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**A75 Dunragit Bypass- Evaluation, Advance &
Construction Works
Data Structure Report
Project 3537/3622/3774**

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A75 Dunragit Bypass- Evaluation, Advance & Construction Works Data Structure Report

On behalf of: Transport Scotland

NGR: NX 14207 57748 to NX 18882 56756

Project Number: 3774

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*This document has been prepared in accordance
with GUARD Archaeology Limited standard operating procedures.*

*This report is dedicated to the memory of Jane Brann
Dumfries and Galloway Council Archaeologist*

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Executive Summary

- 1.1 An archaeological evaluation was carried out by GUARD Archaeology Ltd in collaboration with Amey along the line proposed for the A75 Dunragit Bypass (Figure 1). The trial trench evaluation of 10 % of the 7.4 km development route identified eleven main areas of potential archaeological significance (Figure 2). Ten of these eleven sites were investigated further in advance of the construction phase of works. During the construction phase a watching brief was conducted on behalf of the main contractor R J McLeod which led to an additional 29 sites being excavated. All of the new sites were in proximity to or directly associated with the areas (1-11) of significant archaeology established during the evaluation. The archaeology discovered during these works represents a rich prehistoric occupation of this area of the Dumfries and Galloway coastline over some eight millennia. Among the findings were Mesolithic and Neolithic structures, a Bronze Age funerary complex including urn cremations and grave goods such as jet beads, Food Vessels and flint tools and an extensive unenclosed Iron Age settlement.

Introduction

- 2.1 This report sets out the results of an archaeological evaluation undertaken by GUARD Archaeology Ltd, having been commissioned by Amey Plc on behalf of Transport Scotland for a new A75 bypass road around Dunragit, Dumfries and Galloway. The evaluation involved the excavation of 216 off-set trenches along an almost continuous 25 sections of central trench (C1 - C25) along the road line, side roads and ponds (Figure 2). The archaeological deposits uncovered were evaluated and eleven areas were subsequently highlighted as having significant archaeological potential. Ten of the eleven areas were investigated in advance of the road construction phase. GUARD Archaeology Ltd. were subsequently commissioned by R.J. McLeod to undertake a watching brief during ground-works for the construction of the new bypass route. During the construction phase an additional 29 sites were excavated and recorded.

Site Location, Topography and Geology

- 3.1 The settlement of Dunragit is located at NGR: NX 14911 57544, ten kilometers east of Stranraer and 2.5 kilometers north of the Irish Sea shoreline (Figure 1). The area to accommodate the new A75 Bypass has a varied topography with agricultural land used for both pasture and arable farming. The road traverses low lying flat expanses of a former estuarine landscape and dune systems as well as slightly higher ridges where the land rises northwards from the current shoreline.
- 3.2 The underlying superficial geology varies between Glaciofluvial and Alluvial deposits of silt, sand and gravel. while the bedrock varies between Loch Ryan Formation - Sandstone formed approximately 251 to 299 million years ago in the Permian Period and Shinnel Formation - Wacke formed approximately 444 to 461 million years ago in the Ordovician Period (www.bgs.co.uk).

Archaeological Background

- 4.1 Baseline information has been noted from the Dumfries and Galloway Council (DGC) SMR and Historic Scotland, Garden History Society in Scotland and the Wigtownshire Antiquarian and Natural History Society were also consulted and provided additional information and comment.
- 4.2 The study area identified by the DGC Archaeologist comprises an area approximately 1km around the proposed scheme. There are five SAMs within the study area, ten listed buildings and a total of sixty-two unscheduled sites. There are also numerous Areas of Archaeological Interest (AAI) within close proximity to the proposed scheme, many of which form a perimeter surrounding find spots or SAMs, with a particular concentration around the village of Dunragit (Figure 3 and 3a).

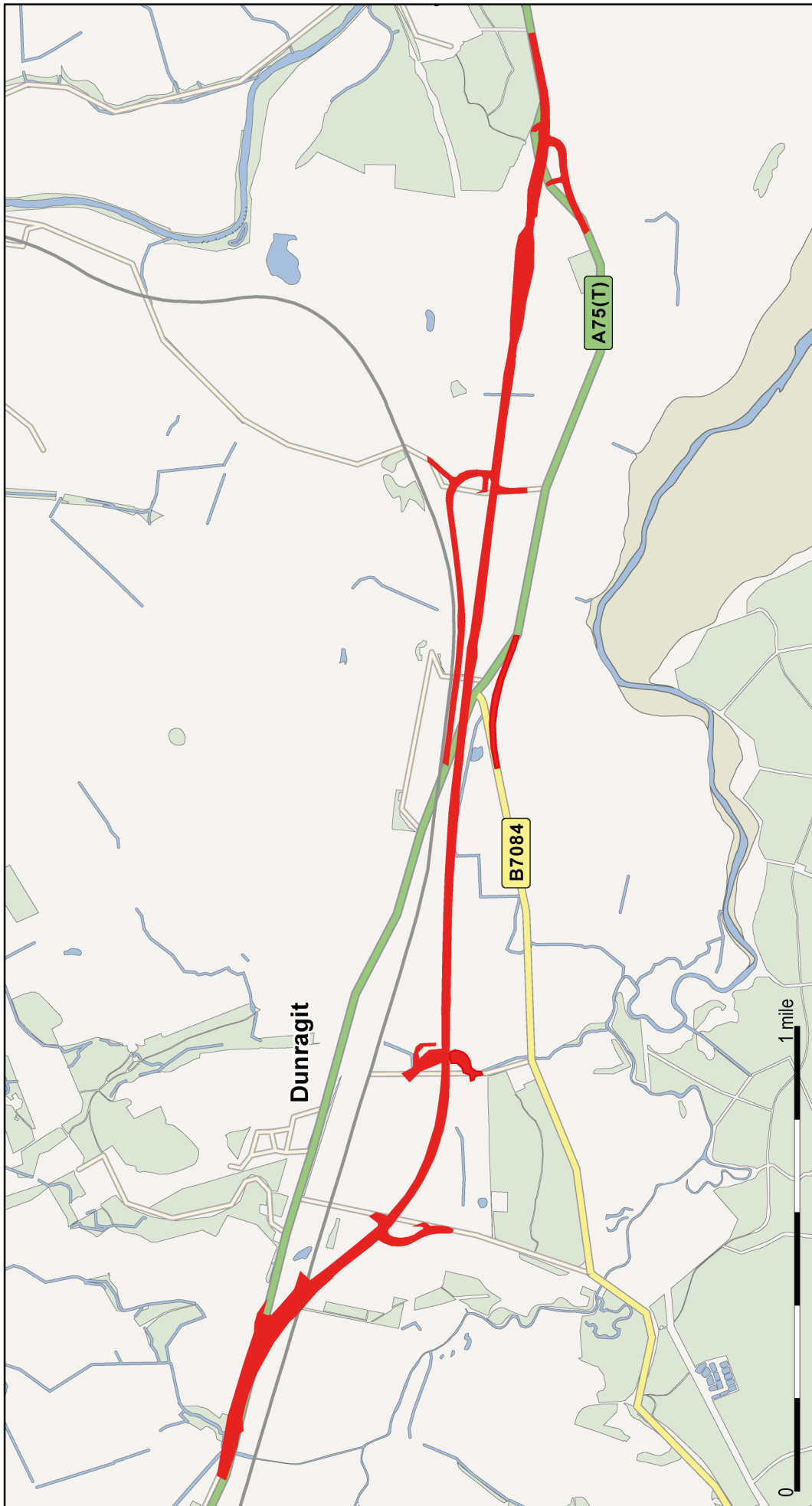


Figure 1: Line proposed for the A75 Dunragit Bypass.

4.3 The area around Dunragit, a small village in Dumfries and Galloway, contains a number of interesting resources, most notably a rich Neolithic landscape and a low railway bridge on a particularly tight bend in the A75 which ran beneath it.

4.4 The Neolithic elements were represented by three Scheduled Ancient Monuments at the west end of the route. Flanking the south side of the village is the Dunragit complex (NX15NW 69 & 76) which was originally identified from aerial photographs. The Royal Commission for the Ancient and Historic Monuments of Scotland (RCAHMS) described the crop marks as follows.

‘A pit circle, possibly the remains of a ceremonial timber circle, has been recorded as crop marks on oblique aerial photographs (RCAHMSAP 1992) some 25m S of the pit alignment. The pits are large and slightly elongated, describing a flattened circle measuring about 11m from E to W by 8m transversely.

‘Th[e] ring-ditch... measures about 6m in internal diameter and is defined by a broad ditch which has rounded terminals at a broad E-facing entrance. From the S side of the entrance, a single row of pits extends to the E across the field.’

4.5 The Archaeology Department at Manchester University undertook four seasons of research excavation at the complex. Its website reported that:

‘Four seasons of excavation took place on the Neolithic ceremonial complex at Dunragit during 1999-2002, directed by Julian Thomas in collaboration with Historic Scotland. These investigations demonstrated that the principal element of the complex had been an enclosure composed of three concentric rings of timber. The largest of these rings had a diameter of around 300 m, while the innermost had a diameter of perhaps 120 m. Both the outer post-ring and the middle were composed of large uprights interspersed with smaller members, forming a continuous palisade and comparable with the structure of the Late Neolithic enclosure at Meldon Bridge in Peebleshire. Both of these post-rings had been single-phase structures, and in both cases the posts had eventually rotted out and been replaced by silting and collapsed gravel packing. These two outermost rings of post-holes also produced very little in the way of material culture. By contrast, the inner ring had been made up exclusively of large, free-standing posts, most of which had rotted away, but some of which had been deliberately removed. These post-holes were considerably larger than those of the two outer rings, and it is possible that their digging had involved a conspicuous expenditure of effort. Where posts had been pulled out, a number of elaborate deposits had been placed in the crater left by the post-removal. These included the cremated remains of a woman and a sheep, sherds of Grooved Ware in a matrix of dark, burnt organic material, a deposit of Beaker pottery, and a mass of charcoal containing fragments of burnt bone, possibly representing a pyre deposit.’

4.6 The most prominent monument is Droughduil Mote (NX15NW 6), a steep-sided and flat-topped mound sited 680m south of the village and described by the RCAHMS as:

‘A round sandy hillock formed of angular stones and cobbles from the beach as exposed on the summit and at places on its flanks, with a diameter at base of 156’ or thereby, rising to an elevation varying from 25’ to 30’ and with a level summit some 40’ in diameter. It appears to have been erected on a slight natural eminence which projects somewhat beyond the base towards the east and west. At the base, passing around the north side, is a terrace some 10’ in width... The Mote of Drochdool is an Anglo-Norman structure of the 12th century.’

and subsequently:

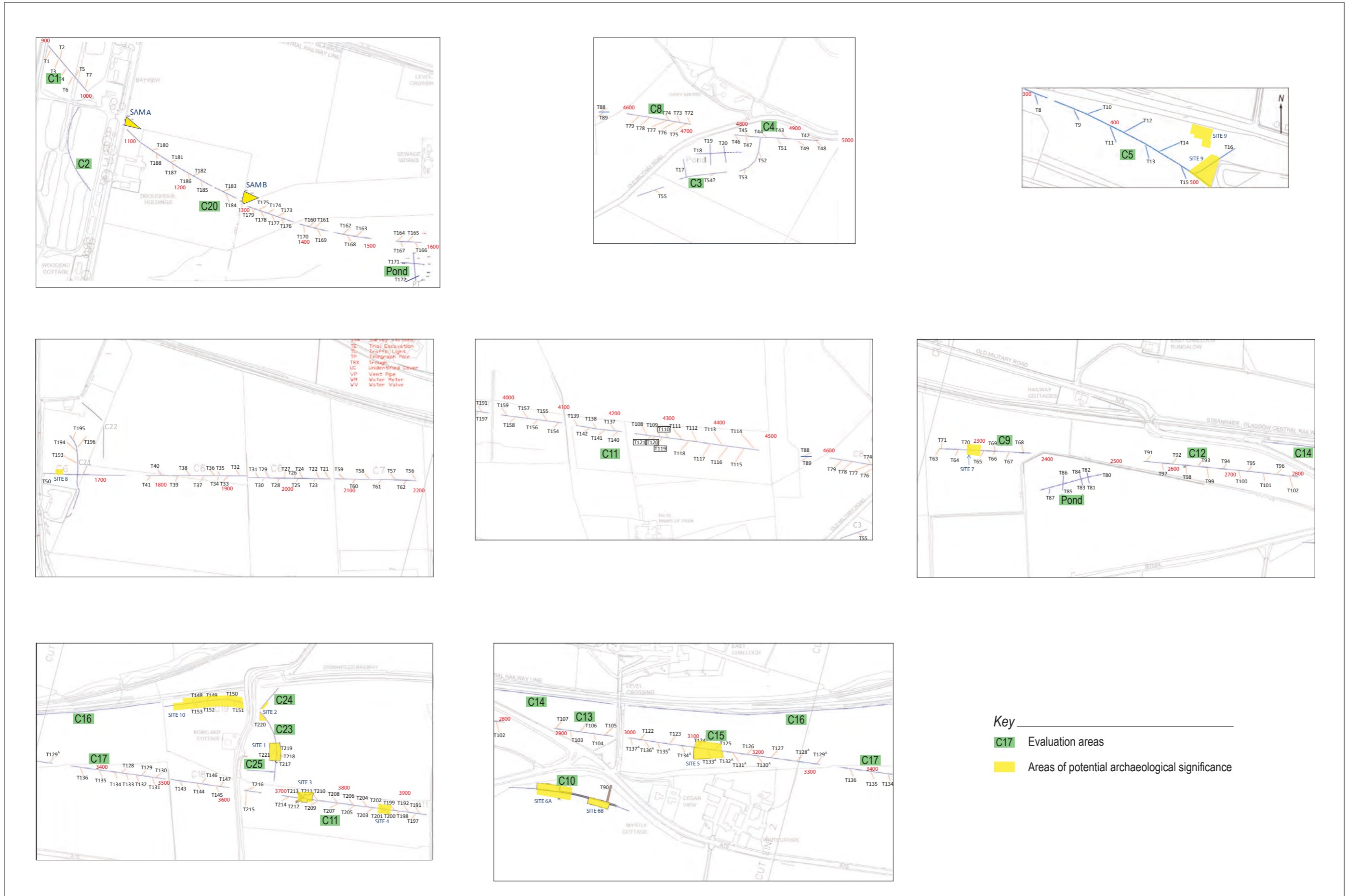


Figure 2: areas of potential archaeological significance.

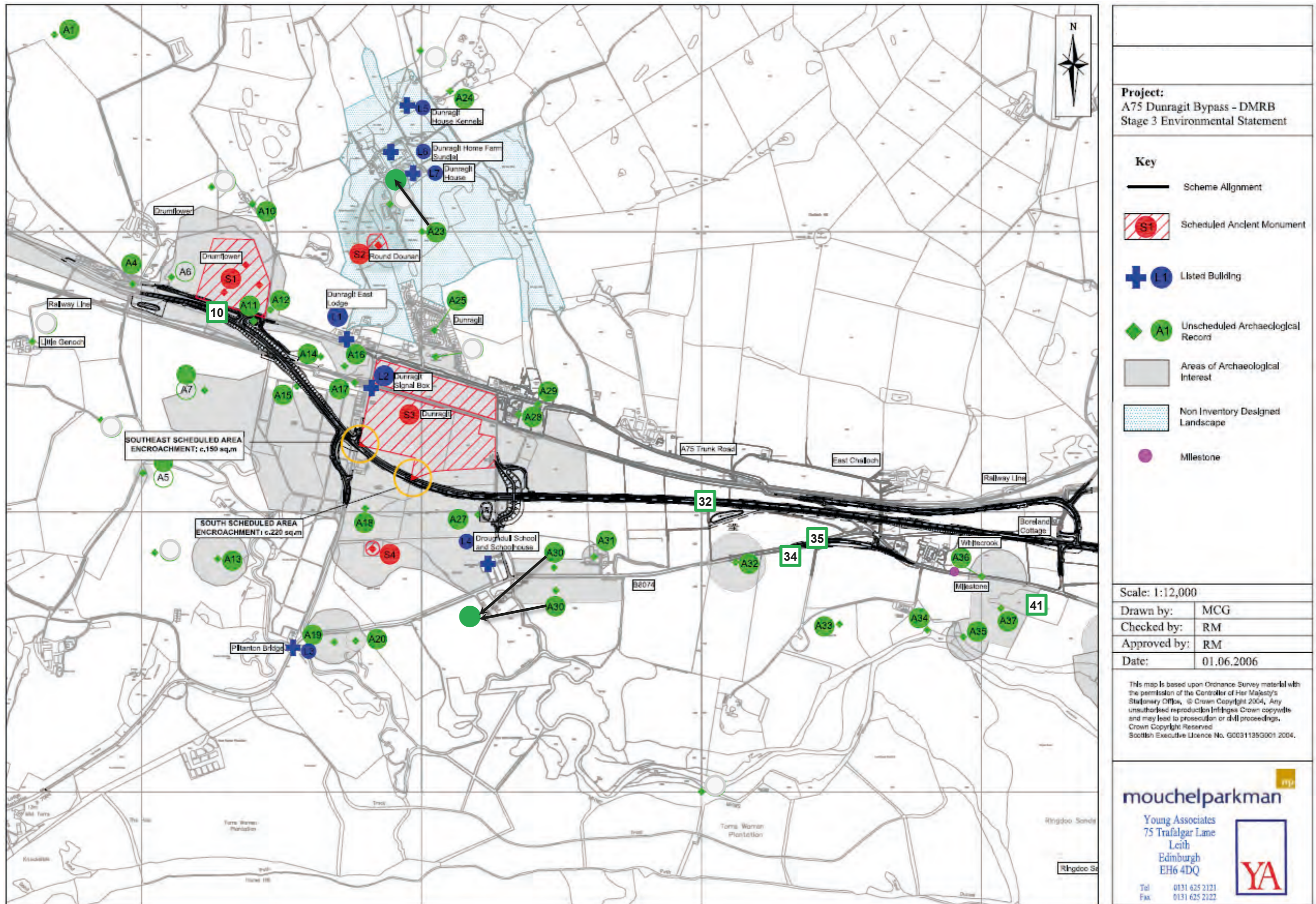


Figure 3: SMR plan of known archaeological and historical sites along route of new bypass.



Figure 3a: SMR plan of known archaeological and historical sites along route of new bypass.

‘The motte is known locally as Droughdool Mote. On level ground 1.2km ENE of Genoch Mains there is a prominent mound which is probably a motte. It appears to have been built on a natural knoll and now stands to a height of 10m on the NE; its roughly level summit measures about 12m in diameter. It is unlikely that a number of pits and gullies to the SE and E are related to the mound.’

4.7 In order to test the suspicion that the mound was in fact contemporary with the Dunragit complex, limited excavation of the mound was undertaken by the Manchester University team in 2002. It indicated that the mound was a natural feature, probably a sand dune, with no surrounding ditch but with a series of steps cut into its flanks. There was some dating evidence at the summit of the mound, consisting of a round cairn containing burnt bone and flint scrapers which appeared to confirm their interpretation of the mound as dating to the Neolithic period.

4.8 The third scheduled monument, the Drumflower complex (NX15NW 25), was again identified by crop marks appearing in aerial photographs. It was 500m west of Dunragit village and was described by the RCAHMS as follows.

‘Crop marks on the N side of the public road (A75) 360m SE of Drumflower reveal what may be the W end of an enclosure defined by close-set pits. The enclosure, which is probably roughly rectangular, measures at least 28m from WNW to ESE by 24m transversely. Towards the E there is a rectangular setting of pits measuring about 16m by 5m.’

They further reported that:

‘A watching brief was undertaken during ground-breaking works associated with the A75 trunk road improvement scheme between Planting End and Drumflower. No significant features or artefacts were encountered.’

4.9 It was through this landscape that Transport Scotland (TS) proposed to construct a bypass, necessitated by the low bridge on the bend in the road mentioned above. As the A75 was the main road east of the ferry ports of Stranraer and Cairnryan, it carried substantial numbers of vehicles through the village and under the bridge; these included HGVs which were too tall to negotiate the low headroom. An alternative route was signposted and height sensors identified and flashed warnings to drivers of the relevant vehicles, but on too many occasions these warnings were ignored and, subsequently, the safeguards were unsuccessful. The term relating to the inevitable outcome is ‘bridge strike’, causing an obstruction on the road and the requirement for the bridge to be closed to trains until it was inspected and passed as safe by specialist structural examiners. It was in response to this situation that Transport Scotland (TS) decided that a bypass was required.

4.10 The proposed route corridor ran from Ballancollantie Bridge in the west to the Wood of Park, outside Glenluce, in the east, running south of the existing road for the western 2.9km; after the low bridge, the meandering course of the existing road swings south, leaving the proposed route corridor on its north side. The bypass route in the west took it through the Neolithic landscape characterised by the Dunragit and Drumflower complexes and Droughduil mound; moreover, 182m² of the southwest corner and 256m² of the south corner of the Dunragit scheduled area would be required to accommodate the new road. As well as the main bypass route, a system of side roads, totalling approximately 2.4km, were planned to link the new road to side roads and farm lanes. Three substantial SUDS ponds were also planned; one was located just south of the route approximately 270m east-southeast of the Dunragit complex, a second was sited 800m further east, and a third at the east end of the bypass route.

4.11 An Environmental Impact Assessment had been undertaken by Young Associates/Mouchel Parkman to identify the recorded archaeological sites within 1km of the route corridor, to evaluate the potential impacts of the scheme on the known and unknown archaeological remains along the route, in particular upon the Neolithic monuments and landscape, and to recommend a scheme of field evaluation.

4.12 They identified two further Scheduled Ancient Monuments within the study area: Round Dounan, a motte just north of Dunragit village; and Castle of Park 480m west of Glenluce. They also listed a further 62 recorded archaeological sites within the Study Area for the project, as identified by in their Environmental Statement. These include five urn burials, five ring-ditches, five cropmark sites, 17 find spots, five farmsteads, nine modern/industrial sites and further sites ranging from a barrow and hut circles to cultivation marks.

4.13 Of those sites, two were on the line of the west end of the Scheme route:

- (A15) NX15NW 113, a series of linear features removed earlier during gravel extraction; and
- (A11) NX15NW 74, a series of crop marks just south of Drumflower SAM.

4.14 The site of A15 the linear features was an abandoned quarry and had already been removed; therefore, it would not be affected by the Scheme. The list was refined to remove duplicated entries and natural features, and to introduce significant sites and references not previously included, resulting in a list of 64 relevant sites (Table 1 and 2).

Table 1: Scheduled Ancient Monuments

Site No.	Previous reference	NMRS/D&GSMR	Location/Name	NGR	Category
-	S1	NX15NW25 DG1295, 5063, 9231, SAM 5790	Drumflower	-	Enclosures and pit alignments
-	S2	NX15NW4 DG1308	Round Dounan	-	Motte
-	S3	NX15NW69, 76, SAM 5852	Dunragit	-	Enclosures, ring ditches and pit alignments
-	S4	NX15NW6 DG1335, SAM 2016	Droughduil Mote	-	Mound
-	S5	NX15NE9 DG1277	Castle of Park	-	Tower house

Table 2: Recorded Archaeological Sites

Site No.	Previous reference	NMRS/D&GSMR	Location/Name	NGR	Category
-	A1	NX15NW106 DG13382	Drumflower	-	Cropmark: ditch /field boundary
-	A4	NX15NW10c DG13338	Ballancollantie Bridge	-	Bridge
-	A5	NX15NW44 DG1312	Genoch Mill	-	Watermill
-	A6	NX15NW73 DG5064	Drumflower	-	Linear crop marks
-	-	NX15NW70, 75 DG5061	Soulseat Loch to Dunragit	NX149 582	Roman road, quarry pits (see 64)
-	A7	NX15NW64 DG1340	Bareagle Nursery	-	Linear feature
-	A10	NX15NW110 DG14183	Orchard	-	Farmstead
-	A11	NX15NW74 DG5062	Drumflower	-	Barrows, pit alignment
-	A12	NX15N36 DG1305	Orchard	-	Cinerary urns
-	A13	NX15N61 DG1337	Swamps Plantation	-	Ring ditch
-	A14	- DG1270	Dunragit	-	Findspot; cist?
-	A15	NX15NW113 DG13012	Cairnglen	-	Excavation
-	A16	NX15NW121 DG17217	Parkneuk	-	Barrow, pits

Site No.	Previous reference	NMRS/D&GSMR	Location/Name	NGR	Category
-	A17	NX15N109 DG14182	Bareagle	-	Site of building
-	A18	NX15N105 DG13381	Dunragit	-	Linear cropmark – trackway
-	A19	NX15NW63 DG1339	Piltanton Bridge	-	Linear cropmark
-	A20	NX15NW62 DG1338	Piltanton Bridge	-	Ring ditch
-	A21	NX15NW4 DG1308	Round Dounan	-	
-	A23	NX15NW70 DG9296	Dunragit	-	Palstave
-	A24	NX15NW38 -	Dunragit Moor	-	Stone axehead
-	A25	NX15NW26, 28 DG1235	Dunragit	-	2 stone axeheads
-	A26, 28	NX15NE29 DG1238	Dunragit	-	Stone axehead
-	A27	NX15NE93 DG13422	Droughduil	-	Square barrow
-	A29	NX15NE78 DG13336	Ballochjargon	-	Bridge
-	A30	NX15N27 DG1236	Droughduil	-	2 stone axeheads
-	A31	NX15NE14 DG1225	Droughduil	-	Cinerary urn
-	-	NX15NE156 -	West Challoch	NX 1597 5706	Linear cropmark - field boundary
-	A32	NX15NE71 DG9382	Whitcreek	-	2 ring ditches, pit
-	-	NX15NE153 DG25408	Whitcreek	NX 1631 5681	Trackway, field boundary
-	-	- DG26029	Whitcreek	-	Tile/brick works
-	A33	NX15N88 DG15179	Whitcreek	-	Enclosure
-	A34	- DG21045	Whitcreek/ Piltanton Burn	-	Findspot
-	A35	NX15NE75 DG9340	Whitcreek	-	Enclosure
-	A36	NX15N78 DG13335	Bridge of Sark	-	Portpatrick military road
-	A37	- DG4757	Whitcreek	-	Cultivation marks
-	-	NX15NE146-7 DG21971-3	Whitcreek	NX 1718 5669	Palisaded enclosure, roundhouse, pits, flints
-	-	- DG9272	Glenlochar to Gateway of Fleet	-	Road
-	A38	- DG12725	Whitcreek	-	Findspot
-	A39	- DG12724	Whitcreek/Cutty Batty Ford	-	Findspot
-	A40	- DG1273	Piltanton Burn	-	Landing point
-	A41	NX15NE87 DG14178	Nathan's Corner	-	Farmstead
-	A42	NX15NE98 DG13168	Luce Sands/ Piltanton Burn	-	Flint scatter
-	-	- DG21961	Low Boreland	-	Enclosure?
-	A43	NX15NE5 DG1259	Wood of Park	-	Bronze Age settlement; 17th-C. house

Site No.	Previous reference	NMRS/D&GSMR	Location/Name	NGR	Category
-	A44	NX15N86 DG14177	Daisy Knowe	-	Farmstead
-	A45	NX15N89 DG14180?	Castle of Park	-	Farmstead
-	-	NX15NE144 -	Mains of Park	NX 18912 56672	Farmstead
-	-	NX15N144.01 -	Mains of Park	NX 1914 5670	Cottages
-	A46	NX15NE32 DG1241	Bridge Mill/ Glenluce	-	Mill, leat
-	A47	NX15NE35 DG1244	Ballinlach	-	15th-C. burgh
-	A48	NX15NE24 DG1234	Glenluce	-	Roman bead (unlocated)
-	A49	NX15NE68 DG5204	Stair Estates/ Glenluce	-	Bronze axehead (unlocated)
-	A50	NX15NE37 DG1246	Glenluce	-	Cairns, cists, cinerary urns (unlocated)
-	A51	NX15NE64 DG1272	Glenluce	-	Flints
-	A52	NX15NE159 DG13089	Kiln Croft	-	Farmstead
-	A53	NX15NE17 DG1228	Bridge of Park	-	Bridge
-	A54	NX15NE62 DG12112	Luce Viaduct	-	Railway bridge
-	A55	NX15NE12 DG1224	Mote Hill	-	Earthwork
-	A56	NX15NE36 DG1245	Old Luce	-	Cairn, cinerary urn
-	A57	NX15NE34 DG1243	Bankfield	-	Cinerary urn, pygmy cup
-	A58-9	NX15NE59 DG1268	Corse Head	-	Flint scatter
-	A60	NX15NE73 DG9427	Glenluce	-	Round barrow, pit alignment
-	A61	NX15NE72 DG9248	Glenluce	-	Temporary Roman camp
-	-	NX15NE148 -	Glenluce	NX 197 565	Roman coin (denarius)
-	A62	NX15N70 DG9273	Glenluce	-	Roman road, quarry pits (see 5)

Aims and Objectives

5.1 The aim of the archaeological evaluation was to:

- determine the archaeological potential in the vicinity of Dunragit and Drumflower SAMs;
- to determine the extent of the Neolithic/Bronze Age ritual activity between Dunragit and Droughduil Mote;
- assess the presence/absence of archaeological remains in the eastern part of the scheme;
- determine or confirm the likely range, quality and quantity of the artefactual evidence present; and
- determine the potential for palaeoenvironmental evidence and the forms in which such evidence may be present.

5.2 The objectives were therefore to:

- Conduct an archaeological evaluation of 10% of the development area, by machine-cut trial trench excavation, to establish the presence or absence of any archaeological remains, and their character, date and extent if surviving;
- Submit a report to data structure level on completion of the archaeological fieldwork, which includes an outline of the scope of any further archaeological works should any significant archaeology be encountered.

Methodology

Evaluation

6.1 The Method Statement prepared by Mouchel recommended that:

“a 10% sample of trial trenches will be excavated along the 5.2km route to determine the location, extent, date, character, condition, significance and quality of any surviving archaeological remains that are likely to be affected by the proposed road construction.”

6.2 After consideration of various strategies employed on such projects, it was recommended that the evaluation would follow the sampling strategy used on large-scale NRA (National Roads Authority) projects (O'Rourke, 2005), which would entail:

- (a) One central trench, 1.8 m wide, down the centre of the main route and of all significant secondary routes, revealing 6.2% of the route; and
- (b) 216 oblique offset trenches, each measuring approximately 1.8 m by 13 m, attached to the central trenches described in a) above where the land-take exceeds 22 m in width. These trenches were positioned at 20m intervals and on alternate sides of the central trenches and oriented at 45° exposing a further 4% of the route.

6.3 Sufficient free space remained between the outer ends of the offset trenches and the full extent of the land-take to permit the machines room to manoeuvre and, where necessary, to store spoil without leaving the land-take for the road.

6.4 The frequency of insertion of the offset trenches could be adjusted, to allow for a greater density of trenches in the more sensitive areas, particularly around the Dunragit Neolithic complex. This would be agreed with Transport Scotland (TS) after consultation with Historic Scotland (HS) and the Dumfries and Galloway Archaeology Service (DGAS).

6.5 Several substantial ponds were also being planned: one, located just south of the route where it passes the Dunragit SAM, measures approximately 75 m by 37 m; and the other, 800 m further east, measures approximately 230 m by 30 m. The first pond had one 75 m trench excavated running north-south, and two east-west trenches, 37 m and 28 m long, excavated near the north and south ends of the pond. The second, more linear pond was subjected to the same trenching regimen as the road route, with one central trench and staggered offset trenches at 20 m intervals.

6.6 Access along the route was from side roads and either existing or newly established gates. Transit across lands not in the ownership of TS was kept to a minimum and, where it was the optimum course, permission was sought and acquired in writing from the landowners.

6.7 When features or complexes extended beyond the assessment trenches, and they were judged by the project archaeologist and HS to warrant further investigation, the assessment trenches were extended (within the confines of the route land take) to the minimum area necessary to pursue, expose, excavate and record those features. The investigation, recording and sampling strategies initiated for the assessment trenches was maintained for any extended areas.

- 6.8 The potential for and nature of substantive remains was assessed using the maps of recorded sites along the route compiled by Mouchel Parkman/Young Associated to accompany their Stage 3 Environmental Statement. New previously unknown complexes, features and artefacts were discovered beyond the areas where significant archaeology was suspected.
- 6.9 There were a further seven geotechnical test trenches planned along the route, and each uncovered an area of approximately 1 m². Although they were excavated to depths of several metres, any impact on the archaeological resource were:
- (a) in the area above the subsoil or bedrock where the excavations would go through archaeological strata and features; and
 - (b) on the surface of the subsoil or bedrock where the tops of intruding archaeological features could be present.
- 6.10 In consequence, the test trenches were monitored by the PA or suitable deputising archaeologist to record any relevant features or changes in stratigraphy.

Dunragit Scheduled Ancient Monument Excavation

- 6.11 A maximum of 100 m² (SAM A) of the south-west corner and 150 m² (SAM B) of the south corner of the Dunragit Neolithic Complex, a Scheduled Ancient Monument (SAM), was directly impacted by the scheme and required full archaeological excavation, once Scheduled Monument Consent had been issued by HS. In order to protect the excavation as well as possible livestock and land users, and to ensure that the works did not extend beyond the areas to be impacted by the scheme, a temporary stock-proof fence was constructed prior to the archaeological investigations. It was left in place during construction to protect the remainder of the scheduled area from construction activities, and a permanent fence was erected at a later date.
- 6.12 The topsoil in the two excavation areas was stripped completely from the two areas, using a back-acting machine fitted with a toothless flat-bladed bucket, under the direction of a supervising archaeologist. The machine excavation continued either to the top of the first archaeological horizon or the top of the underlying subsoil or bedrock, whichever was uppermost.
- 6.13 The resulting surfaces were cleaned and inspected for archaeological remains. All marked, potentially significant features and deposits were subsequently cleaned by hand, planned and recorded in accordance with IfA standards and guidance. All cut features were sampled by half section, with plan and section drawn. Sections were excavated along linear features to investigate the stratigraphic sequence of their fills. No burials were encountered within the area covered by the SMC.
- 6.14 Considering the archaeological significance of this monument and the magnitude of the impact of the scheme on the two areas within the SAM, a strategy of full excavation was employed. Therefore, after half-sectioning, the remaining fill of the sampled features were removed.
- 6.15 Considering the palaeoenvironmental research which has been carried out within the area of Dunragit, Droughduil and Drumflower, soil samples were taken that may assist with this research. The sampling strategies for this research were determined by the project archaeologist in consultation with HS.
- 6.16 A full digital photographic record of the work was retained, and all remains were levelled with respect to OS data.
- 6.17 All trenches were excavated by mechanical excavator, utilizing a c 2 m wide flat-bladed (toothless) ditching bucket under the direct supervision of a GUARD archaeologist, down to

the first archaeological horizon or to natural subsoil, whichever was encountered first. The depth of stratigraphy apparent in all trenches was recorded.

- 6.18 Any archaeological features encountered were cleaned by hand by the on-site Archaeologist to determine their character and extent. Where negative-cut features were encountered, a representative sample was 25-50% excavated in order to determine their significance, date and function. All on-site recording, written, drawn and photographic, was to the standards normally pertaining in archaeological fieldwork and to IfA standards. A full record of excavated features was made using a single context recording system using pro forma sheets, drawings and photographs. All archaeological features were photographed and recorded at an appropriate scale. Sections were drawn at 1:10, and plans at 1:20. All evaluation trenches were accurately surveyed using a sub-metre GPS and located within the National Grid.
- 6.19 All archaeological finds were dealt with by the on-site Archaeologist. Significant small finds were to be three dimensionally located prior to collection. All finds were to be processed to MAP2 type standards and subject to appropriate specialist assessment. If necessary, conservation of finds would be appraised to allow for specialist study.
- 6.20 All excavated feature fills and horizons were sampled as appropriate, using bulk soil samples, for palaeoenvironmental evidence.
- 6.21 A representative section was recorded denoting depth of topsoil, any stratigraphy present and the nature of the soil. This information was logged in the day book together with a sketch drawn to scale and a photographic record of deposits.
- 6.22 No human remains were revealed in the form of inhumations by the excavation, although cremated bone was observed in area C19 during the evaluation and Site 10 excavated during construction phase.
- 6.23 On completion of the recording of the evaluation trenches, the backfilling of trenches was undertaken by machine. No specialist backfilling was proposed, nor was backfilling of trenches supervised by the on-site archaeologist.
- 6.24 Areas of archaeological significance (Sites 1-11) were proposed for expansion and further investigation after consultation with Historic Scotland, Mouchel, Transport Scotland and Amey.

Construction Phase

- 6.25 On completion of the investigations of ten of the eleven areas of archaeological significance established by the evaluation, it was deemed necessary for a watching brief to be conducted during the construction phase of works on behalf of R. J. McLeod. All ground-works were monitored on the basis of one archaeologist per machine and any resulting significant archaeological deposits uncovered were investigated and preserved by record. Any archaeological features encountered were to be cleaned by hand by the on-site Archaeologist to determine their character and extent. Where negative-cut features were encountered, a representative sample was 25-50% excavated in order to determine their significance, date and function. All on-site recording, written, drawn and photographic, was to the standards normally pertaining in archaeological fieldwork and to IfA standards. A full record of excavated features was made using a single context recording system using pro forma sheets, drawings and photographs. All archaeological features were photographed and recorded at an appropriate scale. Sections were drawn at 1:10, and plans at 1:20. All evaluation trenches were accurately surveyed using a sub-metre GPS and located within the National Grid.

Results

The results and discussion of the archaeological evaluation followed by that for the subsequent further investigations conducted during the advance and construction works phases are presented here.

Evaluation Trenches

7.1 The evaluation was divided into areas to facilitate the management of the fieldwork investigations and ultimately for ease of description in this DSR. As the trench regime involved a central trench throughout each area, it was allocated a central (C) number with the associated herring-bone off-set trenches numbered from one to infinity across the whole evaluation (Figure 1). For example, Area/Trench C1 incorporated trenches 1 to 7 and so on. The Evaluation areas will be described in numerical order and are shown in Figure 2 with chainages, trench numbers and proposed expansion areas 1-11. In all evaluation areas a sample of the topsoil and subsoil was taken as well as samples of features of archaeological and palaeoenvironmental potential.

7.2 **C1**

7.2.1 This trench was situated to the west of the Dunragit complex by around 100 m. The central trench extended from chainage 900 to chainage 1000 with seven off-set trenches (T1-T7). A total of 36 features were investigated and from these none were shown to be of archaeological significance. There was also a modern wall feature which is interpreted as being part of a known orchard complex in this location. Fifteen pieces of flint were recovered during the investigation, most of which was naturally rolled but there was a small quantity of debitage also present.

7.3 **C2**

7.3.1 This curving trench was excavated to the west of the SAM A area. No off-set trenches were excavated here and a total of 20 features were uncovered (Plate 1). Of these two pits (C2017 and C2019) were found to be archaeological and a total of two flint flakes and one possible flint core were recovered during the investigations. These features represent prehistoric activity that is likely to be associated with the wider Dunragit complex situated to the north-east of this area.



Plate 1: C2 - Evaluation trench in progress taken from south-east.



Plate 2: C5 - Evaluation trenches open taken from east, point where west end of bypass meets current A75.

7.4 **C3**

7.4.1 This area of evaluation was situated at the east end of the road-take at the approximate chainage 4850. C3 had five off-set trenches (T17 and T52-T55), a pond was also evaluated just to the north of C3 (T18-T20). In this area the subsoil consisted of what appeared to be wind-blown sand, evidence of the varied dynamic landscape represented along the route of the road. No archaeological features were encountered during the investigations on this area although a sample of the topsoil and subsoil was still retained for potential further analysis. Two pieces of flint debitage were recovered during the evaluation here.

7.5 **C4**

7.5.1 This area, not unlike C3 had subsoil of wind-blown sand indicating a former dune system along this portion of the coast. C4 extended between chainage 4800 and chainage 4950 and had nine off-set trenches (T42-T51). No archaeological deposits were encountered during the evaluation in this location but a sample of the topsoil and subsoil were retained for potential further analysis. Two organic layers were observed (C4003 and C4004) and, although not archaeological, were sampled for potential further analysis.

7.6 **C5**

7.6.1 The curving central trench in this evaluation area represented the most westerly section of the Dunragit Bypass and extended between approximately chainage 300 to just east of chainage 500 (Plate 2). Here the accompanying nine off-set trenches (T8-T16) uncovered a total of 31 features of archaeological potential. From these 17 features were shown to be of likely prehistoric origin with 2 pieces of worked flint recovered, one piece of flint debitage and a burnt flint nodule recovered during the investigations.

7.7 **C6**

7.7.1 This central evaluation trench extended across three fields leading eastwards away from the main Dunragit complex from approximately chainage 1600 to chainage 2050. There was a total of 22 off-set trenches (T21-T41 and T50). In this set of trenches the archaeological deposits were concentrated in the most westerly field just south of a present-day sewage treatment plant. Here, peat deposits were observed to a depth of approximately 0.75 m below surface. Aside from the peaty deposits there were negative cut features one of which produced 3 sherds of prehistoric pottery, 108 flint flakes/ debitage and one piece of possible worked quartz; the preliminary investigations on this pit recovered more lithic material than was recovered across the entire 7.4 km evaluation.

7.8 **C7**

7.8.1 This central evaluation trench extended from chainage 2100 to chainage 2200 with seven off-set trenches (T56-T60) (Plate 3). This evaluation area did not reveal any archaeological features although below what appeared to be natural subsoil layers there was a layer of waterlogged wood and charcoal flecks surviving. The various layers encountered were samples for further analysis to enable comparison with similar, palaeoecological deposits elsewhere on the project. One heavily patinated small flake was recovered from chainage 2180 during the investigations.



Plate 3: C7 - Note layers containing organic material underlying subsoil layers.



Plate 4: C9 - Three post-holes containing potential Mesolithic lithics.

7.9 **C8**

7.9.1 This set of evaluation trenches were situated towards the east end of the road strip just upslope to the north of areas C3 and C4. C8 extended between approximately chainage 4700 and chainage 4550 and had a total of ten off-sets trenches (T72-T79 and T88-T89). There were

no features of archaeological significance uncovered but layers of organic material below the sandy subsoil were recorded and sampled along with the topsoil and subsoil samples.

7.10 C9

7.10.1 This central evaluation trench extended from approximately chainage 2250 to chainage 2400 with nine off-set trenches (T63-T71). In this evaluation area the only archaeological deposits uncovered were the remains of three possible post-holes or pits (Plate 4). Each of the features contained a charcoal-rich fill with a quantity of flint debitage. The preliminary interpretation of the 20 flints recovered suggest a possible Late-Mesolithic date for these features.

7.11 C10

7.11.1 This evaluation area, lay to the south of the B7084/A75 junction and consisted of a continuous curving trench with one off-set trench leading north to meet the current lie of the A75 road towards the east (Plate 5). This trench extended between chainage 2850 and chainage 3000, although off the main road line on a side road. A total of 41 features of archaeological potential were uncovered during the evaluation here with many of the features containing varying quantities of stones of various sizes. One of these features formed an arc within the trench, extending to the north-west and north-east beyond the trench edge. Initial investigations suggest that this may be part of ring-grove wall with stone-packing, possible of a circular structure. There were also a quantity of features with fills of a high charcoal content. The finds recovered from the evaluation features here included 11 burnt stones, two hammer-stones, 12 pieces of flint, 5 pieces of slag, two fragments of animal bone, two fragments of burnt bone, a set of iron shears, a seventeenth century coin, a lead shot and a small quantity of post-medieval pottery and glass.

7.12 C11

7.12.1 The evaluation here extended from C8 at chainage 4550 in the east to meet a B road leading north past Boreland Cottage and below the railway line at chainage 3650 (Plate 6). This central trench had a total of 48 off-set trenches (T108-T121, T137-T142, T154-T159, T191-T192 and T199-T216) and there were 61 features of archaeological significance uncovered, including two possible burnt mound sites. The finds recovered included 26 pieces of flint and four sherds of prehistoric pottery. In the locale of chainage 4300 (T108, T110, T120 and T121) there was a particular concentration of archaeological features with most of the material culture coming from within an approximate 50 x 20 m area. For this reason, these trenches were widened to permit a more thorough evaluation. This extension revealed a further 14 pieces of flint, two pieces of possible worked pitchstone, one piece of burnt bone and one rim sherd of prehistoric pottery.



Plate 5: C10 - Curving stone feature- Possible Structure.

