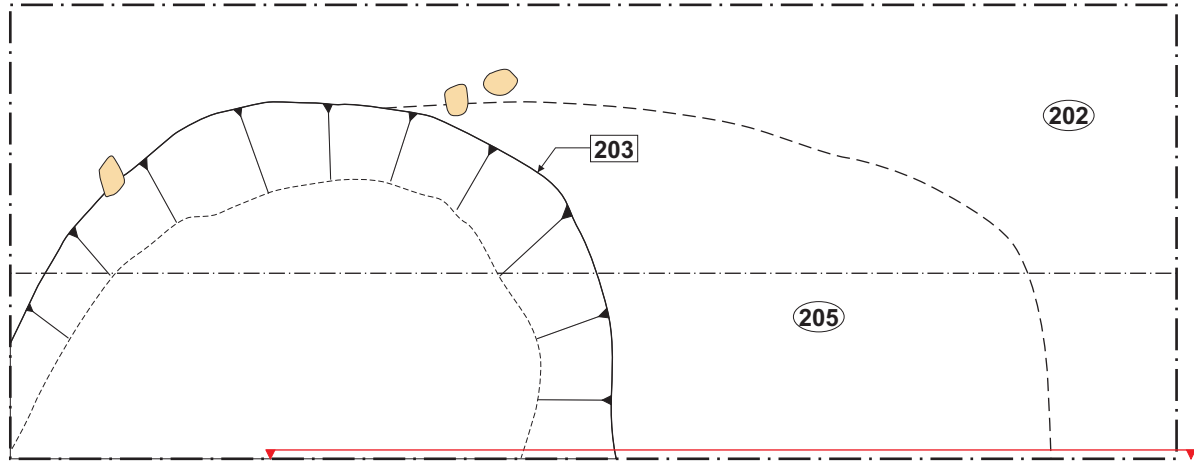
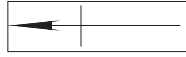
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The hollow in Area 1: plan and section

Figure 5

The Hollow in Area 2



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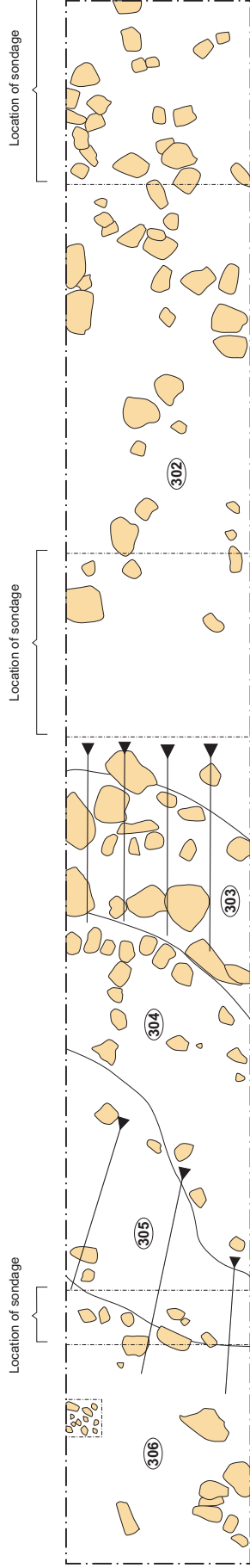
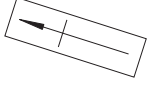
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The hollow in Area 2: plan and section

Figure 6

The Hut Circle



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The hut circle: plan

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Figure 7



Plate 1: The interior of the henge looking towards the entrance. Scales: 2x2m



Plate 2: The entrance of the henge looking towards the interior of the monument.
Scales: 2x2m



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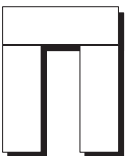


Plate 3: The henge: detail of the bank and the entrance. Scales: 1x2m



Plate 4: The cairn looking towards Loch Migdale.
Scales: 2x2m

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THE TRUST FOR WESSEX ARCHAEOLOGY LTD.

Portway House, Old Sarum Park, Salisbury, Wiltshire SP4 6EB

Tel:(01722) 326867 Fax:(01722) 337562

E-mail:info@wessexarch.co.uk www.wessexarch.co.uk

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