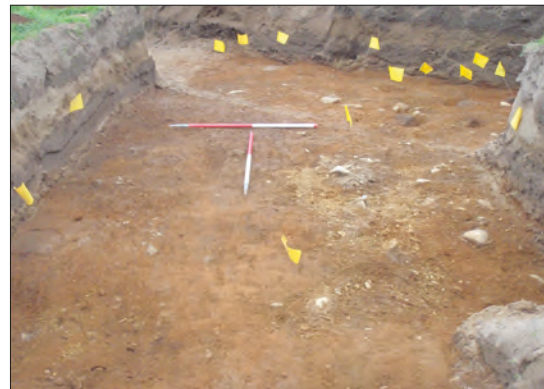


Plate 6: C11 - Cluster of possible post-holes.

7.13 C12

7.13.1 This central evaluation trench extended from chainage 2600 to chainage 2800 with ten offset trenches (T91-T94 and T97-T102). A total of 11 features of archaeological significance

uncovered during investigations in C12. These consisted of eight pits, two post-holes and one linear feature all of probable prehistoric origin. The artefacts recovered consisted of eight pieces of flint along with some small flint debitage. To the south-west of C12, a pond evaluation was also conducted which consisted of eight trenches (T80-T87).

7.14 C13

7.14.1 This area, extending from chainage 2900 to chainage 3000, lay to the north and east of C12, on the north side of the current A75. There were a total of five off-set trenches evaluated (T103-T107). No features of archaeological significance were uncovered.

7.15 C14

7.15.1 This central evaluation trench, extending between chainage 2750 and chainage 3000, was located to the north of C13 and just to the south of the railway embankment. There were no off-set trenches. The evaluation revealed one ditch of relatively modern date, associated with drainage below the railway embankment, and three pits and two gullies of potential archaeological significance. Samples of the lower fills of the ditch, as well as other significant features were retained along with topsoil and subsoil samples. No artefacts were recovered from these investigations.

7.16 C15

7.16.1 This central trench extended from the east end of C13 at chainage 3000 eastwards to chainage 3300, extending up-slope initially and then running down-slope to meet C17. There were a total of sixteen off-set trenches (T128A-T137A and T122-T127). On the highest areas of the evaluation trench there was a concentration of significant archaeological features, including a series of 35 pits/ post-holes and linear features of unknown date. The artefacts recovered included nine pieces of flint, two whet-stones, one piece of slate, one fragment of burnt bone and one sherd of modern pottery. Samples of the topsoil, subsoil and other suitable features were retained for further analysis.

7.17 C16

7.17.1 The central trench in this area had no off-sets and continued, like C14 along the southern edge of the railway embankment between chainage 3000 and chainage 3500 (Plates 7 and 8). There was a cluster of eleven features in the most westerly portion of this trench, consisting of two pits, eight post-holes and a linear feature of unknown date. The artefacts included 22 pieces of flint, some of them worked. The post-holes extended beyond the trench edges and may be part of a structure or structures out with the evaluation trench. Some preliminary interpretations on the flint suggest a wide date range of possibly early Mesolithic to late Neolithic. No further work was planned on this site in advance of construction.



Plate 7: C16 - Evaluation trench in progress taken from East.



Plate 8: Example of negative cut features in C16.

7.18 C17

7.18.1 The central trench extended from chainage 3350 to chainage 3500 and had nine off-set trenches (T128-T136). In addition to six pit/ post-hole features of archaeological significance, there was the edge of a possible burnt mound or spread recorded in this area (Plate 9). A flint macroblade tool of possible later Neolithic date was recovered from the burnt mound deposit. The archaeological features were sampled along with the topsoil and subsoil for further analysis. No further work was planned on this site in advance of construction.



Plate 9: Edge of possible burnt mound in C17.

7.19 C18

7.19.1 The central evaluation trench here extended from chainage 3500 to chainage 3600 and there were five off-set trenches (T143-T147). A quantity of features were investigated as part of the evaluation including one pit and one post-hole of potential archaeological significance. Four pieces of flint debitage and one relatively modern small mammal skeleton were uncovered during the evaluation here.

7.20 C19

7.20.1 This central trench, part of a side road for local access, stretched from the east end of C16 to the north of chainage 3500 on the main road line. It had six off-set trenches (T148-T153) (Plates 10 and 11). A total of 48 significant archaeological features were uncovered including one aceramic cremation feature which appeared to be framed by a small ring-ditch representing the remains of a barrow of probable Bronze Age date. There were six pieces of flint and two pieces of unidentified iron recovered during the evaluation here.



Plate 10: C19 - Cremated bone within small ring-ditch.



Plate 11: C19 - Evaluation trench in progress taken from west.

7.21 C20

7.21.1 This central trench curves from the south of SAM A, pass SAM B and beyond to meet the west end of C6 near the sewerage treatment plant (Plates 12 and 13). The trench extended from chainage 110 to chainage 1600. At its east end, a pond evaluation consisting of three trenches (Pond trench, T171 and T172) was also carried out. C20 had a total of 26 off-set trenches (T160- T170 and T173-T188). A total of 50 features of archaeological potential were uncovered with 110 fragments of flint, two pieces of quartz and an animal bone.



Plate 12: Opening C20 evaluation trenches, Dunragit Complex to right (north) of shot.



Plate 13: View east along C20 from SAM A.

7.22 C21

7.22.1 This evaluation trench extended north from approximately chainage 1650 and had four off-set trenches (T193-196). There was a quantity of features of archaeological potential but due to the level of the water table in this area and a spell of particularly wet weather these could not be fully investigated. Intermittent peat deposits were also observed across this evaluation area but again, due to inundation these could not be investigated further during this phase of archaeological works.

7.23 C22

7.23.1 This evaluation trench for an access road lay north-east of C21 at the approximate chainage of 1700 along the main road line. No off-set trenches were excavated here. The northern half of C22 showed evidence of previous disturbance, probably associated with the sewage treatment plant to the north-west. In the southern part of C22 however an undisturbed peat deposit was encountered. This was reduced in spits to investigate the nature and extent of the deposit. At approximately 1 m below ground surface a series of carbonised stakes were observed in a line leading west to east and perpendicular to the evaluation trench. They were recorded using proforma sheets and by photographs. and a sample of carbonised wood was recovered for identification and analysis. In addition to the carbonised wood a piece of what appeared to be worked wood was also recovered for further analysis. After this initial investigation the site was inundated, stopping any opportunity to conduct further works on this site.

7.24 C23

7.24.1 This junction road to the north of chainage 3700 on the main road strip had five off-set trenches (T217-T221) (Plate 14). The evaluation revealed a group of two burnt mounds with accompanying trough features as well as some deposits with archaeological potential in T220 which will be discussed in C24. The site underwent an initial clean up and some very preliminary investigations before being inundated by water due to a wet spell of weather and high water-table. The investigations here were therefore quite limited and further work was postponed till the start of construction.

7.25 C24

7.25.1 This central evaluation trench was part of a proposed road junction for local access. It extended north-east from the northern terminal of C23 and it had no off-set trenches (Plate 15). Archaeological deposits were encountered where this trench met trench C23. The deposits consisted of bands of sediment with possible pits or spreads on the periphery.

Investigations were very limited at the evaluation stage due to the presence of live services but further investigations were conducted as this area was recommended for expansion in consultation with Amey, Mouchel and Historic Scotland.



Plate 14: Banding of deposits across C23.



Plate 15: Looking south along curving C23 to C11.

7.26 C25

7.26.1 This central trench extended west from C23 and was evaluated as part of a proposed road junction for local access leading on and off the proposed A75 Bypass. This central trench with no off-set trenches extended west from the southern end of C23. No features of archaeological significance were uncovered.

Scheduled Ancient Monument Excavations (SAM A and SAM B)

7.27 SAM A (Figure 4)

7.27.1 The topsoil was removed to reveal a reddish/brown coarse sand and gravel subsoil (002) which had evidence of bioturbation in the form of animal burrowing. Forty-nine potential features were uncovered and excavated (Plate 16). Of these, 25 were proven to be natural rather than archaeological in origin and were subsequently voided from the site record. A linear modern service trench 052 containing a cast iron pipe was present in the western area of the site and several linear plough marks 010 in the eastern area.



Plate 16: SAM A - Overhead shot from south.

7.27.2 The archaeological features comprised of 11 post-holes (020, 025, 041, 069, 070, 072, 073, 083, 085, 086 and 088), 6 pits (016, 022, 035, 036, 038, and 044), two stake-holes (042 and 045), a gully 077, the possible terminal end of a ditch 076, a hearth 079 and a charcoal spread 054. Both the terminal end of the ditch and hearth were not fully exposed as they extended beyond the excavation at the western side. The exposed end of the possible ditch, which was rounded, measured 4.8 m by 3 m with a depth of 0.30 m. It was orientated east/west and had two fills that contained charcoal fragments, while only the upper had two small flint flakes (SF 25 and 27) on its surface. The hearth measured 0.77 m by 0.22 m with a depth of 0.12 m. Its fill comprised a red/black burnt silt/gravel with charcoal. Its base and sides were heavily disturbed by animal activity. A fairly small linear gully 077 was located next to the western trench edge and to the immediate north of the hearth. It measured 2.10 m by 0.45 m by 0.10 m and it was heavily truncated by animal burrowing. No finds were recovered from it and its date and the function remains unknown.

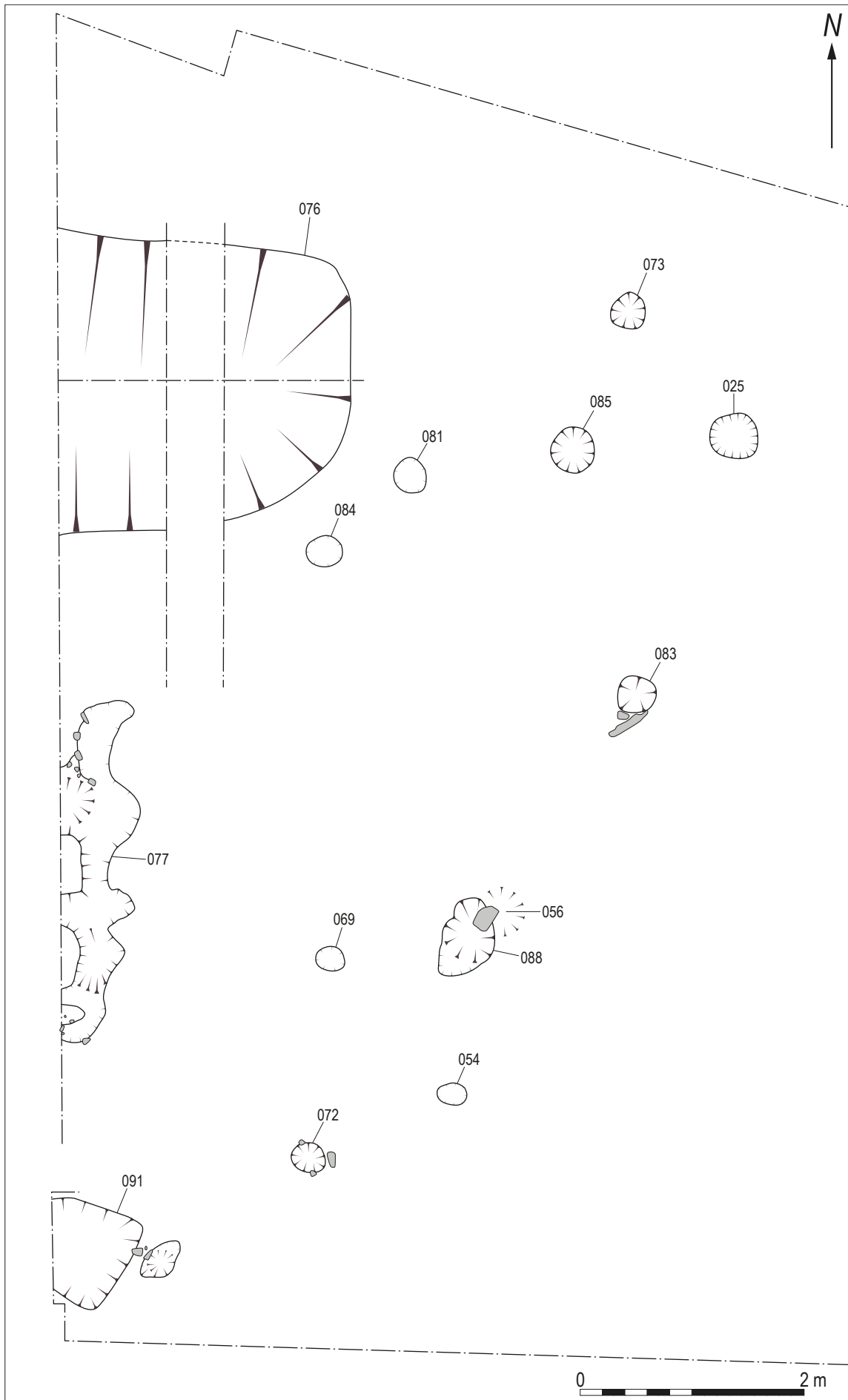


Figure 4: Post-excavation plan of SAM A.

- 7.27.3 The majority of the post-holes were positioned in an arc arrangement orientated south-west/north-east in the western half of the site. However, two of the post-holes (020 and 041) were located further east, in an outlying position in the central area of the site. They measured between 0.22 m and 0.58m with depths of between 0.13 m and 0.25 m. Two small stake-holes were also located near post-hole 025.
- 7.27.4 The pits were located to the east of the post-hole arc and appeared relatively randomly positioned. All were roughly oval shaped and measured between 0.54 m and 2.2 m in length. Depths were relatively shallow with most averaging approximately 0.20 m, although pit 036 had a maximum depth of 0.36 m. A flint fragment SF19 was found within the upper fill of pit 016 which also contained charcoal and sub-rounded cobbles. Due to the lack of in situ scorching of the surrounding subsoil it was interpreted as possible hearth waste material.
- 7.27.5 Few finds were located during excavation work with most flint fragments retrieved from the topsoil deposit 001. Due to the site's close proximity to Dunragit Neolithic Complex (SAM 5852), which lies to the immediate north, it is tempting to speculate that the above features are all associated.
- 7.28 **SAM B** (Figure 5)
- 7.28.1 In this area, the topsoil was removed to reveal a red/brown gravel subsoil 003 with yellow/grey silt 039 and mottled grey sand 040 forming the subsoil at the centre and south-east of the site respectively. Bioturbation from animal burrowing was evident, mainly at the west and south of the site. Forty-one potential features were uncovered and excavated (Plates 17 and 18). Of these, 19 were proven to be natural rather than archaeological in origin and were subsequently voided from the site record. Two of the four linear cuts (022 and 029) were discovered to be service pipe trenches or field drains, while the remaining two (004 and 041) were probably the remains of cultivation furrows.
- 7.28.2 The archaeological features comprised ten post-holes (006, 010, 012, 016, 030, 032, 036, 045, 073 and 078), three plough-marks (052, 060 and 063), one possible occupation deposit (064) and one area of subsoil scorching 075. The post-holes located in this area did not appear to form any recognisable pattern, and no structures could be positively identified, although one set of three post-holes (006, 010 and 012) formed a linear alignment that may tentatively suggest some form of shelter or structure. The nearby *in-situ* burning 075 and possible occupation deposit 064 add strength to this speculative interpretation.



Plate 17: SAM B - North end taken from east.



Plate 18: SAM B - South end taken from north-east.

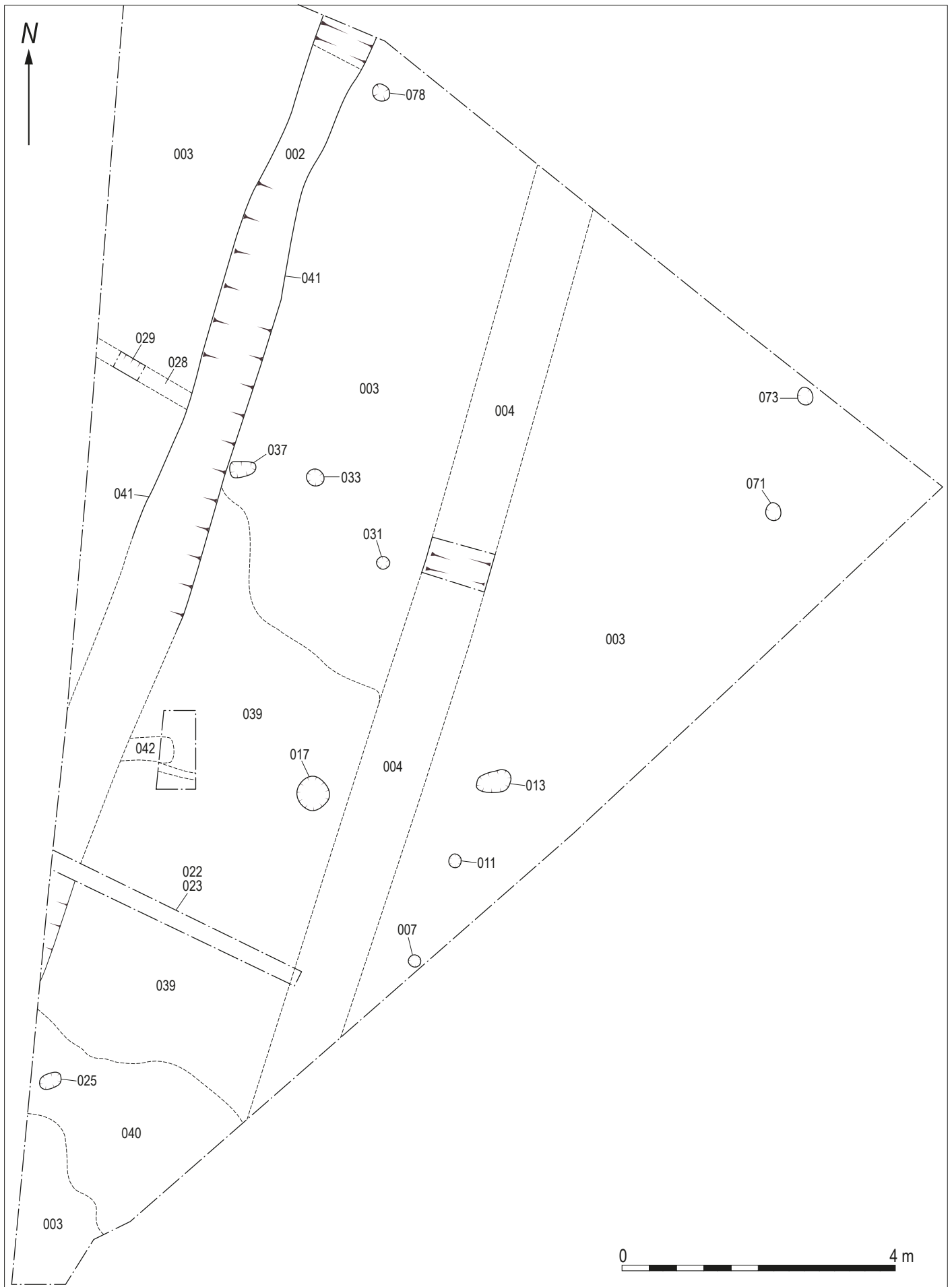


Figure 5: Post-excavation plan of SAM B.

Discussion

Evaluation Trenches

- 8.1 The evaluation trenches revealed extensive areas of archaeological potential exist across a large proportion of the assessment area with specific concentrations of activity in eleven areas. The following eleven areas, in consultation with Mouchel, Historic Scotland and Amey were expanded for further archaeological investigation in advance of construction works (Figure 2).
- 8.2 **C23** (*Site 1*)
- 8.2.1 There was clear evidence of a palaeochannel enveloping the northern side of one of the burnt mounds, with the burnt mound material of charcoal and burnt stone extending down the southern bank of the channel. This same channel could be observed during wet periods curving around the foot of a natural ridge leading east and then south towards the coastal shore. The ridge is probably a remnant of a raised beach that marked the shore-line in prehistory.
- 8.3 **C24/C23** (*Site 2*)
- 8.3.1 A number of deposits were observed extending down and across the slope to the south-east with potential features noted on the periphery of these deposits. The deposits remain undated at the time of writing but they have the potential to be prehistoric in date as this site is located immediately east of a possible Bronze Age Cemetery complex, separated only by a modern underpass road for the railway which borders the north side of the investigation area.
- 8.4 **C11** (*Sites 3 and 4*)
- 8.4.1 The evaluation here suggests an episode of occupation in the area of chainage 4300 sometime in the prehistoric period. Some of the features were interpreted as post-holes which may form part of a greater structure outwith the evaluation trenches while the flint, pitchstone and ceramic assemblage suggest a possible domestic function. No further work was planned for this particular part of C11 during the advance works after consultation with Mouchel, Historic Scotland and Amey. Other areas of investigations in C11 suggest, among other areas of archaeological significance, the presence of two burnt mound sites (Sites 3 and 4). This is based on the nature of the material uncovered during the evaluation consisting of a dense charcoal rich deposit with frequent fragments of reddened burnt stone. These predominantly Bronze Age site types have a tendency to site close to water as their function appears to depend on it. Generally a burnt mound consists of a trough or troughs which is used to contain water which is then heated with hot stones. The waste product of the process consisting of charcoal and burnt stone becomes a mound(s) around or near the trough, hence 'burnt mound'. These monuments are among the most common prehistoric monument in the British Isles with over 30,000 noted in Ireland alone.
- 8.5 **C15** (*Site 5*)
- 8.5.1 In this evaluation area there was a concentration on the higher ground of significant archaeological deposits including the remains of a possible cairn feature with potential structural elements indicated by posts extending across the line of the evaluation trenches. The material culture is also indicative of a prehistoric date.
- 8.6 **C10** (*Site 6*)
- 8.6.1 The archaeological deposits suggest the possible presence of structural elements with other peripheral activity suggested by organic and in some cases charcoal-rich, pits. Finds recovered from the initial stages suggest a possible prehistoric date with some evidence of activity from the seventeenth century onwards but this could not be refined further without

further expansion. The site lies across a crescent-like low ridge, probably a former sand dune, which overlooks both the lower lying flat expanse leading to the distant Luce Bay shoreline to the south-east and the former inland estuarine area to the north-west. One inference that can be made from the landscape setting is that this former dune may have been a suitable occupation area in an otherwise inhospitable inter-tidal estuarine area at some point in prehistory.

8.7 C9 (Site 7)

8.7.1 The preliminary findings from the two post-holes excavated in the central trench C9 suggested a possible Mesolithic date. The features being post-holes also suggested a possible structure, a site type that is all too uncommon on Mesolithic sites. This coupled with the fact that there were no other known Mesolithic structures in this area mean that this site warranted further expansion and investigation. The features encountered here also lay on a slight gravel rise among prolific channels and hollows across the general area leading westwards, reflective of the relict estuarine environment here. There were similar such rises observable across the general locale which could also potentially harbour similar archaeological features.

8.8 C6 (Site 8)

8.8.1 The assemblage of pottery and lithics recovered from the pit feature located in the central trench C6 suggested a provisional late Neolithic/ early Bronze Age date for the activity. This site was in close proximity to the east side of the Dunragit complex and may well have some association in which case the Dunragit Complex may be bigger than current research suggests.

8.9 C5 (Site 9)

8.9.1 The evaluation here revealed features of potential archaeological significance across the full extent of the trenched area. Having said that there was a notable concentration of features towards the east end of the central trench and the most easterly off-set trench T16. This site lies immediately south, across the current A75, from the Scheduled Ancient Monument of Drumflower. Aerial Photographs were noted suggesting cropmarks of possible Roman quarry pits leading along the north boundary of the C5 area. This area was expanded to enable further investigations and to establish the nature, date and extent of the archaeology here. This permitted direct comparison with the site of Drumflower and the neighbouring Dunragit 500 m to the east.

8.10 C19 (Site 10)

8.10.1 Cremation deposits, a ring-ditch and associated features were recorded in this site suggesting a Bronze Age date. Further expansion revealed posthole alignments, three ring-ditches (barrows) with cremations and other features suggesting multiple phases of activity on site. The possible Bronze Age cremations were both ceramic and aceramic with some associated with the ring ditches and others in separate clusters. This site was later expanded to investigate the extent of the funerary area during the advance works, with follow on works during the construction phase on the periphery of the original site.

8.11 C22 (Site 11)

8.11.1 This site was highlighted by the finding of carbonised wooden stake lines in situ leading beyond the trench edge in both directions. One piece of worked wood was also recovered and small fragments of reddened burnt stone were observed. These archaeological remains appear to lie on the line of a palaeochannel which lead west/east across this area, the wooden stakes suggested may be the remains of a composite structure associated with this water-course, be-it a fish-trap, track-way or bridge, without expansion and further investigation this cannot be confirmed either way. Failing that a sample of the wood and worked wood were recovered to provide wood identification and for potential dating of the activity.

Evaluation Recommendations

9.1 It was recommended after consultation with HS, Amey and Mouchel that a total of eleven areas (Sites 1-11) would be subject to additional investigations to establish the nature, character, date and extent of the potentially significant archaeology in these areas. The locations of each site in terms of evaluation areas are as follows Site 1 (C25), Site 2 (C24), Site 3 and 4 (C11), Site 5 (C15), Site 6 (C10), Site 7 (C9), Site 8 and 11 (C6), Site 9 (C5) and Site 10 (C19). It was also recommended that the assemblages and ecofacts from the areas not investigated further were analysed as part of the post-excavation process to put the findings into context within the road scheme and the wider local, regional and national framework of archaeological sites.

Advance and Construction Phase Investigations

10.1 During the construction phase an additional 29 sites were excavated, all of which were associated with or in proximity to the areas of archaeological significance established during the advance works (Sites 1-11). The 29 construction phase site investigations will be grouped with the 11 advance works sites into ten site names (Table 3) (Figure 6), this will group the investigations by type, period and location for ease of reference and discussion.

Table 3: Site names with relevant investigation areas and indicative period

Site Name	Sites of investigation (advance works = adv; extension = ext)	Period
West Challoch	Site 7 (adv)	Mesolithic
	Site 19	
	Site 19ext	
	Site 19 Grid	
	C12	
Droughduil Holdings	Site C20	Mesolithic to Iron Age
	SM A (adv)	
	SM B (adv)	
East Challoch	Site 5 (adv)	Mesolithic to Iron Age
	Site 17	
	Site 16	
	Site 16ext	
	Site 21	
	Site 25	
Droughduil Bridge	Site 8 (adv)	Bronze Age/Iron Age
	Site 11 (adv)	
Whitecrook Bridge	Site 20	Neolithic/Bronze Age
Mid-Challoch	Site 24	Bronze Age
Boreland Cottage Lower	Site 1 (adv)	Neolithic/Bronze Age
	Site 1EXT	
	Site 3 (adv)	
	Site 4 (adv)	
	Site 13	
	Site 15	
	Site C18	

Site Name	Sites of investigation (advance works = adv; extension = ext)	Period
Boreland Cottage Upper	Site 10 (adv)	Mesolithic to Bronze Age
	Site 23	
	Site 23ext	
	Site 18	
	Site 2 A & B(adv)	
	Site 2 ext	
Drumflower	Site Area A	Mesolithic to Iron Age
	SAM C	
	Site 9 (adv)	
	Borrow 1	
	Borrow 1ext	
	Borrow 1b	
	Borrow 1b ext	
	Borrow 3	
Mains of Park	Site 12 (adv)	Mesolithic/Neolithic
Myrtle Cottage	Site 6A & B(adv)	Neolithic to Iron Age
	Site 22	

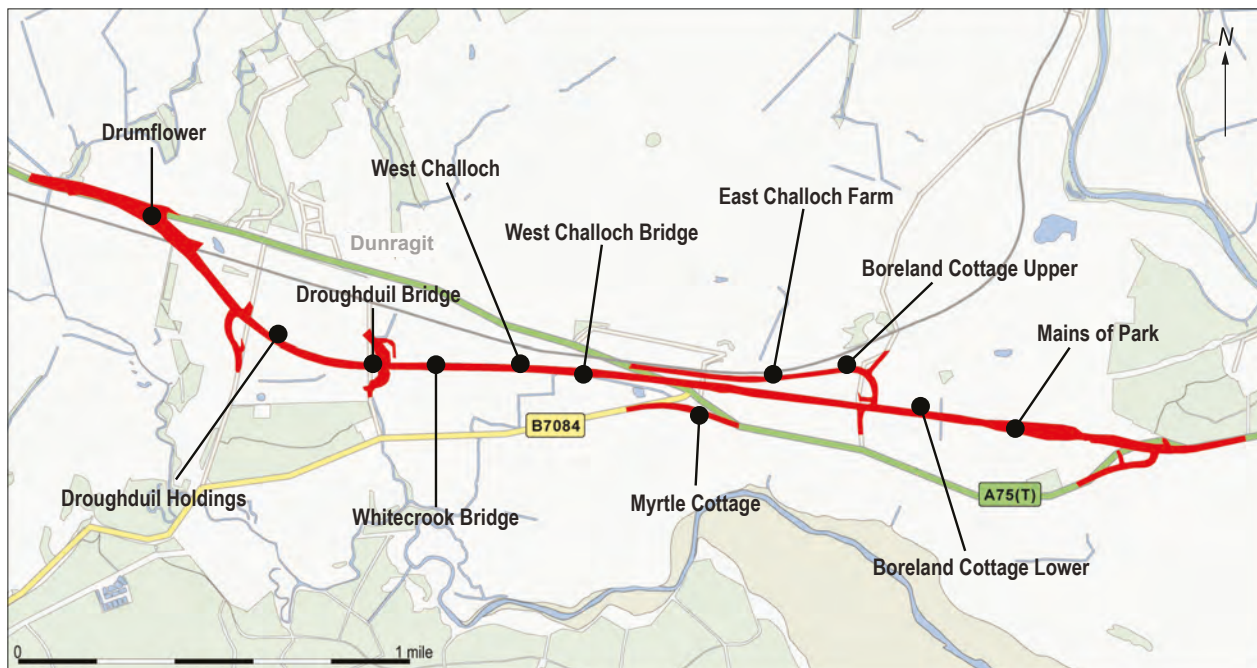


Figure 6: Road layout showing site name locations.

West Challoch

10.2 Site 7

10.2.1 This area was opened as a result of preliminary findings from the evaluation suggesting that significant sub-surface archaeological deposits relating to the Mesolithic period existed below the surface. Evidence of negative cut features was visible from the outset in the form of an arc of deep-set post-holes within the centre of the site. These post-holes were flanked by a number of deep pits all appearing to be contained within a series of ditch like features (Figure 7).

- 10.2.2 The shallow topsoil deposits within the area, varying in depth from 0.20 m at its shallowest to 0.40 m at its deepest yielded a vast quantity of unstratified lithic fragments, both worked and un-worked. This was the main indicator during the topsoil strip that prehistoric activity was prevalent within this area. The subsoil consisted of a gravel bank or ridge set within an undulating waterlogged clay subsoil surrounding it. The archaeological activity appeared to be concentrated on the small ridge. The site itself was located on the edge of a gently undulating former estuarine area with braided palaeo-channels enveloping the small ridge accommodating the archaeology. The ground-water level was close to the surface during much of the excavation and may be directly influenced by the tide.

Structural Components

- 10.2.3 The structural components took the form of a small arc of post-holes (Plate 19). The post-holes were initially quite subtle and washed out on the surface, possible due to periodic inundation. On excavation the posts were in fact quite substantial with some displaying evidence of multiple fills. The south east arc of the structure comprised of a small grouping of post-holes (020, 023, 026 and 027). They appeared to be arranged in two pairs 0.40 m in separation and each pair 0.80 m apart.

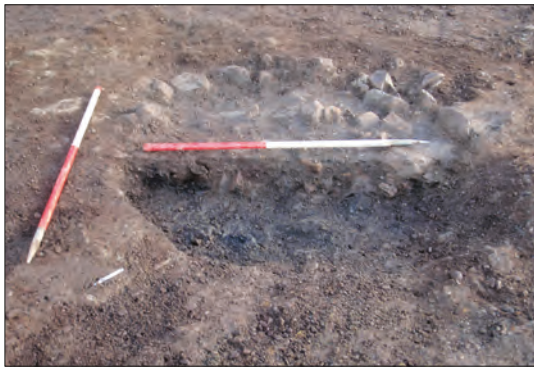


Plate 19: South arc of postholes- structure.



Plate 20: Full extent of structure during excavation.

- 10.2.4 The first pair furthest east comprised of post-holes (020 and 026). The first of these 026 was circular in shape 0.13 m in diameter with a maximum depth of 0.10 m. Its steep-sided cut contained a singular fill 012 moderate in compaction, black brown silty with a high organic content. The presence of charcoal was visible within the matrix. A single fragment of worked lithic core SF19 was recovered from the base of the feature. Adjacent, 0.4 m to the west was post-hole 020. This was sub-circular in form and larger in size at 0.35 m by 0.2 m with a maximum depth of 0.28 m. The steep sided cut contained a singular fill 011, which was a dark blue black silt with high concentrations of organic and charcoal residue. A total of 19 fragments of lithic and burnt lithic was recovered from this fill (SF 2,3,7,9,10,52 and 53) – all appeared to show signs of working.
- 10.2.5 The next post-hole within the arc, 023 was located 0.8 m to the west. It was again sub-circular in shape, with steep-sides and measured 0.4 m by 0.3 m with a maximum depth of 0.2 m. Its fill consisted of dark grey brown organic and charcoal-rich silt 010. A total of six pieces of worked lithic SF95 were located securely at the base of the fill. Directly adjacent to this, post-hole 021 was excavated. It was sub-circular in shape and it measured 0.35 m by 0.28 m with a maximum depth of 0.19 m. The steep-sided cut contained dark grey brown organic and charcoal-rich silt 008 from which eight lithic fragments were recovered (SF 4,8,11,12, 13 and 18).
- 10.2.6 Approximately 1 m north-west of the arc of post-holes, another pair of post-holes were excavated both with context numbers allocated during the evaluation phase (C9016 and C9017). They appeared to follow the same curvature as the previous features. The first of these C9016 was sub-circular in form measuring 0.32 m by 0.44 m with a maximum depth of 0.24 m. The singular fill C9003 was a dark brown grey charcoal rich silty gravel from which 15 fragments of lithic were recovered SF14 and 15. Directly adjacent to this post-hole continuing the arc, C9017 existed – this again having been visited during advanced works in the evaluation trenches. As with the other structural post-holes, it appeared sub-circular in form measuring 0.36 m in diameter with a maximum depth of 0.20 m. The singular fill C9018

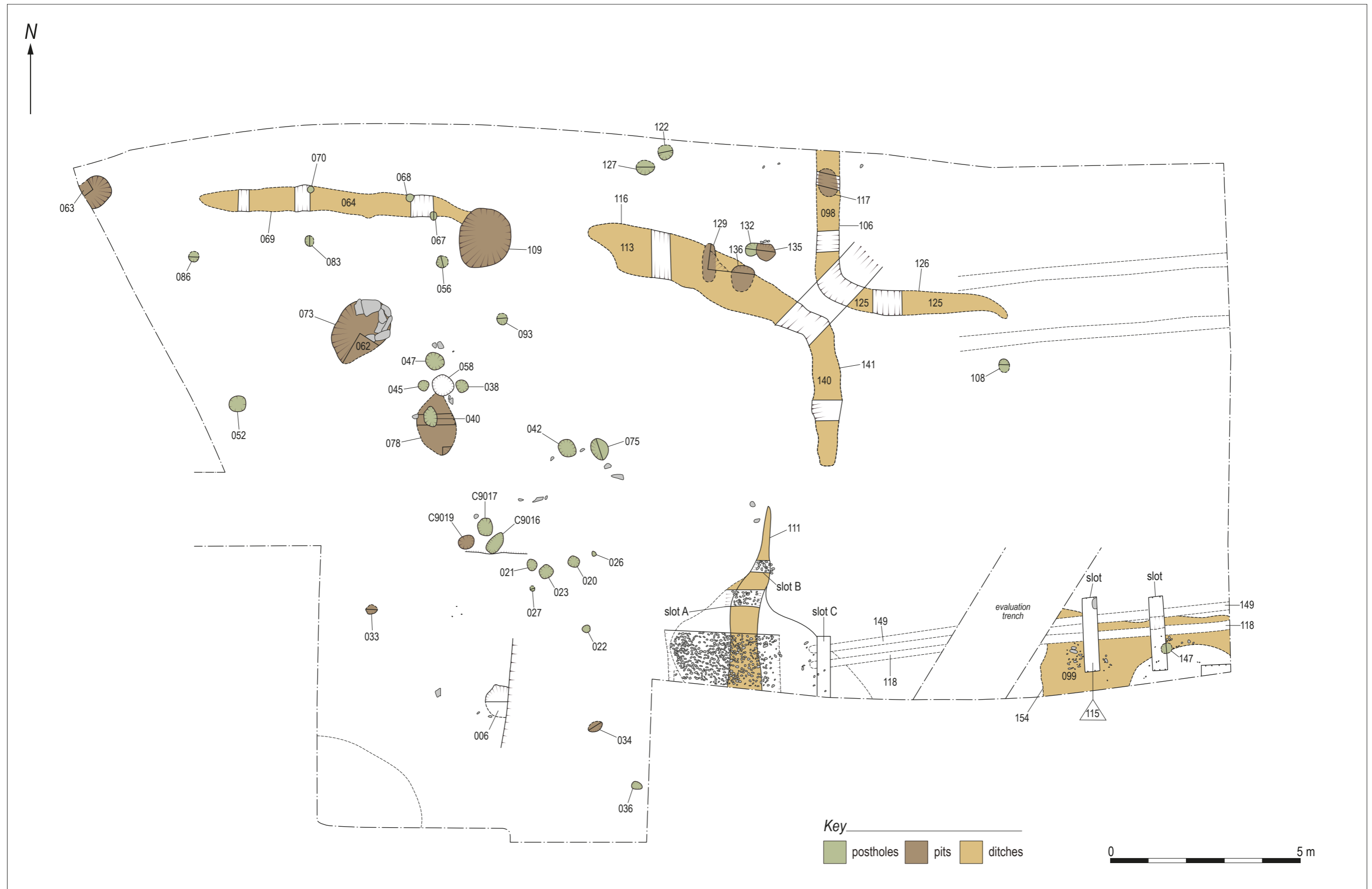


Figure 7: Post-excavation plan of Site 7.

contained within its steep-sided cut was dark grey brown silt with charcoal and high organic content. Unlike the prior post-holes, no material culture was recovered from the fill.

- 10.2.7 To the north of this arc of post-holes, possibly forming the other side of the structure, two singular post-holes survived (Plate 20). They appeared to follow the same curvature as previous post-holes and were also located 0.4 m apart not unlike the pairings of the southern arc of posts. Post-hole 042 was sub-circular in shape, measured 0.45 m by 0.36 m with a maximum depth of 0.2 m and contained two fills (030 and 041). The upper fill 030 was a silty grey brown ash 0.15 m thick from which 12 fragments of flint were recovered. The lower fill 041 was a silty brown loam, 0.05 m thick with a single fragment of flint recovered from the base. The other post 075 was also sub-circular in form measuring 0.42 m in diameter with a maximum depth of 0.22 m. The steep sided cut contained a singular dark brown/black silty charcoal rich fill 074.

Outlying Features - Hearth

- 10.2.8 A series of features lay directly 4 m to the north west of the structure. The most substantial of these being a large fire pit or hearth 049. Sub-circular in shape, it was up to 0.5 m in diameter with a maximum depth of 0.18 m. It contained two separate fills, upper 049 and lower 057. The lower fill 057 was brown black in colour, and contained burnt and heat affected stones. The charcoal content within this lower fill appeared significantly higher than the upper extending to a maximum depth of 0.12 m. The upper fill 049 was 60 mm thick, black brown in colour, with a large quantity of burnt and heat affected stones and a high concentration of charcoal.
- 10.2.9 Directly surrounding the hearth, a collection of post-holes was discovered. These features (047, 038, 040 and 045) were arranged around the hearth feature 049. The most northerly post 047 was circular in form measuring 0.4 m in diameter with a maximum depth of 0.24 m. It contained a pale grey silty singular fill 043. Directly to the south east of this a post-hole of similar form 038 was found abutting the hearth edge. This post-hole was sub-circular measuring 0.35 m in diameter with a maximum depth of 0.32 m. The singular fill 029 consisted of pale grey silty clay. Directly opposite this feature, on the other side of the hearth, was another sub-circular post-hole 045 with a diameter of 0.4 m and a maximum depth of 0.32 m; this feature appeared to be truncated by burrowing activity. The final post-hole 040 was directly south of the hearth 049, this post-hole was also sub-circular in shape measuring 0.45 m in diameter with a maximum depth of 0.2 m. The singular fill 039 was blackish-brown in colour with high charcoal content and charred wood pieces. A significant amount of flint was recovered from this fill – 33 fragments in total.

Outlying Features – Large Pits

- 10.2.10 A series of large pits were discovered to the north-west of the structure (078, 073 and 109). The most northerly of them 109 was oval in form measuring 1.7 m in diameter with a maximum depth of 0.55 m (Plate 21). The cut contained a number of fills (110, 103 and 137). The basal fill 110 was a very dark black silty organic and charcoal rich deposit which measured 0.4 m thick with angular stones throughout. Large fragments of charred wood were visible at the base of this waterlogged fill appearing to line the base of the cut 109. The upper fills (137 and 103) were both highly compact pale-yellow clay fills, set into and around a fill of angular stones to a depth of 0.13 m. A total of 25 fragments of flint were recovered from the upper fills.
- 10.2.11 At a distance of 3 m to the south-west of feature 109 another large pit 073 was excavated (Plate 22). This pit was oval in form measuring 1.9 m in diameter with a maximum depth of 0.5 m and contained multiple fills. The base of the cut of the feature on the north east side was lined with a series of large flat slabs or stones. The basal fill 072 consisted of a dark black fill, highly organic and charcoal rich with a maximum depth of 0.4 m. There were 14 fragments of lithic material recovered securely from the base of this context; this included SF 83 – a fragment of worked pitchstone. Above this was 071 mid brown silt measuring 0.15 m thick with charcoal present throughout. The upper fill 062 consisted of mid brown/grey sandy silt 0.15 m in depth and yielded ten fragments of lithic.



Plate 21: Pit 109 during excavation.

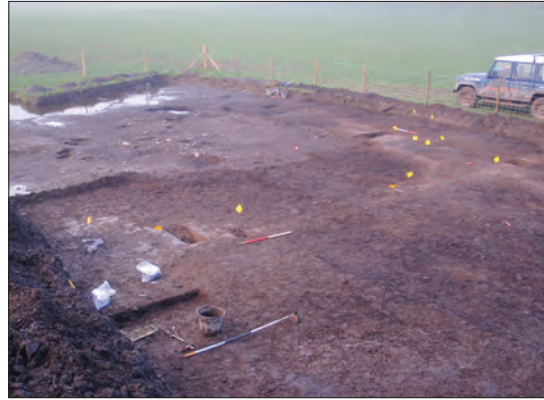


Plate 22: Pit 073 with stone lining in-situ.

10.2.12 The final pit 078 lay 2.5 m south-east from 073 to the north-west of the structure. This pit 078 appeared more complex in nature and pre-dated at least two features on the site as it was truncated by the hearth 049 and associated post-hole 040. The pit itself was sub-oval in form measuring 1.7 m in diameter with a maximum depth of 0.55 m. It contained a number of fills (160, 076, 157 and 159). The basal layer 160 consisted of angular rubble stones lining the pit. Overlying this was yellow brown silt 076 with a maximum thickness of 0.14 m. Above this lay red/brown silty gravel 157. It had inclusions of sub angular stones within its matrix and extended to 0.2 m in thickness. The upper fill 159 consisted of grey/brown silt, approximately 0.15 m in thickness. There was some charcoal flecking but no sign of material culture. The fill appeared to have been truncated by the base of the post-hole 040 (Plate 23). Unlike the previous pits investigated no evidence of material culture was recovered from any of the fills here.



Plate 23: Pit 078 mid excavation.



Plate 24: Wide shot of enclosing ditch around structure area.

Outlying features – Enclosing ditches/gullies (Plate 24)

10.2.13 On the periphery of the site, evidence of a series of enclosing ditches/gullies encircling the areas of structural activity and pits. These ditches appeared to be cut into the natural gravelly clay subsoil.

10.2.14 The section of gully circling the structure to the north east (116 = 141) appeared to contain a singular fill. This feature ranged in width across its length from 0.8 m to 1.2 m and in depth from 0.16 m to 0.28 m. The singular fill (140 = 113) was yellow brown silty clay with very few stone inclusions. The exposed gully measured up to 9.5 m in length within the investigated area and appeared to be cut by two pits (136 and 129). The first of these 136 was sub-circular in shape, measuring 0.63 m by 0.84 m with a maximum depth of 0.11 m. The gently sloping cut contained a singular fill of dark grey brown silty 134 with charcoal inclusions. Two fragments of flint were recovered from within this fill. Directly adjacent to this pit lay a sub-oval pit 129 measuring 1.05 m in length by 0.3 m in width with a maximum depth of 0.11 m. This contained a singular dark grey charcoal rich silty fill 128 which appeared to have a high organic content, from which one piece of worked flint was recovered.

- 10.2.15 Curving to the north west, another section of gully 069 was discovered ranging in width from 0.65 m to 0.5 m with a maximum depth of 0.15 m. It was filled by singular yellow brown silty clay 064. This portion of gully appeared to be cut by three post-holes. The post-holes numbered (067, 068 and 070) were situated along the edge of the gully feature. The first and most easterly of these 067 was circular in form and located on the interior side of the gully. It measured 0.14 m in diameter with a maximum depth of 90 mm with a singular light grey sandy fill 061 with charcoal flecking throughout the fill. On the opposite side of the gully lay a circular post-hole 068 with a diameter of 0.15 m and a maximum depth of 70 mm. It was filled by light grey silt 061 with charcoal flecking throughout. The final post-hole 070 was located directly to the west on the outer edge of the gully 069. This post-hole was circular in form measuring 0.18 m in diameter with a maximum depth of 40 mm, the fill consisted of grey silt 065.
- 10.2.16 Another gully appeared near the south of the site where it increased in depth down-slope. Its cut 111 had a maximum depth of 0.25 m and a width of 0.6 m (Plate 25). It had two separate fills (133 and 100) both light grey silt with 0.10 m and 0.12 m in thickness respectively. During excavation of a series of slots, two fragments of lithic were recovered from the upper fill of gully 100.
- 10.2.17 A separate gully (106=126) was recorded to the north-east of the site with a similar curvature to the gullies discussed previously. Approximately 8 m was exposed in length with a width of 0.6 m and a maximum depth of 0.23 m. The fill consisted of (098=125) light brown yellow sandy silt with frequent stone inclusions. No material culture was recovered from any of the slots. At the northern end of the gully, a sub-circular pit 117 was excavated cutting the centre of the gully. This pit measured 0.46 m in diameter with a maximum depth of 0.11 m. The singular dark grey/black charcoal rich fill 114 yielded two fragments of worked lithic.
- 10.2.18 There was evidence for another gully feature 147 in the far south east corner of the excavation area. It appeared badly truncated by a series of two field drains running across site east/west. Due to its proximity to the edge of excavation its full extent could not be truly ascertained within the investigation area. The gully fill 099 consisted of grey silty clay up to 0.16 m thick. Within this context, a perforated stone adze was recovered SF115 (Plate 26). Approximately 1.8 m to the east of the find spot, a small post-hole was cutting 099. The post-hole 147 appeared circular in shape with dimensions of 0.16 m by 0.15 m with a maximum depth of 90 mm. Its singular fill 146 consisted of dark grey/black silt with a high charcoal content. No material culture was recovered from the fill.



Plate 25: Detail of enclosing ditch at cut 111.



Plate 26: Shot of stone adze SF 115.

Outlying features – Pits (034, 033, C9019, 063 and 135)

- 10.2.19 Throughout the rest of the site a series of pits of varying sizes were visible, some containing lithic and others appearing relatively sterile. The pits did not appear to be of the same size

and scale as the central pits. At the south end of the site, circa 4 m from the south arc of the Mesolithic house structure, were pits (034 and 033). The first of these pits 034, was circular in form measuring 0.35 m in diameter with a maximum depth of 0.16 m and containing a singular fill 014 of coarse silty dark brown gravel. To the north-west lay another pit 033 which was circular in form with a diameter of 0.22 m and a maximum depth of 0.18m. This pit was filled by 019 grey silty sand with coarse gravel inclusions. No material culture was recovered from either of these features.

- 10.2.20 A larger pit was excavated close to the south-west arc of post-holes of the Mesolithic structure. This pit was excavated during the evaluation phase of work and allocated the context number C9019. It appeared sub-circular in form measuring 0.55 m in diameter with a maximum depth of 0.1 m and gently sloping sides. The fill C9020 consisted of dark grey brown silty fill.
- 10.2.21 At the north-west corner of the excavation area a pit 063 appeared to extend below the baulk. The pit measured 0.8 m across with a maximum depth of 0.28 m. The fill consisted of grey silt 059 similar to that seen in the gullies surrounding the site.
- 10.2.22 In the centre of the site, north of the enclosing gully (116 / 141), a small pit 135 was excavated. It appeared to relate to the adjacent similar pits (129 and 136), although did not appear to be cutting the gully, it did truncate a small post-hole 132. The pit was sub-circular in shape measuring 0.4 m in diameter with a maximum depth of 0.2 m. It contained a singular fill 130 of dark grey black charcoal rich silt from which a single fragment of lithic was recovered.

Outlying features – Post-holes

- 10.2.23 To the north-east of the hearth feature 049, an arc of small post-holes was excavated. This appeared to be running in a long arc from the north-west to the south-east relatively equally spaced at 1.8 m to 1.6 m in distance. The first post 086 was circular on plan measuring 0.16 m in diameter, and containing a light grey brown silty fill 084. Situated 1.8 m to the east of this was another post-hole 083, again circular in shape measuring 0.2 m in diameter with a maximum depth of 80 mm. The fill consisted of light grey silt 082. Situated 1.8 m beyond this to the south-east another post-hole 056 was excavated. This measured 0.3 m in diameter with a maximum depth of 0.13 m with a grey silty fill 053. The final post-hole in this wide arc was a circular post-hole 093, located 1.6 m south-east from the previous. This feature measured 0.2 m in diameter with a maximum depth of 0.15 m and contained a grey silty fill 087. No material culture was recovered from any of the post-holes within this arc.
- 10.2.24 An isolated more substantial post-hole 052 was located on the western periphery of the excavation. Circular in shape with a diameter of 0.45 m and a maximum depth of 0.22 m, it contained two fills. The basal fill 050 was a dark brown silt with some charcoal inclusions. The maximum thickness of this fill was 80 mm with a single fragment of lithic recovered from the base. The upper fill 046, was a light grey silty clay with a maximum depth of 0.14 m from which 15 fragments of flint were recovered.
- 10.2.25 On the northern periphery of the site a pair of post-holes (122 and 127) were excavated approximately 2 m north of the gully 116. The most northerly of these 122 was circular in form measuring 0.3 m in diameter with a maximum depth of 0.13 m. The fill consisted of light brown silt 121 with very occasional charcoal flecking. The second post-hole 127 lay 0.6 m to the south-west and was circular in form with a diameter of 0.45 m and a maximum depth of 0.12 m. The fill consisted of grey silt 120 with only slight traces of charcoal throughout the fill. To the south east of this post-hole another feature 132 was excavated. This post-hole appeared to be partly truncated by a small pit 135. The post-hole measured 0.35 m in diameter with a maximum depth of 0.15m. It contained a singular grey silty fill 131, only slight traces of charcoal were visible.
- 10.2.26 At the eastern end of the site, a singular post-hole 108 was excavated. It lay between the area where gullies (126 and 141) diverged from each other. Circular in shape, its dimensions were 0.3 m in diameter with a maximum depth of 0.09 m. The feature contained a singular

fill 104 with only slight traces of charcoal present. The final post-hole 036 lay to the south periphery of the site. The cut sub-circular in shape had a diameter of 0.15 m to 0.18 m with a maximum depth of 0.17 m. It contained a singular dark brown charcoal rich fill 014.

10.3 Site 19

10.3.1 This area was opened as a result of preliminary findings from the evaluation and advance works suggesting that significant sub-surface archaeological deposits relating to Mesolithic activity survived. The site was an extension to an area of archaeology already known and excavated in entirety during the previous phase of work. The site was situated on a shallow gravel ridge located in a low lying tidal flood plane area. Previous excavations on Site 7 had uncovered evidence of possible structural remains, large pits and possible ditch/ gully features.

10.3.2 The site itself was excavated in two phases due to construction restraints. The southern half of the site (Site 19) (Figure 8) and the northern portion of the site (Site 19ext).

Enclosing ditch and features - eastern

10.3.3 To the eastern extent of the site a small number of features were excavated that appeared segmented and possibly truncated, features (065, 066, 067, 068, 070) (Plate 27).. These features appeared to consist of shallow deposits of light grey silt deposited in undulations on the subsoil surface. They measured between 70 mm and 100 mm thick. A quantity of charcoal was visible within the fills of these features. A large number of un-stratified lithics, 982 fragments in total, were recovered during the initial cleaning. A portion of the lithic recovered in this area displayed signs of elaborate working (Plate 28).



Plate 27: Detail of East end of site 19 under excavation.



Plate 28: Detail of SF01, showing worked face.

10.3.4 These shallow features appeared to be contained within the constraints of a broad shallow curvilinear feature (091 and 103). The curvilinear feature or ditch appeared relatively shallow in nature with an undulating base between 0.17 m and 0.20 m in depth (Plate 29). It varied in width across its length from 1.2 m to 0.6 m. The ditch extended outwith the excavation area to the south. The ditches shallow cut contained a singular light grey sandy silt with frequent charcoal inclusions (051 and 069). The ditch appeared to be truncated in places surviving up to circa 18 m in length within the area of investigation, curving from the south towards the north-west. No material culture was recovered from any of the fill across the length of the feature.

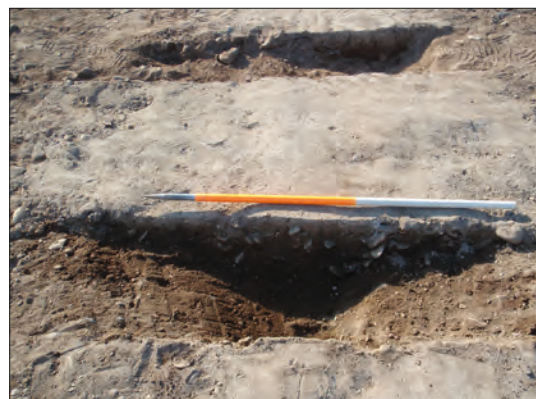


Plate 29: Detail of slots through enclosing ditch feature.

Enclosing ditch and features - central

- 10.3.5 Further west on the site a similar ditch feature was recorded. It was found to be truncated and ephemeral in some areas but could be traced intermittently for up to circa 18 m across the site and leading beyond to the south. The most easterly portion of this shallow ditch 119 formed a gradual arc encircling a small concentration of pits and post-holes. The ditch dimensions varied with a maximum depth of 0.20 m and an average width of 1.8 m along its length. The southern portion of the ditch contained a singular fill 030 consisting of yellow grey silty clay with charcoal inclusions throughout. Three fragments of flint were recovered from the base of the fill, (SF50 and SF53). Further north the ditch increased in depth and displayed two separate fills (115 and 118). The basal fill 118 was mid-grey brown silty sand with charcoal inclusions. The upper fill 115 was a mid grey silty sand with charcoal flecking throughout. No lithic material was recovered from this portion of the ditch. Continuing north the ditch was filled by 033 brown/grey silty sand with some charcoal inclusions present. This measured up to 0.11 m thick and four pieces of flint were recovered (SF 52). The last portion of this ditch 122 was filled by 037 light brown/yellow silty deposit measuring up to 0.22 m thick; one piece of flint (SF66) was recovered from this fill.
- 10.3.6 The western return of the ditch was partially truncated in two distinct areas, (130 and 149). To the north 130 extended for up to 2.3 m within the area. The fill consisted of light grey silty sand 040 measuring up to 0.16 m thick with some charcoal present. Directly south of this another portion of ditch 149 was investigated. This section of the ditch measured up to 4 m in length extending outwith the excavation area to the south with a maximum depth of 0.20 m and a maximum width of up to 1 m. Its fill consisted of light brown/grey silt 143. One small post-hole 121 truncated the intermittent ditch.

Features within central ditch

- 10.3.7 A substantial number of features were encompassed by the central ditch. These consisted of a series of post-holes and some larger pit features forming a tentative arc.
- 10.3.8 Two post-holes (121 and 138) lay furthest north in the investigation area. The first of these 121 was sub-circular in shape measuring 0.40 m in diameter with a maximum depth of 0.22 m. The fill consisted of dark brown/grey silty clay 036 with small charcoal flecks. The post-hole itself was cut into the edge of the enclosing intermittent ditch feature 122. One metre to the east, the second of these post-holes 138 was excavated. It was again sub-circular in form measuring 0.34 m by 0.53 m with a maximum depth of 0.24 m. The vertical edges of the cut contained a singular mid brown/grey silty fill 136 with charcoal flecking, one piece of flint (SF64) was recovered during investigations.
- 10.3.9 Continuing the arc, to the south-west, three post-holes (127, 147 and 150) were investigated. These sub-circular post-holes lay between 0.60 m and 0.70 m apart. The northern post-hole 127 had a diameter of 0.35 m and a maximum depth of 0.32 m. It contained two distinct fills; dark grey silty clay 128 up to 0.16 m thick overlain by mid-grey silty clay 072 with charcoal inclusions and also measuring up to 0.16 m thick. The next of these three post-holes 147 lay directly south-west of the first. It measured 0.35 m in diameter and 0.23 m deep. The fill consisted of light grey silty clay 145, one piece of flint was recovered from it. The third post-hole lay directly to the west of the previous and measured 0.2 m in diameter and up to 0.29 m deep. This was filled by dark brown silty clay 142 with very occasional charcoal flecks present.
- 10.3.10 South of the group of postholes, another post-hole 116 was recorded within the possible arc. This circular post-hole measured 0.45 m in diameter and up to 0.22 m deep. It had two distinct fills. The basal fill was charcoal rich dark grey sand with large fragments of charcoal throughout. A small piece of flint (SF55) and a fragment of bone (SF56) were recovered from the base. The upper fill 035 was mid grey silt with frequent charcoal inclusions throughout. A single piece of flint was also recovered from this upper fill.
- 10.3.11 In the south of the site two possible post-holes (175 and 180) were investigated at the edge of the excavation. The most northerly of these 175 was relatively ephemeral in nature

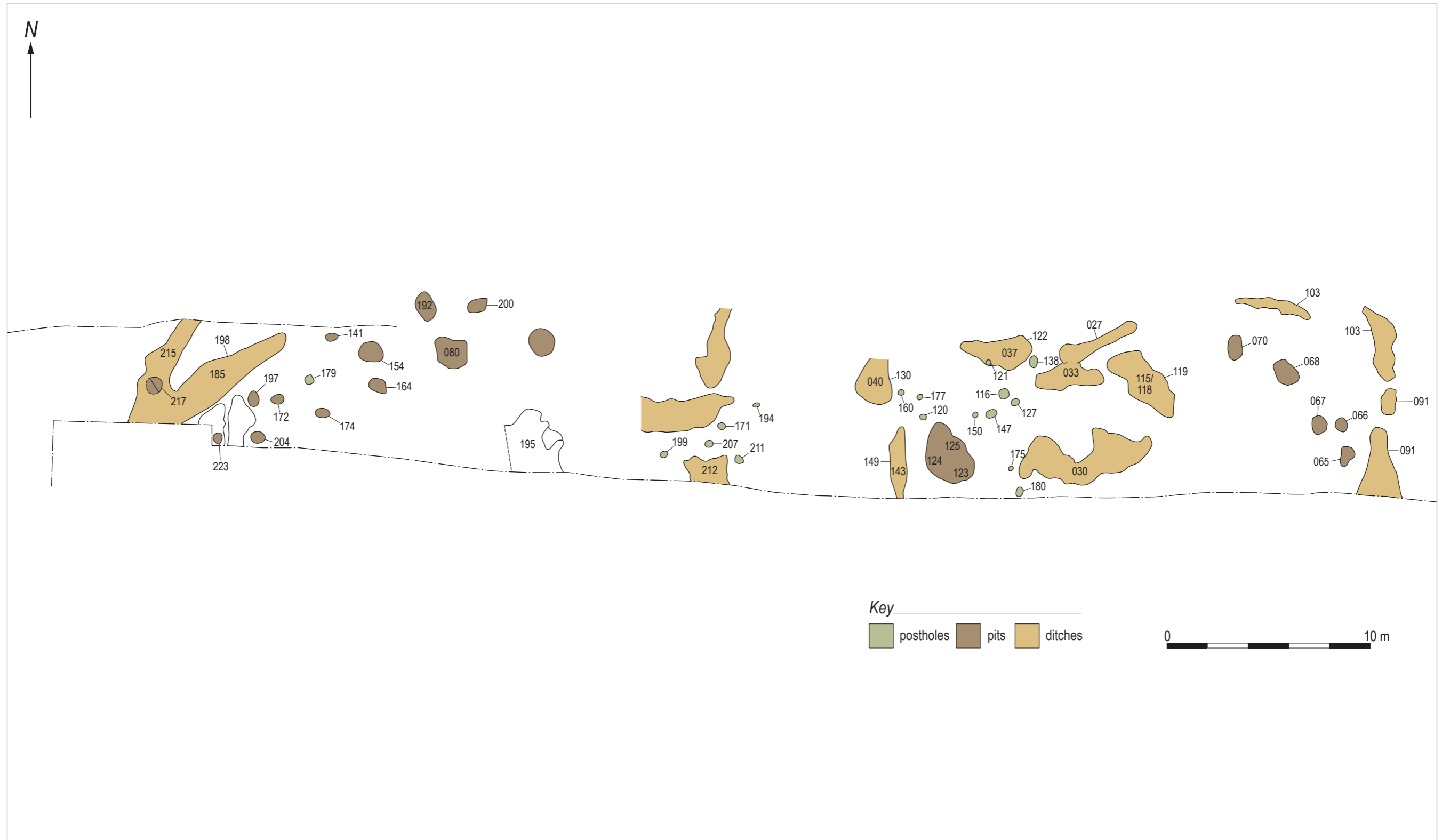


Figure 8: Post-excavation plan of Site 19.

measuring 0.20 m in diameter with a maximum depth of 0.10 m. The fill 155 contained only slight traces of charcoal. The second of the two features, 180 was excavated 1.6 m to the south on the edge of the excavation area. This circular feature measured 0.45 m in diameter with a maximum depth of 0.10 m. The grey silt fill 167 had very occasional charcoal flecks present.

10.3.12 Located to the immediate south of the post-hole arc, a large spread was investigated. This feature contained three distinct deposits with overall dimensions of the spread extending to 2.30 m by 0.75 m. The basal fill 123 consisted of mid-grey sandy silt with very occasional charcoal inclusions and measured up to 70 mm thick. A single fragment of flint SF58 was recovered from this basal fill. Overlying this the two additional deposits (124 and 125) consisted of mid-white and dark brown silty clay respectively, with only slight charcoal inclusions visible in each. These upper fills ranged in thickness from 60 mm to 80 mm, one piece of flint was recovered from each deposit (SF 57 (124) and SF 59 (125)).

10.3.13 Within the western periphery of the enclosing ditch another small concentration of post-holes was excavated. Three of the post-holes (120, 160 and 177) formed another small arc. The most northerly post-hole 160 was sub-circular with a diameter of 0.38 m and a maximum depth of 0.23 m. Its near vertical sides contained a number of fills (168, 169 and 170) all medium dark brown silty fills with charcoal flecking throughout. One metre to the south-east, post-hole 177 was also sub-circular with a diameter of 0.30 m and a maximum depth of 0.11 m. It contained grey brown silty fill 158 with charcoal flecking throughout. The final post-hole in the arc was feature 120. This appeared smaller in relation to the previous post-holes and was circular in plan with a diameter of 0.14 m. The cut extended to a depth of 0.21 m and contained a relatively sterile silty fill 038.

10.3.14 A similar group of features was excavated circa 12 m to the west of the previous concentration. Here there were a series of four small post-holes (Plate 30) and two ditch features. The post-holes (171, 194, 199 and 211) did not have an apparent structural layout but appeared to respect the ditch feature, 041.



Plate 30 : Section through post-hole 171.

10.3.15 The most northerly feature 194 appeared circular in shape with a diameter of 0.25 m and a maximum depth of 0.11 m. It contained mid grey silty fill 045 in which only a small portion of charcoal was visible. At a distance of 2 m to the south-west post-hole 171 was excavated. This was circular in form with diameter 0.40 m with a maximum depth of 0.19 m. This steep-sided cut contained mid grey silty fill 044 containing a series of stones throughout which may be packing stones. A small percentage of charcoal was also visible throughout the fill. To the south-west another small circular post-hole 207 was recorded. It measured 0.45 m in diameter with a maximum depth of 0.40 m. This was filled by light grey brown silty fill 043 with charcoal throughout the fill; 18 fragments of flint were also recovered from this post-hole. To the south-east post-hole 211 was excavated, again circular in form with a diameter of 0.40 m and a maximum depth of 0.17 m. It contained a dark brown fill 209 with a high charcoal and organic content. A single fragment of flint core SF117 was recovered from the base of this feature. The final post-hole 199 in this area was located to the west and was sub-circular in form with dimensions of 0.40 m by 0.25 m on plan and a maximum depth of 0.37 m. Its dark brown silty fill 148 had concentrations of charcoal present throughout. A single flint core fragment SF43 was recovered from this fill.

10.3.16 Adjacent to this series of post-holes, two parts of a large ditch feature 181 was uncovered. This ditch measured 11 m by 2 m on plan and up to 0.17 m deep, extending outwith the excavation area. A series of slots were excavated across the ditch to reveal fill 041 of light grey silty clay with charcoal inclusions throughout. A total of 337 pieces of flint were recovered during the investigations.

10.3.17 To the south of the post-hole and ditch features and extending parallel to the edge of the excavation area, a further spread of material was investigated. Due to the limits of the excavation area, only a small portion of the feature was visible so the full extent could not be ascertained. The fill consisted of light brown silt 212 with a maximum thickness of 80 mm. Charcoal flecking was visible throughout the deposit with a significant amount of flint being recovered, 81 fragments in total.

Features west end of site- Pit features east of grid

10.3.18 A continuation of features was noted west of the central enclosing ditch area. It comprised of a series of pits, spreads and deposits. One of the larger more substantial pits, 183 lay on the edge of a natural dip. It measured 1.2 m in diameter and was sub-circular in shape (Plate 31). At its maximum depth it measured 0.45 m. It contained two separate fills (045 and 186). The lower fill, 047 was brown black sandy silt with an extremely high concentration of charcoal visible throughout. It extended for a depth of 0.45 m and two fragments of worked lithic were recovered from the base of the feature. The upper fill, 186 consisted of a small irregular lens of grey silty sand, 0.12 m at its thickest point. It appeared to be an episode of natural backfilling or silting.



Plate 31: Pit 183 during excavations.

10.3.19 To the north-east of this pit, a similar feature was excavated. Pit 200 appeared oval in shape with dimensions of 0.76 m by 0.73 m and a maximum depth of 0.35 m. The almost vertical sides contained a series of complex fills (082, 201, 202 and 203). The lower fill 203 consisted of mid-grey silt with charcoal flecks measuring up to 60 mm thick. Directly above this was 202 grey brown silty fill with charcoal inclusions. From this fill eight fragments of lithic were recovered. Directly above this lay an extremely charcoal-rich deposit 201 measuring up to 30 mm thick. Two fragments of flint were recovered from the uppermost fill 082. This pit was truncated on its western edge by a modern field drain.

10.3.20 Located 20 m further west, separated from the other archaeology by a natural gully or palaeochannel, were a further two isolated pits and three spreads. The pits 154 and 164 were both sub-circular in shape with multiple fills. The most northerly of the two 154 measured 0.98 m in diameter with a maximum depth of 0.20 m. Its shallow sloping sides contained two distinct fills; the lower fill 153 was compact dark grey brown silt with moderate charcoal inclusions while upper fill 023 was light grey brown in colour with only slight evidence of charcoal throughout. Located 1.5 m south of the first lay a similar pit 164. It measured 0.55 m in diameter with a maximum depth of 0.11 m. Its lower fill 163 consisted of dark grey/brown silt with charcoal inclusions. The upper fill 024 consisted of light grey silt with moderate flecking of charcoal. A single flint flake SF24 was recovered from this fill.

Deposits / Spreads east of grid

10.3.21 Directly to the south of the pit cut features, a large deposit/spread 195 was uncovered extending outwith the excavation area to the south. A series of slots were excavated through this deposit. The dimensions within the limits of excavation were 2.65 m by 0.90 m with a maximum depth of 0.10 m. The single fill 195 consisted of grey silty clay with few charcoal inclusions throughout. Two fragments of flint were recovered from this fill, SF99.

10.3.22 To the north west of this spread, two smaller features were noted (080 and 192). Both deposits measured up to 0.14 m deep and up to 1.2 m across. The grey silty fill in both cases only displayed slight traces of charcoal.

Pit cluster on grid periphery

10.3.23 The western periphery of the site was characterised by a series of post-hole and pit features. These lay immediately to the west of the previous pit clusters and were situated directly north of an expansive flint scatter. A singular circular post-hole 179 with diameter 0.38 m and a maximum depth of 0.18 m was uncovered. The fill consisted of light grey silt 020 with moderate charcoal inclusions throughout. Surrounding this post-hole were a number of pits (141, 174, 197, 204, 223). To the north-east lay the oval pit 141 measuring 0.75 m by 0.59 m with a maximum depth of 0.19 m. It contained two distinct fills (022 and 140). The lower fill 140 consisted of dark grey brown silt with moderate charcoal inclusions. The upper fill 022 was mid orange brown silt with charcoal inclusions. Six fragments of flint were recovered from this upper fill. To the south another pit 174 of similar dimensions was excavated. This sub-circular pit measured 0.92 m by 0.75 m and up to 0.22 m deep and contained a series of fills (021, 173 and 176). The lower fill 176 was mid dark grey brown silt with a maximum thickness of 70 mm. Above this lay 173 mid grey brown silt measuring up to 100 mm thick with moderate charcoal inclusions. The upper fill 021 consisted of light mid grey brown clay silt with slight charcoal inclusions throughout. A single fragment of flint SF74 was recovered from this upper layer. Directly to the west a series of four smaller pits were excavated (197, 204, 223 and 217) all sub-circular in shape with widths of up to 0.85 m in diameter. They all contained a similar light grey silty fill with some evidence of charcoal throughout. A single fragment of flint SF97 was recovered from pit 197. The second of the pits 204 measured 0.73 m by 0.68 m on plan and up to 0.23 m deep, its fill 015 consisted of light grey brown silty sand. The third pit 223 was situated on the periphery of the lithic grid, it was sub-circular in form measuring 0.54 m by 0.40 m with a maximum depth of 80 mm. It contained grey silty fill 222 with moderate charcoal content. The last of these four pits 217 truncated ditch 198. This pit measured 0.82 m in diameter and 0.25 m in depth and may be a hearth feature. The fill 216 consisted of very dark black charcoal-rich material containing flint and burnt stone.

Ditches and spreads on grid periphery

10.3.24 A number of small spreads appeared on the edge of the lithic retrieval grid. The spreads (014, 016 and 227) all appeared to comprise of similar light grey silty fills with small charcoal and stone inclusions throughout. They extended into the grid area and measured up to 0.23 m in depth. Flint was recovered from fills 016 (SF141, 3 flakes) and 227 (SF143, 1 small piece of debitage).

10.3.25 To the western edge of the site another significant ditch feature was excavated. This ditch 198 appeared to extend outwith the area of excavation and consisted of a relatively shallow cut, 0.24 m in maximum depth. It varied in width across its length with a maximum width of 1.64 m. The ditch was filled by light grey silty fill (185=215) with charcoal flecking, 23 pieces of flint were recovered along its length.

10.4 Site 19 extension

10.4.1 Due to the program of construction works, a further area was stripped to the north of Site 19. This appeared to display the same characteristics as the previous site 19 investigations and may have incorporated part of the area already excavated in during the advance works (Site 7). From the outset, 98 unstratified pieces of flint were recovered across this area.

10.4.2 The west end of the site was characterised by a lithic scatter, however not in the same proportion as that observed directly to the south-east. A concentration of small post-hole and pit features was excavated in the north-west area of the site. Two post-holes (026 and 028) lay approximately 1 m apart. They were both sub-circular in form with dimensions of 0.19 m and 0.45 m respectively in diameter with maximum depths of 0.07 m and 0.13 m. They both contained light grey silty fills (011 and 010). Adjacent to these on either side were pits 022 and 024. These sub-circular pits measured 0.52 m and 0.62 m in diameter with depths of 0.15 m and 0.18 m respectively. They both contained light grey silty fill, from which no material culture was recovered.

10.4.3 Directly to the south of this concentration three small post-holes were excavated, (041 040 and 043). Forming a small arc, the most northerly post-hole 041 was circular in form measuring 0.16 m in diameter with a maximum depth of 80 mm. The steep-sided cut contained light brown sandy fill 042, which appeared relatively sterile. Directly to the south-west lay the second of these post-holes 040. This was circular in form measuring 0.20 m in diameter with a maximum depth of 0.11 m. Its brown silty fill appeared relatively sterile in nature. The third post-hole 043 was circular in form with a diameter of 0.40 m and a maximum depth of 0.10 m. This particular feature was investigated during the advance evaluation works. Adjacent to these post-holes was a small sub-oval burnt deposit 039 measuring 0.45 m in diameter with a maximum depth of 0.12 m. It contained black charcoal-rich silty fill 029 from which two fragments of flint SF7 were recovered.

10.5 **Site 19 grid- lithic retrieval** (Plate 32)



Plate 32 : Lithic retrieval grid - west end of site.

10.5.1 During the course of stripping, a large surface concentration of lithic material was observed on the western periphery of the excavation area. After discussions with lithic specialist Torben Ballin, and in consultation with Historic Scotland and the client a decision was taken to three dimensionally map the distribution of the lithic material within this area. The grid was divided into 0.50 m by 0.50 m squares across an overall area measuring 13 m by 10 m. Within each square, a series of 30 mm spits were excavated with lithic material sieved and recovered from 50% of the deposit while the remaining 50% was retained as a sample for further analysis during post-excitation.

10.5.2 A large quantity of lithic material was recovered across the grid with over 12,000 fragments retrieved during initial recovery and more were present within the samples. Patterns in the distribution were apparent with concentrations to the centre and south of the grid area. The distribution extended beyond the edge of these investigations to the south for an unknown distance.

10.6 **West Challoch Discussion**

10.6.1 The presence of Mesolithic activity in the area was already known from the initial evaluation and advance works during which a circular structure and associated large pits and ditch gully features were noted and excavated. The removal of topsoil to the south of this original area during the construction phase revealed a continuation of this Mesolithic occupation.

Site 7 Discussion

10.6.2 From the outset the presence of potential prehistoric activity was visible during the evaluation trenches. A total of 166 fragments of un-stratified lithic material was recovered from the topsoil, much of it showing signs of working.

10.6.3 The Mesolithic house structure consisted of a sub-circular arc of six post-holes on the south west, with the possible return on the north-east comprising of two post-holes. The area within the structure appeared to be circa 3 m in diameter creating an internal space

of approximately 7 m². The post-holes appeared to be set in four pairs. Each pair of posts appeared to be set approximately 0.4 m apart with each pair separated between 0.6 m and 0.8 m apart. The post-holes were substantial in depth and displayed no sign of inclination in section. No obvious internal features appeared within the structure. The structure did not appear to be set into a hollow. No obvious sign of an occupation layer survived within the interior of the structure however, a series of sampling grids were laid across the footprint. Two layers of multi-element samples were taken at 0.2 m intervals in the attempt to establish evidence of occupation and differential uses within the structure. No internal hearth was visible within the structure, with the only direct evidence of a hearth a few metres to the north-west. An accumulation of worked lithic and debitage was noted around the north side of the structure concentrated around two of the post-holes (042 and 075).

- 10.6.4** A gully or channel appeared to encircle the structure and other associated deposits. Profiles excavated through the gully appeared to suggest evidence of a deliberate attempt to redirect or drain water around and away from the location of the structure. Indirectly or otherwise these gullies also create small linked plots or enclosed areas. It was clear that due to the location of the site on the edge of a former estuary these measures may have been necessary to maintain a dry living and working area. During the excavation, the water table rose and fell with the tides each day around the edge of the small ridge accommodating the structure, providing a glimpse of how things may have been for those occupying this site in the Mesolithic period. There was evidence of further gully features on the east and north edges of the investigation area suggesting that there may be further structures or associated Mesolithic activity in this locale. One of the most striking features recovered from this context was SF 115 – a perforated stone adze (Plate 28).
- 10.6.5** The hearth or fire pit located to the north-east of the structure appeared to be the only direct evidence of one possibly relating to the structure. Due to the limited internal area of the structure the hearth may have been placed externally. Although there are a number of post-holes around and nearby the hearth suggesting other potential wind-breaks or shelters outwith the main structure.
- 10.6.6** A series of four preliminary dates were obtained for four separate deposits on Site 7 (Table 4). These preliminary dates place this structure in the Mesolithic period and more significantly identify this Mesolithic house structure as the earliest of its kind discovered in south-west Scotland to date.

Table 4: AMS dates for four deposits from Site 7

Lab No.	Material	BP date	D13C‰
GU-29796	Post-hole in house structure, hazel nut shell	8007 +/- 29	-26.8
GU-29799	Basal fill of stone-lined pit, hazel charcoal	7886 +/- 31	-26.0
GU-29798	Hearth layer (lower), hazel charcoal	7946 +/- 33	-27.5
GU-29797	Hearth layer (Upper), hazel nut shell	7918 +/- 34	-25.1

- 10.6.7** Each concentration of archaeology appeared to be situated on a slightly raised gravel subsoil bank, each shaped by a network of palaeo-channels, remnants of the former estuarine environment that once prevailed here. A series of core samples were taken across the site running east/west to identify the two natural gravel ridges on which the archaeology was concentrated within this low lying former estuarine area.
- 10.6.8** Each area showed evidence of small ditches or gullies controlling water-flow, channelling it around the structures and pits. This is rare evidence of land management in the Mesolithic period in Scotland and beyond. The ditches although ephemeral in some places, indicate a conscious effort to maintain areas of occupation in an otherwise less hospitable inter-tidal estuarine environment. A quantity of flint artefacts and charcoal were found in the grey silty fills which had accumulated naturally during and probably for some time after their period of use. A number of features appeared to cut into the ditch features possibly indicating a repeated use of the site or area some time after the gullies were originally created.

- 10.6.9 There were indications of possible structural remains extending outwith the excavation area to the south along with an arc of post-holes associated with one of the curving gullies within the excavation area. This brings the total of potential house structures to three within this area including Site 7 and 19.
- 10.6.10 Evidence did exist of a series of fire pits or hearths, with two visible within the lithic retrieval area and one to the immediate west of the concentration of possible structural post-holes. One hearth feature was also noted during the Site 7 investigations.
- 10.6.11 To the south-west of the site, a large concentrated lithic spread was noted. After discussions, the decision to employ a grid system across the area was taken. Lithic was recovered in spits from each grid along with a sample to map the distribution of these finds three dimensionally. Due to the invasive nature of the recovery, a number of small burnt pits and a larger pit were excavated within the grid itself in advance of the lithic recovery process. Within one of the possible fire pits, a quantity of lithic was noted, along with a fragment of possible animal bone.
- 10.6.12 The features and deposits excavated across Site 19, Site 19 extension and Site 19 grid contained significant quantities of lithic material with a total of over 13,500 pieces recovered not including the quantities remaining in the sampled material from the grid and the material recovered from Site 7.

Droughduil Holdings

Note: See paragraphs 7.1.27 to 7.1.33 for SAM A and SAM B excavations (Figures 4 and 5)

10.7 Site C20

- 10.7.1 Site C20 stretched from SAM A in the north-west corner to 40 m beyond SAM B in the south-east (Figure 9). The ground was predominantly flat in topography although sloped gently downwards towards the south-east. The topsoil was removed to reveal a reddish brown sand gravel subsoil along this part of the road strip, with the exception of the south-eastern area which was wetter underfoot and comprised a firm grey/white silt subsoil interspersed with gravels. Very shallow peat deposits were also present within this area.

West end (Grid A)

- 10.7.2 Twenty five features were excavated in this area and comprised of pits and post-holes. The pits (030, 034, 036, 043, 045, 049, 059, 073, 076, 083, 087 and 089) were generally sub-oval in shape with measurements ranging between 0.60 m and 1.73 m across, although one pit (073) measured in excess of 2 m across. Depths were relatively shallow ranging between 70 mm and 280 mm with most fills comprising a beige/brown silty sand with very occasional charcoal fragments. However, pit 031 produced a large quantity of charcoal. Only three pits contained material culture in the form of flint fragments in pit 034 (SF10), a single flint fragment in 083 (SF17) and two lithic fragments in pit 049 (SF15 and SF16).
- 10.7.3 The post-holes (032, 040, 052, 061, 062, 063, 065, 066, 071, 080, 085 and 090) were spread throughout this area. Although a concentration of eight post-holes (052, 061, 062, 063, 065, 066, 071 and 085) were located in the north-west no structure was discernible from their placement. Most were very shallow with a maximum depth of 250 mm. The only material culture recovered was a fragment of flint from one posthole 071 (SF13) although a further burnt flint fragment (SF11) was recovered from the surface of 038, a feature interpreted as an animal burrow.

Central area (Grid B)

- 10.7.4 In this area 18 features were located and these included 14 pits (011, 013, 014, 017, 019, 023, 028, 119, 123, 137, 141, 154, 155 and 168), three post-holes (015, 021 and 135) and one spread/deposit (130). The pits were oval in shape and ranged in size between 0.50 m –

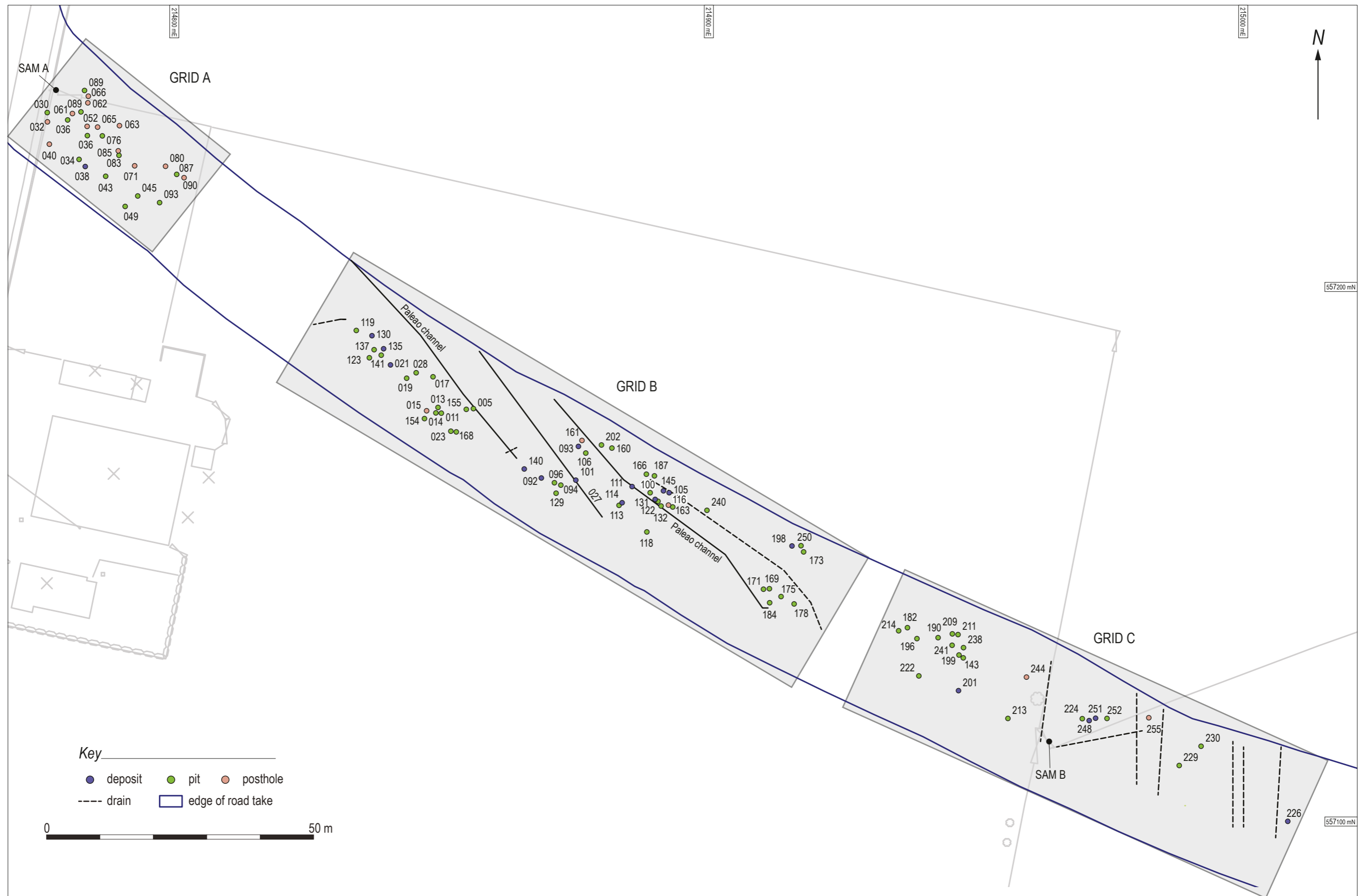


Figure 9: Survey plan of Site C20.

- 1.68 m in length and were between 0.15 m and 0.33 m in depth. Fills were similar as above with only one pit 119 containing a significant amount of charcoal and fire-cracked stone which could suggest that it contained the remains of possible hearth waste. Only one find, a possible whetstone (SF9), was located in pit 013.
- 10.7.5 Three post-holes were located and appeared to be positioned in a possible alignment although, with such a small group, it is difficult to infer with any certainty. All were shallow in depth suggesting that they had been truncated and no finds were recovered during excavation.
- 10.7.6 This area also contained small charcoal spread 130 and several linear features including 003 (and its re-cut 189), 007, 009, 125 146 and 148. The linear features were all interpreted as modern agricultural drainage although several of these features, 003 and 007, contained flint flakes (SF 12 and SF 26) and a corroded iron objects (SF 26 and SF 27) within their fills. The large boulder pit 005 was also found in this area although was interpreted as modern field clearance activity.
- 10.7.7 In the area defined by 130E to 170E, 26 features including 15 pits (094, 096, 100, 106, 113, 118, 122, 129, 132, 160, 163, 166, 187, 202, and 240), two possible very truncated postholes (116 and 161) and nine spreads/deposits (092, 093, 101, 105, 111, 114, 131 140, and 145) were encountered in this area. Two pits (100 and 187) were of particular interest as their fills contained a large amount of charcoal. Pit 187 contained a charcoal layer in situ at its base suggesting that it had either been used as a fire pit or contained the remains of discarded hearth waste. One fragment of prehistoric pottery was found during the cleaning of the upper levels of pit 187 and therefore may not be securely contexted.
- 10.7.8 The spreads generally comprised of beige/brown sandy silt and varied in size between 0.35 and 2 m in length with depths ranging from 40 mm to 120 mm. Artefacts included three fragments of flint which were retrieved from spread 140 (SF 24 and SF 25) and one flake from spread 114 (SF 23). The pits appeared to be located within three distinct clusters although it was difficult to discern any apparent pattern or form.
- East End (Grid C)**
- 10.7.9 There were 22 pits excavated within this area and most were located in two distinct clusters. The smaller cluster contained seven pits which ranged in size from 0.40 to 0.60 m across with a depth ranging from 0.11 m to 0.26 m (169, 171, 173, 175, 178, 184 and 250). Fills comprised of beige/brown sandy silt with only a few pits containing observable botanical remains such as charcoal (178 and 184). Two of the pits contained finds which included six fragments of flint in pit 175 (SF35) and a fragment of possible burnt clay in pit 178 (SF 36). Pit 178 was of particular interest as it contained a large amount of charcoal which could suggest that it may have been filled with hearth waste.
- 10.7.10 The second cluster was located 20 m to the east and comprised eleven pits (182, 190, 196, 199, 209, 211, 214, 222, 213, 238, 241) which were of similar size to the first cluster although three pits were slightly larger at over 1.4 m across (196, 213 and 214). Finds were few with only one pit 211 containing two flint flakes (SF 44) and another pit 222 containing three fragments of flint (SF 45 and SF 46) and six sherds of prehistoric pottery (SF 51 - SF 56).
- 10.7.11 Further four pits were also located in more outlying positions (224, 229, 230 and 252), they had similar dimensions to those described previously, although their fills tended to be peatier in composition, probably reflecting the topographically lower and wetter ground conditions in this area. Only one find, a flint core SF49, was found in pit 229.
- 10.7.12 Two post/stake-holes 244 and 255 were also located within this area, although due to their isolated positions their function or connection to the other features is difficult to interpret. No finds were located within their fills and they remain undated.

10.7.13 Five deposits/spreads were also noted (198, 201, 226, 248 and 251). Spread 198 was positioned near to the pit cluster at 200E/210E and is probably a natural event and non-archaeological. The other four deposits/spreads are also probably natural in origin and represent the change in subsoil within this area which is wetter and lower lying with shallow peat spreads and more peaty topsoil. Two linear features (216 and 219) were also located in this area although were interpreted as probably modern agricultural in origin; a modern field drainage system end was also located in the eastern area of the C20 strip.

Site C20 Extension

10.7.14 A small group of eight features were located within the small extension area to the immediate south of site C20 (grid A). They consisted of pits/post-holes (019, 025, 032, 034, 035, 038, 039 and 040) and were similar in size and morphology to those features to the north. No finds were recovered from the fills although several lithic fragments were located on the surrounding subsoil surface during initial cleaning.

10.8 Droughduil Holdings Discussion

C20 and C20 extension

10.8.1 The archaeology in Site C20 and C20 extension is significant primarily because it is positioned along the southern limit of the Scheduled Monument of Dunragit enclosures and pit alignments. Although this present phase of work did not reveal any obvious structural patterns in the positioning of the archaeological features, apart from pit clusters, it has revealed that this is a landscape rich in prehistoric remains. However, many of the features such as the post-holes, were difficult to interpret due to their truncation by later agricultural activity, represented by the linear drainage features which transect much of the site. Finds were also few and few were recovered from features, as most represented by flint flakes and fragments were discovered unstratified. However, the similarity in morphology of many of the features would suggest that they are of prehistoric date. Since this area was gently sloping into a wetter and as a result peatier soil, the archaeology generally petered away.

SAM A

10.8.2 Although no complete structures could be positively identified as a result of the excavations here, there were at least three post-hole forming an alignment suggesting that they may form part of a bigger structure. This is to an extent an inevitable interpretation given the known complexity of the post-hole and pit alignments of the Dunragit complex of which this excavation area, through scheduling, is part. This excavation area, although on the periphery of the central complex of Dunragit, does lie between the Dunragit complex and the Droughduil Mound. As one pair of pit alignments in the Dunragit complex form an avenue leading towards this mound, the post-holes encountered in SAM A could well be part of this landscape feature. For this reason, a date from at least one of these post-holes would enable direct comparison with dates acquired from the Dunragit excavations, and indeed excavations on SAM B and the other sites investigated along the A75 Dunragit Bypass route.

SAM B

10.8.3 The existing plan of posthole locations transcribed from aerial photographs of Dunragit does not show any features within SAM B, although this may be due to the type of crop growing at the time the site was photographed. This lacuna makes the interpretation of the findings in SAM B more difficult as, almost without exception, the disparate post-holes cannot easily be identified as belonging to known alignments or groupings.

10.8.4 The linear arrangement of postholes 006, 010 and 012 is suggestive of a structure and the larger dimensions of 012 (0.57m x 0.55m x 0.27m deep) would generally be indicative of a terminal posthole. However, it would be unwise to extrapolate a structure from the excavation of only three postholes and, as no other features seem to relate to this alignment,

the identification must remain conjectural at this stage. A programme of radiocarbon dating with the aim of establishing a temporal relationship between these and other post-holes may help to identify the function(s) of these features.

- 10.8.5 In the absence of any identifiable relationships between them, the remaining postholes appear to be individual features. It is very likely that at least some of these are associated with the structures that comprise the Scheduled Monument and although the excavation has not been able to establish that this is the case, post-excavation work may reveal temporal and/or spatial links between these postholes and the identified structures in the Dunragit complex.
- 10.8.6 The archaeology in Site C20 and C20 extension is significant primarily because it is positioned along the southern limit of the Scheduled Monument of Dunragit complex enclosures and pit alignments. Although this present phase of work did not reveal any obvious structural patterns in the positioning of the archaeological features, apart from pit clusters, it has revealed that this is a landscape rich in prehistoric remains. However, many of the features such as the post-holes, were difficult to interpret due to their truncation by later agricultural activity, represented by the linear drainage features which transect much of the site.

East Challoch

10.9 Site 5 (Figure 10)

10.9.1 This site/area was opened as a result of preliminary findings from the evaluation suggesting that significant sub-surface archaeological deposits relating to late Neolithic/early Bronze Age remained undisturbed in this location.

10.9.2 In the north-west corner of the site a possible roughly rectangular structure composed of pits and postholes was identified orientated NW/SE. Some of these features were excavated during the evaluation phase. The north-west corner of the building was marked with three circular postholes measuring circa 0.3 m in diameter and between 0.09 m and 0.19 m deep. The rest of the features were composed of pits and/or postholes (See appendix for full description of cuts and fills). Two of the largest pits (157 and 175) presented evidence of in situ burning and were re-cut and reused probably for similar purposes at least once (Plate 33).



Plate 33: East facing section of pit 175, showing evidence of in-situ burning.



Plate 34: General shot of group of postholes cutting through spread 187.

10.9.3 Only one of these north-western features had potentially datable artefacts; two fragments of tapered smooth stones with evidence of pecking on their ends were retrieved from the upper fill of large pit 119 (SF 1).

10.9.4 At the centre of the site, a nineteenth century stone building was unearthed. North of this relatively modern structure, a group of ten postholes were identified. They formed an almost circular pattern and cut through a compacted cobble spread or surface 187 (Plate 34). Ranging from oval to circular in shape they ranged in size from 0.23 m by 0.12 m to 0.92 m

by 0.5 m and from 0.09 to 0.38 m in depth. Some of these postholes were stone lined: 133; 146 and 162 indicating a possible more substantial structural function. No datable finds were retrieved from any of these features.

- 10.9.5 More than 40 features, a large number of them post-holes, were clustered in the south-east corner of the site. A portion of these post-holes formed a possible circular pattern suggestive of a structure (Plate 35). Near the centre of this possible structure, a hearth 217 with a nearby pit or hearth 219 was identified. Several sub-circular post-holes were located internally while others were forming the exterior of the structure. A gap on the south east corner of this circle suggested a possible entrance. Charcoal-rich material was encountered in a number of the post-hole fills suggesting that they may have been burnt *in situ*.
- 10.9.6 Overlaying this structure was a layer of loose light brown orange sand silt deposit (169); this may be further remains of the *in situ* burning of the structure. Covering this deposit and situated in the western half of the structure was charcoal-rich black dark brown silt sand 024 with stone inclusions (same as 229; possibly 241) (Plate 36). Fully burnt bone SF 3, quartz pebbles (SF 5), marked stone (SF 6) and small fragment of prehistoric ceramic (SF 4) were found within this layer and cup marked stone SF 18 was retrieved from deposit 229. Two further deposits were identified overlaying it (168 and 205). Found immediately beneath the topsoil, 168 consisted of mid grey silt sand with occasional pebbles and may be the remains of a possible old ground surface. Deposit 205 on the other hand, consisted of cobbled surface composed of sub rounded pebbles set within dark grey sand silt matrix. A thin layer of dark black brown silt sand 207 with charcoal inclusions overlaid it. On top of this deposit sub-angular flat stones 206 were identified just beneath topsoil; this may be the remains of cairn material if this is a funerary structure suggested by the; assuming it is human, burnt bone.



Plate 35: General shot of possible cairn.



Plate 36: General shot of circular structure mid-ex.

10.10 Site 17

- 10.10.1 This area was opened as a result of preliminary findings from the evaluation suggesting that significant sub-surface archaeological deposits relating to possible prehistoric activity. It was located down slope from a known Bronze Age cremation cemetery. The site was characterised by two main features, a small cairn overlying a stone lined pit containing a 137-piece jet necklace to the eastern extent and a possible Neolithic structure to the western extent. A large number of shallow pits and single post-holes were also excavated across the investigation area.

Cairn / Stone lined pit

- 10.10.2 The initial oval cut 177 for this feature measured 1.31 m by 0.88 m with a maximum depth of 0.10 m (Figure 11). The basal fill consisted of firm dark brown black sandy silt 199 with occasional gravel and small stones. Above this was a series of flat stones 178 arranged in and around the bowl of the cut. The stones themselves ranged in size from 0.12 m by 0.09 m to 0.15 m by 0.13 m. Overlaying the stones deposit 062 was noted, which consisted of dark brown black sandy silt with occasional gravel and small stones (Plate 38). A total of 137 jet beads and spacers were recovered from this deposit (Plate 39), resting on the stone lining.

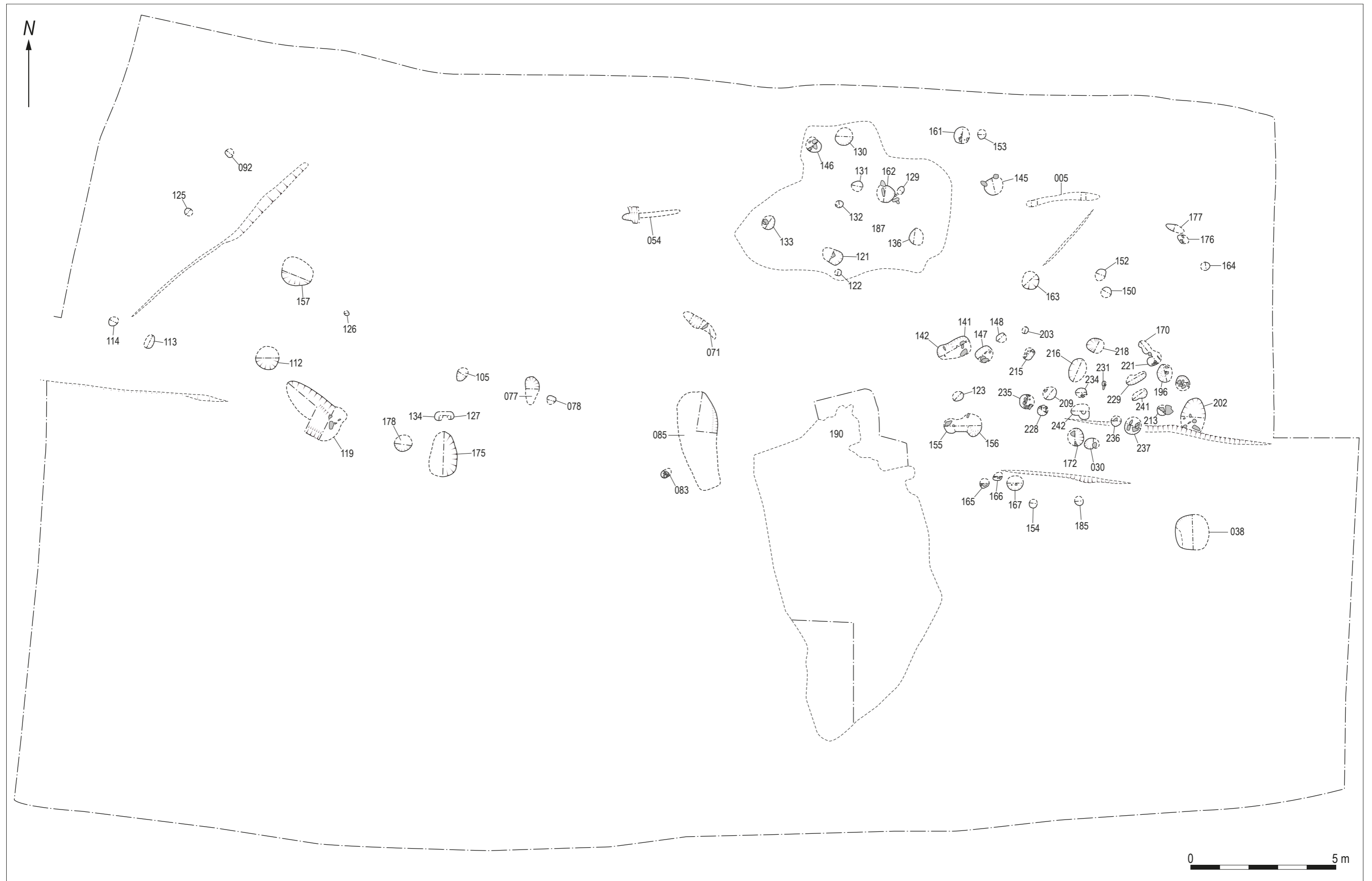


Figure 10: Post-excavation plan of Site 5.

This included four terminals, four spacers, one fastener, 128 beads and a single quartz bead. A flint knife (SF66) was also recovered adjacent to the necklace remains (Plate 40). Above pit 177, the cut or interface 105 for the construction of the overlying cairn was recorded, it measured 2.3 m by 2.38 m with a maximum depth of 0.2 m. There were a series of four mixed fills recorded across the base of this cut (053, 063, 074 and 080), each fill consisted of dark brown sandy silt containing frequent charcoal inclusions and with a general appearance of high organic content. Seven pieces of flint were recovered from these fills. The cairn material consisted of a sub-circular accumulation of angular and sub angular stones 009 (Plates 37 and 38) varying in size from 120 mm by 150 mm by 100 mm to 90 mm by 100 mm by 100 mm. These were arranged in two loose courses, possibly truncated by modern agricultural activity (Plate 41).

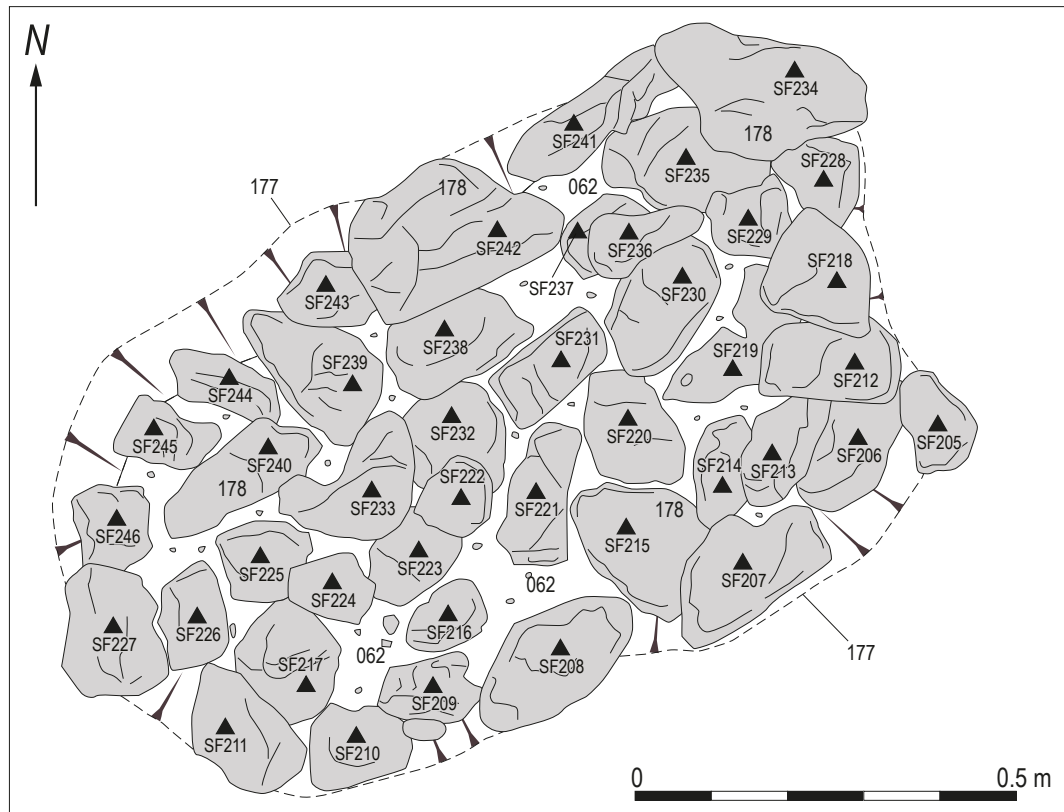


Figure 11: Plan of 177 with stone-lining in base.



Plate 37: Detail of stone lined 177 pit with jet necklace in situ.



Plate 38: Detail of cairn 105, 009 and underlying pit under excavation.



Plate 39: Detail of jet necklace in situ.



Plate 40: Detail of flint knife SF66.



Plate 41: Detail of Cairn 009 and pit cut 105.



Plate 42: Detail of food vessel SF41 recovered adjacent to cairn.

- 10.10.3 No evidence of human remains was recovered from any of the fills, but due to the nature of the material culture recovered, it is likely, that this may be a stone-lined burial pit. The human remains may not have survived due to soil conditions or it may be that the human remains were removed some time after the burial. For this reason, sampling was conducted across the base of the feature and below the stone lining to establish whether the sediment had a chemical signature consistent with what you would expect for decomposing remains being contained here.
- 10.10.4 Directly to the south-west of this pit, a smaller sub-circular feature was identified and excavated. This appeared to be a small satellite feature 050 in close proximity to the cairn. The deposit consisted of grey brown sandy silt with dimensions of 0.60 m by 0.50 m with a maximum thickness of 0.05m. A large fragment of decorated food vessel was recovered relatively intact (SF41) along with a small accumulation of burnt bone. A single large lithic blade was also recovered from this context.
- 10.10.5 The next closest feature was located approximately 18 m to the west, a small dark brown/black spread, 012. Its dimensions 0.80 m by 0.57 m with a maximum depth of 0.07m. It appeared to have a high concentration of charcoal within its fill but no evidence of material culture was recovered during excavation.
- 10.10.6 A series of rubble field drains ran north-south through the excavation area, cutting relatively close to the stone lined pit and its associated feature. Directly to the west of this rubble drain, a series of isolated features existed. Small pit 025 was sub-circular in form with dimensions of 0.70 m by 0.80 m and a maximum depth of 0.28 m. This pit contained two fills; the basal fill 030 and upper fill 021 were mid brown in colour with charcoal inclusions. A small fragment

of flint SF7 was recovered from the upper fill 021, possibly indicating a prehistoric date for this feature. Adjacent to this pit, a singular post-hole 047 was excavated with two fills (046, 049) and dimensions of 0.80 m by 0.72 m and a maximum depth of 0.50. Large packing stones were visible within the upper fill 021.

Structure

- 10.10.7 Located at the western end, a complex series of post-holes was excavated (Plate 43). The sub-rectangular structure measured 4 m in width extending outwith the excavation area to the south. The north-east end of the possible structure comprised of 15 separate post-holes, following a line or shallow arc. The post-holes appeared to vary in size from larger posts (091, 096, 064 114) with an average dimension of 0.8 m by 0.6 m to smaller post-holes (076, 092, 094, 098, 099, 109, 121, 123, 190, 193, 198) with an average diameter of 0.30 m. The post-holes were all filled by dark brown black deposits with relatively high charcoal inclusions. The depths of the post-holes averaged between 0.15 m and 0.36 m. No material culture was recovered from any of the post-holes.



Plate 43: Photograph of possible structure at west end of site.

- 10.10.8 The south-east and north-west sides of the potential structure displayed a series of relatively unevenly spaced post-holes. They were similar in size to the previous postholes ranging from 0.30 m and 0.6 m in diameter with average depths of 0.20 m. They all appeared steep sided with no apparent inclination. Each of these post-holes was filled by charcoal-rich brown/black silty sand. No material culture was recovered from any of these features. The features appeared to extend to the south beyond the excavation area. The interior space of the possible structure accommodated a number of post-holes, again relatively comparable in size to the outer structural posts. Post-holes (106, 145, 164, 166, 171, 179) all contained dark grey charcoal-rich fill with thickness ranging from 0.12 m to 0.25 m. The post-holes appear to extend in an arc parallel to the exterior edge of the structure.

Occupation layer / spread

- 10.10.9 Directly adjacent to the east of the structure a large occupation layer/spread was excavated comprising of two large charcoal and organic-rich deposits (085 and 156). A series of baulks were left during the excavation of this deposit revealing its extent in depth across the area. The larger portion of the deposit 085 consisted of dark grey/brown silty sandy clay with moderate gravel inclusions. This measured 4.82 m by 4.65 m with an undulating base and a maximum depth of 60 mm. This deposit contained 12 fragments of flint in total with a diagnostic example of a leaf-shaped Neolithic arrowhead (SF49) (Plate 44) recovered from the deposit.



Plate 44: Detail of SF49, neolithic flint arrowhead.

10.10.10 Adjacent to this deposit lay a similar large spread 156 of grey/brown silty sandy clay with frequent charcoal and stone inclusions. Its dimensions appeared to be smaller at 4.51 m by 1.96 m with a maximum depth across its base of 50 mm. No material culture was recovered from this deposit. A number of small pits were also excavated in this area of the site. These lay a metre west of the charcoal rich spread/occupation layers (085 and 156). One sub-oval pit 162 with dimensions of 1.98 m by 1.42 m and an overall depth of 0.24 m contained a dark brown silty sand fill 161. The eastern side of this pit truncated the occupation spread 085. A single fragment of flint SF62 was recovered from the pit. Directly south-east of this pit, a similar sized feature 073 existed. This pit measured 2.04 m by 0.98 m with an undulating depth of between 10 mm to 30 mm. It appeared very diffuse in nature with no definitive cut. This dark brown silty sand deposit contained charcoal inclusions along with five fragments of prehistoric ceramic SF21.

10.11 Site 16



Plate 45: Food vessel SF05 recovered from pit 023.



Plate 46: Food vessel prior to excavations. SF 05.



Plate 47: Detail of 31 piece Jet necklace in situ within burial pit 023.



Plate 48: Detail of stone lining within cut 023.

10.11.1 Located on the crest of a slope, the site comprised of a series of small pits and post-holes and a stone-lined pit (Figure 12). The stone lined pit 023 was located at the eastern extent of the site and appeared initially as the visible fragment of an impressed decorated food vessel. (Plate 45).

10.11.2 Due to the gravel subsoil and extremely dry conditions across site, initially no cut was visible for any feature containing the food vessel so the decision was taken to block lift it due to its deteriorating conditions. The vessel was recovered in its entirety SF05 (Plate 46). During the block lifting of the vessel a number of jet beads appeared visible below the vessel (Plate 47). Further excavations revealed a total of 31 jet beads comprising of two terminals, six spacers and 23 beads. The location of the beads appeared to be insitu resting on one of the flat stones making up the base of the burial pit (Plate 48). The pit itself contained three separate fills (013, 021 and 022) each of which appearing to be variations in redeposited natural subsoil. The central fill was 013 dark brown silty sand with occasional charcoal inclusions visible throughout. It extended the full length of the cut 1.13 m with a maximum

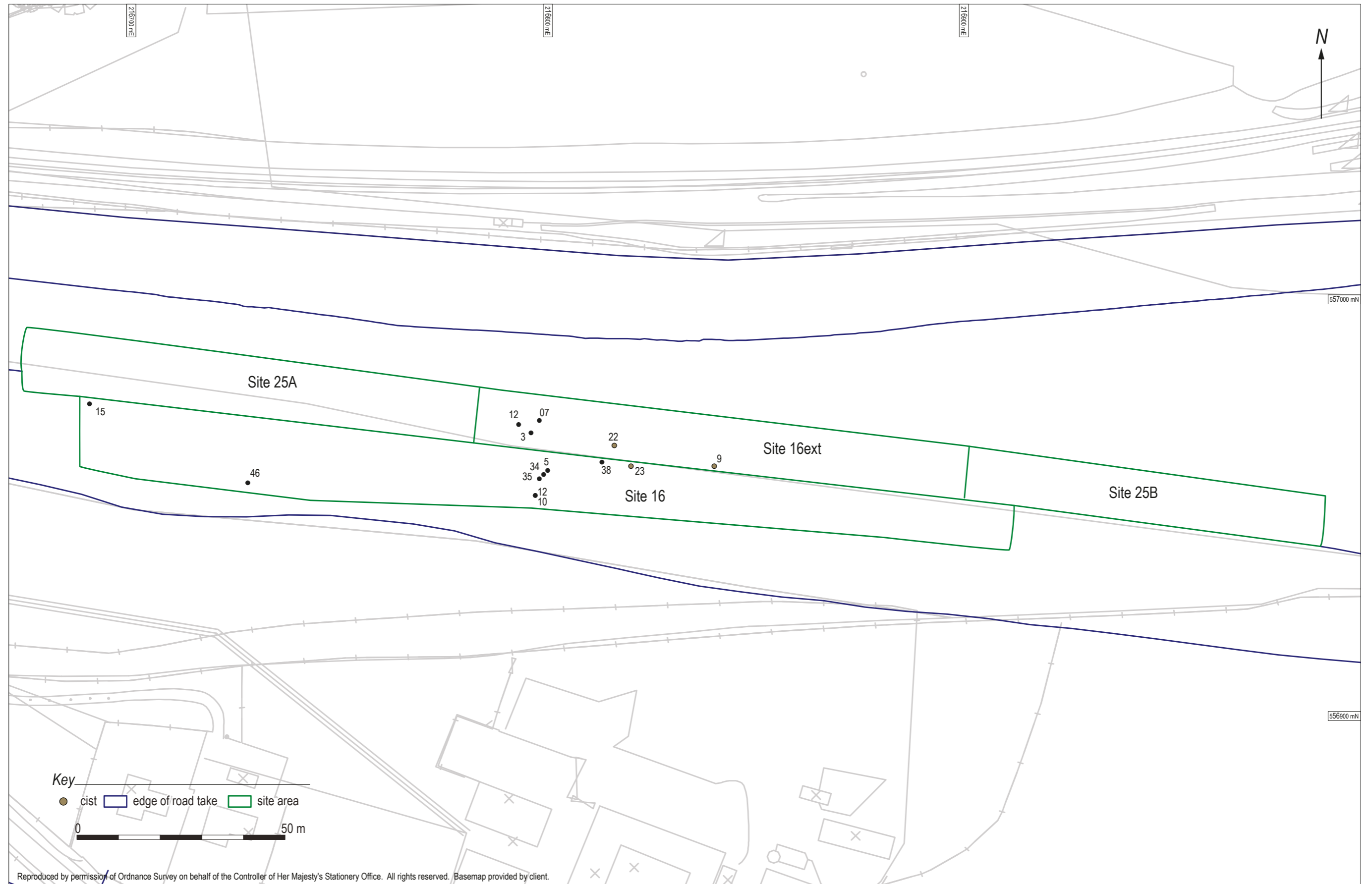


Figure 12: Survey plan of Sites 16 and 25.

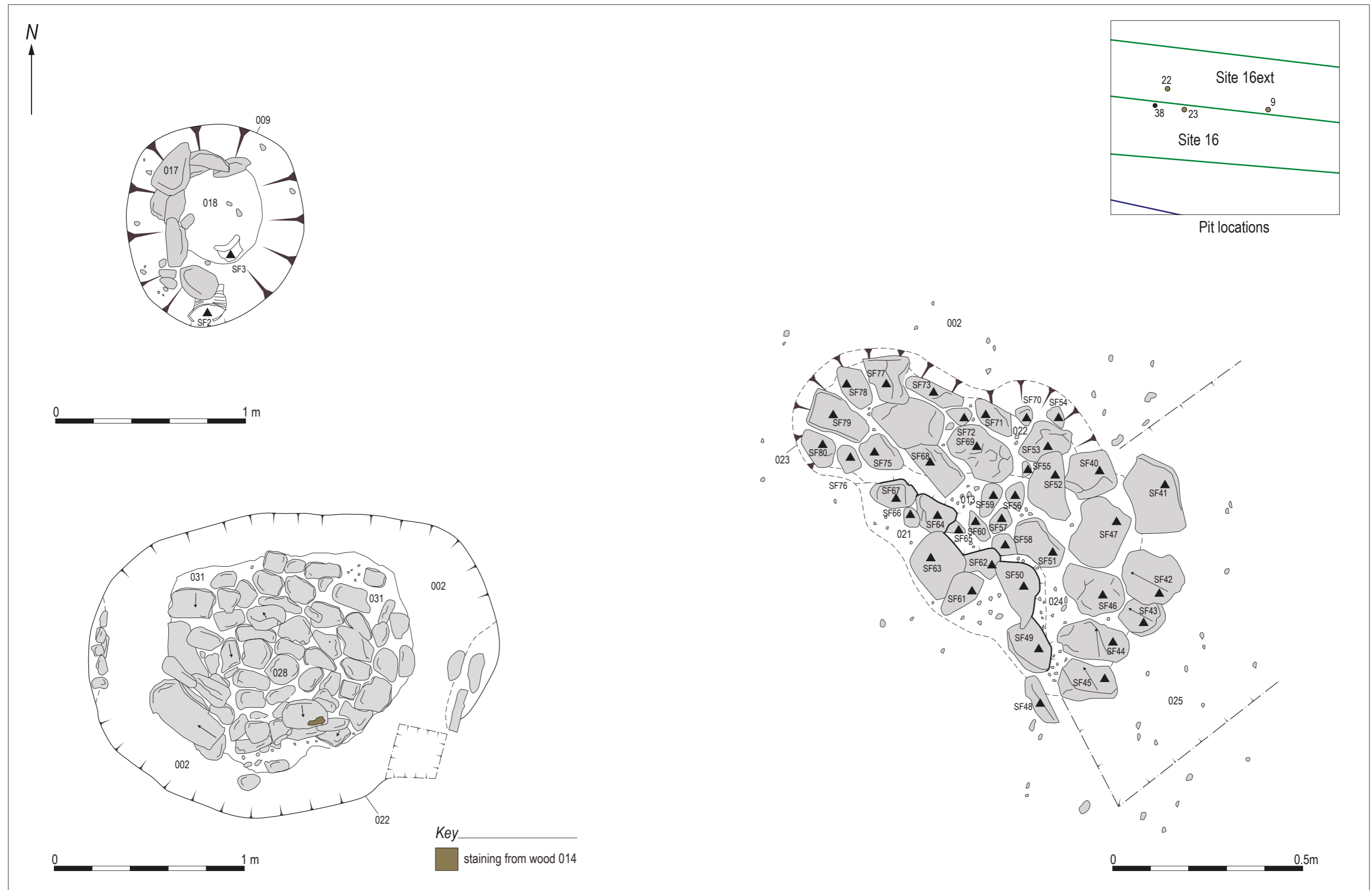


Figure 12a: Plan of features from Site 16.

thickness of 0.15 m. A secondary fill visible on the north-east side of the pit consisted of 022 orange brown sandy gravel partially overlying 013 which appeared relatively sterile. It again extended the full length across the feature 1.28 m with a maximum depth of 0.15 m. The opposite side of the pit contained a mid blue-grey coarse sandy fill 021. This appeared very similar in colour and composition to the surrounding subsoil and appeared relatively sterile. A single fragment of bone SF39 was recovered from this fill.

- 10.11.3 The cut of the stone lined pit 023 appeared sub-oval in shape in a north-west/south-east alignment. This feature measured 1.28 m in length, up to 0.65 m in width with a maximum depth of 0.22 m. At the base of the pit, lining the cut, a series of flat stones were visible, 014.
- 10.11.4 Directly adjacent to the west of the stone-lined pit lay a singular feature 038. This was sub-circular in form with dimensions 2.23 m by 1.17 m and a maximum depth of 0.15 m. This feature contained multiple fills (031, 036 and 037) all appearing to be a relatively sterile mid orange brown sandy gravel deposits. Only the upper fill 031 appeared to have charcoal present. No material culture was recovered from the feature.
- 10.11.5 Located circa 10 m to the west a series of pits and a post-hole were excavated. The pits (010, 012, 034 and 005) did not appear to have any form to their distribution but may have been related to structural activity found during the advance works (Site 5). A singular post-hole 035 lay within the concentration of pits. This post-hole was sub-circular in form measuring 0.49 m by 0.36 m with a maximum depth of 0.25 m and the fill consisted of mid brown sandy silt fill 029. The fill had charcoal inclusions and a concentration of angular packing stones. Directly to the south of this feature lay two small pits (010 and 012). The furthest south of these 010 was sub-circular in form with dimensions of 0.34 m by 0.27 m and a maximum depth of 0.10 m. The fill consisted of mid brown silt 009. The second of the small pits 012 was also sub-circular in form measuring 0.53 m by 0.40 m with a maximum depth of 0.07 m. The fill consisted of dark brown silty sand 011 with moderate charcoal inclusions. One post-hole 035 and two further pits (005 and 034) were excavated in this locale. Sub-circular post-hole 035 measured 0.49 m by 0.36 m and up to 0.25 m deep and was filled by mid brown, sandy silt 029 with large packing stones. The southern pit 034 was oval in shape with dimensions of 0.82 m by 0.44 m and a maximum depth of 0.20 m. This steep-sided cut contained two fills (030 and 033). The lower fill 033 consisted of dark grey brown silt with orange silt inclusions with a maximum thickness of 0.12 m and inclusions of charcoal and sub-angular stones. The upper fill 030 consisted of mid grey brown sand with only slight evidence of charcoal visible within the fill. The second pit 005 directly north measured 0.32 m in diameter with a maximum depth of 0.05 m and contained grey brown fill 004 which appeared relatively sterile.
- 10.11.6 Located some distance to the west, a small burnt spread 046 (Plate 49) was excavated down slope. This particular feature appeared to have high concentrations of charcoal present. The dimensions were 1.13 m by 1.07 m with a maximum depth of 0.02 m. The deposit consisted of dark grey black silt with concentrations of burnt stone throughout.



Plate 49: Burnt spread / fire pit 046.



Plate 50: Mid ex shot showing pit 015.

10.11.7 On the western periphery of the site a large circular pit 015 (Plate 50) was excavated measuring 2.4 m in diameter with a series of dark brown charcoal-rich fills, (016, 017, 018, 019, 027 and 028). The lower fills (016 and 028) appeared grey and orange grey in colour with a relatively sterile sandy nature. The upper fills (017, 018 and 027) consisted of darker brown black with a higher concentration of charcoal present within the matrix. The uppermost fill 019 contained mid-brown fill with an accumulation of angular burnt stone.

10.12 Site 16 ext

10.12.1 This area of excavation was an extension to the initial site 16. It was a 10 m by 100 m expansion along the north edge of the stripped area adjacent to the stone-lined pit previously excavated during the Site 16 investigations. During the strip it was clear that archaeological deposits of a similar nature to those excavated earlier were present. To the far east of the strip a single large pit 009 was excavated. This sub-circular pit measured 1.08 m by 1.01 m and up to 0.70 m deep. The basal fill of this pit consisted of red-brown clay silt 018 with a maximum thickness of 0.20 m. Within this fill a grey organic residue SF03 of an unknown substance was block lifted for further analysis. The base of the pit appeared to be stone lined with an early Bronze Age Beaker and flint arrowhead deposited at its base (Plates 51-54). The stone lining 017 consisted of sub-rounded stones measuring on average 0.35 m by 0.34 m in size and appeared to be laid as a single course around the north and west edges of the cut. The basal fill consisted of loose orange brown sandy gravel 016 measuring 0.12 m thick, one small flint arrowhead (SF5) was recovered from this deposit. Against the stone-lining on the south-east side lay an early Bronze Age Beaker vessel, this was relatively intact although it did display some distortion due to the weight of fill above. The upper fill of the pit 010 measured up to 0.4 m thick, it was orange brown in colour and consisted of sandy silt with small cobble inclusions.



Plate 51: View of beaker, SF02, during excavation of pit 009.



Plate 52: Detail of arrowhead SF05 recovered from pit 009.



Plate 53: Detail of charred wood / stone lined pit 022.



Plate 54: Detail of pit 009 with organic residue and beaker in situ.

10.12.2 Directly to the east of this pit, another pit 022 was excavated. This pit was sub-rectangular in form with dimensions of 2.25 m by 1.55 m and a maximum depth of 0.30 m. This pit was orientated NE/SW and contained a number of fills. At the base of the cut the pit was

lined with stones 028. The stones consisted of sub-rounded cobbles measuring between 0.10 m and 0.25 m across and possibly displaying signs of heat and charring. Directly above this stone lining, a series of small pockets of gravel fill (025, 026 and 030) grey and red in colour with a maximum thickness across the feature of 0.30 m were recorded. No material culture was recovered from any of these fills, however a small fragment of bone SF10 was recovered from context 025. Directly overlying this was a layer of a charred wood 014 which was present around the upper edges of the cut and sealed the fills and stone lining below. The wood appeared to take the form of a number of sections of plank with a possible bracer. The wooden planks ranged in length from 0.3 m to 1.20 m. Sealing the charred wood deposit was a fine red brown gravel 011 measuring up to 0.10 m thick, this layer appeared relatively sterile in nature.

10.12.3 Directly to the east of this pit, a small concentration of features existed, they comprised of three small pits (003, 007, 012). The furthest east, 007 was a small sub-circular pit measuring 0.75 m by 0.35 m with a maximum depth of 0.15 m. Its shallow sided cut contained dark orange brown compact silty sand 005 which appeared relatively sterile in nature. Directly south of this feature lay 003. A circular pit with dimensions of 0.70 m and a maximum depth of 0.19 m. It again contained orange brown sandy gravel fill which appeared sterile in nature. The final pit 012 approximately 3 m to the west, was sub-circular in form measuring 0.55 m by 1.10 m with an overall depth of 0.20 m. It again contained a singular mid-red silty sand, 013 which appeared relatively sterile in nature.

10.13 Site 25 (A and B)

10.13.1 This site was again separate from the original excavations due to the nature of the construction program. The site itself was an extension to the road width, extending north and across the full length of site 16 ext.

10.13.2 It revealed two concentrations of archaeology. At the eastern periphery Site 25A was situated. This was located down slope from the main concentration of archaeology. Another concentration was Site 25B, this was located at the west end of site 16ext extending up slope.

Site 25A

10.13.3 The archaeology present down slope at site 25A appeared to relate to structural activity present at site 17 and in particular its possible Neolithic structural remains. It consisted of a large occupation layer/spread 008 with a series of small post-holes and pits. The large spread appeared concentrated directly south of the prehistoric structure located in site 17. Possibly a continuation of the spread from this previous site, it measured 24.10 m in length with a maximum depth of 0.10 m. It extended outwith the excavation area in the direction of site 17. The spread consisted of a moderate brown charcoal-rich silt with frequent stone inclusions. A number of slots excavated across the width showed an irregular undulating base. A total of 59 pieces of worked flint were recovered along its length. Near the middle of the exposed spread, a charcoal-richer concentration was located, 022. This had a higher concentration of charcoal present throughout although no lithic material was recovered from this area of the deposit.

10.13.4 Located east of this deposit, a series of small post-holes and pits were excavated. The most westerly of these features, (007, 009 and 010), consisted of two shallow post-holes and a shallow pit. The first of the post-holes 010 was circular in form measuring 0.35 m in diameter with a maximum depth of 0.05 m. The fill consisted of charcoal-rich sandy silt 004. Directly adjacent to this lay a circular post-hole 009 with a 0.36 m diameter and a maximum depth of 0.05 m. It contained a singular charcoal rich brown sandy silt, 006 from which a small fragment of lithic was recovered. At a distance of 3 m north of these two post-holes a shallow pit 007 was excavated. This sub-oval pit measured 1.09 m by 0.47 m and up to 0.23 m deep and was filled by grey/brown silty clay 005. A single fragment of lithic SF2 was recovered from this feature.

- 10.13.5 Located approximately 8 m to the east and up slope a further two post-holes (011 and 012) were excavated. These features were shallow possibly due to modern truncation. The first of these post-holes 011 was circular in form with a diameter of 0.40 m and a maximum depth of 0.04 m. The fill consisted of charcoal-rich brown fill. The second post-hole 012 was similarly shallow with dark brown charcoal-rich fill from which two fragments of lithic SF3 were recovered.
- 10.13.6 A further 15 m to the east lay an isolated feature 013. This small charcoal and organic-rich spread with dimensions of 0.63 m by 0.45 m was filled by mid-brown grey silt, no cut was apparent. 10 m to the east and again upslope lay two post-holes (015 and 018). They were both circular in form with dimensions of 0.24 m and 0.28 m in diameter respectively and depths of 0.09 m. Both features were quite shallow and may have been truncated, they were filled by dark brown charcoal-rich silt fills (014 and 017). No material culture was recovered from these features; however, a small amount of un-stratified lithic was recovered from this general location.
- 10.13.7 The eastern periphery of the site contained a small concentration composed of three features, two post-holes (019 and 020) and a small charcoal rich spread 021. The post-holes were truncated but displayed a distinct steep-sided cut. Both post-holes appeared to be 0.42 m and 0.49 m in diameter respectively with maximum depths of 0.20 m and 0.10 m. They both contained dark brown charcoal rich silty sand and were cut into a charcoal-rich spread 021. This small spread extended outwith the excavation area and appeared as an orange brown silty deposit with charcoal inclusions. No other archaeology was noted in this area.

Site 25B

- 10.13.8 To the east of site 16ext another area was excavated revealing a series of large pit features. At the west end of the site pits 042 and 044 were excavated. Pit 044, the most northern, appeared sub-circular in form measuring 0.96 m by 0.66 m with a maximum depth of 0.12 m. It contained two distinct fills, lower fill 041 was dark grey brown silt with charcoal inclusions and the upper fill 043 was dark grey/black charcoal rich silty fill. Directly south of this lay a similar pit 042 with dimensions of 1.15 m by 0.56 m and a maximum depth of 0.15 m. The fill consisted of charcoal-rich silty clay 040 from which two fragments of flint SF19 were recovered.
- 10.13.9 Located 20 m to the east a further three features were excavated, two large pit features (048 and 052) and a small post-hole 039. The larger of the pits 048 was sub-oval in form with dimensions of 2.5 m by 0.89 m and a maximum depth of 0.33 m, this was filled by dark orange silty gravel 047 with charcoal flecking. There were 21 fragments of flint (SF20 and SF21) recovered from this fill. The second pit 052 was located to the south-east and had dimensions of 2.50 m by 0.74 m with a maximum depth of 0.26 m. This sub-oval pit contained orange brown silty clay fill 051 which yielded four fragments of flint SF23 and a single fragment of shell SF22.
- 10.13.10 Located 8 m to the east of pit 048 a small isolated post-hole 039 was excavated. This sub-circular post-hole measured 0.38 m by 0.34 m with a maximum depth of 0.08 m and the fill consisted of light brown silty clay 038 from which a single fragment of lithic SF18 was recovered.

10.14 East Challoch Discussion

Site 5

- 10.14.1 The archaeology uncovered is significant because it revealed an area repetitively used for settlement and/or other functions during potentially different periods. There are three main areas of interest on site, a possible structure where large pits were re-cut and re-used repetitively for burning material; a rough circle of post-holes and another possible timber structure which was burnt and potentially covered by a cairn.

10.14.2 At present none of these structures has a definite function, however, the structure at the south-east corner of site seemed to start its life as a circle of posts. The hearth at the centre of the structure together with the possible entrance at the south-east side suggests this. Its subsequent burning created a layer rich in charcoal and artefacts which was then covered by a possible cairn which suggests a possible ceremonial and/or funerary use. Recent studies suggest that during the Neolithic period there was not a clear separation between ordinary and ritual lives, instead they seem to intermingle (ScARF website visited on 17/09/2014).

10.14.3 Future analysis and dating of the material culture and ecofactual remains by specialists should provide a date range for the activity on the site. The analyses may also clarify the different function(s) of these structures as well as the establishing any phases of activity over time.

Site 17

10.14.4 Much of site 17 appeared relatively sterile with evidence of prehistoric activity noted on the eastern and western peripheries of the site. The western end is characterised by the presence of a substantial number of post-holes forming the outline of a structure. The post-holes themselves appear substantial in depth, possible load bearing, however comparatively uneven and sporadic in distribution.

10.14.5 A north-east flank or gable end is apparent however due to the position of the structure against the excavation limit – it remains unclear how substantial in size the structure actually is. The interior of the structure displays a number of post-holes flanking the inside edges of the structure. It is unclear however what is its function as any form of pattern or layout has been truncated by the edge of the excavation. No other interior features exist within this portion of the structure within the limits of the investigations. No occupation spread or floor level exists directly within the structure, with the nearest evidence of any surface or accumulation directly to the west of the structure. This organic and charcoal-rich deposit produced material culture in the form of a quantity of lithic. One particular artefact of interest was a small Neolithic flint arrowhead recovered securely from this layer. A number of pits appear cut into this large occupation layer one of which yielded a number of fragments of prehistoric ceramic.

10.14.6 The remainder of this area of the site is characterised by small isolated post-holes and pits, all appearing relatively sterile in nature with no obvious relationship to surrounding features and no material culture to indicate a possible date.

10.14.7 The eastern portion of the site is dominated by a large rubble cairn, located mid-slope, which appeared relatively intact during excavation. A small satellite feature containing the remains of a decorated food vessel may have been part of the upstanding cairn – now denuded and ploughed out. The large pit surviving beneath the cairn may be a burial pit or stone-lined cist. The stone-lined pit was well preserved by the multiple fills and intact cairn material overlying which no doubt aided in the survival of the Jet necklace. The necklace itself along with a flint knife may be an indication of a high-status burial. No direct evidence of human remains was visible in any of the multiple fills within the pit, however this may be due to acidic soil conditions. The absence of any teeth which tend to survive well in most conditions suggest the possibility that any body present may have been moved a short time after the burial, possibly while the skeletal remains were still articulated. The pit was sampled in full, along with the stone lining and subsoil below to aid further analysis which may determine the possible former presence of human remains.

Sites 16, 16EXT and 25

10.14.8 The concentration of archaeology on this natural gravel ridge with commanding views of the coast and surrounding low-lying land, made this a typically prominent location for a prehistoric burial site. The stone-lined pit 023 was suggestive of a shallow burial pit although only two small fragments of bone were encountered during excavations. The assumption was that the sandy/gravel subsoil was too acidic in nature to allow the survival of human remains,

however no teeth, which survive most soil conditions, were found during the investigations. There is a possibility that any human remains that were once buried in this pit were later removed, possibly when the skeleton was still articulated. The contents in the base of the pit were sampled in full for post ex analysis providing an opportunity to determine if a body was present within the pit at some point.

- 10.14.9 The artefacts recovered from the pit including a 31 piece jet bead necklace and a decorated Food Vessel appeared to be high status grave goods,. No other artefacts were recovered from the fills, however post-excitation analyses on samples recovered might reveal more information regarding this.
- 10.14.10 Directly to the east of the stone-lined pit, another more substantial pit was excavated. This again appeared to be a partially stone-lined pit. A number of possible grave goods were recovered including a relatively intact early Bronze Age Beaker SF02, a small flint arrowhead SF5 and a large concentrated organic mass visible at the base of the pit SF03. No human remains were encountered during excavation with possible reasons for this already explained. The significant artefacts recovered from the pit would however suggest that this may in fact be another burial pit.
- 10.14.11 To the north-west of the stone lined pit containing the jet necklace another significant pit was excavated. It differed from the previous two pits as it was sub-rectangular in shape with stone lining at the base. The pit was lined at the edges and the top by a deposit of what appears to be charred wood. This wood deposit composed of a series of possible charred planks and bracing sealed the stone-lined deposit underneath.
- 10.14.12 Much of the larger pits located at the north-east end of the site contained quantities of worked flint and debitage. These pits were located directly to the north-east of the burial pit features on the same prominent gravel ridge. The function of these pits is uncertain but they could be the result of anything from simple refuse to a ritual use.

Droughduil Bridge

10.15 Site 8

- 10.15.1 This 25 m² site was opened as a result of preliminary findings from the evaluation of C6 Field 1 suggesting that significant sub-surface archaeological deposits relating to the Neolithic/ Bronze Age periods remained undisturbed in this location. The preliminary findings from the evaluation suggested a cut feature which contained a quantity of flint debitage and pottery of possible Late Neolithic/Early Bronze Age date.
- 10.15.2 The analysis of the stratigraphy of the trench edges in this area revealed a series of layers of sediment some of which are most likely to have been deposited naturally with others showing signs of potential anthropogenic origin or influence. The earliest layer encountered consisted of loose blue grey sandy clay 038 which contained one small wood fragment 036. Above this lay compact white grey clay 037. Above this lay a compacted light grey with a white hue clay 027 which was in turn overlain by compact mid grey clay (009 = 020) with charcoal mottling. Above this lay a compact, dark grey/brown silt clay 026 with charcoal flecks. Overlying this was a layer of dark brown silty clay 028. The next two layers above consisted of fine wind-blown sand (023 & 025). Above the sand lay a layer of rusty brown orange/red sand 024, probably iron panning. This was then sealed by a layer of medium compact, dark brown silty clay 022 which was later sealed by light grey clay with orange flecking 002 and to complete the stratigraphic sequence the topsoil consisted of dark brown peaty clay 001.
- 10.15.3 On expansion of the evaluation trench and after further investigation it was revealed that feature 007 was cut after the formation of layer 020 in the sequence. This cut 007 was found to be a large amorphous pit feature, with a narrow channel inclining northwards beyond the edge of excavation (Plate 55). The main pit area of the feature measured 2.6 m wide, 3.8 m long and up to 1 m deep; the channel part of the feature measured 4 m in length within the limits of excavation and up to 1 m wide. This channel had one length of waterlogged wood

019 lying perpendicular to the direction of flow in a slight hollow infilled by sandy silt (013 & 014). This piece of wood lay on the edge of the channel before it sloped into the main pit area. The basal layer of this feature consisted of bluish grey silty clay 008 with inclusions of reddened, heat affected stones. Over lying this were a series of pieces of waterlogged wood framing the edge of a sub-rectangular hollow in the deepest part of feature 007. In the base of the main pit area there was a sub-rectangular hollow around which several waterlogged wood fragments (015, 016, 017, 018, 032, 033 and 034) were found. Sealing these wood fragments and layer 008 was a layer of dark brown sandy silt 012 with many stones towards the base, some of which were heat affected. There was a layer of firm, light grey with a blue hue, clay/sandy clay with stone, flint and wood inclusions 031 deposited around the eastern edge of the main pit to a thickness of 0.1 m. Sealing the underlying layer 012 was a medium brown/yellow silty sand 006 with inclusions of degraded wood and peat lenses. This was sealed by a layer of mid-brown, peaty silt (030 = 029) with occasional detritus and small chunks of wood. This layer extended from the channel and was laid in a slight incline across the main pit area. The next layer in the sequence consisted of light brown/yellow silty sand 005 with inclusions of degraded wood fragments. This was then sealed by mid brown/grey sandy silty clay (004 = 035). Above this was a compacted dark brown peat clay layer 011 with sand which was subsequently overlain by very firm dark reddish-brown peat 003 (Plate 56).



Plate 55: Amorphous cut feature with central sub-rectangular hollow from south-west.



Plate 56: West facing section of pit 007.

10.15.4 A total of 414 pieces of flint, four sherds of prehistoric pottery, seven fragments of waterlogged wood, two pieces of possible worked stone, a quantity of burnt stone and one piece of burnt clay were recovered during these investigations. The majority of the flint debitage came from the lower layers 008 and 012 filling feature 007 with the ceramic material coming from 008 and 004.

10.16 Site 11

10.16.1 This site was uncovered during the evaluation of C 22 trenches to the north of the C6 Field 2 trenches. There was a palaeochannel extending west to east across the evaluation trench and while testing this channel archaeological deposits were discovered. These deposits consisted of two lines of what, on initial observation, appeared to be waterlogged stakes extending in the same direction as the axis of the channel (west/east) (Plate 57). The two lines of possible stakes were approximately 3 m apart and between them there was a dark brown peaty deposit containing large chunks of charcoal and small fragments of possible worked wood. Charcoal fragments and two pieces of worked wood were retained for further analysis (Plates 58 and 59). The wood and charcoal were situated at 7.5 m OD at approximately 0.75 m to 1.0 m below current ground surface and was located at NGR NX 15369 57076. This site was not explored further during the construction phase.



Plate 57: C21 trench uncovering possible stake-line (marked by flags) from north.

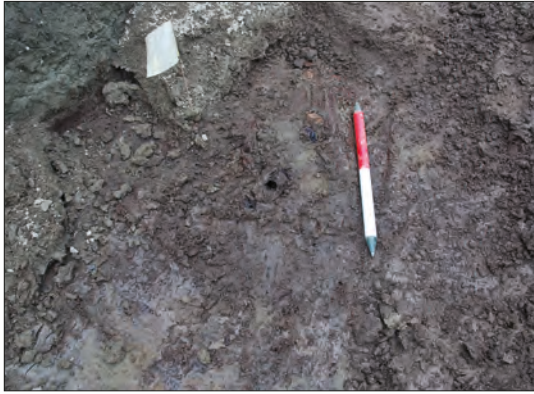


Plate 58: Possible composite wooden structure in situ.



Plate 59: Worked wood recovered from Site 11.

10.17 Droughduil Bridge Discussion

Site 8 Discussion

10.17.1 This complex feature set into the estuarine mud is evidence for the exploitation of environmental resources here during the late Neolithic and early Bronze Age periods. The feature was certainly positioned here due to the proximity of a readily available water source. This was evidenced in the channel with small wooden sluice extending northwards coupled with the deliberate plugging of the east edge of the pit with balls of clay to possibly contain the water. The function of this feature is not certain but the proximity to water, the evidence for channelling this water, the presence of a partially wood-lined trough feature and the presence of burnt and reddened heat shattered stone fragments all point towards a burnt mound. It may be that the mound or spread has been eroded to such an extent that only the deposits contained within the large hollow survive. Occasional burnt stone fragments were also noted in the vicinity during investigations here and fragments were also found at Site 11 to the north-east.

10.17.2 The sites of 8 and 11 were in a similar landscape setting and in proximity to Whitecrook Bridge, West Challoch and West Challoch Bridge sites. The archaeology discovered across these three sites ranged in period from the Mesolithic through to the Bronze Age. The setting of each site was similar and showed that the estuarine environment to the south and east of Dunragit was utilised over several millennia which may be some indication of the rich resources it offered those who inhabited this area.

Site 11

10.17.3 Site 11, although not investigated beyond preliminary observations and sampling, was evidence of further, and potentially related, prehistoric activity in the vicinity of Site 8, and indeed beyond to Site 7 across this relict prehistoric landscape evaluated by the bypass route. The height of 7.5 m OD places this site at around 1 m below the estimated relative sea level height from the Mesolithic period through to the Bronze Age period in this locale. This suggests that the possible composite wooden structure represented by the worked wood fragments is most likely to have been partially submerged. There are a number of possible interpretations for the wood to name a few; a track-way, bridge or fish-trap perhaps.

Whitecrook Bridge

10.18 Site 20 (Figure 13)

10.18.1 This site was investigated after its discovery during topsoil stripping. The initial findings suggested archaeological deposits relating to a burnt mound, a site type usually associated with the Bronze Age period.

10.18.2 The natural subsoil here consisted of firm pale grey brown sandy clay 002 with occasional orange mottling. Plough marks truncating this layer were observed during the topsoil strip.

The site comprised five amorphous shallow spreads positioned around the summit of a low natural mound which sloped gently down to the north (Figure 13). The basal layer of these spreads consisted of a ubiquitous basal layer of dark brown peat 004 with moderate charcoal flecks and burnt stone overlain by a layer of dark grey/brown sandy clay with frequent shattered burnt stone and charcoal inclusions 003 (A, B, C, D and E).

10.18.3 The most westerly of the spreads 003A measured 2.2 m by 4 m on plan and up to 0.36 m thick. Just north of this lay a spread 003B measuring 1.78 m by 5.2 m on plan with a maximum thickness of 0.24 m, within the limits of excavation. To the east lay the third spread 003C measuring 2.9 m by 4.6 m on plan and up to 0.37 m thick. The next spread 003D merged with the southern edge of 003 C and measured 1.8 m by 4.4 m on plan and 0.25 m thick. The last of the spreads 003E, and the smallest, lay just south of this and measured 1.1 m by 3.1 m and up to 0.14 m thick.

10.18.4 The finds from these spreads consisted of seven fragments of flint and one quartz pebble from the spread deposits. Samples of each spread were also retained for further analysis and dating.

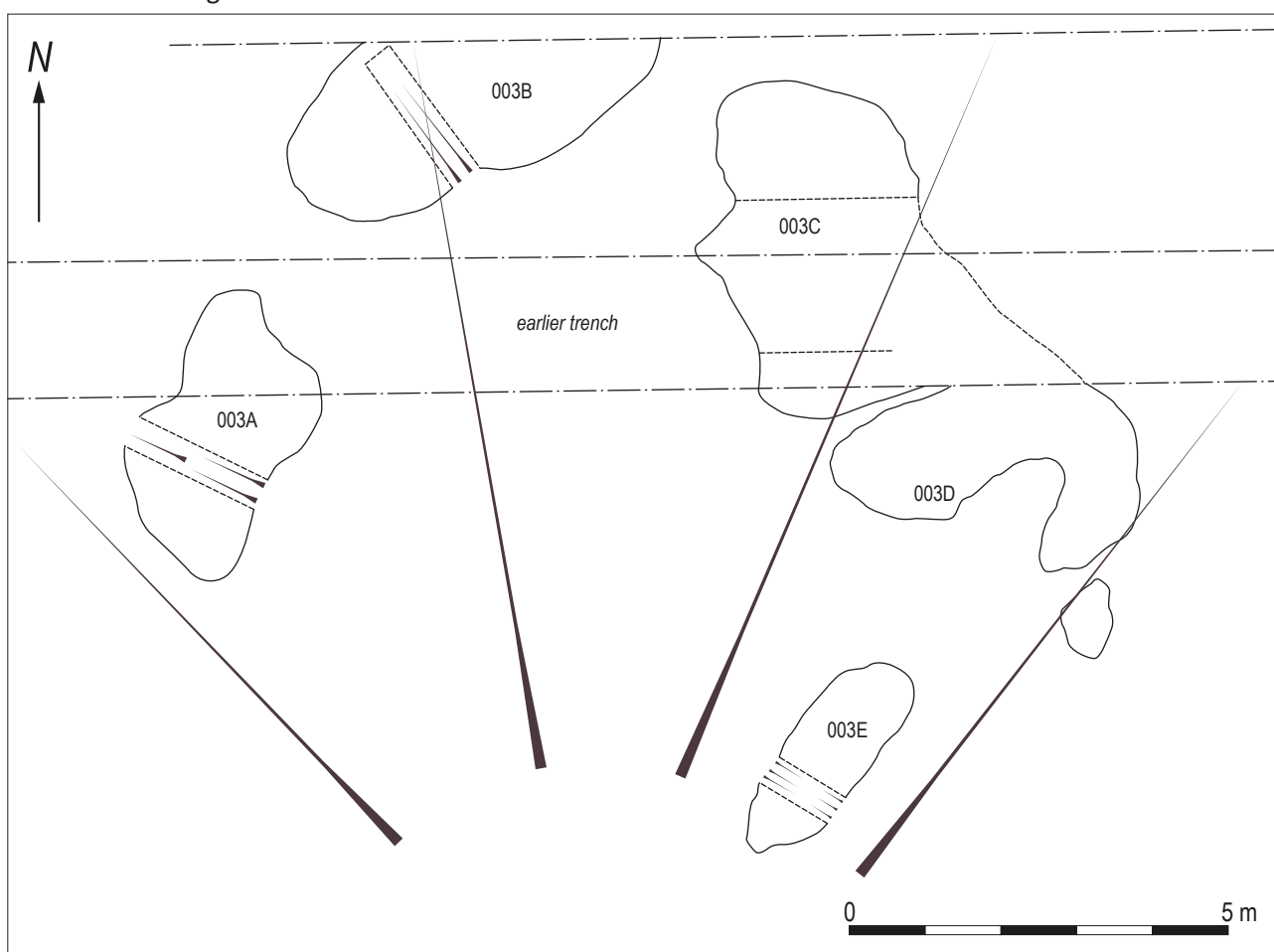


Figure 13: Plan of Site 20.

10.19 Whitecrook Bridge Discussion

10.19.1 The position of the spreads around the low summit suggest the possibility that they were once a continuous mound or spread here which has been eroded over time, ultimately becoming ploughed out to form the ephemeral remains discovered here.

10.19.2 The archaeology uncovered is significant because it represents the remains of a possible burnt mound site. Burnt mound sites tend to consist of a trough or pit with a surrounding spread or mound of burnt stone and charcoal waste from the successive heating of stones in the trough or pit. The function of these sites is not certain and theories include brewing,

saunas and cooking. Several burnt mounds were discovered further east along the road strip at the West Challoch Bridge and Boreland Cottage Lower sites and further west at Droughduil Bridge.

- 10.19.3 The positions of all the burnt mounds on the lower, former inter-tidal estuarine areas, suggests that they these areas were dry and accessible enough for this purpose for a time in the Bronze Age period. These sites are predominantly found in proximity to a water source with a few exceptions. In some cases, water is deliberately channelled to feed the trough as in the example at Droughduil Bridge (Site 8). In the case of the Whitecrook Bridge example a natural spring (NX 15373 57272) was observed approximately 200 m north of the spreads of burnt material (NX 15454 57066). No associated troughs were discovered within the limits of excavation.

Mid Challoch

10.20 Site 24

- 10.20.1 This site was discovered during the construction phase topsoil stripping and was investigated due to the presence of significant remains of a possible burnt mound, usually dating to the Bronze Age period.
- 10.20.2 This site consisted of the remains of a burnt mound which took the form of two large amorphous deposits 004 and 019 with four associated features (012, 015, 016 and 018) and one spread 007 (Plate 60). The underlying subsoil consisted of very firm mid to light yellow grey clay 002 with stone inclusions and occasional pockets of light yellow grey sand 003.



Plate 60: General postexc of site 24 from east.

- 10.20.3 There was one feature 016 pre-dating the larger of the two deposits 004. This feature, the possible remains of a trough, was found in Slot C. It measured 1.1m north-west to south-east and in excess of 1 m north-east to south-west with a maximum depth of 0.25 m. The fill consisted of compact medium brown silty clay 013 with occasional charcoal and burnt stones throughout; this same fill extended to the south-east for 2.5 m tapering to 50 mm in thickness. Below the burnt mound deposits there was notable staining of the underlying sediment giving a medium brown clay subsoil layer (008, 011). In slot E two layers were observed below the main deposit 004. The first of these consisted of dark grey clay 021 with moderate inclusions of charcoal flecks measuring approximately 6 m north-west to south-east, in excess of 1 m but less than 6 m north-east to south-west as the feature was not observed in slots C or D, and up to 0.1 m thick. This was overlain by light brown yellow silty clay 020 with moderate small charcoal inclusions. The large amorphous spread 004, sealed 013 and 020 and was orientated generally south-west to north-east and consisted of dark grey black silt with frequent burnt stones and charcoal. This burnt mound deposit measured approximately 18 m in length and between 5 m and 8 m wide with a maximum thickness of 0.3 m. A shallow deposit of light orange brown sandy clay 014 overlay this deposit on the south-east edge. The smaller of the two amorphous burnt mound deposits 019 lay immediately to the west, it was orientated north-west to south-east and measured 9 m in length and 4 m wide with a maximum thickness of 0.1 m.

- 10.20.4 The remaining three features and small spread lay to the west of the large deposit 004. The first of these 015 was sub-circular in plan and was connected with the main deposit. This pit measured 0.8 m by 0.85 m and up to 0.15 m deep, the fill consisted of dark brown black clay silt 011 with ash and charcoal, burnt clay and frequent stone inclusions. It was difficult to distinguish this fill from the main burnt mound deposit 004. Approximately 4 m north-east of this lay the largest of the features, 018. This irregularly shaped pit or trough measured 1.6 m by 2.4 m in plan with a maximum depth of 0.33 m. There were three fills present, the basal fill consisted of compact light yellow brown clay 025 with moderate flecks of charcoal and fired clay. This was overlain by compact black clay silt 024 with very frequent charcoal flecks. The uppermost fill consisted of compact dark grey brown clay silt 005 with moderate to frequent charcoal flecks. Approximately 1 m north-west of this lay an oval pit or trough 012 measuring 0.8 m by 1.6 m in plan and up to 0.35 m deep. The sole fill consisted of loose black charcoal stained sediment 006 with several large stones and frequent charcoal inclusions. The small spread of dark grey black silt 007 with charcoal and burnt stones lay beyond this to the west. This measured 0.2 m by 0.3 m in plan and 50 mm thick.
- 10.20.5 A total of five pieces of worked flint were recovered during these investigations. This included two unstratified flakes, one burnt flint flake from the deposit 004 with a further two flint flakes recovered from context 021. Samples of each deposit have been retained for potential analysis and dating.

Mid Challoch Discussion

- 10.20.6 The archaeology uncovered here is significant because it not only represents a burnt mound but it forms part of a complex relict Bronze Age and wider prehistoric landscape present in this area. There was a total of nine possible similar burnt mounds discovered across this low lying, former estuarine inter-tidal area between Dunragit and the eastern end of the proposed new bypass. From the original evaluations and subsequent investigations here, it became apparent that this ground is crossed by a braided palaeochannel system leading west to east before bending southwards towards the current shoreline at Luce Bay. In particularly wet conditions these palaeochannels were readily visible. This same palaeochannels may have provided the necessary water to feed the various burnt mounds across this area. In addition there is a Mesolithic site (West Challoch) to the north-west of the burnt mound situated on the same estuarine landscape, Late Neolithic/ Early Bronze Age activity (East Challoch) and Bronze Age cemetery complex (Boreland Cottage) on a ridge to the north-east and an Iron Age settlement (Myrtle Cottage) to the south-east.

Boreland Cottage Lower

10.21 Site 1

- 10.21.1 This site/area was opened as a result of preliminary findings from the evaluation suggesting that significant sub-surface archaeological deposits relating to the Bronze Age remained undisturbed in this location. The site underwent an initial clean up, was planned (Figure 14) and preliminary investigations were begun. However, a period of sustained rainfall and a subsequent rise in groundwater levels led to the temporary abandonment of this site until the construction phase, when dryer conditions prevailed. This later more extensive phase of investigation undertaken during the construction phase would be labelled Site 1EXT and will be described below.
- 10.21.2 The site consisted of two separate burnt mounds situated 5 m apart either side of a sand bank which extended west to east parallel to an obvious palaeochannel (Plate 61). The southern burnt mound only underwent cleaning and planning. This charcoal and burnt stone deposit 009 measured approximately 4 m by 14 m on plan with three other possible features observed, one on the edge of the spread 012, measuring approximately 2 m by 2 m and two on the periphery to the south 010 and 011, measuring 1.5 m by 2 m and 0.7 m by 0.75 m on plan respectively. The deposits observed here were high in charcoal content with frequent burnt stone inclusions. The northerly burnt mound deposit 008 was situated on the south bank of the west to east orientated palaeochannel and some of the deposit extended below



Figure 14: Plan of Site 1.

the alluvial layers filling the palaeochannel. This burnt mound deposit consisted of black charcoal rich silty clay 008 with frequent burnt stone fragment inclusions and measured 5.5 m by 13 m on plan, although as previously mentioned this material extended below alluvial layers for an unknown distance to the north. Two features were partially excavated on the southern edge of this northern burnt mound deposit. The larger of these was a possible trough 004 which lay on the edge of the deposit. This oval feature measured 1.65 m by 2 m on plan and up to 0.4 m deep (Plate 62). The fill consisted of a mix of charcoal rich silty sand 003 with frequent reddened heat shattered stone inclusions with some inclined grey brown silt lenses suggesting multiple episodes of deposition. The smaller of the two features was a sub-circular pit 005 measuring 0.75 m by 0.8 m on plan, this was not fully investigated. However, two fills were noted; the basal fill consisted of charcoal rich silty clay 006 and the upper fill consisted of mid brown sandy silt 007. One piece of flint debitage was recovered during these investigations and samples were retained for further analysis and potential dating.



Plate 61: Image of channel by Site 1 from north.



Plate 62: Image of possible trough 004 in section.

10.22 Site 1 EXT

10.22.1 After the site had been inundated in October 2012 the site was temporarily abandoned awaiting preferable conditions. During the construction phase, beginning April 2013, the site was covered by a protective layer of sand and the area was used for spoil storage. The sand was subsequently removed and this pair of burnt mounds originally found when Site 1 was opened were more fully investigated and recorded. In the process of depositing and later removal of the sand across the site a number of the smaller peripheral features were lost from Site 1 (cut 005 and deposits 006, 007, 010 and 011 and the southerly burnt mound deposit 009 was heavily truncated by machine, numbers used are from Site 1 archive). As Site 1 and Site 1EXT are one and the same site where new numbers are given to deposits the former number from Site 1 will be noted in brackets to enable a synthesis of both sets of data description.

10.22.2 There were a series of hand excavated slots (A-D) cut through the northerly burnt mound deposit to investigate its full extent and stratigraphic relationship with the adjacent palaeochannel and alluvial layers. The orange yellow sand subsoil 002 was overlain by the burnt mound deposit 004/009 (008). This measured up to 0.45 m thick and extended downslope below a layer of alluvial material 006 in the palaeochannel extending west to east (Figure 15), this was in turn overlain by a charcoal rich clay layer 011. The trough feature (004) on the edge of the main burnt mound deposit was oval in plan and was filled by burnt stone and charcoal 012 (003). The southerly burnt mound deposit 008/014 (009) was sectioned to reveal a thickness of 0.45 m. The trough feature 015 on the edge of this deposit was sub-circular in form measuring 1.55 m by 1.85 m and 0.42 m deep. This was filled by 008 (012). There was material 010 with an 'ashy' appearance around the edge of both 015 and deposit 008/014, this is likely to be as a result of podzolisation or staining of the underlying subsoil.

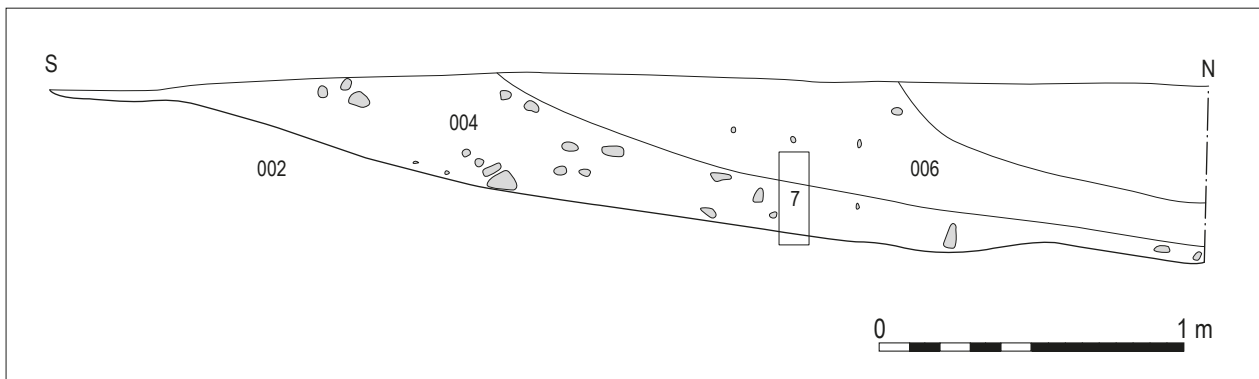


Figure 15: Section of burnt mound extending below alluvium.

10.23 Site 3

10.23.1 This site was opened as a result of preliminary findings from the evaluation suggesting that significant sub-surface archaeological deposits relating to the Bronze Age remained undisturbed in this location.

10.23.2 This site consisted of the remains of a burnt mound which took the form of a large spread 012 with three associated pits (Figure 16) (Plate 63). The underlying subsoil consisted of firm, orange/brown sand 002 with few inclusions; occasional plough-marks were visible across the surface of this deposit. The edges of the main deposit appeared to be cut into the underlying subsoil. This cut 012 measured 9.2 m long by 5.5 m wide with a maximum depth of 0.2 m. The basal layer consisted of loose, brownish black silty sand 011 with frequent charcoal staining and frequent burnt stones. This thin basal layer measured between 0.08 m and 0.15 m thick. Overlying this was very compact, dark grey/brown silty sand 010 with frequent charcoal flecks and burnt stone fragments. This upper layer measured up to 0.2 m thick.

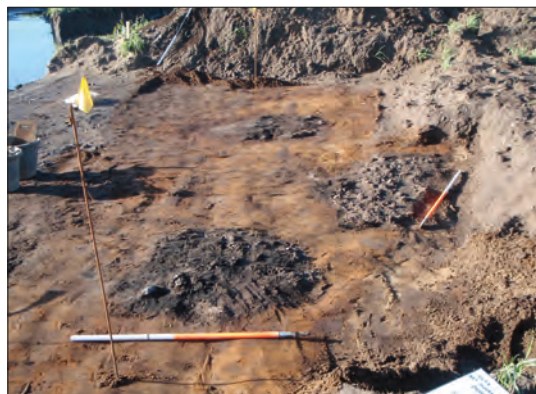


Plate 63: Site 3, three pits on the periphery of the burnt spread 012.

10.23.3 The three small pits lay beyond the north edge of the main spread 012. The first of these 007 was circular in plan, with a near vertical southern edge, and more gently sloping sides towards the north. This pit measured 0.3 m in diameter and 0.28 m deep. There were two fills present, with the basal fill consisted of loose, light brown sand 006 with inclusions of heat cracked stones. The upper fill was loose, black sand 003 with fine charcoal fragments and frequent reddened burnt stone inclusions. The second of the three pits 008 was sub-circular in plan, with gently sloping sides and a broad relatively flat base. This pit measured 0.75 m in diameter by 0.14 m deep and its sole fill consisted of loose, dark grey black sandy silt 005 with burnt sandstone fragments and charcoal. The third pit 009 was oval in plan with steep, almost vertical sides with a narrow slightly rounded base. This pit measured 1.6 m long by 0.7 m wide and 0.38 m deep and the fill consisted of 004 loose, black silt with small rounded stones, burnt stones and charred wood fragments.

10.23.4 No artefacts were recovered during the excavation of these features; samples of each deposit however were retained for potential analysis and dating.

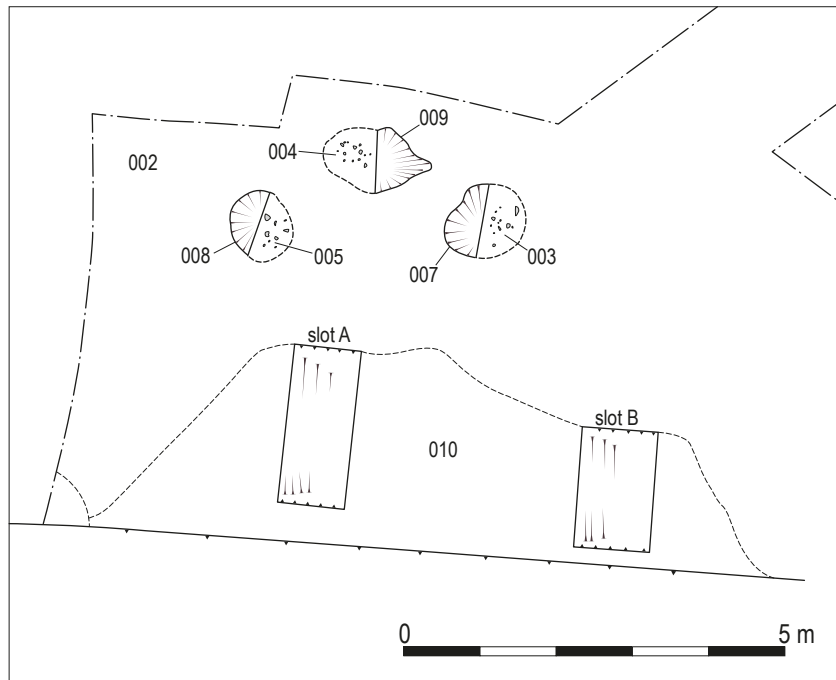


Figure 16: Plan of burnt mound at Site 3.

10.24 Site 4

10.24.1 This site/area was opened as a result of preliminary findings from the evaluation suggesting that significant sub-surface archaeological deposits relating to the Bronze Age remained undisturbed in this location.

10.24.2 This site consisted of the remains of a burnt mound which took the form of a large deposit of burnt stone (Figure 17) and charcoal rich material 005. The underlying subsoil consisted of firm, orange brown sand 002 with few inclusions; occasional plough-marks were visible across the surface of this deposit. The layer overlying the subsoil around the periphery of the burnt mound consisted of 004 loose light grey silty sand with no obvious inclusions, although what may be small flakes of ash were visible within this layer (Plate 64). This layer measured 6 m by 15 m on plan and up to 0.25 m thick. The edges of the main burnt mound appeared to be cut into the underlying subsoil. This cut 006 measured 6.5 m long by 1.5 m wide with a maximum depth of 0.15 m. The burnt mound material consisted of loose, black silt with charcoal and burnt stones and occasional root disturbance. An intermittent layer of grey silty sand 007 with occasional burnt stones lay across the area. Overlying this and the burnt mound material was a layer of medium compaction, dark grey black sandy silt 003 with inclusions of charcoal and burnt stones. This measured up to 0.2 m thick and covered the burnt mound with topsoil 001 immediately overlying this.



Plate 64: Site 4-Investigations across burnt spread material 005 from south.

10.24.3 No artefacts were recovered during the excavation of this site; samples of each deposit however were retained for potential analysis and dating.

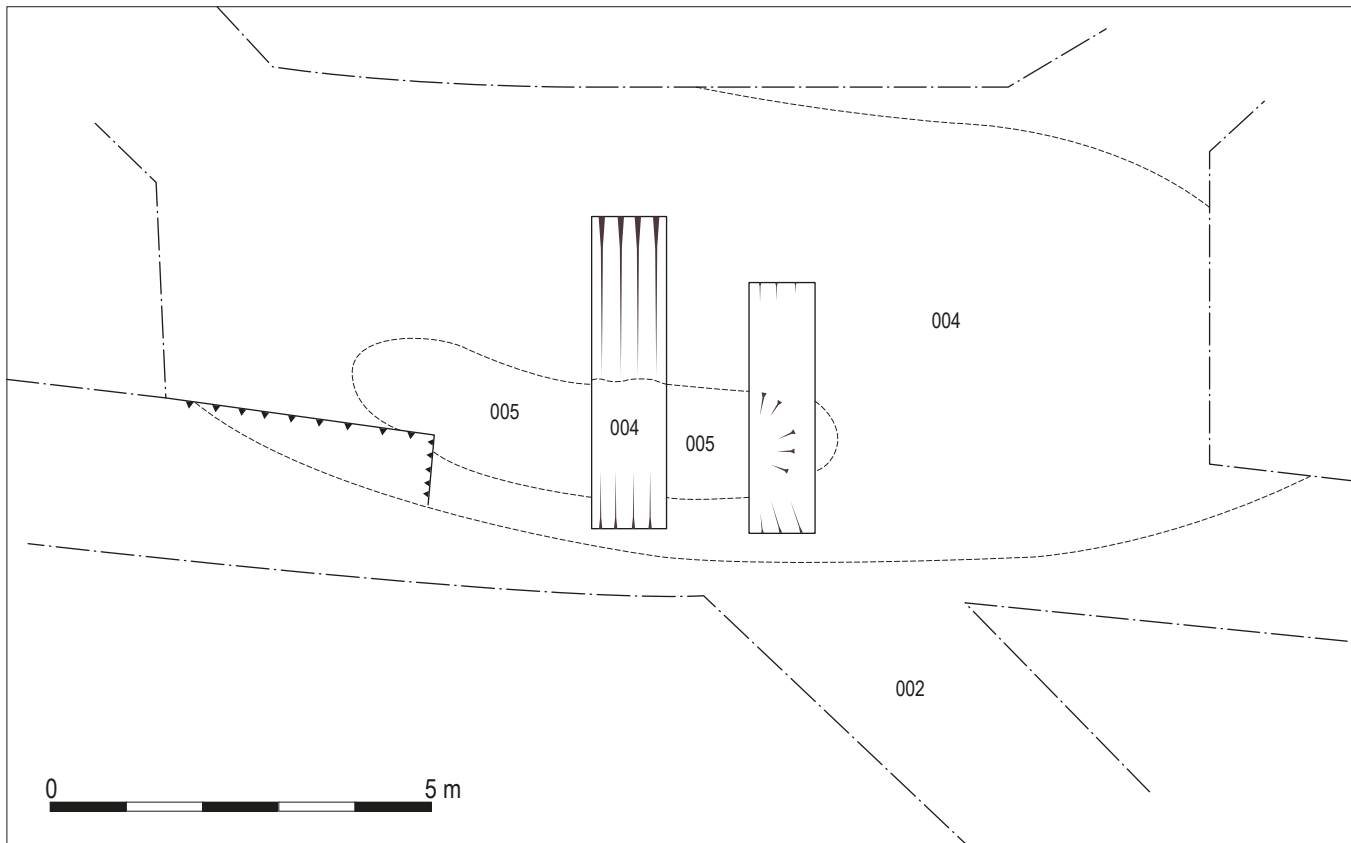


Figure 17: Plan of burnt mound at Site 4.

10.25 Site 13

10.25.1 This site was discovered during the construction phase topsoil stripping and was investigated due to the presence of significant remains of a possible burnt mound, usually dating to the Bronze Age period.

10.25.2 The remains of the burnt mound measured 4 m by 5 m on plan with a trough 012 lying at the southern limit of excavation measuring 1.28 m by 4.2 m on plan and 0.82 m deep. The feature was cut into the natural subsoil 005 which consisted of pale brown sandy clay with orange mottling. There were a number of fills present in the feature with clay lining around the eastern edge suggesting reuse and/ or repair. The basal fill of this large oval trough consisted of mid grey brown clay 016 which was overlain by firm dark grey sandy clay 007 and very firm pale greyish white clay 010. These deposits may be evidence of repair or consolidation of the eastern side of the feature. These deposits were further consolidated by loose mid grey silty sand 008 with frequent inclusions of sub-angular and sub-rounded stones. The next deposit in the trough consisted of mid grey brown silty clay 014 with moderate charcoal inclusions which was in turn overlain by very dark grey brown silty sand 015 with moderate charcoal inclusions. Above this was a layer of pale greyish white sandy clay 004 with occasional charcoal flecks. Overlying this was a deposit of pale greyish brown silty sandy clay 013 which was overlain by dark greyish black silty sand with frequent charcoal flecks and heat shattered stones. Above this were two deposits; mid brown sand 002 with moderate charcoal flecks and heat shattered stones and pale greyish brown sandy clay 009 with occasional reddened heat shattered stones. The uppermost fill of the trough 012 consisted of dark grey black silty sand with frequent charcoal flecks and reddened heat shattered stones. Topsoil 001 then sealed the site. One flint flake was recovered from 002 and samples were retained for further analysis and dating.

10.26 Site 15

10.26.1 This site was discovered during the excavation of a drainage gully along the north edge of the road strip to the east of Site 4 on the lower edge of a natural river terrace. The drainage

ditch was limited in depth so it was possible in this case to preserve the site *in situ*. Prior to this the site was recorded in plan and sampled accordingly but not excavated. The deposits uncovered were indicative of a burnt mound with high concentrations of charcoal and reddened heat shattered stone present.

- 10.26.2 The subsoil 002 consisted of very firm brownish orange sandy clay with occasional gravel and rounded stone inclusions. This subsoil varied to the east, becoming more sandy and to the west, showing an increase in clay content. There were two main deposits making up the burnt mound feature; unfortunately, it was not possible to determine their stratigraphic relationship without excavation. The most extensive deposit was loosely compacted, almost black charcoal rich silty clay 003 with frequent inclusions of burnt stone fragments. This measured 8 m north to south and extended for an unknown distance to the west and east beyond the limits of the drainage cut. The second deposit which was observed along the west edge of 003 was a very compact grey brown stony silty clay 004 with frequent rounded stones. These deposits were overlain by dark greyish brown silty clay loam with pockets of sand, occasional gravel and small rounded stone inclusions. Samples of 003 and 004 were sampled across the burnt mound for further analysis and potential dating.

10.27 **Site C18**

- 10.27.1 This site was discovered during the construction phase topsoil strip and consisted of two cut features (005 and 006) approximately 5 m apart. Given the proximity of several burnt mounds of possible Bronze Age date and the similar nature of the fills of the features from Site C18 the site has been included here. The subsoil consisted of yellowish brown sand 002. The most westerly feature was circular on plan measuring 0.29 m in diameter and 90 mm deep. The fill consisted of loose dark grey charcoal rich silty sand 003. The easterly feature 006 measured 0.52 by 0.64 m on plan and up to 60 mm deep. The fill consisted of dark grey black charcoal rich silt with occasional small angular stone inclusions. No finds were discovered during the investigation of this site.

10.28 **Boreland Cottage Lower Discussion**

Site 1, 1ext, 3, 4, 13, 15, C18 Discussion

- 10.28.1 The archaeology uncovered here is significant because it not only represents seven burnt mounds but it also forms part of a complex relict Bronze Age landscape present in this area. There were a total of nine similar burnt mounds discovered across the scheme during the advance and construction works (including Whitcreek Bridge and West Challoch Bridge) with Site 8 (Droughduil Bridge) representing the remains of a possible tenth burnt mound. From the original evaluations and subsequent investigations here at Boreland Cottage Lower it became apparent that this ground is crossed by a major palaeochannel leading west to east before bending southwards towards the current shoreline. In particularly wet conditions this palaeochannel was readily visible. The burnt mounds represent a different aspect of Bronze Age activity to the funerary complex on the nearby ridge to the north-west. The dating and analysis of each burnt mound would enable direct comparison to dates for the funerary activity and confirm if the activities were contemporary or otherwise.

Boreland Cottage Upper

10.29 **Site 10**

Prehistoric remains

- 10.29.1 From the evaluation phase of works it was established that there was funerary activity in this area with multiple pit and post-hole features also suggesting that there were phases of archaeological activity of a general prehistoric nature across this whole ridge (Figure 18). The site was stripped of loose light grey brown silt topsoil 0.4 m to 0.55 m thick revealing numerous circular and oval features, and some linear features cut into the subsoil. A layer of loose reddish-brown sand silt hillwash (241; 754 or 949) was concentrated on the northern third of the site, and covering some of these features (Plate 65).



Plate 65: Aerial shots of site.



Plate 66: Post ex shot of line of postholes.

Earliest phase of activity

10.29.2 Distributed across the entire site and usually filled by loose brown/orange silt sand deposit, (similar to the hillwash 241) these features showing no particular pattern, were truncated by postholes and/or ring-ditches representing later phases of activity. Five of the pits (057, 293, 852, 896 and 908), were located around the centre of the site and were truncated by the largest ring-ditch 297 while two of the pits (057 and 852) were also cut by later features. Situated at the east side of the ring-ditch, pit 057 was filled by brown orange silt sand fill 301 and it was cut by posthole 056 at its north side. It was rounded in plan and it measured 1.08 m long by 0.65 m wide by 0.28 m deep. To the north another pit 293 truncated by the ring-ditch at its east side was recorded. Oval in plan it measured 0.32 m by 0.09 m deep and it was filled by firm mid orange brown silty sand 178. The third of the pits truncated by the ring-ditch 297 at its east side was situated west of this ring-ditch. Pit 853 was filled by moderately compacted dark grey black silt with inclusions of frequent charcoal 021. This oval shaped pit measuring 0.34 m in diameter and 0.12 m deep was in turn cut into another pit 852 which was filled by loose orange brown silty sand 851 in which fragments of clay and stone were found SF119. Also ovoid in shape it measured 0.68 m east to west by 0.64 m north to south with a maximum depth of 0.14 m. To the south of the ring ditch, possibly bisected by it (i.e. one large pit), two further pits were located. The first of these 896 was cut by the outer edge of the ring-ditch while 908 was truncated by the inner edge. The outer pit 896 was filled by moderately compact reddish-brown sandy silt with occasional pebbles 895 and was semicircular in shape and 'V' shaped in section and it measured 1.3 m long by 0.9 m wide by 0.44 m deep. Filled by firm brownish orange fine gravel with frequent pebbles 907, pit 908 was irregular in plan with concave sides and a flat base and it measured 1.8 m long by 1.1 m wide and 0.2 m deep. No datable finds were recovered from either pit.

10.29.3 A single pit 988 was also found to be truncated at its northern side by the smallest ring ditch 577. The pit was filled by burnt yellow orange sand silt with inclusions of gravel and pebbles 989. This pit measured 0.67 m by 0.64 m and 0.26 m in deep. Its north and south sides were not observable due to its truncation by the ring ditch and the trench dug to aid the recovery of the inverted urn SF 92 found inside the ring ditch. At its centre it was cut by an oval shaped post-hole 967 filled by reddish brown dark grey silt with charcoal flecks measuring 0.3 m long by 0.26 m wide and 0.16 m deep.

Line of postholes

10.29.4 Crossing the site a total of 45 post-holes were observed running ENE to WSW in a line, some of them were previously excavated during the evaluation. Even though they were predominantly arranged in one line, some lay in rows parallel to this main alignment. They varied in size, shape and composition (Plate 66). They measured between 0.33 m and 0.65 m in diameter and 0.08 and 0.37 m deep and they were oval or circular in plan. Their fills varied in colour

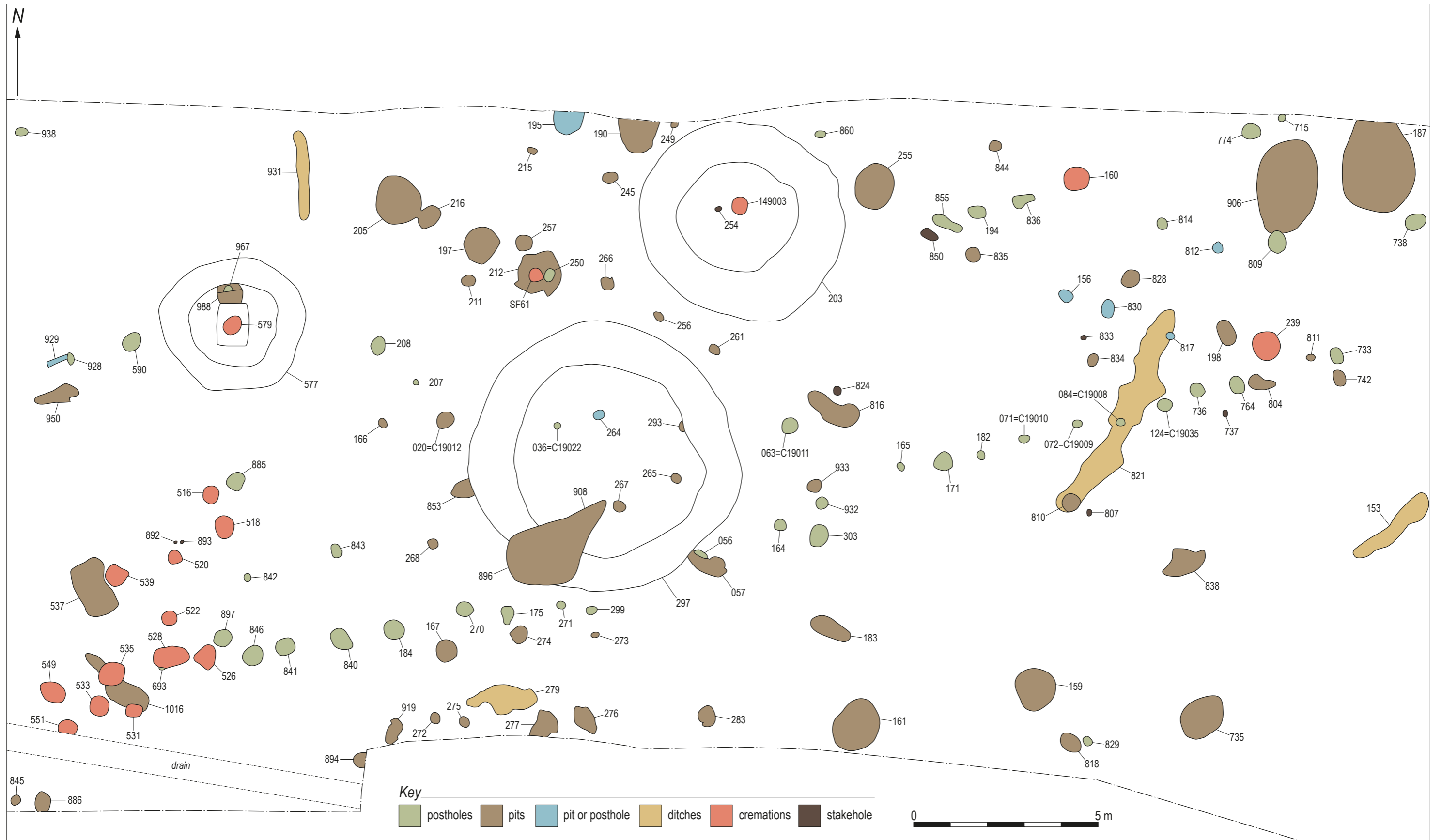


Figure 18: Post-excavation plan of Site 10.

ranging from reddish/brown to mid brown grey and dark grey and also in composition from sand silt to silt or coarse sand. Some of them presented inclusions of occasional to frequent charcoal flecks. Possible packing stones were visible in some of them: 184; 270; 176, 164; 165; 171 and 715. None of these postholes presented any datable finds however some of them did show stratigraphic relationships with other features. For instance; posthole 056 (described in the earliest features section) which was cut by ring-ditch 297, was part of this line of post-holes suggesting that at least one of the ring-ditches post-dates the post-hole line. South-west of the smallest ring ditch 577 and in the vicinity of the area of cremation burial pits cluster, two of the post-holes (535 and 549), presented intrusion of cremated bone fragments. The loose dark orange brown silt sand fill 534 within 535 had inclusion of cremated bone fragments at its upper surface; while the loose dark grey silt sand 548 of 549 presented inclusion of small fragments of cremated bone. A single posthole 529, also situated in this area, was cut by a cremation burial 528 again showing that at least some of the funerary activity post-dates the post-hole line. The fill of this post-hole 693 consisted of loose grey sand silt with charcoal flecks at its base and showed intrusion of cremated bone, probably introduced by animal burrowing and related to cremation pit 528.

- 10.29.5 A shorter secondary line of postholes also running ENE to WSW parallel to the longer line was identified at the north side of the site. It was composed by a total of seven postholes as well as pits (728, 738, 809, 812, 828, 830 and 156). They were oval or circular in form and measured between 0.4 m and 0.5 m in diameter and between 0.05 m and 0.29 m deep. An additional four smaller postholes or pits (834, 817, 729 and 726) were also found between this and the main post-hole alignment. None of the fills presented any finds to help determine their date or function, although one of them 809 was cutting a large pit 906 (see appendix).

Ring-ditches

- 10.29.6 Located towards the north centre of the stripped area three ring ditches were found (203, 297 and 577) (Plate 67). The smallest and most westerly of these 577 measured 3.7 m in external diameter while its inner diameter measured 2.36 m (Plate 68). Circular in plan with a fairly steep sides and rounded base it was 0.7 m wide and between 0.14 m and 0.34 m deep. The north side of this ring-ditch truncated the hillwash deposit 241 while the southern side was cut into the natural sand and gravel 002. It was filled by moderately compacted reddish dark brown sand silt with occasional charcoal flecks (578). No datable finds were obtained from this fill. It was recorded via three slots before it was fully excavated. At the approximate centre of the inner ring a circular cut 579 was encountered measuring 0.52 m by 0.41 m and 0.24 m deep and containing an inverted urn SF92. The urn base had been truncated by ploughing and it was filled by a loose dark grey brown sandy silt cremation deposit 580. Separated in grids (A, B, C and D) it was fully excavated in spits. The urn, which presented cracks in several places, was lifted after it was fully exposed and wrapped with cling film and bandage. It measured approximately 0.2 m in height and 0.18 m in diameter and it seemed to have no decoration (Plate 69).



Plate 67: General pre-ex shot of ring ditches 203 & 297.



Plate 68: Post-ex shot of small ring ditch 577 with cremation cluster on right hand corner.



Plate 69: Pre-ex shot of urn SF 92 in situ.



Plate 70: Post-ex of both medium size 203 and large ring ditch 297.

Medium size ring-ditch

10.29.7 To the north-east of the largest ring ditch was the medium sized ring-ditch 203. It was excavated and recorded via four slots (A, B, C and D), one of which was recorded during the evaluation, prior to being fully excavated (Plate 70). Roughly circular in plan its outer edge measured 5.6 m approximately in diameter while the inner edge measured 3.4 m. The profile of the ditch was predominantly 'U' shaped with a flat base although it presented a 'V' shaped profile towards the south side of the ring-ditch and it varied between 0.95 m and 2 m in width and between 0.43 m and 0.55 m depth. While its northern side was cut through the hillwash 241, its southern end was cut into more compact natural dark brown sand and gravel 002 which may explain the slight difference in the shape of the profile on the south side. At the base of slot A two similar fills described as light greyish brown sandy silt (202 and 204) were present. Deposit 202 was concentrated on the north side while 204 was present on its south side. They were sealed by dark greyish brown silt 0.3 m thick fill 201. The upper fill of the ring ditch 122 consisted of compact light brown sandy silt between 0.22 m and 0.41 m thick with occasional pebbles. No datable finds were encountered in any of the fills.

10.29.8 In slot B the primary fill 291 consisted of light brown with mottled orange clay silt, lithic SF67 was recovered from this fill. Overlaying this on the north side, 289 consisted of loose light grey brown silt 0.13 m thick. Two fragments of struck flint cores were found in this fill (SF65 and SF66). At the south side, a similar loose light grey brown silt deposit 713 0.23 m thick was recorded. Upper fill 122 overlaid three deposits (289, 291 and 713). Slot C revealed two fills underneath 122, 708 and 709 in stratigraphic order. A loose mid orangey brown silty sand 0.24 m thick, fill 708 was concentrated at the east edge of the ring ditch cut. Overlaying it at the west corner of the ring ditch, dark greyish brown silty sand 0.18 m thick, deposit 709 was recorded. Neither of these fills revealed any datable finds. Slot D was similar to slot C in fill distributions, with two layers found overlaid by upper fill 122. The first deposit 731, concentrated on the northern edge was composed of loose mid brownish grey silt with frequent gravel inclusions. While 732, loose mid greyish brown silty sand 0.2 m thick with frequent gravel inclusions was located at the south side of the ring ditch edge overlying 731. No finds were recovered from either deposit. In the interior of this ring ditch there was a cremation deposit 149003 which was found during the evaluation. Two more features were also found in the interior of the ring ditch: 254, a possible stake-hole and 304 a possible plough scar. The stake-hole measured 0.13 m by 0.1 m wide by 0.05 m deep and was sub-circular in form. It was filled by loose dark greyish brown silt with occasional charcoal 054. This feature was situated just west of the cremation deposit.

Largest ring ditch

10.29.9 Found during the evaluation and located south-west of the medium size ring ditch it was sub-circular in shape with the ditch measuring between 1.14 m and 1.6 m in width and between 0.36 m and 0.53 m in depth. 'U' shaped in profile it was steeper on the inner edge and towards the north side. The outer diameter of this ring-ditch 297 measured 6.9 m while

the inner diameter was 4.5 m (Plate 71). Three slots were already excavated and recorded during the evaluation; however, these three slots were expanded during excavation after remains of charred wood were discovered around the base of the northern arc of the ditch. Two isolated fills were identified underneath this charred wood when lifting it; 610, found under wood 232 and overlaying this, 611 loose mid orange brown gravelly sand measuring 0.14 m thick. All the wood fragments were recorded as deposits: 230, 231, 232 and 233, prior to being lifted and 100 % sampled. A sub rectangular charred wood fragment 233 overlaid another fragment 232 at its western end. On top of the burnt wood, a thin dark grey brown silty clay 234 deposit (same as 109) was recorded.

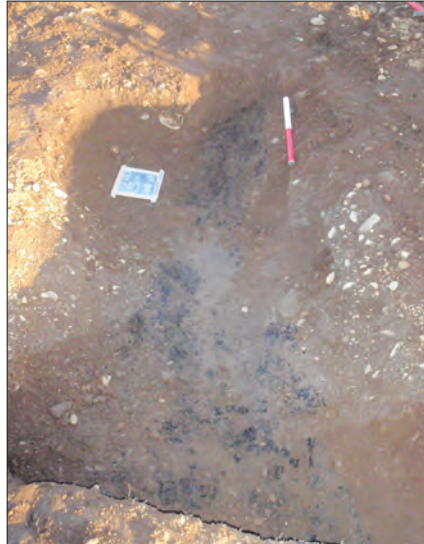


Plate 71: Bottom of ring ditch 297 lined with charred wood.

- 10.29.10** Above the charred wood deposits were five fills (771, 805, 806, 295 and 296). The description of this last fill, dark orangey brown silty sand with frequent gravel 296 suggested an association with an earlier feature 293 cut by the ring ditch. It was interpreted as possible wash out material from this earlier feature. At the north slot and east slot a deposit described as dark greyish brown/ brown fine sandy silt (287=290) was identified overlaying deposits 771, 805 and 806 respectively. All these layers were covered by fairly compact greyish brown fine sandy silt upper fill (034=294) with inclusions of stones and pebbles, this deposit measured between 0.36 m and 0.4 m thick.
- 10.29.11** Located at the south side of the ring ditch an area of loose stone deposit 298 measuring circa 1.6 m long by 0.9 m wide and 0.15 m deep was recorded. It was considered that this deposit may have been a levelling layer to stabilise this locale which had cut through two earlier pits (896 and 908). The fill was overlaying a moderately firm light to mid yellowish brown gravelly sand deposit 880 interpreted as the upper fill of the ring ditch. Underneath this fill a secondary ring ditch fill composed of compact mid brown silty sand with occasional pebbles and 0.24 m thick fill 881 was recorded. No finds were recovered from any of the fills from the ring ditch, apart from the charred wood.
- 10.29.12** Several features were encountered inside the ring ditch: 264, 265 and 267 with some of them half sectioned and recorded during evaluation: feature 036 (same as C19022 from evaluation). At the south side of the ring ditch, east of pit 908 an oval shaped shallow pit measuring 0.28 m by 0.18 m and 0.02 m in depth 267 was uncovered. This pit was filled by firm mid greyish brown silt with frequent gravel 035. To the north of this pit another circular feature (264) filled by firm dark brownish grey silt with frequent gravel 037 and measuring 0.39 m in diameter by 0.13 m deep was found. It was interpreted as a possible post-hole. Finally, east of the inner ring ditch and south of pit 029, a shallow pit was identified 265. Oval in plan it measured 0.45 m by 0.4 m and 0.05 m deep and was filled by very loose dark orangey brown silty gravel 055.

Cremations

- 10.29.13** The majority of the cremations were concentrated in a cluster, just southwest of the small ring ditch 577. A total of ten cremation burial pits were recorded in this area, while the remaining eight cremation pits were scattered throughout the site, two of which were dug during evaluation (C19050 and 149003). Two of these later cremation features were found centred in the ring ditches 203 and 577 respectively, with the cremation within 577 placed in an inverted urn SF92 (see 7.10.6 to 7.10.12).

Urn cremations

- 10.29.14** Two further urn cremations were encountered in the north side of the site. The first one 212 with a plain inverted urn SF61, was situated north of the largest ring ditch 297 (Plate 72). It was discovered when digging a circular posthole 213 filled by dark brown sandy silt (038) and measuring 0.46 m long by 0.51 m wide and 0.17 deep. The cut for this posthole truncated the cremation pit at its SSE edge. Circular in plan and approximately 0.85 m north to south by 0.7 m east to west and between 0.45 m and 0.48 m deep, 212 was filled by three deposits. The basal fill consisted of loose yellowish grey coarse sand 225 which was sealed by loose grey brown silty sand 224. The upper-most fill consisted of loose yellow grey coarse sand 223 measuring 0.14 m thick. The urn was placed tightly into the SSE edge of the cremation burial pit and it was recovered in its entirety. A second posthole 250 sub-circular in plan, and measuring 0.3 m by 0.27 m by 0.2 m deep, was exposed and cut by the slot excavated to assist the recovery of the urn. Due to this truncation its relationship, if any, with pit 212 remains uncertain.



Plate 72: NE facing section of pit 212 showing complete urn SF 61.



Plate 73: Close up of SF 95.

- 10.29.15** The second urn cremation 160 was further east of the site and it did not have any association with the ring ditches; it seemed to be isolated. Round in plan measured 0.65 m by 0.6 m by 0.22 m - 0.23 m deep. The urn, found in a very fragmentary condition (SF 5 -16; 19-26; 30-56), was placed in an upright position, the opposite to the other two urn cremations found on site. Filled by loose light grey brown silty loam 093 it had roughly circular stones 210 encompassing the urn. Two courses of stone with no bonding material were visible at the south west corner with only one course visible on the rest of the surrounding circle of stones. Some of these stones were found to cover urn fragments but this could be due to later disturbance like ploughing.

Isolated cremations

- 10.29.16** Further southeast, another isolated cremation pit 209 was identified measuring 0.6 m in diameter and between 0.1 m and 0.15 m in depth. It was filled by firm dark brownish grey sand with very occasional fragments of charcoal and cremated bone concentrated mostly on the NE and north side 127. When excavating a further cremation pit was found underneath 239. Slightly bigger in diameter at 0.65 m it was 0.29 m thick. It was filled by loose black sandy gravel with frequent charcoal and cremated bone fragments. When excavated it was noticed that the edges of this first cremation pit were not clearly defined. It looked as if

hillwash and firm mid greyish brown sand with frequent gravel 218 washed over its fill. Its base was not clear either with an ill-defined interface between the cremations fills of 209 and 239. Furthermore, it appeared that cremation 239 was used for four distinct cremation deposits. However, this distinction between deposits became less clear with the removal of each spit. No datable finds were encountered in neither of them apart from charcoal and cremated bone.

- 10.29.17 To the west of the smallest ring ditch 577, two additional cremations were identified: 669 and 837. The first one, a deposit of brown black silt with inclusions of charcoal measuring 0.1 m thick was placed at the NE area of posthole cut 819 just above its pebble lined base. This cavity resembled a post-pipe which may have been removed and replaced by this cremation deposit. The posthole fill, consisting of loose beige/brown coarse sandy silt 820 and measuring 0.77 m by 0.59 m and 0.1 m thick, was found around the cremation deposit. Cremation pit 837 lay immediately north of 819. Sub-circular in shape this cremation measured 0.7 m by 0.52 m and 0.33 m deep. It was filled by compact dark grey black silty gravel fill 670 with hillwash found around the edges of the cut.

Cremation cluster

- 10.29.18 Most of the cremations found in this group were circular or oval in plan and measured between 0.4 m and 0.6 m in diameter and between 0.13 m and 0.52 m deep. Their fills colour and composition varied from firm black charcoal-rich sandy silt to loose mid brown sandy silt with no evident charcoal inclusions. Datable finds were retrieved from four of the cremation burial pits. In cremation pit 531 a possible burnt flint tool was found SF100 while four fragments of prehistoric ceramic sherds SF91 were discovered in pit 533. In the upper level of pit 539, a stone with possible marking on it SF105 was encountered.
- 10.29.19 Two of the most significant finds; a prehistoric vessel SF95 and a vessel base SF98 were retrieved from pit 528 (Plate 73). This oval shaped pit measured 0.74 m in length by 0.56 m in width and 0.3 m in depth and had six fills, all of which were truncated by animal burrowing. The primary fill of the cremation pit consisted of black charcoal-rich silt 687 measuring 0.04 m thick. Within this fill, on the north-west edge of the pit, an inverted vessel with incised decoration was discovered SF95. Above this cremation deposit two additional fills were recorded north and south of the pit: 667 and 668. A probable ash deposit, loose grey silt 666 measuring 0.01 m thick was identified covering these two fills. This in turn was sealed by loose brown/black silt charcoal rich fill 654. Finally, the upper fill 527 in which the base sherd SF98 was found was described as light grey brown sand silt with frequent charcoal inclusions measuring 0.14 m thick. Possibly associated to this pit and to its immediate west, a deposit described as mid brown silt with gravel, charcoal and cremated bone fragments 629 was identified. It was suggested that it could be the result of 'over spill' from the large cremation 528.
- 10.29.20 Located west in close proximity to this cluster of cremations a stone filled pit was identified 537. Sub-rectangular in shape with round corners and almost vertical sides leading to a flat base, it measured 1.65 m by 0.95 m and 0.28 m in depth. It was filled by irregular shaped stones 725 measuring between 0.1 m to 0.4 m across with some cracks but no evidence of being heated. At the north and south side the stones were sloping inwards while abutting against the outer edge of the pit. It appeared that the cremation 539 was overlying the fill of this pit. The cut of the pit appeared to change curvature slightly just to accommodate the cut for this cremation burial 539 which would suggest that they may have been contemporary. During excavation it was perceived that this stony feature may have acted as a focal point from which the group of cremation radiate east forming a rough arc.
- 10.29.21 Truncated by some of the cremation burial pits (531 and 535) at its SE end and NW end respectively a linear pit 1016 was located south of the stone filled pit. Filled by brown orange coarse sand silt, no finds were retrieved to help determine its function and date.

East of Ring-ditches-Arc of large stone-lined postholes

- 10.29.22** Located in the central area of the site just east of the ring ditches, four large postholes forming a WSW to ESE arc were recorded (159; 161; 722 and 735). Situated furthest west posthole 161 was filled by four fills and packing stones. Oval in plan it measured 1.36 m in length by 1.2 m in width and it had a maximum of 0.74 m in depth. Packing stones 163 were identified concentrated on the northern edge of the cut; consisting of mostly large rounded sub-angular cobble size stones with smaller angular stones in between. The primary fill 174 was described as firm mid brownish orange sand with very occasional charcoal flecking and frequent gravel, this deposit measured 0.11 m thick. Above this and showing signs of animal burrowing, was firm mid greyish brown silty sand 173 measuring 0.41 m thick with very occasional charcoal flecks and frequent gravel inclusions. This was overlain by 162 mid orange brown sand with frequent inclusions of gravel and very occasional flecks of charcoal, this deposit measured 0.2 m thick. Sealing the pit was 0.17 m thick mid greyish brown silty sand 059 with frequent gravel inclusions. None of these fills presented any datable finds.
- 10.29.23** The second posthole 159 was sub-circular in shape with steep sides and 'V' shaped in profile and measured 1 m in diameter and up to 0.65 m deep (Plate 74). Several courses of large packing stones were identified on its north side. The basal fill consisted of charcoal rich dark black grey silty clay 158 measuring between 0.15 m and 0.2 m. Overlaying this deposit was moderately compacted orange brown silty clay 157 measuring 0.1 m thick with frequent stone and charcoal inclusions. This intermediate fill seemed to be scorched/ burnt. The uppermost fill consisted of moderately compacted dark orange brown silty sand 077 with many stone and charcoal intrusions measuring 0.45 m thick. South east of this post-hole lay two further possibly associated features, a pit 818 and possible stake-hole or posthole 826.
- 10.29.24** An additional third stone lined posthole 735 was identified east of 159. It was similar in plan but slightly larger in scale measuring 1.2 m by 1.26 m and up to 0.54 m deep with a wide 'U' shaped profile. During excavation it was noted that several large to medium size stones with cracking that could be attributed to burning were concentrated around the east edge of the cut, a bright orange silt fill also heat affected, was identified underneath these stones. It was filled by loose dark brown coarse sandy silt with frequent gravel, charcoal and medium to large sub-rounded stones 080. No artefacts were recovered from this posthole.
- 10.29.25** The final large posthole 722, in contrast with the other three, presented the remains of a post-pipe in the form of moderately compact dark grey black silty sand 155 with frequent charcoal framed by several large stones on plan. In addition, a flint fragment SF104 was also recovered from this fill measuring 0.8 m by 0.25 m and up to 0.36 m deep. There were no large packing stones visible in the half-sectioned area of this oval shaped posthole measuring 0.55 m wide by 0.8 m long by 0.36 m deep. However, it may be that large stones, found lining or concentrated on the other three postholes were located on the unexcavated north side of the posthole. Abutting both sides of the post-pipe were packing material 723 to the east and 727 to the west. These deposits consisted of compact dark orange and brown sandy silt with occasional gravel inclusion and measured up to 0.26 m thick. Their similarity in colour and composition would suggest that they were probably the same material.



Plate 74: SE facing section of pit 159.



Plate 75: Mid-ex of stone lined pit 255.

Isolated large pits

- 10.29.26 Situated east of the medium size ring ditch 577 a roughly circular stone lined pit 255 measuring between 1.2 m and 1.5 m in diameter and between 0.7 m and 0.8 m in depth was found. Packing stones, two courses deep lined almost the entirety of the cut edge. Over these large stones yellowish orange sandy silt 292 was recorded. It was identified under and mixed within layer 109, loose brownish grey gravelly sand measuring approximately 0.6 m thick which was very similar in nature to the subsoil into which the pit was cut. This main backfill deposit, covered some of the large stones used to line the pit (Plate 75). Sealing this layer, loose yellowish orange sandy silt 263, a possible re-deposited hillwash deposit was recorded. It was thought to be similar to 292. Finally, the upper fill consisted of compact orange brown silt 193 measuring between 0.1 m and 0.2 m thick. No finds or evidence of burning were found in this pit which could help to identify its date and function. Its close proximity to ring ditch 577 and the possible occupation layer of loose medium brown silty sand (110) with flint fragments may suggest an association between these features.
- 10.29.27 An additional two large pits (187 and 906) in close proximity but with no physical association between them were located towards the east end of the site. The first 187 was oval in plan and measured 1.7 m wide by 2.5 m long with a depth of 0.6 m. There were two fills present (909 and 134). One large stone was recorded within the primary fill 909 along with re-deposited hillwash 912 and re-deposited natural 911. This feature was truncated by a posthole 809 at its south side.
- 10.29.28 Slightly larger than the previous pit in size at 1.95 m wide by 2.6 m long and 0.68 m deep the second pit 187, was filled by four distinctive deposits: 141, 188, 890 and 189. Flint debitage SF017 was found in the upper fill 141 as well as SF027 in the lower fill 189 indicating a likely prehistoric date. There were large boulders at the SE quadrant of the feature which may suggest packing material for a large post as opposed to a pit.
- 10.29.29 Further east, another sub-circular pit 624 filled by loose mid brown grey silt 628 and mid brown silt with frequent stones 367 was identified. Compared to the above-mentioned large pits it was much smaller in size. A lithic flake SF093 and possible stone tool SF097 were retrieved from fill 367 which may assist in dating this pit.
- 10.29.30 Nine medium to large pits were also recorded in the central and south area (558, 564, 567, 595, 603, 612, 616, 633 and 739). They differed in colour and composition from the previously described pits and some were only visible after weathering had occurred. Elongated or irregular in shape with no apparent pattern suggesting a possible function, they were filled by dark orange mottled with dark brown or grey silty sand with moderate inclusions of gravel. No finds were retrieved from any of these fills that could provide a date or identify the function of these pits.
- 10.29.31 Finally at the east corner of the site, just before it sloped down towards the unclassified small road, a number of pits and/or postholes were discovered. No particular pattern or obvious focal point was discernible and none of them presented any datable finds apart from a single lithic SF89 encountered in pit 468 which was truncated by posthole 467. The function of any of these pits and postholes is presently unknown. However, it may become apparent through post-excavation analysis of their fills and any small finds.

West of the Ring-ditches

- 10.29.32 An isolated large pit 205, similar to those found at the east side was located west of the medium ring ditch 577 and NW of the large ring ditch 297. Some large to medium sized boulders, interpreted as packing stones, were found at the centre of its loose dark brown grey silty sand 008 fill, although some redeposited hillwash deposit 241 was also noted on its south side. Cutting into its centre another possible posthole 242 also with packing stones and measuring 0.55 m in diameter and 0.4 m deep was recorded. The fill consisted of yellowish orangey brown clay silt with gravel 013. A roughly oval small pit 216 was located south-east of this feature. It measured 0.65 m across and 0.19 m deep. There was no clear association between the two although their proximity does suggest a potential connection.

Group of pits and postholes

- 10.29.33** A group arranged in a circular pattern and composed of some large pits (991, 998, and 1026), medium size pits (899, 963, 964, 980, 984, 936 and 1022) and postholes (962, 979, 985, 993 and 1006) were located further west of site. A possible worked flint core SF136 was recovered from the largest pit measuring 2.2 m long by 1.8 m wide 991. While numerous debitage flint fragments as well as worked flint fragments (SF189 to 193) were recovered from pit 1026.
- 10.29.34** One of the most enigmatic pits 899 was situated at the NW corner of this possible circular structure. Oval in shape and measuring 1.5 m in length by 1.3 m in width and 0.2 m in depth it was filled by two different fills. Lower fill 884, black dark brown silt sand slightly coarse in texture and charcoal rich 0.1 m thick, was sealed by upper fill 788, loose beige/brown fine-grained silt sand 0.2 m thick with large amount of burnt and fire cracked sub-angular cobbles. Both deposits were interpreted as possible hearth waste, although no *in situ* burning was noted. On the north edge of the cut, two further spreads of burnt material were identified: 789 and 803 both described as black mottled with dark brown and dark orange soft sandy silt with frequent small angular fire cracked stones and frequent charcoal (Plate 76). Underneath each spread a posthole was found; posthole 1004 was discovered beneath 803 while posthole 1011 was under 789. Both of them were filled by single fills with no datable finds.



Plate 76: Post-ex shot of stone/charcoal spreads 789 & 803.



Plate 77: Post-ex of group of postholes and pit.

- 10.29.35** Mostly oval in shape the group of postholes measured between 0.16 m and 0.65 m across and between 0.1 m and 0.27 m deep. One of the post-holes 993 presented a post-pipe 759 characterized by black dark grey charcoal fill and was interpreted as a post burnt *in situ*. There were no datable finds recovered from this feature. Two stake-holes (971 and 972) were encountered in close proximity to postholes 979 and 985 respectively.
- 10.29.36** To the west of this group two large curvilinear features were discovered; 1033 and 1062. They seemed to be filled by similar deposits, although 1062 truncated the outer edge of 1033. Both of them present datable finds, with several flint flakes (SF143, 145-146, 153, 173) and four ceramic sherds SF74 found in fill 445 of feature 1033 and flint fragments present in both the primary fill 1068 (SF174 -175) and secondary fill 1052 (SF172 of 1062). A high quantity of flint fragments was discovered in the deposits and spreads around these features (SF149, 152). The high concentration of finds, compared to other places on site, may indicate an occupation area or an area where flint knapping had occurred. A small group of pits and two postholes were identified to the north-west but no clear arrangement was visible.
- 10.29.37** Finally further SW on the edge of the site extension a total of eighteen post-holes and pits, arranged in an oval pattern were discovered (Plate 77). Most of them presented datable

finds, from flint fragments to ceramic sherds as well as some fragments of cremated bone SF197 found in pit 1089. Two fragments of decorated ceramic SF156 were retrieved from posthole 1050 which cuts through pit 1048, both were located north of the centre of the oval pattern of features and contained datable finds. None of these features had a clear function; however, the high quantity of possible domestic artefacts suggests that it may have been an area of habitation.

Medieval and post-Medieval agricultural remains

- 10.29.38** Several field drains were identified along the west site of the field orientated SE/NW. A possible plough mark was also identified on the south-west corner of the site, running in a SE/NW direction. Feature 304, another possible plough mark was to the north of the cremation found at the centre of the medium size ring ditch. Linear in plan it measured 0.8 m in length by 0.16 m in width and 0.07 m in depth. It was filled by mid greyish brown silty sand with frequent gravel 260.

10.30 Site 23

- 10.30.1** This site is located north; just between Site 10 and the train line that connects Dunragit to Ayr.

Prehistoric remains

- 10.30.2** After stripping the site of loose dark brown black silty topsoil numerous circular, oval and linear features along with a cluster of cremation burial pits were revealed. A layer of moderately compacted orange brown silt/clay hillwash (002) between 0.2 to 0.3 m thick was found across the site.

Cremation cluster and associated features

- 10.30.3** A total of four cremation pits (015, 017, 034 and 037) were found at the north-west area of site, to the north of the ring ditches from Site 10 and arranged in a line orientated NNE/SSW. Oval or circular in shape they measured between 0.38 m - 0.87 m in length by 0.38 m - 0.65 m in width and 0.14 m - 0.27 m in depth. They were filled by moderately compacted mid/dark brown coarse clay sand silt to loose dark brown sandy silt (016, 018, 024 and 038 respectively). Most of them contained the cremation deposit in a specific area within the pit: SW side in pit 015, SE area in pit 017, centrally at pit 034 and at its NW quadrant in pit 038. No other remains or finds were found within the fills apart from the cremated bone that could help with dating (Plate 78).

- 10.30.4** While cremation 034 was cut by a large posthole 036 at its SE edge, cremation pit 037 seemed to truncate pit 025 at its north side; this last association however was not completely clear during excavation. Both of them were in alignment along with the cremations.

- 10.30.5** An additional group of two postholes and a pit (010, 073 and 045) were also identified in close proximity to the cremations, just north of them. Circular in plan and 'V' shaped in section, posthole 010 was 0.6 m long by 0.5 m wide and was filled by compact mixed light orangey brown to light greyish brown sandy silt with moderate inclusions of charcoal. Small and medium size stones lined the cut, with a more obvious large packing stones placed at its west edge. Further east another large posthole 073 filled by two layers (063 and 074) and reinforced by packing stones 084 placed within the interface of these two deposits was recorded. It measured 0.6 m in length by 0.68 m in width and 0.5 m in depth and it was sub-circular in plan. Its lower fill 074, loose dark grey/ brown fine gravel with some sandy silt and very rare inclusions of charcoal was overlaid by loose dark brown soft silty sand with rare charcoal and burnt bone inclusions 063. Between these two postholes, pit 045 was found measuring 0.75 m wide by 0.55 m long by 0.24 m deep. It was filled by light brown and orange sandy silt with rare charcoal single fill. The function and date of this group of features is still unclear due to the lack of datable finds.



Plate 78: Site 23a Working shot-
excavating a cremation.



Plate 79: Site 23b Mid ex photo of pit 133.

Line of postholes

- 10.30.6 Forming a broad possibly curvilinear pattern a total of 35 postholes and pits were visible across most of the site, with the exception of the west end corner. They were arranged in a more spaced out grouping than those identified on site 10; however, they seemed to have a similar orientation. Their dimensions ranged from 0.2 m to 0.66 m in diameter by 0.12 m to 0.2 m deep or 0.28 m to 1.6 m long by 0.2 m to 1.2 m wide by 0.25 m deep. They were filled by varied fills from light yellow brown sandy silt to loose dark brown grey silt with frequent charcoal and friable medium grey brown silt with pebbles and gravel. No finds were retrieved from any of the postholes which could help to identify the function and date of this formation.

Large pits

- 10.30.7 Two large pits (131 and 133) were found at the centre east of the site. Pit 131 located just on the north edge of the site, was filled by four separate fills. Circular on plan it measured 1.05 m in depth by approximately 0.8 m in diameter, although it could have been truncated by the trench at the north edge. At its base, mid brown silty sand with gravel inclusions and 0.5 m deep layer 161 was encountered. Overlaying it 160, moderately compacted dark brown sandy silt with frequent charcoal inclusions measuring 30 mm - 040 mm thick was recorded. It covered 0.3 m thick moderately compacted mid brown sandy silt with frequent pebbles 148. Finally, its upper fill consisted of loose light brown black sandy silt 128 with frequent pebbles and rare charcoal inclusions and 0.2 m - 0.25 m thick.
- 10.30.8 The second pit 133, located south of pit 131, was also filled by four separate fills (Plate 79). It was larger in size than pit 131 at 1.4 m by 1.5 m by 1 m deep and sub-circular in shape. At the base of the cut another thin layer 159 measuring 20 mm thick of moderately compacted dark brown silty clay was identified. During its excavation it looked as if this fill was lining the base and the sides of the pit cut. Overlaying this fill loose mid brown orange silty sand 158 with inclusions of gravel and medium to large stones was encountered. Small find 005, a flint fragment was retrieved from within this fill. Covering it a thin layer of 0.03 m thick moderately compact dark brown silt rich clay 127 with inclusions of frequent charcoal was recorded. Finally, its upper fill moderately compacted mid to dark brown clay silt 092 measuring 0.65 m thick contained another fragment of flint (SF 002).
- 10.30.9 Between these two large pits three smaller pits were visible; 100, 102 and 116. Pit 102 located south of 131 and filled by dark greyish brown fine gravely silt 101, was circular on plan measuring 0.66 m in diameter by 0.2 m deep. Close to its east side pit 100, also circular in shape but slightly smaller on size at 0.6 m long by 0.5 m wide and 0.24 m deep, was identified.

It was filled by mixed dark brown and orange (possible hillwash) fine silt 090. Further south-east circular pit 116 measuring 0.6 m in diameter by 0.23 m deep was encountered. It was filled by dark blackish brown sandy silt 114 with moderate charcoal inclusions and 0.07 m thick overlaid by fill 112 mixed orange and dark brown fine gravely silt. Cutting this fill and over 113 a compact light orange course sandy silt 0.06 m thick interpreted as possible redeposited hillwash or slumped material, smaller pit 117 was identified. It was filled by loose dark brown fine silt 108 with rare charcoal and four large stones. At this moment it is not possible to determine if these pits were part of the posthole alignment or if they form a group with larger pits 131 and 133. Post-excavation analysis and dating in the future may clarify their function and possible relationships.

10.31 Site 23 extension

Prehistoric remains

10.31.1 This site was located north of the western end of Site 10 and it was the last one to be excavated. The site was stripped of medium to loose dark brown black silty topsoil 0.35 m to 0.4 m thick revealing numerous circular and oval features and two cremation burial pits cut into the subsoil. A layer of moderately compacted orange brown silt/clay hillwash 002 between 0.2 to 0.3 m thick was found across the site.

Cremations

10.31.2 Situated north of the site, just south of a line of post-holes, two cremation burial pits 041 and 045 were identified during the excavation of this site. Oval in shape, pit 041 measured 0.7 m in width by 0.8 m length by 0.2 m - 0.48 m in depth and it was filled by moderately compact mid to dark brown silty sand 019. The cut gradually sloped towards the north where the cremation deposit contained an upright urn with pierced holes at its neck. Some large stones were noted south to south-east above the cremation deposit. The ceramic container (SF009 - 059) was severely crushed with fragments collapsing towards its interior at the S to SE end, suggesting that probably later disturbance by ploughing of these stones could have caused the breakage (Plate 80).



Plate 80: Site 23exta Close up of urn (SF 009 to 059) with cremation.



Plate 81: Site 23extb General location of line of postholes and pits.

10.31.3 North-east of this cremation a much smaller cremation pit 045 was encountered. Circular on plan, although it was not clearly visible until circa 0.05 m below surface, it measured 0.33 m by 0.22 m by 0.32 m deep. It was filled by two layers; an upper fill of moderately compact mid grey brown silty sand 044 with some small charcoal flecks and less disturbed moderately compact mid-grey brown silty sand 047 lower fill. It was in this lower fill where the cremation deposit was gathered. The cremation pit was truncated by later pit 043. During excavation it seemed that this feature did not cut the cremation deposit only disturbing the upper fill 044 and possibly the upper part of lower fill 047. Sub-circular in shape, this later pit measured 0.67 m in diameter by 0.25 m in depth and it was filled by dark brown/grey silty gravel with charcoal inclusions and no datable finds.

Line of postholes

- 10.31.4** Similar to the alignment of postholes discovered during the excavation of site 10 but further north, a total of nine either possible pits or post-holes were recorded at the north end of the site (004, 016, 018, 023, 026, 029, 036 and 038) orientated ENE to WSW (Plate 81). They were circular or sub-circular in shape and they measured between 0.18 m - 0.6 m in diameter by 0.12 m - 0.45 m in depth. Their fills ranged between mid orange brown sand/silt with few charcoal inclusions to mid grey brown silty clay or sandy clay deposits. Packing stones were visible at the southern extent of 004, on the NW side of 026 and north side of cut 031. Stone lining was also recorded on the edge of cut 016 and large stones found at the base of 038 could also have a structural function.
- 10.31.5** Several small finds were retrieved from few of these features, suggesting a prehistoric date. A sherd of ceramic SF006 was discovered within fill 024 of posthole 026; two flint pieces SF007 were found within upper fill 033 of post-hole 036 and a flint debitage fragment SF08 was also discovered in the same post-hole primary fill 034.
- 10.31.6** Two more pits: 008 and 021 were also recorded running in the same alignment as the post-holes. They were in fact placed between postholes 004, 031 and 018. The first pit, 008, situated west of postholes 004 and 018 was a large circular pit measuring 0.9 m wide by 0.8 m long by 0.49 m deep. A layer of re-deposited natural 011 was found at its base with rare charcoal inclusions and 0.05 m thick. Sealing it charcoal rich black sandy silt layer 010 0.05 m thick was recorded. Overlaying it some possible packing stones 012 were identified at its south side contained within loose dark brown soft silty sand with occasional charcoal and one pottery sherd SF001.
- 10.31.7** North of postholes 004 and 031, a much shallower pit 021 measuring 0.86 m in diameter by 0.28 m at deepest point was identified. Filled by moderately compacted orange brown silty clay 020 it contained a prehistoric pottery sherd SF004.

Medieval and post-Medieval agricultural remains

- 10.31.8** Few field rubble and ceramic drains were identified across the site of the field orientated N -S. Possible plough mark was also identified on the SW corner of the site, running in a SE-NW direction.

10.32 Site 18

- 10.32.1** It is located west of the field where Site 10 and Site 23 ext were situated. The features were divided in two grids; A and B.

Prehistoric remains

- 10.32.2** After stripping the site of firm dark brownish grey sand with frequent rounded and sub-angular gravel size stones topsoil numerous circular, oval and linear features along with a possible ring ditch were revealed. Orange/brown sand silt hillwash of loose compaction 113 was also identified across the site, although it was deeper in the north.

Line of postholes

- 10.32.3** At the further east corner of the site, close to the site 23 extension, seven post-holes were recorded running N - S: 005, 007, 010, 013, 016, 017 and 023 (Plate 82). Oval or sub-circular in shape they measured between 0.45 m – 0.8 m in length by 0.38 m – 0.68 m in width by 0.25 m – 0.49 m in depth. Packing stones were visible in 010, 016, 023 and east side of 007's cut. They were mostly filled by single fill ranging from firm mid orangey brown silty sand to light to mid brown sandy silt or silt clay although some postholes did have upper and lower fills: 007, 013 and 016 (See appendix for full description of cuts and fills).

Stony feature

- 10.32.4 None of the post-holes and pits found in grid 'B' presented any noticeable pattern instead they seemed to be isolated. The most significant feature on this grid was placed on the western side of the trench, just at the bottom of the slope. A firm mid grey brown clay silt 218 was encountered in slot 1. It was covered by large deposit of stones 216 measuring approximately 7 m in length by 3.2 m wide and 0.5 m deep. This deposit of stones ranging from pebbles to large stones was mixed with firm mid to dark brown grey silty clay 217. Its similar composition to the hillwash 235 found on top of it suggested that it maybe the same fill. SF50 (slag fragment) and SF51 (five pieces of flint) were found in this fill. The location of the stony feature, a boggy area, suggested that it might have been built as a track, however an interpretation of possible cairn or collapsed wall can not be ruled out at the moment (Plate 83).



Plate 82: Site 18 General post-ex of trench showing line of postholes.

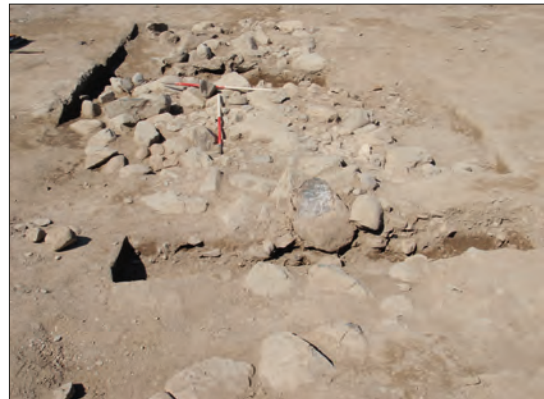


Plate 83: Site 18 Post-ex photo of stony feature.

10.32.5 Ring-ditch

- 10.32.6 Located at the central north edge of Grid A, curvilinear feature 109 measuring 0.58 m wide by 0.34 m deep was thought to be the remains of a possible ring-ditch. Its projected ring was 6.4 m in diameter while the ditch measured a minimum of 1.95 m wide and it had gaps at its west and south-east side. It was filled by moderately compact light grey sandy silt 108 0.28 m thick with frequent charcoal inclusions and occasional gravel and large stones. No finds were retrieved from any of these fills that could assist to determine the function and date of the feature.

- 10.32.7 A possible pit 131 was situated after the gap in the SE side of the possible ring ditch. Partially visible because it extended under the trench edge it looked sub rounded in shape and it measured 0.59 m width by 0.17 m depth. It was filled by a single orange brown sandy silt fill 119 of moderate compaction and frequent gravel and large stones and occasional charcoal. During excavation it was thought that this feature could be an extension of the ring ditch 109 instead of an individual pit (Plate 84).

- 10.32.8 Two post-holes were recorded in the inner space of the ring ditch: 152 and 163. Filled by brownish orange gravelly silt 0.2 m thick 147, posthole 152 extended under the trench baulk. It consisted of a sub-oval shaped feature measuring 0.8 m by 0.65 m by 0.2 m deep. Situated west of the SE gap of the ring ditch, posthole 163 measured 0.9 m by 0.85 m by 0.25 m deep and it was sub-circular in shape. It was filled with large packing stones and orangey brown gravelly silt 148 0.25 m thick. No datable finds were recovered within any of these fills.

Possible rectangular structure

- 10.32.9 1South-east of the ring ditch a varied group of 17 pits and a posthole 094 ranging from small pits to medium size pits were recorded overlaying hillwash 113. They seemed to form a rectangular pattern with some pits located on the interior of the possible structure (100 and 115). In one of these pits 100; frequent charcoal and inclusions of burnt bone were recorded mixed with its dark brown/black sandy silt fill 097. However, in general they were filled by firm mid brown sandy silt to silt clay soils.

10.32.10 Datable finds were encountered in feature 145 where a lithic flake SF23 was retrieved and pit 090, where a prehistoric pottery sherd was found SF26. Many fragments of Bronze Age pottery including rim and body sherds were collected from pit 079 (SF24-31 and SF33-42), along with a flint flake S43 and small fragments of unidentified burnt bone (Plate 85).



Plate 84: Site 18 Post-ex of ring ditch 109 & pit 131.



Plate 85: Site 18 Mid-ex shot of pit 079 showing fragments of pottery.

Large pit alignment

10.32.11 Starting west of the group of pits forming a possible rectangular structure and extending further east of the group of pits and post-holes in grid 'A' five large pits were recorded: 124, 129, 092, 065 and 057. They formed a slight curvilinear pattern and they had gaps of 12 m to 20 m between them.

10.32.12 Positioned on the western end of the alignment, oval shaped pit 124 measured 2.1 m by 1.5 m by 0.72 m deep. Its primary fill consisted of firm mid orangey brown silty sand 123 with no datable finds and 0.14 m thick. Covering it dark brownish grey silty sand 122 with rare flecks of charcoal and 0.1 m thick was found. Finally, its upper fill described as firm mid orangey brown silty sand 121 0.4 m thick was recorded. The pit was later truncated by a linear cobble drain 126 running through its centre.

10.32.13 South of the possible rectangular structure, pit 092 was identified. Roughly circular it measured 1.74 m by 1.68 m by 0.4 m deep. It was filled by firm orange brown coarse sand silt 093 with gravel inclusions and some sub-rounded large stones. On the north edge of this spread a deposit of mid brown sand silt 103 with charcoal flecks 0.02 m thick was observed. It was thought to be a lens of burnt material used to backfill the pit along with the main fill 093.

10.32.14 Just south of this last pit the largest pit 129 was located. Oval in plan and measuring 2.7 m E-W by 2.3 m N-S and 0.5 m deep it was filled by six different fills (Plate 86). Its primary fill consisted of orange brown sand 157 0.3 m thick. Dark grey silty sand thought to be organic redeposited fill 156 was recorded overlaying this last layer. Sealing it pale yellow/grey gravel and sand 0.15 m - 0.2 m thick deposit 155 was identified covered by loose orange sand 154. Charcoal rich dark grey black silt deposit 144 was found over it. Finally, upper fill 130, brown sandy silt with few charcoal flecks and 0.12 m thick was exposed. None of these fills had any datable finds which could aid in the interpretation of its function and date.

10.32.15 Pit 065 located east of pit 129 was oval in shape and it measured 1.98 m by 1.44 m by 0.6 m deep. Its primary fill consisted of brownish orange silty sand 064 0.38 m thick. At the eastern side of the pit dark brownish grey silty sand with frequent gravel 077 and 0.1 m thick was recorded. Over this layer the uppermost fill 056 mid orangey brown silty sand with rare flecks of charcoal and frequent gravel 0.3 m thick was encountered.

10.32.16 The last pit 057 was filled by orange brown gravelly silt 049 with frequent pebbles and occasional charcoal 0.31 m thick. At the centre of this sub-oval pit that measured 1.48 m by 1.39 m by 0.31 m deep another later possible pit 061 was identified. It was filled by three different layers: 058, 059 and 060. The primary fill of the pit 060 consisted of loose grey to

light grey silty sand quite ashy with frequent charcoal and occasional pebbles between 0.33 m – 0.16 m deep. Several lithic flint flakes and cores fragments were retrieved from this fill (SF19, 20 and 23). Mid brown sandy silt with frequent stones and gravel and approximately 0.19 m deep covered this layer. Within the upper fill 058, dark grey brown silty gravel with frequent charcoal and 0.09 m thick, SF22, a core fragment was recovered dating the feature to prehistory.

Group of pits, postholes and stake-holes

- 10.32.17** A series of five pits, two postholes and three stake-holes with no apparent pattern were found at the north side of grid A just east of the possible ring ditch 109. A possible fire-pit 038 and possible focal point, was located roughly at the centre of these features. It measured 0.85 m N-S by 0.65 m E-W and 0.2 m deep. Its primary fill consisted of light to mid brown silty sand with charcoal flakes 037 while its secondary fill was dark grey sandy silt with frequent charcoal flakes and small sub angular stones some of which showing signs of heat cracking 028.
- 10.32.18** East of this feature three stake-holes: 072, 073 and 074 along with one small posthole 070 were observed. The stake-holes were approximately 0.1 m in diameter and between 0.08 m - 0.1 m deep and they formed a triangular pattern on plan. Posthole 070, south of the stake-holes, was circular measuring 0.24 m in diameter and 0.11 m deep. This posthole was filled by mid-brown sand silt 071 deposit which was organic-rich and had a greasy consistency.
- 10.32.19** South of the possible fire pit, two postholes (039 and 066), similar in size at circa 0.4 m in diameter and between 0.11 m and 0.19 m deep, and one pit 048 were identified (Plate 87). Numerous fragments of prehistoric ceramic including some rim sherds (SF1 - 2; 5 - 18), were recovered from pit 048. Mid grey/brown silt clay 033 with charcoal inclusions and tiny fragments of burnt bone filled this pit.



Plate 86: Site 18 Post-ex view of pit 129 with north-east quadrant excavated.



Plate 87: Site 18 Pre-ex photo of postholes 039 & 066 and pit 048.

- 10.32.20** West of the focal point three more pits or possible postholes were visible (044, 045 and 084). Oval on plan they measured between 0.5 m and 0.8 m long by between 0.38 m and 0.52 m wide and 0.17 m to 0.18 m deep. Each had a single fill: loose dark brown sandy loam 043 with occasional charcoal in pit 044, mid greyish brown sandy silt 040 with frequent cobbles and rare flecks of charcoal in possible posthole 045 and brown orange fine sand silt 085 in pit or posthole 084.

Medieval and post-Medieval agricultural remains

- 10.32.21** Few field rubble and ceramic drains were identified across the site of the field. In grid 'A' two field drains were identified; rubble field drain 126 was orientated east/west and another running into 126 in north/south direction.

10.33 Site 2

- 10.33.1** Situated east of Site 10 and an unclassified road which passed under the railway line further north, the archaeological features of site 2 were found cutting into orange silt clay 011 or

orange sand 019 subsoil. These layers were covered by 0.29 m thick grey brown silty gravelly sand 004 intermediate deposit. This layer in turn was overlain by light orange brown gravelly sand 0.32 m deep 003 deposit, which was covered by dark grey brown silty gravelly loam 0.3 m thick topsoil.

- 10.33.2 During the initial investigation two areas of potential archaeology were defined, 2A and 2B (Figures 19 and 20). The features here were identified during the evaluation although none were fully excavated during this phase of the work. In 2A, two possible curved linear features (020 and 028), two pits (004 and 007), a possible hearth 038 and possible stake-hole 031 were identified along with a former topsoil layer 022 and two possible occupation layers (023 and 024). Curvilinear feature 028 measured a minimum of 1.1 m in length by 1.9 m in width with a maximum depth of 0.26 m, was filled by a thin layer of charcoal rich sand 035. This deposit was overlaid by dark brown grey silty sand 027 in which a flint blade SF2 (Plate 88) and two additional flint fragments (SF3 and SF14) were discovered. A possible hearth 038 (Plate 89) was overlying this feature which in turn was sealed by a possible curvilinear feature 020 and a pit 007. The pit fill consisted of dark grey silty sand 006, one lithic fragment SF1 was found within it. The pit 007 truncated feature 020, the hearth 038 and deposit 013 (Plate 90).



Plate 88: Detail photo of serrated flint tool SF 2.



Plate 89: SE facing section of linear feature 028 with stakehole 031 to its right and remains of possible hearth 038 at its top right corner.



Plate 90: Post-ex of site 2A showing pit 007 and hearth 038 on the top right corner.

- 10.33.3 All the features in area 2B were half sectioned. Cutting into light yellow brown silty sand subsoil 005 and visible in a southwest section a linear feature 021 was filled by three different fills (006, 007 and 008). It was truncated at its south-east side by another possible linear feature 022 filled by dark grey orange mottled silty clay with charcoal 010. This was then sealed by a former topsoil layer of brown silty clay 004 which was subsequently overlain by an orange brown silty clay intermediate layer 003. Overlaying this layer was a mid grey brown silt clay 002 interface deposit, this was then covered by topsoil. In a south facing section another possible linear feature was identified 020. This was filled by grey silt clay

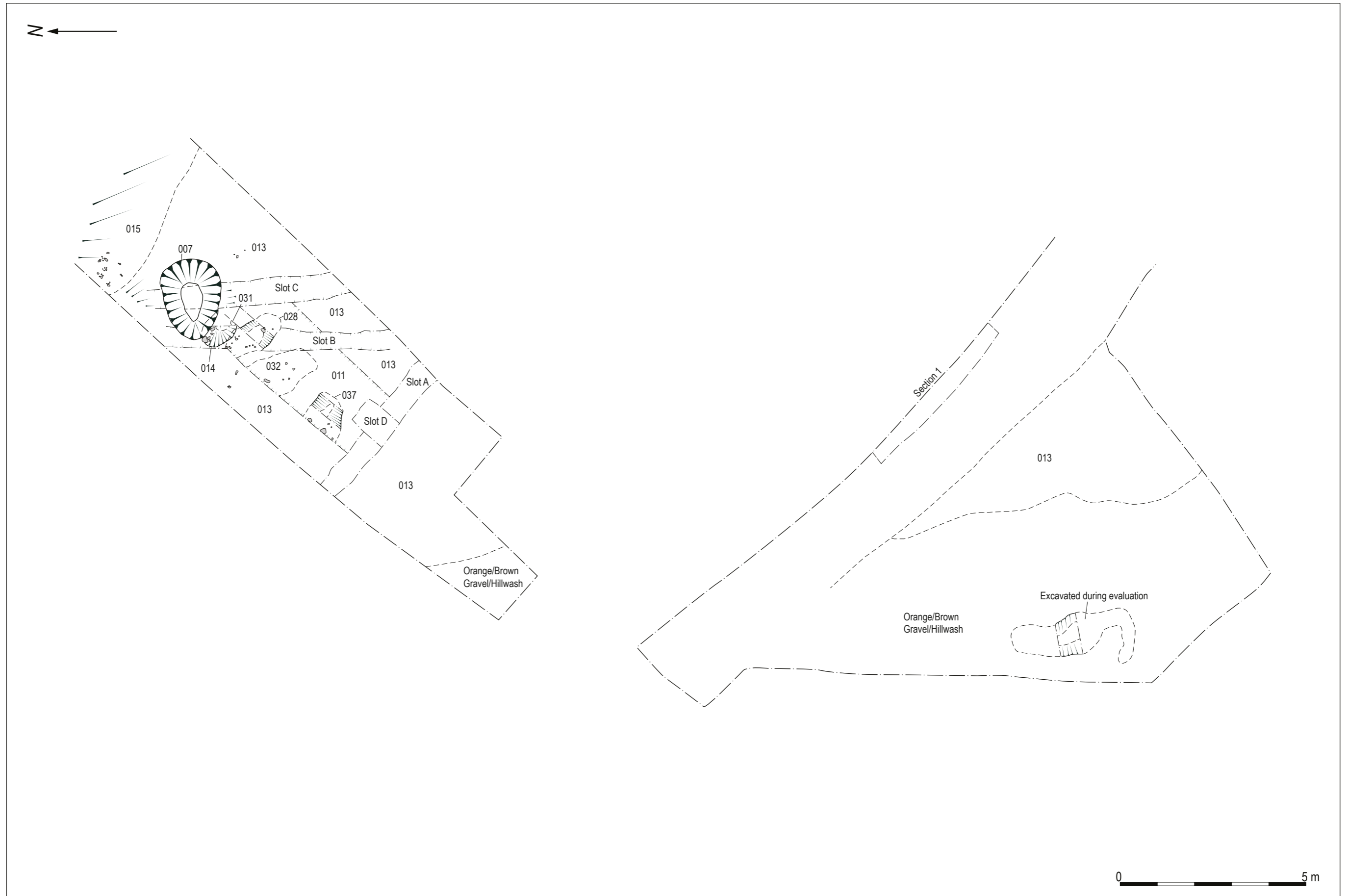


Figure 19: Post-excitation plan of Areas 2A and 2B.

with mottled orange and charcoal inclusions 017 and it measured 0.4 m in width and 0.12 m deep. At its west edge it cut grey brown sandy clay 016, a possible silting deposit. The east edge of the cut was not well defined. A brown grey silt clay deposit 018 was identified overlying 017. This layer was abutting another similar deposit of grey brown silt clay 014. Both of these deposits (014 and 018) were overlain by black charcoal silt 013, a possible occupation layer from where four pieces of flint SF1 were recovered. Finally, and sealing this deposit was a layer of orange brown silt clay 015, a former topsoil layer.

10.33.4 Due to the deep and narrow nature of the trench all the investigated features were not fully exposed which hindered their interpretation. For that reason, a later extension of the site was granted (Site 2 EXT) during the construction phase works.

10.34 Site 2 extension

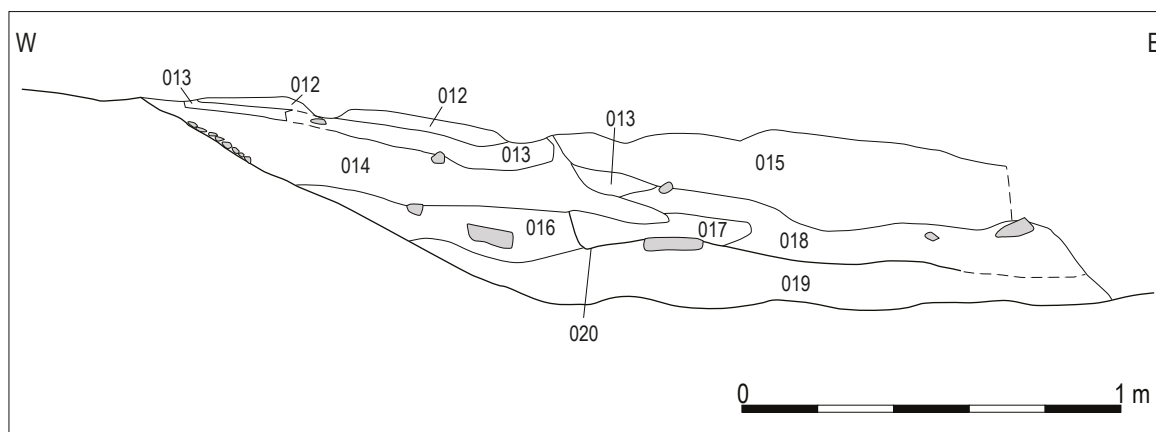


Figure 20: Section of stratigraphy in Area 2B.

Prehistoric remains

10.34.1 The removal of dark grey brown silt with gravel 0.35 m to 0.4 m thick topsoil, revealed dark brown grey silt with gravel and numerous stones 0.25 m– 0.45 m thick redeposited topsoil 003. This layer was most likely related to the old railway line. Underneath both deposits orange brown silty sand hillwash (004, 019) into which most archaeological features seemed to be cut was identified.

10.34.2 On top of the hillwash (004), charcoal rich black sandy silt deposit 005 was identified covering the majority of the north of the site. Similar deposits were encountered in other areas of the site (009, 010 and 011) and going down the slope 018. The whole extent of this later spread was unclear since it was covered by pale creamy orange sandy silt hillwash 016. Two small finds were identified in 018, a flint core nodule SF7 and a small flint fragment SF 9. In close proximity to deposit 005 and covered by hillwash 016 and redeposited material 028, three more deposits were found 013, 026 and 044. Described as dark blackish brown sandy silt with charcoal inclusions and between 0.07 m - 0.14 m thick they were located at a higher level on the slope, although deposit 044 seemed to be overlaying 005 (Plate 91).

10.34.3 A series of nine pits and three postholes were found in the first area extended, south of the trench. Located at the southwest corner a curvilinear shallow pit 082 filled by dark grey brown sandy silt 077 was identified. Further east four more pits were exposed: 039, 056, 062 and 066. Rounded shallow pit 66, measuring 0.25 m in diameter by 0.03 m in depth was filled by greyish brown silt 064 with pebble inclusions. Bigger in size at 1 m by 0.98 m and 0.33 m deep was oval pit 039. It had primary fill of mid brown sand 041 overlaid by medium dark brown sand with moderate charcoal flake inclusions 030. Similar in size and shape, pit 062 measuring 1.26 m by 0.98 m by 0.29 m in depth was filled by mid-dark grey brown silt sand with some large stones and charcoal. This feature cut a shallow linear feature 056, filled by greyish brown silt 046 40 mm thick at its north side.

10.34.4 North of these pits an isolated shallow oval pit 043 was partially exposed at the edge of

the trench. Measuring a minimum of 1 m in length by 0.45 m in width and 0.05 m in depth it was filled by dark brown silt with charcoal 040. Two more pits (037 and 061) and three postholes (051, 076 and 083) were identified north-west of this last pit. The three postholes filled by similar grey brown silty sands seemed to be in alignment, with two of them cutting through a natural ridge. Finally, a large pit 055 filled by five different fills (052, 053, 054, 067 and 068) was recorded in the northwest of the site. None of these pits had any datable finds which could help in interpreting their date and function. Neither was there any stratigraphic relationship between the archaeological features. However, one unstratified decorated small fragment of prehistoric pottery SF1 was found in the area, between pits 037 and 039.

- 10.34.5 At the north side of the extension trench, two pits were visible on the south facing section: 023 and 024 (Plate 92). Both of them were truncated to an extent by the machine. Situated further west a large oval pit 023 measured 2.9 m by 0.95 m and up to 0.7 m deep. Sealed by topsoil, it was filled by four different fills (033, 034, 035 and 036) all of which consisted of sand and gravel in varying proportions. Further east another pit 024 was identified. This oval pit measured 0.85 m by 1.1 m and 0.35 m in depth and it had two fills. The first of these was brownish orange silt 065 measuring 0.35 m thick covered by orangey brown silt 069 measuring 0.25 m thick. No datable finds were recovered from any of these features.



Plate 91: Site 2ext Working shot of surface (005) with slots through it.



Plate 92: Site 2ext South facing section of pit features (023, 024 & 025).

- 10.34.6 North of the extension area an isolated linear feature 020 described as 1.9 m in length by 0.58 m in width and 0.2 m in depth was identified overlaying deposits 017 and 018. It was filled mainly by mid brown sandy silt 021 in which a debitage flint SF11 was encountered. In its upper fill 007 charcoal rich black sandy silt, further finds were found: SF6, one flint fragment and SF10, consisting of two small burnt flint fragments.
- 10.34.7 A large sub-rectangular pit 086 was recorded against the west edge of the trench, next to the unclassified road. Measuring 3.77 m in length by 3 m in width and 0.18 m deep it was overlaying heat affected natural gravel 089. A fragment of flint was recovered from this layer SF16. At the south edge of the cut, remains of white with grey mottling shell fragments 091 were found while at its north and north-east edge charred wood and dark grey black silt 087 with frequent charcoal were identified. Overlaying both deposits heat affected material 088 was exposed. A total of 43 fragments of flint SF17 were retrieved from this fill. This in turn was covered by 0.11 m thick mid brown sand gravel 090 in which an oyster shell SF14 was found. On top of it and part of the backfill of the pit, dark grey silty sand 085 measuring 0.15 m thick was recorded. The feature was then covered by topsoil.
- 10.34.8 East of this feature a possible sub-circular feature 071 measuring 0.33 m by 0.3 m and 0.25 m deep was encountered. It was filled by dark purple brown sandy gravel 070 with no datable finds.

10.35 Boreland Cottage Upper Discussion

Site 10 Discussion

- 10.35.1 This site was one of the most complex areas of archaeology across the ten sites investigated. To simplify, there were a number of possible phases and groups of features discovered. The

earliest activity consisted of a series of ephemeral features pre-dating an accumulation of hillwash from the north. The next phase of activity was similar to the first in that it consisted of irregular and relatively sterile pits, all of which filled by material very similar in composition to the hillwash in which they were cut. Following this phase there were a series of postholes forming an ENE/WSW alignment with additional smaller section of parallel alignments; several of the postholes truncated the earlier pits. There were also a series of very large postholes forming an arc leading southward beyond the edge of excavation, similar features were also found along the northern perimeter of the site. It is not certain whether these were roughly contemporary with the posthole alignments or the next phase of activity (the cremations and ring-ditches) but both the posthole line and the ring-ditches respected these features suggesting the possibility of contemporaneity. One of the ring-ditches cut across the posthole line and earlier pits confirming it post-dated both phases. Some of the cremation features appeared to have truncated some of the postholes from the alignment suggesting that even if the posts did not exist at that time there may have been a memory or visible traces of them. If the posthole line is extrapolated it leads to the general locale of the Droughduil mound, this may or not be coincidental. The dating of the postholes and the refinement of the phasing of all the activity on Site 10 along with the other prehistoric archaeology discovered on Sites 1, 2, 3, 4, 5, 6, 7, 8 and 9 will enable a direct comparison of these new discoveries with previous research and dating obtained for Droughduil Mound and the Dunragit complex. This will in turn lead to a detailed chronology of how the prehistoric landscape evolved around Dunragit and along this coastal fringe.

- 10.35.2 The numerous archaeological remains found at Boreland Cottage Upper, in the form of features as well as small finds indicate a significant archaeological area that had been used from as early as the Bronze Age period. There is certainly strong evidence of different phases and ritual/burial traditions starting from the earliest features to posthole alignments, continuing with ring ditches/barrows and cremation cemetery containing fragments of Bronze Age funerary material culture. Apart from this monumental and ritual use of the landscape which was mostly concentrated on site 10, site 18, site 23 and site 23ext, there seems to be a more mundane or everyday use of the land in certain areas. It was evident from occupational layers and some small finds, functional pits, refuse pits and structures encountered in site 2, on the west side of site 10 and in site 18. Their close proximity to the cremation cemetery and burial/ritual complex implies a possible relationship with this site, as flint blade (SF2 in site 2A) and decorated pottery fragment (SF1 in site 2ext) could suggest. However, it is also possible that these sites do not share any association as their proximity geographically does not necessarily suggest they are temporally close. Analysis of the small finds and samples together with radiocarbon dating will help to clarify this issue.
- 10.35.3 At the moment it is difficult to ascribe an accurate date to any of the ring ditches, linear features, postholes, cremations and groups of postholes and pits; however, the post-excavation analysis of the finds encountered within the features as well as any carbonised remains from environmental samples should provide a suitable datable sequence.
- 10.35.4 Dating and phasing of remains will provide us with a more precise sequence of events as well as a possible relation of this monumental landscape with the Neolithic enclosure dated to 3760 to 3630 Cal BC found further west of the site, close to the village of Dunragit and north of Droughduil Mote. There are certainly similarities between both sites such as the possible avenue, palisaded enclosure, posthole alignments and cremation burials. There are several examples of complex ceremonial sites across Scotland, like Forteviot (Perthshire) and Pict's Knowe, Holywood and Holm Farm (Dumfries and Galloway) (Thomas 2005 Interim report).
- 10.35.5 An Additional prehistoric burial is evident west of site 18 in site 16 and 16ext. Here stone lined cists or pits were encountered with two jet necklaces as well as Beaker and food vessel. Even though they were part of another type of funerary rite, their proximity to the ceremonial complex showed an extensive tradition on the use of this landscape as ritual/burial ground.

Site 2 Discussion

- 10.35.6 The location of site 2 (A and B) was on the edge of the same low ridge and plateau that accommodates Site 10 to the west and other areas of prehistoric activity such as that discovered on the upper area of C11 to the east during the evaluation. This same geological feature can be traced for over 2 km westwards to Dunragit and beyond. In the location of Site 2 the ridge is situated at 17 m OD dropping to 11 m OD to the south of the ridge where the land undulates gently towards the shoreline 500 m beyond to the south. This ridge would therefore may have offered some level of protection during inclement periods or particularly high tides. The setting of Site 2 may potentially be contemporary with the burnt mound activity at Site 1, 3 and 4 however, it was deliberately placed away from the threat of inundation on the lower foreshore suggesting a possible very different function.

Drumflower

10.36 Site 9

- 10.36.1 This area was opened as a result of preliminary findings from the evaluation suggesting that significant sub-surface archaeological deposits relating to possible prehistoric activity were preserved in this locale. Due to the nature of the widening of the excavation area, the site itself was divided in separate excavation areas. The site itself was characterised by a series of large pits running parallel south of the A75 and two partially exposed large ring-grooves with a collection of pits and postholes further south on site (Figure 21 and 21a).

Structure – Eastern (Figure 21a)

- 10.36.2 The eastern end of the site was characterised by a large partially exposed ring-groove 100; the remains of a possible structure. The ring-groove had a diameter of circa 9.5 m with a width of 0.28 m to 0.38 m. A series of slots were excavated around the curvature of the feature. The gully itself had a depth of between 0.12 m and 0.29 m. Two fills were visible within the ring-groove, 094 and 102. The upper fill 094 was a light brown sandy silt with some small stone, pebble and charcoal inclusions. No material culture was recovered from this upper layer. The lower deposit 102 was a dark grey brown sandy silt with a depth of between 0.02 m and 0.12 m across the feature. It also displayed some evidence of charcoal but again no material culture was recovered from this fill. The structure was only partially uncovered due to later truncation by possible agricultural activity or quarrying (Plate 93).
- 10.36.3 A large posthole was located at the possible terminus end of the ring-groove 100. This terminus appeared at the west side of the arc – no return was visible on the opposite side. The posthole 212 was circular in shape with a diameter of 0.60 m. Its steep sided cut contained a singular mid dark grey brown silty fill 203 with evidence of charcoal and possible burnt stone within the fill.



Plate 93: Structure at east end of site.



Plate 94: Image of curvilinear 383 cutting pit 407.

- 10.36.4 Within the interior space of the structure a series of postholes, (090, 092, 097, 112 and 211) were visible forming an arc (Plate 95). The layout of these posts suggested a possible interior ring. The most northern feature was 097. It was circular in shape measuring 0.52 m

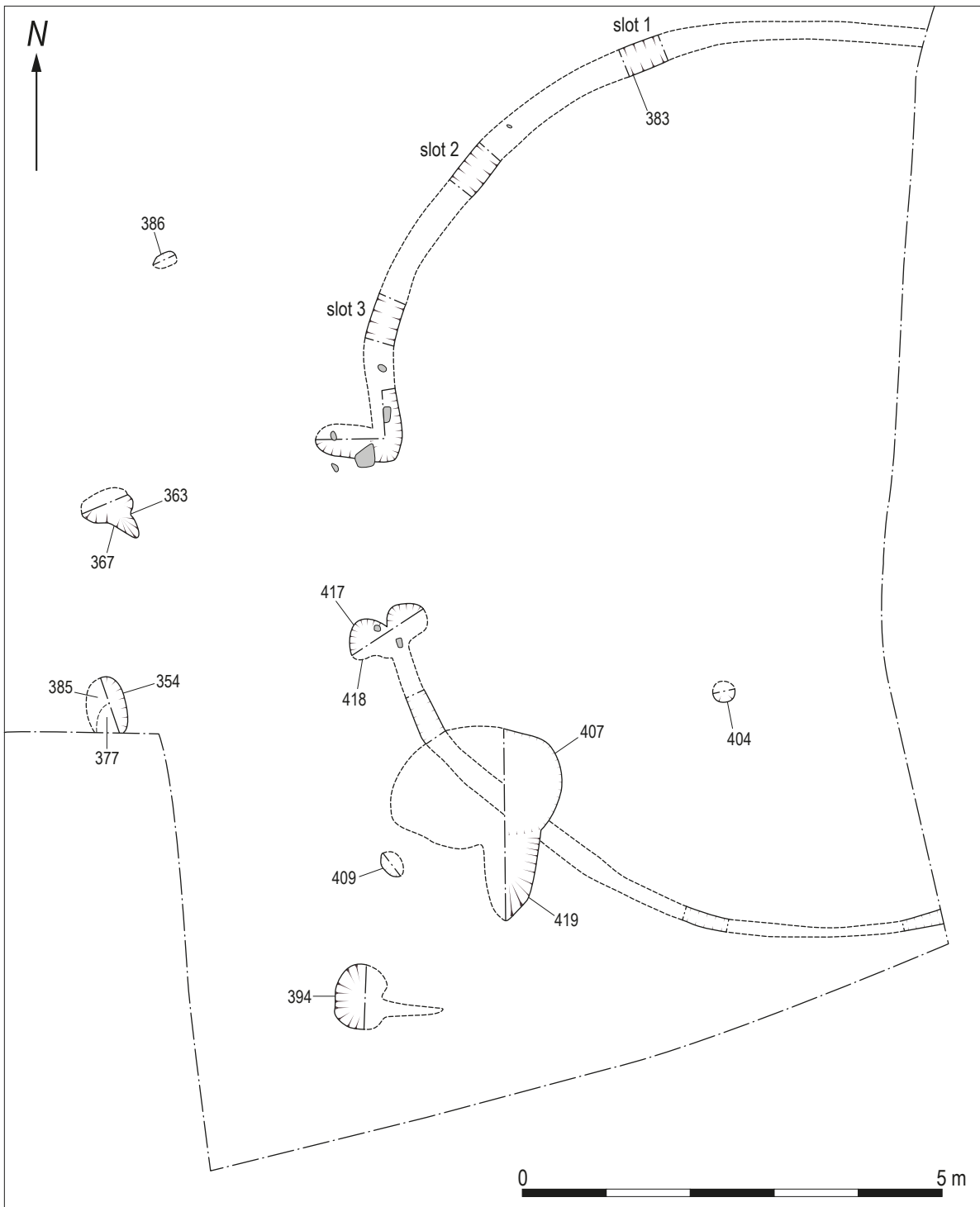


Figure 21: Plan of northern structure, Site 9.

in diameter with a maximum depth of 0.20 m. The near vertical steep sided cut contained a singular dark brown red fill 093 with possible traces of charcoal and burnt bone. Evidence of possible packing stones were also visible within the fill. Directly to the south-east another posthole 112 was excavated. This was oval in form with a diameter of between 0.57 m and 0.45 m, its steep sides contained a singular dark brown grey fill 105 which had a series of large packing stones contained within it. Another sub-circular posthole 090 of similar size was located 2 m to the east and measured 0.44 m by 0.52 m with a maximum depth of 0.31 m. Its steep sided cut contained a singular fill 089 of mid brown silty sand containing charcoal inclusions and packing stones. The next sub-circular posthole 092 was located 0.6 m to the northwest and measured 0.43 m by 0.36 m on plan with a maximum depth of 0.11 m. It contained a singular dark grey brown silty fill 091 with moderate charcoal inclusions. No evidence of material culture was recovered.



Plate 95: Mid-ex shot of posthole 090 with packing stones.



Plate 96: Structure at northern end of site.

10.36.5 The final post-hole 211 was located to the northwest against the edge of the excavation area. It continued the arc of post-holes creating the central ring of post-holes. It appeared to be 0.43 m in diameter with a maximum depth of 0.13 m. It contained two fills (210 and 208). The lower fill consisted of dark grey/red sandy silt 210 which had a maximum thickness of 60 mm with some charcoal flecking. The upper fill was a grey brown charcoal rich fill 208 measuring 70 mm thick. No material culture was recovered from either of the fills to indicate date.

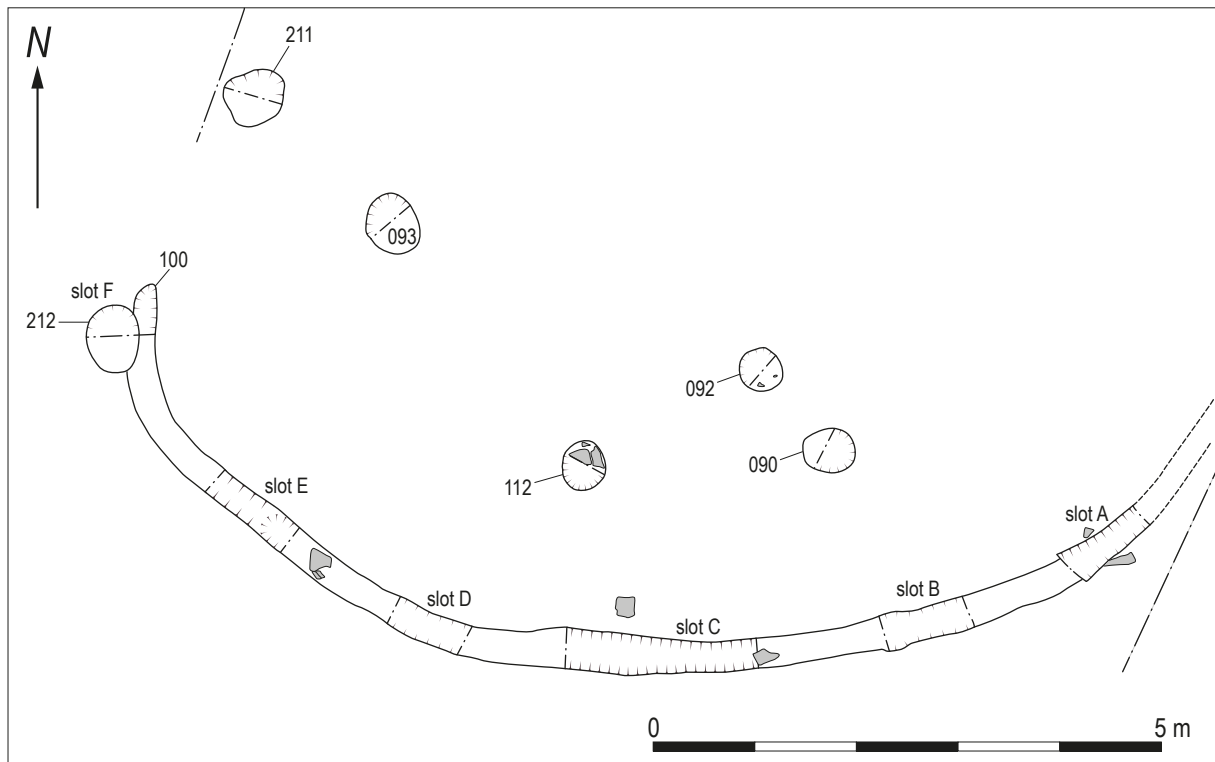


Figure 21a: Plan of eastern structure, Site 9.

- 10.36.6 The remaining interior of the structure did not display any evidence of features other than the posthole ring. Less than 50% of the structure was exposed, so it was difficult to ascertain the full extent and dimensions. No material culture was recovered from the features or interior features of the structure to give any indication of date.

Structure – Northern (Plate 96)

- 10.36.7 At a distance of circa 10 m northwest of the previous structure, a similar ring-groove 383 was partially exposed. The dimensions appeared more substantial with a possible diameter of up to 10 m, however due to excavation restrictions only half of the structure was visibly exposed. The ring-groove itself ranged in width from 0.49 m at its widest to 0.21 m at its narrowest. The depth too ranged from a maximum depth of 0.24 m to a minimum of 80 mm. The ring-groove contained a singular dark brown red charcoal-rich silty sand 377. No material culture was recovered from any of the slots (Figure 21).
- 10.36.8 The northern arc of the structure was visible just over 9 m curving in a south-west arc. A series of slots were excavated; however, no material culture was recovered. The northern arc appeared to terminate leaving a 1.6 m westerly facing gap suggesting a penannular structure. The southern arc of the structure was again visible for just over 9 m revealing what appeared to be half of the complete structure. Both terminus ends of the structure appeared to display a possible posthole arrangement for an entrance.
- 10.36.9 A large pit 419 appeared to be truncated by the southern arc of the 383 ring-groove structure. Pit 419 was a complex large pit with multiple fills which was in turn cut by a large pit 407. The large pit 419 was sub-oval in form measuring 1.1 m in diameter with gently sloping sides. This pit was 0.28 m at maximum depth and contained a singular red brown silty sand with infrequent charcoal inclusions 416. This pit was truncated at the northern edge by a more substantial steep sided pit 407. This sub-circular pit with dimensions 1.5 m in diameter with a maximum depth of 1.07 m displayed a number of fills within its almost vertical cut. The basal fills (422, 423 and 424) all appeared to be similar mixed red/brown silty gravel measuring 0.30 m, 0.15 m and 0.08 m thick respectively. Above these layers lay mixed red/brown silty gravel 421 with a maximum thickness of 0.13 m. The upper fill 420 appeared to be the only fill truncated by the drip ring-groove of the structure and consisted of dark grey brown silty gravel of up to 0.53 m thick with a high concentration of angular stones. All fills appeared to be relatively sterile in nature with no material culture recovered from any of the fills to indicate a date (Plate 94).
- 10.36.10 Unlike the previous structure, only one singular post-hole feature was excavated in what would be the interior of the structure. This post-hole 404 lay in the south west quadrant of the structure interior. It was sub-circular in form with dimensions of 0.4 m by 0.24 m on plan with a maximum depth of 0.10 m. Its steep sided cut contained a singular brown grey silty fill 405 with a small portion of charcoal present within its matrix. The full interior of the structure was not uncovered and no other internal elements were revealed.

Large Pit Alignment at North of site

- 10.36.11 An extension of the excavation site to the North revealed a number of large pits in an alignment – seen on aerial photographs (Canmore ID: 78931; Site No. NX15NE 70.01). Three large pits were orientated east/west along the southern edge of the current A75 road with evidence of others extending under the baulk of the excavation area. The furthest east pit (358/297) appeared on the surface to be sub-circular in shape with dimensions 3.20 m by 3.00 m (Plate 97). The initial cut of the larger pit 358 contained multiple fills (320, 318 and 345) with a series of lenses towards the surface (316, 343, 374, 342 and 341). All of these fills appeared relatively sterile with very little organic or charcoal content throughout. The eastern side of this pit appeared to be re-cut by another pit like feature 297. This cut differed from the original with steep, almost vertical sides with a singular fill 319 which had a maximum depth of 0.48 m. As seen with previous fills, it appeared relatively sterile with no material culture.

10.36.12 Directly 1.5 m to the west of the pit alignment lay a similarly sized pit 354 (Plate 98). This feature 354 extending beyond the edge of excavation appeared sub-circular in shape. The diameter measured 2.8 m at its widest point with a maximum depth of 0.54 m. The gently sloping sides of the pit contained multiple fills, (400, 401, 355 and 399). The basal fill 400 was a dark grey brown silt with a maximum thickness of 0.14 m. Directly above this was mid red brown silty sand 355 with a maximum thickness of 0.15 m. A number of late Neolithic / early Bronze Age pot sherds were recovered from 355 near the base of this pit (SF15 – 20). Overlying this were two grey brown fills (401 and 399) measuring 0.39 m and 0.20 m in thickness respectively and appearing relatively sterile in nature.



Plate 97: Mid-ex shot of pit 358/297.



Plate 98: Mid-ex shot of pit 354.

10.36.13 The final pit in the alignment to be excavated lay 1 m to the west, again extending beyond the excavation area. It appeared to be on the same scale as before, sub-circular in plan with 2.7 m diameter visible with a maximum depth of 0.75 m. The cut 331 displayed relatively steep sides and contained multiple fills. The basal fill 330 was a brown silty sand with a maximum thickness of 0.12 m. It appeared relatively sterile in nature with large sub rounded cobbles within the basal fill. Directly above this was a light grey clay silt 329 with a maximum thickness of 0.12 m which appeared relatively sterile; there were some medium rounded stone inclusions. The upper fills (328 and 327) measured 0.45 m and 0.11 m in depth respectively and were both light grey brown silty sand with varying quantities of small rounded stones. The pit itself was truncated on its northern edge by a service trench for a water mains.

Pits and Post-holes across site

10.36.14 There was also a significant number of pits and posthole features across the remainder of the excavated area. Immediately adjacent to the eastern structure a singular larger pit was discovered during the excavations.

10.36.15 The pit 301 was sub-oval in shape measuring 2.35 m by 1.1 m (Plate 99). The relatively steep-sided cut had a maximum depth of 0.86 m and contained a number of fills. The lowest fill 335 was a dark red brown sandy silt with charcoal inclusions and a maximum thickness of 0.18 m. This deposit appeared to contain a significant amount of charcoal towards the base. Directly above this lay a deposit of mid brown silt 349 measuring up to 0.14 m thick. This original pit appeared to be re-cut by a later pit 351 which contained a singular fill of mid orange sandy silt 302 with a maximum thickness of 0.52 m. The earlier pit 301 was also truncated on the south side by an additional pit 350. The near vertical steep sides contained a mid orange brown charcoal rich gravel fill 293. No material culture was retrieved from any of these deposits.



Plate 99: Pit 301/350 during excavations.



Plate 100: Area A post ex of potential structure in centre of area A.

10.36.16 Across the remainder of the site 150 features were excavated consisting of a series of pits and possible postholes. No distinct pattern or structural form was apparent but the proximity to the structure indicates that they may be ancillary features. Alternatively, there may be the result of more than one phase of activity in the area.

10.37 **Area A** (Figure 22b)

10.37.1 A possible roughly shaped circular structure was identified on the southwest corner of the area known as Area A (Plate 100). It was formed by eight similarly shaped pits (052, 054, 056, 057, 058, 059, 060 and 061). Only two of these features were excavated (052 and 054). Oval in plan they measured approximately 0.9 m in diameter and between 0.07 m and 0.12 m deep. Both features were filled by dark brown sand with a single shell find recovered within fill 053 SF17.

10.37.2 West of this possible structure another group of predominantly shallow pits and a posthole were observed. In one of these pits 046, six fragments of flint SF16 and one possible scraper SF15 were recovered. A further piece of flint SF13 was found on the surface of the fill of posthole 043 during initial inspection. More than 20 features were recorded in the rest of the area exposed although some were not excavated as a strategy of 25% excavation was agreed with R. J. McLeod for this area of investigation.

10.38 **Borrow 1** (Figure 22)

10.38.1 Numerous features were identified and recorded in this area, mostly concentrated at the eastern half with three smaller concentrations on the west side. In the centre of the east part of the site the postholes and pit distribution pattern could be interpreted in a variety of possible ways. The first interpretation identified a possible large oval shaped structure formed of postholes and pits located at the centre of the east side. Some of the postholes/pits seemed to be paired (183/184, 191/192, 196/197 and 203/204). Three of these pairings, probably with a structural function, were at either side of a possible hearth 216 found at the southeast corner of the structure (Plate 101). This possible hearth had three fills (212, 213 and 215) and measured 0.6 m in diameter and was situated just in front of a gap on the posthole/pit structure.

10.38.2 The second possible interpretation involved the same area but the previous oval structure was divided in two smaller and more circular structures. This theory will imply that only one of these structures will have the remains of a hearth. The final interpretation suggested that the postholes and pits formed different alignments which could match the posthole alignment found during the excavation of C5 and the crop marks in Drumflower (NX15NW 26). A single find, a possible flint scraper SF38 was retrieved from pit 271. No other finds were observed in any of the more than 50 features observed in this part of the site.

10.38.3 The majority of the material culture was recovered from the southwest corner of the site, where a group of nine pits along with a single posthole were recorded. They did not form any apparent pattern to suggest a possible function or use. However, six of them did contain abundant pieces of flint and one metal fragment.



Plate 101: Borrow 1 pre-ex photo of possible hearth 216.

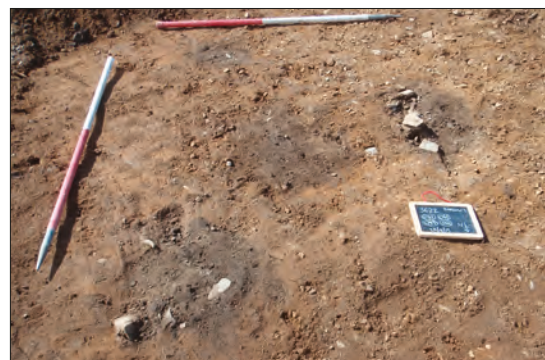


Plate 102: Borrow 1 group of postholes pre-ex.

10.38.4 North-east of this group of features a group of four postholes (052 to 055) and a possible hearth 065 were recorded (Plate 102). They did not form any clear structural pattern and only one of them had datable finds SF 12. The possible hearth, located more than a 1 m from the most southerly posthole was filled by charcoal-rich dark grey brown gravelly sand.

10.38.5 An isolated stone-lined hearth 070 was encountered further north. Signs of *in situ* burning were present in the form of cracked stones and heated clay. Numerous fragments of decorated prehistoric ceramic sherds, from at least two separate vessels were found among the upper fill 051 (SF14-23, 27-33). These were concentrated in the eastern half of the feature. Approximately 10 m west of this feature, a heavily disturbed cremation 075 was discovered. The fill consisted of dark grey black sandy gravel with frequent inclusions of charcoal. The cremated bone was concentrated on the northwest side of the feature (Plate 103).



Plate 103: Borrow 1 close up of cremation 075 pre-ex.

Some spreads of similar material were identified around this feature (072, 073 and 074); and were thought to be the result of the disturbance that affected cremation 075.

10.39 Borrow 1 extension (Figure 22)

10.39.1 This area was expanded to the north of the northwest corner of borrow 1 and it revealed three possible cremations as well as four pits and a single posthole. All cremations: 001, 016 and 023 were gathered in close proximity to the cremation found previously in borrow 1 (075). Roughly oval in shape and filled by two fills (002 and 009) cremation burial 001 revealed seven flint fragments (SF2-5) in its upper fill 002 (Plate 104). The bone appeared spread throughout the fills although there was less bone in the charcoal-rich lower deposit 009. The other two cremation burials seemed to be truncated by later agricultural activities. While deposit 023 did not have any discernible cut, probably lost due to truncation, 016 was roughly circular. They were filled by similar deposits of black/dark brown sand silt 017 and dark grey silt 023 with frequent inclusions of charcoal and friable fragments of cremated bone. Several fragments of prehistoric pottery (SF8 -12) were also retrieved from within 023. On top of this fill a fragment of flint was also discovered SF7.



Plate 104: Borrow 1 ext cremation pit 001 pre-ex.



Plate 105: SAM C general post-ex showing pit 009 just east of ranging rods.

10.39.2 Three large shallow pits: 015, 019 and 021 located on the northern side of the extended area were orientated east to west. An individual piece of flint SF6 was recovered from within pit 015.

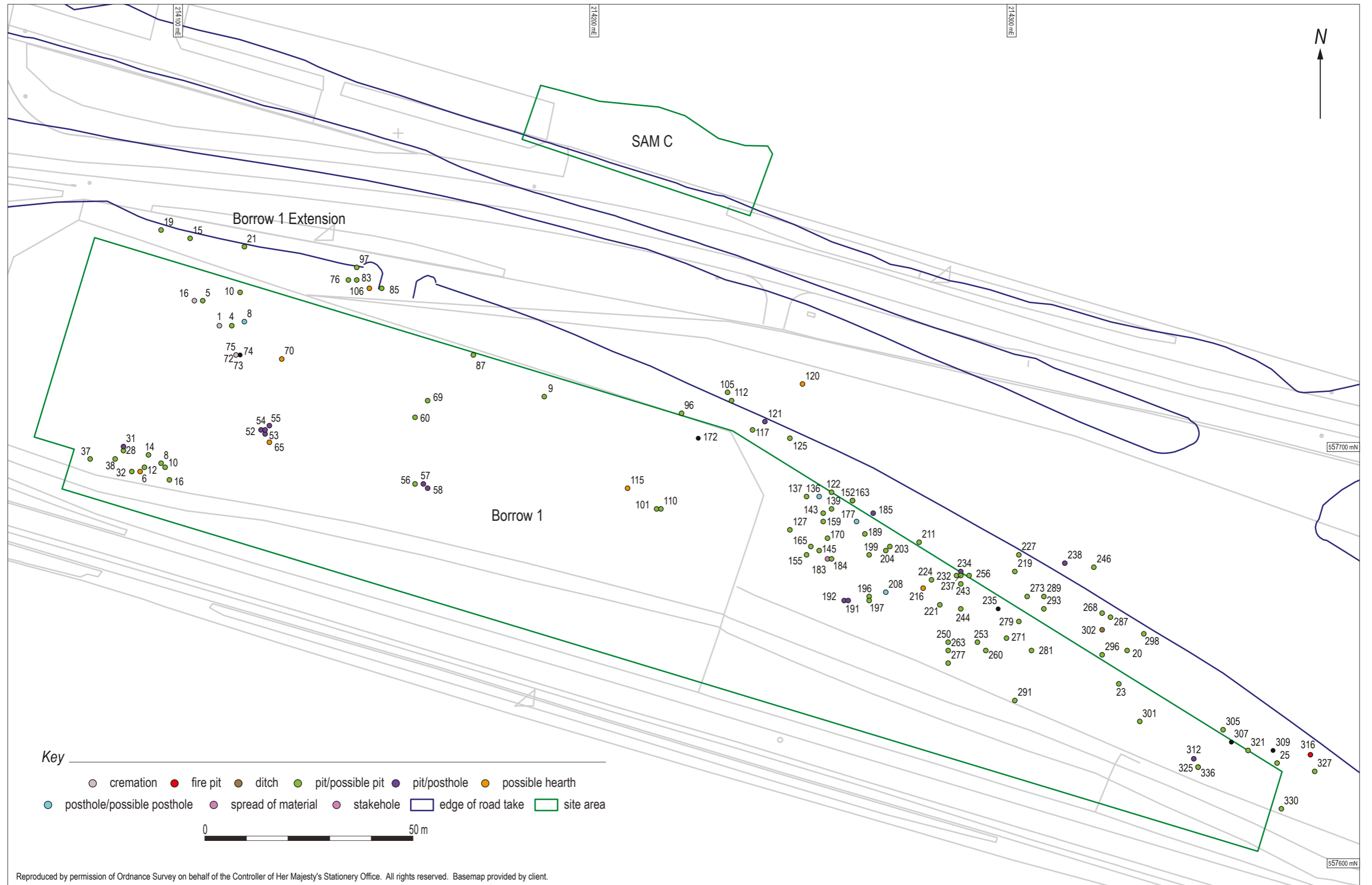
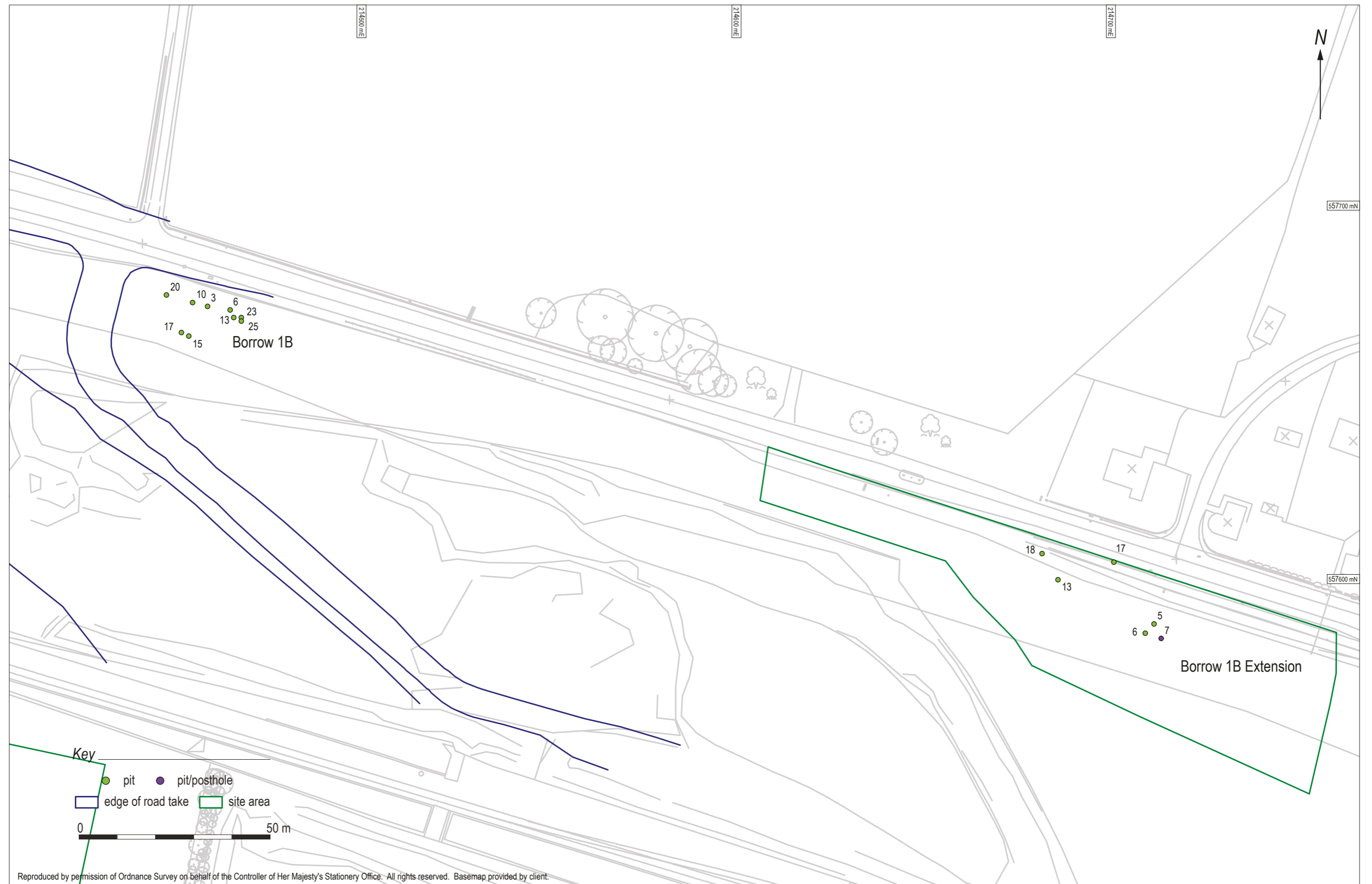


Figure 22: Survey plan of Borrow 1, Borrow 1 Extension & SAM C.



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Figure 22a: Survey plan of Borrow 1B and Borrow 1B Extension.



Figure 22b: Survey plan of Area A and Borrow 3.

10.40 **SAM C** (Figure 22)

10.40.1 Located north of Borrow 1 ext, just across A75 road, it revealed two pits and a gully. While one of these pits 008 was partially observed due to its location at the corner of the trench, the other one 009 was oval in plan and measured 1.3 m by 0.9 m by 0.19 m deep. Neither these pits nor the gully had any datable finds from them.

10.41 **Borrow 1B** (Figure 22a)

10.41.1 A series of four large pits were encountered extending parallel to the north side of site Borrow 1B; 003, 010, 013 and 020 (Plate 106). Another smaller pit 025 was also found lying on the same alignment adjacent to pit 013. Predominantly filled by firm dark brown silty sand with frequent inclusions of angular stones and gravel the pits were between 0.18 m and 0.43 m deep. They were sub-circular on plan, the largest one measuring 3 m by 2.62 m while the smallest was 1.92 m in diameter. Some of the disparity between measurements could be due to truncation of the pit by machine.

10.41.2 Two further pits, truncated by machine excavation, were observed on the section of the trench (006 and 023). The first of these 006 was located north of pit 013 while 023 was situated north of a smaller pit 025. During the excavation of these last two pits, it was thought that they could be one and the same. If that was the case 025 would be the base of the pit while 023 would be the north upper side of the pit. This theory would also explain the difference in size of pit 025 compared to the other four large pits.

10.41.3 Three finds were recovered from this area, a lithic fragment SF1, a piece of plastic SF2 from pit 010 and one piece of red-brick SF3 from pit 020. These finds suggests quite recent contamination of the features, maybe due to the close proximity of the A75 road and do not provide any reliable dating.

10.41.4 South of this line of pits two further features were exposed (015 and 017). While 015 was interpreted as a posthole filled by a charcoal-rich single fill (014), 017 was thought to be a pit measuring 0.64 m by 0.61 m and 0.23 m deep. This pit had three fills (018, 109 and 016) (Plate 107). The base was lined with red clay 018 with frequent charcoal inclusions on its east side and paler clay with occasional charcoal 019 on its west side. These two layers were then sealed by grey brown gravelly silty sand 016 with frequent charcoal.



Plate 106: Borrow 1b post-ex photo of series of large pits.



Plate 107: Borrow 1b post-ex of pit 017.

10.42 **Borrow 1B extension** (Figure 22a)

10.42.1 Located further east of the original borrow 1B, it revealed one large posthole (007), three pits and three spreads (Figure 22a) (Plate 108).

10.42.2 The large oval posthole 007 measuring 1.2 m in length by 1.02 m in width and 0.94 m in depth had four separate fills. The basal fill consisted of dark orange brown to grey brown sand silt 012 with frequent gravel and very large stones of irregular shape, six fragments of

flint SF8 were recovered from this fill. Sealing this deposit was mid grey/orange brown sand silt 010 measuring between 30 mm and 90 mm thick. Overlying this fill was a lighter mid-grey brown silt sand 009 with stone and charcoal inclusions. A single fragment of possible worked flint SF4 was recovered from this deposit. Finally, the uppermost fill 004 consisted of loose mixture of light mid grey brown and light mid-orange brown sand with frequent gravel.

- 10.42.3 A large sub-circular pit 017 measuring 3 m in diameter by 0.75 m deep was identified northwest of these features. This pit had three distinct fills and 13 fragments of flint (SF10-11) and a possible metal fragment SF12 were recovered from it. Further to the west two additional pits (008 and 013) were found in proximity to each other. The first of these 008 was circular in form and measured 0.77 m by 0.69 m and up to 0.33 m in depth. This pit was filled by dark grey brown slightly silty sandy gravel fill 003. A total of nine fragments of flint including cores and small flakes (SF1, 2 and 5) were recovered from this fill. Linear pit 013 measuring 2.1 m in length by 0.7 m in width and 0.3 m in depth had two fills: 014 and 011. Six fragments of flint SF6 were recovered from the upper fill 011. Adjacent to these two pits a spread 015 revealed an additional seven flint fragments SF7.

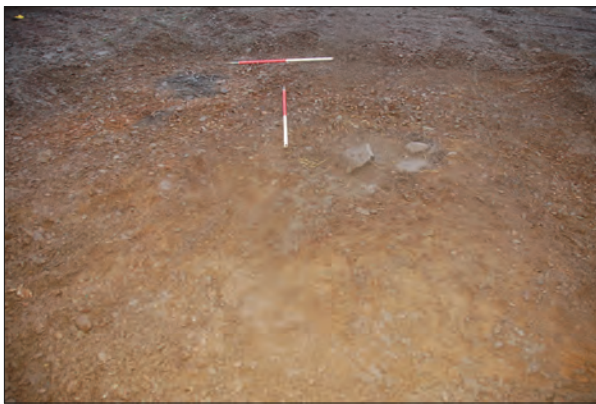


Plate 108: Pre-ex shot of posthole 007 with 005 and 006 spreads.



Plate 109: Borrow 3- feature 006 pre-ex.

10.43 **Borrow 3** (Figure 22b)

- 10.43.1 Situated on an area west of Area A, Borrow 3 was first investigated by trenching but this method was later changed for machine stripping. During this stripping four isolated features were discovered. Three of them (005, 007 and 010) were circular in plan and approximately measured between 0.4 m and 0.42 m in diameter. The nature of the fills in 005 and 007, described as dark blue/black silty charcoal were also similar. One flint fragment SF6 was recovered from 007 (Plate 109).

10.44 **Drumflower Discussion**

Site 9 Discussion

- 10.44.1 From investigations across this site, prehistoric activity appeared prevalent within the area. The proximity of the site to known concentrated sources of archaeology highlighted the importance of the material discovered. The two partially exposed structures circa 10 m in diameter and 10 m apart showed concentrated prehistoric activity of a potential domestic nature, although material culture was minimal. The evidence from the excavations also suggests possible phases of activity on the site prior to the construction of the structures as one of them cuts an earlier pit feature.
- 10.44.2 The structures were characterised by a wide shallow ring-groove or ditch feature. The ephemeral undulating nature of the cut suggested the possibility that it may have been a drip gully associated with a structure rather than a wall slot, although this could equally be

attributed to truncation by agricultural activity. The presence of a posthole arrangement on both terminus ends also dispels the drip gully theory as there is nowhere for the water to run off. The Eastern structure displayed a series of postholes within its interior forming a ring, possibly indicating a form of structural support. No evidence existed within the structure interior for any occupation layers or floor levels. The structure and features relating directly to the structure within its interior did not yield any evidence of material culture – with the only evidence of prehistoric ceramic being found 25 m to the northwest within one of the large pits found along the current road edge. The structures themselves were only part exposed due to restrictions with excavation areas, with only approximately 50 % of each structure revealed.

10.44.3 In the north area of the site the series of very large pit features running parallel with the existing A75 road were clearly visible on aerial photographs. They were originally thought to be Roman quarry pits relating to the construction of the military or Roman road which is reputed to extend on a similar line to the existing A75. Excavations concluded that at least one of the pits appeared to be late Neolithic to early Bronze age in date. A series of fragments of possible Beaker pottery recovered from deep within one of the pit fills dated these pits comfortably to this period. These large pit alignments may in fact be related to the activity nearby at Drumflower or Dunragit Henge rather than the Roman road some two millennia later.

10.44.4 The large number of pits and postholes visible across the site may be ancillary to the structures. No direct evidence of patterns existed with the postholes or the pits within the excavated area, however a large portion of the site remained un-excavated during this phase of works. The piece meal fashion in which Site 9 was expanded made it difficult to link groups of features or to establish the full extent of some the features and structures discovered. This is something that could be addressed during the construction phase when the full topsoil strip will take place.

Area A

10.44.5 The archaeology uncovered in this area is significant because it revealed a possible structure on the southern area of the site Area A as well as a group of pits and posthole. The close proximity to Droughduil Mote and significant sites excavated by Manchester University to the north of the Mote do certainly make the finding of these features more important than if investigated in isolation. The finds retrieved from some of these features suggest a prehistoric date but at the moment their use or function remains unclear.

Borrow 1

10.44.6 There was a split between the eastern and western half on this area. While most of the features were concentrated on the east side, some of the most significant archaeology; i.e. cremation cluster and a possible flint manufacture area were located on the northwest and southwest side. It was in this southwest area of the site that nearly all the material culture was encountered. Considering the possible structures found on the east the comparative scarcity of finds there is stark. It could imply that the structures were not used for domestic purposes and/or for a long period of time. Although the scale of structures suggested by the possible pit alignments first established during the evaluation and further investigated during the advance works do not suggest a domestic structure, but more of a large landscape scale ritual pit alignment. The close proximity to Drumflower pit alignments and enclosures as well as the cremation cluster to its west could suggest an association and possible ritualistic function.

Borrow 1 extension

10.44.7 The group of cremation burial pits found in this site revealed an area used for funerary practises. All cremations had a charcoal rich deposit at the bottom, possibly remains of the pyre mixed with cremated bone. The lack of any upper fill in 016 and 023 and the small amount of cremated bone recovered was most likely due to later truncation by agricultural

or ground breaking works. In addition to the bone, fragments of flint were discovered in the upper fill of 001 and ceramic was retrieved from within 023. At the present it is not clear if this ceramic was used as a container for the bone or if it was included as a grave good.

- 10.44.8 Future analysis of small finds by specialist as well as any carbonised remains should provide a suitable date/s of the site. It might also clarify the different function of the ceramic found in the cremation deposit. Analysis of the find found within one of the pits distributed in a line to the north of the site may also clarify their date and function.

SAM C

- 10.44.9 Three features were encountered in this area, two pits and a gully. Even though not datable finds were retrieved from any of them the proximity to the Drumflower pit alignments and enclosure makes these features significant as they could provide a better understanding and a more complete picture of this prehistoric landscape.

Borrow 1B

- 10.44.10 The large pits recorded on the northern side of this site seemed to be related to the features encountered previously during the advance work on site 9. They were thought to be quarrying pits related to the construction of the nearby Roman road. Finds retrieved during this phase of work and those found in previous site investigations at site 9 however, do not confirm this date and suggest a more likely prehistoric date, possibly late Neolithic or early Bronze Age.

- 10.44.11 The posthole and pit observed on the south side seemed to be isolated features although their close proximity to the structures found on site 9 may indicate an association. Pit 017, with signs of burning at its base and sealed by possible refuse material (016) does certainly suggest possible domestic use.

Borrow 1B extension

- 10.44.12 All the pits identified and excavated in this area presented small finds, mostly flint fragments, suggesting a prehistoric date. Finds recovered in pits 008, 013 and within spread 015 do suggest their use as possible domestic/refuse pits. In addition, the location along the A75 road of large pit 017 also suggests a possible association with the large pits alignment found in site 9 and borrow 1B.

Borrow 3

- 10.44.13 The archaeology uncovered in this area is significant even though there were only four isolated features found. The close proximity to Droughduil Mote and Dunragit Complex sites makes the finding of these features important as they can provide us with a better understanding of this prehistoric landscape.

- 10.44.14 The archaeology uncovered in the whole Drumflower site is significant because it revealed an array of different archaeological remains and uses of this landscape. The cremations on Borrow 1 and Borrow 1 ext, the possible dwellings on Site 9 and series of pits and postholes identified throughout the whole area do point to complex prehistoric landscape. The close proximity to Drumflower, Dunragit Complex and Droughduil Mound Scheduled monuments does suggest foci of activity on a much wider landscape scale spanning this area of coastline.

- 10.44.15 Future analysis of small finds by specialist as well as any carbonised remains should provide a suitable date/s of all the sites. It might also clarify the different function/s of these structures as well as the different sequence of their use and possible relationship with the nearby Scheduled Monuments.

Mains of Park

10.45 Site 12

10.45.1 This site/area was opened as a result of preliminary findings from the evaluation suggesting that significant sub-surface archaeological deposits relating to prehistoric period remained undisturbed in this location. Due to the significance of the archaeological features encountered and to clarify the findings, the site was extended and excavated. It was then known as site 12.

10.45.2 Site 12 was located on the crest of a hill, possibly on the same plateau as other sites (2, 10, 18 and 23) found further west (Plate 110). Numerous spreads of charcoal-rich deposits described as dark grey black silt with gravel and charcoal inclusions were recorded across the site overlaying the natural subsoil. There was a high concentration of lithic finds from the site (a total of 290 were discovered mostly unstratified) suggesting a possible concentration of prehistoric activity here.



Plate 110: General shot of Site 12 location taken from east.

10.45.3 Centrally to the site a hearth or fire-pit 021 was revealed. It was filled by dark grey silt 014 with frequent charcoal, heat-cracked stones and some charred wood fragments. This feature was sub-rectangular in form measuring 0.88 m long by 0.72 m wide and up to 0.13 m deep. A possible spread 015 was identified west of the fire-pit. Nine lithic fragments were found within this deposit. To the north of the fire-pit two postholes 016 and 022 were uncovered. The first posthole 016 was oval in form and measured 0.25 m by 0.24 m by 0.07 m deep and still had evidence of a post-pipe in section. Also oval in plan the second of the postholes 022 was filled by mid-grey coarse silt sand 006. A total of seven flint fragments were retrieved from this deposit (SF7 and SF30).

10.45.4 In the northwest corner of the site an isolated shallow stake-hole 051 was encountered. This measured 70 mm by 60 mm by 15 mm deep and it was filled by dark grey black silt charcoal rich fill (032). Further west two more features were identified, a shallow pit 055 and charcoal-rich pit 053. The shallow pit 055 measured 0.21 m by 0.16 m by 0.04 m deep and was filled by mid brown silt 033 with large charcoal flecks. Located 1 m further east was the larger pit 053. Much deeper at 0.3 m, this oval shaped pit measured 0.6 m by 0.47 m on plan and 0.3 m deep. The fill consisted of charcoal-rich black brown silt with gravel inclusions with the charcoal concentration lessening towards the base. Some burnt clay patches were also identified in this fill under the main charcoal concentration. One piece of flint SF49 was found at the base of the feature.

10.46 Mains of Park Discussion

10.46.1 The archaeology uncovered is significant because it shows another area of prehistoric activity along this coastline and in particular along the natural ridge that accommodates Sites 2, 5, 16, 17, 10 and 23. Approximately 100 m north of this newly discovered area of prehistoric activity is a known site (Wood of Park, Canmore ID 61195, Site No. NX15NE 5, NGR NX 1837 5696) of 'small circular floors ... yielded hammer-stones and whetstones, a broken arrowhead and some ... worked flint and an unfinished bead of cannel-coal (probably shale) first recorded by a G. Wilson in 1899.

10.46.2 The high number of lithic material recovered during this phase of work, a total of 290 pieces of flint cores, debitage and flakes encountered as well as possible worked lithics (SF16, 21, 26 and 33) would certainly imply that this area was a possible location for the manufacture

of tools. Ceramic finds and fragments of pitchstone, one of them worked, found on the evaluation would reinforce this possible use of the site for the production of stone tools.

- 10.46.3 Apart from the prehistoric ceramic rim found in a feature during the evaluation no other datable finds were found. Future analysis of small finds by specialist should as well as any carbonised remains should provide a suitable date of the site.

Myrtle Cottage

- 10.46.4 There were two sites excavated across the Myrtle Cottage area during the advance works, Sites 6A and 6B, each of which will be described in the text separately. Sites 6A and 6B were discovered during the evaluation phase and were expanded due to the presence of significant structural remains of possible Iron Age date. The archaeology here is set on a former dune system which may represent the fore dunes of an earlier shoreline than the present-day Luce Bay approximately 400 m to the south.

10.47 Site 6A

- 10.47.1 During the evaluation phase of work in this area a number of features were uncovered along the centre line trench. One of these features comprised of a substantial curved line of stones leading beyond the trench edge with other less obvious structural elements observed elsewhere along the central trench. From the outset this suggested the possibility of structures of unknown date on the site and for this reason a substantial area was opened around the possible structures. This expansion revealed eight potential structures (1-8) (Figure 23) in close proximity, all of which were subsequently investigated with the aim of determining construction methods, date and function. Six were confirmed as prehistoric structures and the remaining two proved to be a roughly defined mound of burnt stone (Structure 7) and a post-medieval hard-standing for livestock (Structure 8). The results of the investigations of each structure will be described in numerical order with the addition of peripheral features possibly related to the structures. Particular attention will be given to the three most extant structures (1, 2 and 3). Beginning with the layers and features underlying the horizons on which the structures were constructed the archaeological features will be described, based on preliminary interpretations, in stratigraphic order. Non-archaeological, voided and insignificant archaeological features are not described in the text and details of all contexts can be found in the appendix.

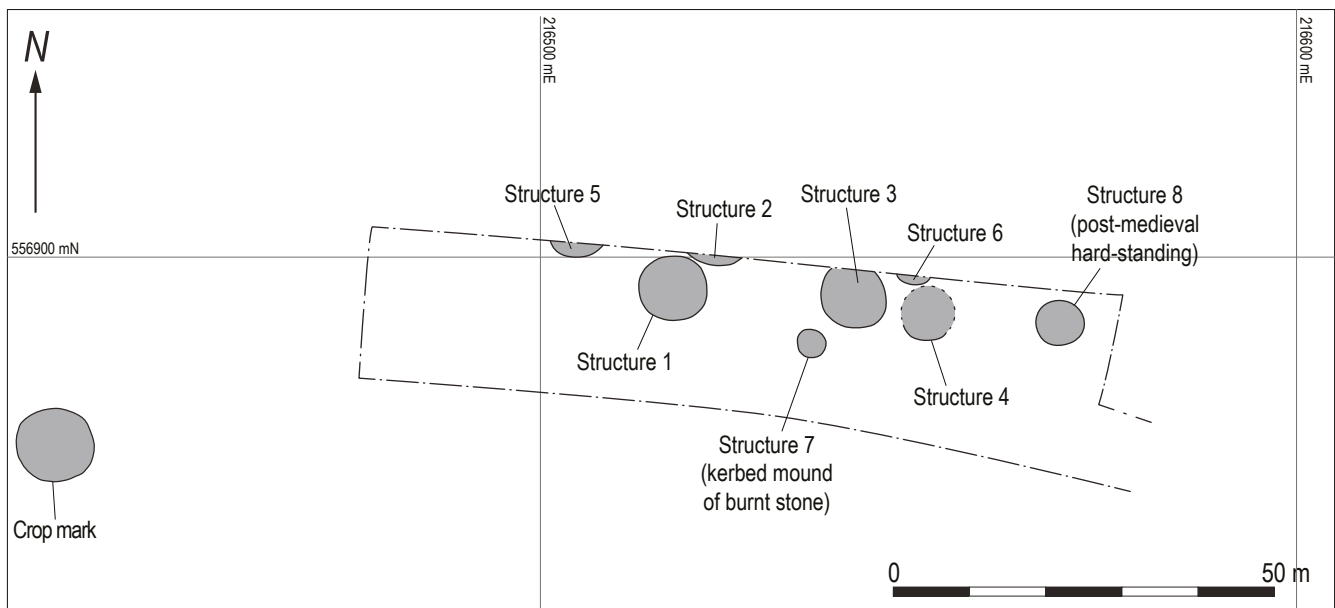


Figure 23: Overall plan of Site 6A showing possible structures.

Structure 1 (Figure 24)

- 10.47.2 The natural aeolian system here comprised of a series of wind-blown sand layers, forming a relict dune system with its origin sometime in prehistory. The sequence of naturally accumulated sand layers in the environs of, and before the construction of Structure 1 in stratigraphic order were 143, 147, 489, 136=570, 135=559, 693 and 085, detailed descriptions of each can be found in the appendix.
- 10.47.3 A sub-rectangular pit 628 was cut into the natural layer 135=559 and was located below the inner wall slot 073 of Structure 1. This pit measured 1.5 m in length, 0.77 m wide and 0.38 m deep. The fill consisted of loose mid-brown sand 626 with pockets of grey blue clay 646 and occasional charcoal flecks. Overlying this and several other internal deposits within Structure 1 was a discontinuous loose mid to dark brown sand 118 which was similar to the wind-blown layer of sand 085 outwith the structure. Four artefacts were recovered from deposit 118; a worked stone SF93, flint debitage SF95, a stone pounding tool SF100 and a flint core SF124. The internal wall slot 073 and a posthole 648 were found to post-date the natural filling of the pit 628.

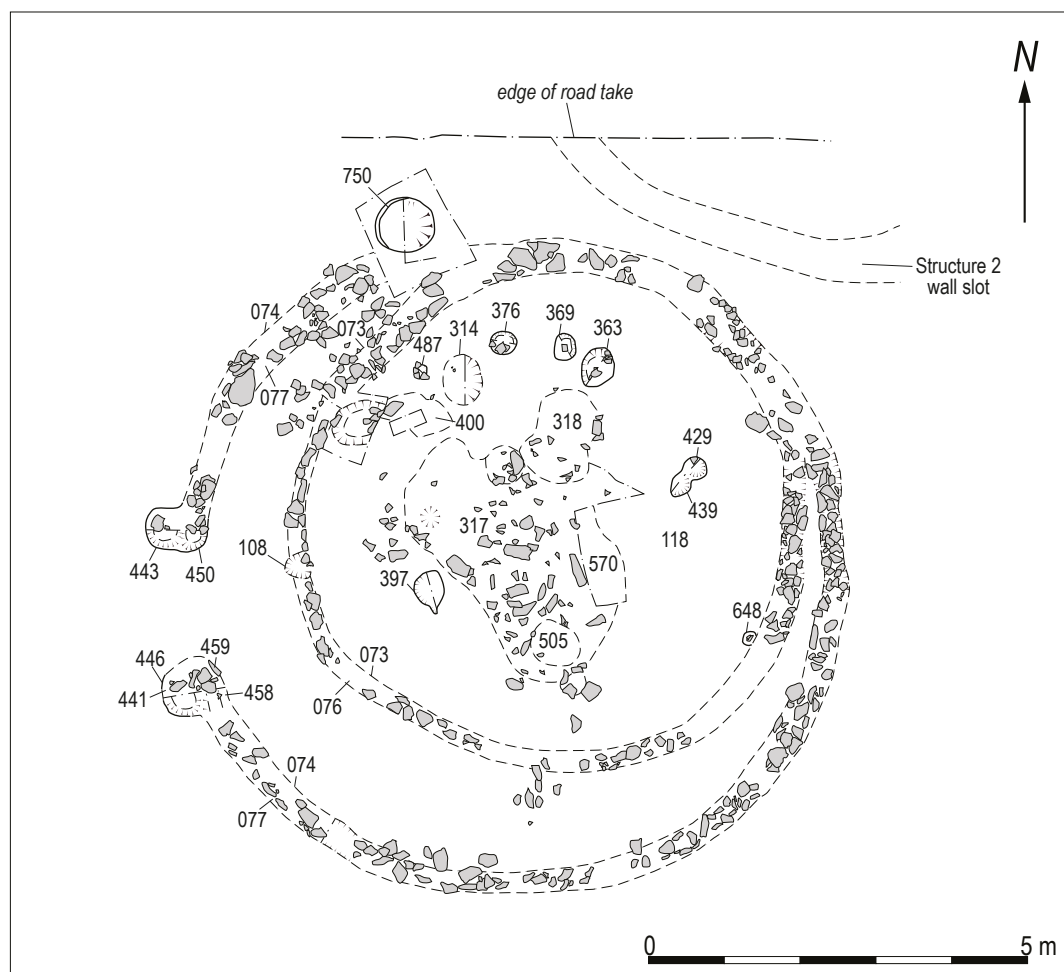


Figure 24: Structure 1 plan.

Wall slots and postholes

- 10.47.4 This structure was the first to be discovered during the evaluation phase and was fully investigated when the area was expanded to expose the archaeology within the road corridor at Site 6A. The structure consisted of two eccentric sub-circular stone-packed wall slots (Plate 111), the outer wall 074 being penannular with a post defined entrance facing west, the southern entrance post consisted of one cut 446 and the northern entrance post consisted of a pair of posts 443 and 450. The outer wall slot 074 measured approximately 0.4 m wide and between 0.23 m and 0.27 m deep. The basal fill consisted of mid to dark

brownish grey sand 077 with frequent medium and large irregularly shaped packing stones, occasional organic pockets and charcoal flecking. A large worked stone SF35 with evidence of drilling on opposing sides was recovered from 077. The upper fill consisted of light orange grey sand 075 with brown mottling and rounded stones including one stone hand tool SF11 and a rubbing stone SF12.



Plate 111: Structures 1 (left centre), 2 (bottom left) and 5 (bottom right).

10.47.5 The inner wall slot 073 measured approximately 0.4 m wide and between 0.3 m and 0.43 m deep. The fill consisted of mid to dark brown sand 076 with very frequent medium irregular packing stones with occasional pockets of organic material and charcoal flecks. In both wall slots it was observed that there were cavities defined by the upright packing stones which would have accommodated upright posts and/or planks. The external measurements for the outer wall 074 were 9.0 m east to west and 8.6 m north to south. The west entrance protruded by approximately 0.4 m beyond this measurement possibly creating a porch feature. The internal measurements for the outer wall were 8.3 m east to west and 8.2 m north to the south. The internal diameter for the inner wall 073, which was sub-circular in form, measured 6.3 m. There was one break of approximately 1.2 m in the circumference of the internal wall slot to the south. Here there was a shallow hollow 534 measuring 0.58 m by 0.89 m on plan and 0.16 m deep. The basal fill consisted of mid brownish yellow sand 585 with occasional small rounded stones and flecks of burnt bone and charcoal. The upper fill consisted of yellowish white sand 533 with occasional burnt bone and charcoal flecks.

10.47.6 There were also fourteen internal stone-packed postholes consisting of twelve individuals (487, 376, 369, 363, 722, 733, 648, 564, 397, 740 and 749) and one double posthole (429, 439) arranged in a discontinuous arc mainly around the inner south and west area of the structure. In the general central area of the structure the floor was sunken and there was a sequence of organic and charcoal rich sandy deposits covering an area measuring up to 3 m wide and 4.2 m in length. The central area of the structure was approximately 0.3 m lower than the level around the perimeter. The deposits in this sequence were, in stratigraphic order 489=143, 630, 629, 666, 318, 570, 507, 505, 567, 506, 576 and 317. A rubbing/pounding stone SF115 was recovered from deposit 629. This sequence of deposits is likely to represent the successive use of a hearth area within the structure but may also contain material, in the upper layers, from the collapse and subsequent decay of any roofing material the structure may have had.



Plate 112: Structure 1, SF22 Romano-British Fibula Brooch.

10.47.7 Overlying many of the internal features and the hearth were a series of wind-blown sand layers (117, 093 and 004). These layers of sand probably represent separate episodes of sand deposition in this dune system with the stone packed wall slots of the structure and sunken floor containing these sandy layers. A transitional layer 003 covered the archaeology and was subsequently overlain by topsoil 001. One unidentified thin cylindrical iron object SF1 was recovered from 003. One piece of burnt clay daub SF45 was recovered from layer 117. One copper alloy Romano-British brooch SF22 (Plate 112) was recovered from layer 093 just inside the south-east edge of the internal wall 073.

Structure 2

10.47.8 The naturally accumulated sand layers accumulated outwith, and before the construction of Structure 2 are the same as those accumulated in the environs of Structure 1; 143, 147, 136, 135, 085 in that stratigraphic order. Within the structure area there was a difference in stratigraphy above context 147 suggesting that this is the point at which Structure 2 was constructed and floor deposits 115, 138, 106 and 096 accumulated, in that order, up to meet the internal walls of the structure. The internal space of the structure would have therefore been approximately 0.25 m lower than the exterior; this is similar to the 0.3 m lower central sunken floor area observed within Structure 1.

10.47.9 Whereas Structure 1 was fully exposed within the limits of the excavation only a fraction of Structure 2 was exposed along the northern limits of excavation. When the curvature of the wall slot 130 is extrapolated to the north it suggests a structure of 9 m to 10 m in diameter, similar to Structure 1. The outer southern perimeter of this structure lay within 0.4 m of the northwest edge of Structure 1. From the outset it was apparent that the construction methods used in Structure 2 were different from Structure 1 displaying large outer postholes and a much more substantial wall slot with very large packing stones (Plate 113).



Plate 113: Interface between Structures 1 and 2 in section from west.

Wall slot and postholes

10.47.10 The wall slot for Structure 2 was cut into 085 (external stratigraphy) and 147 (internal stratigraphy) and through the underlying layers to a depth of between 0.3 m and 0.8 m and a width varying between 0.6 m and 0.65 m at the surface, narrowing to between 0.25 m and 0.3 m at the base. The depth of the wall slot 130 was deepest where it curved closely to the northwest edge of Structure 1 suggesting a possible structural link between the two. This curved wall slot extended beyond the north limit of excavation, most likely completing a penannular structure similar to Structures 1 and 3. The fill material consisted of mid brown sand 131 and packing stones 009. The packing stones consisted of sub-angular and sub-rounded stones with occasional sub-rounded quartz pebbles and the component parts measured typically up to 0.4 m in length, varying in width and breadth from approximately 0.1 m to 0.25 m. Very occasional pockets of soft fine grained blue gray clay bonding material (SF49 and SF116) were found between the interior-facing packing stones, possibly used to strengthen and maintain the integrity of a low internal walls. Two sherds of prehistoric pottery SF111 were recovered from 131, as were two pieces of worked flint SF122 and SF123, one piece of flint debitage SF120 and one fragmentary piece of corroded iron SF112.

10.47.11 There were a total of seven internal postholes and three larger exterior postholes noted in Structure 2, within the area exposed during these investigations. The Internal posts were mainly observed in the eastern portion of the exposed structure where four postholes (562, 650, 685 and 715) lay in close proximity. The fifth post-hole 139 was thinner in section and like post 685, was located close to the inner edge of the wall slot 130, as were the small

postholes 663 and 141. These internal posts were cut at different floor levels suggesting they were later additions to the internal structure, possibly evidence of repair or consolidation. The three outer posts 856, 702 and 743 were situated at regular intervals, 4 m apart around the exposed outer circumference of the structure. The most easterly of these, 656 measured 0.35 m by 0.48 m on plan and 0.28 m deep with substantial sub-rounded packing stones 655 and light brown/yellow red sand 176 with occasional inclusions of charcoal flecks. The next post to the west 743 measured 0.35 m by 0.45 m on plan and 0.3 m deep, filled by large sub-rounded packing stones 744 and dark brown-orange sand 745. The most westerly outer post 702 measured 0.45 m in diameter and 0.8 m deep filled by large sub-rounded packing stones 735 and dark orange-brown sand 703. If these posts followed the same 4 m interval around the perimeter of the structure there could be potentially up to eight individual posts assuming this structure is roughly circular.

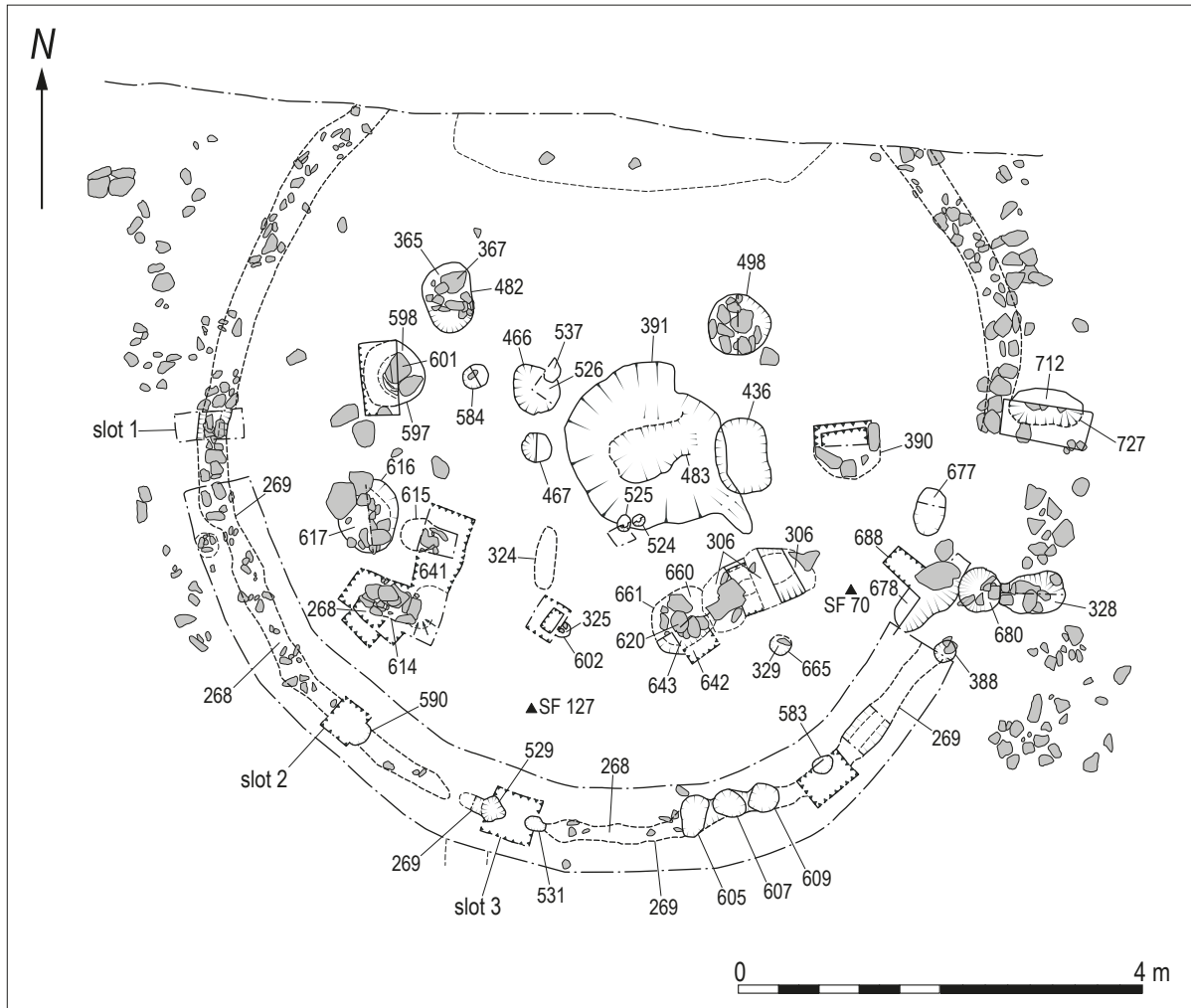


Figure 25: Structure 3 plan.

Floor deposits and abandonment

10.47.12 The initial floor deposit accumulated over the very compact natural layer 147 consisted of moderately compacted light brown-grey sand 115 with inclusions of possible organic remains and charcoal. Finds recovered include several sherds of prehistoric pottery including one basal sherd (SFs 32 and 36). This deposit sloped down towards and against the inner face of the outer wall slot 130 substantiating the interpretation that these layers accumulated against a low wall and post construction. This layer measured between 0.15 m and 0.2 m thick and was present throughout the interior of Structure 2, rising slightly towards what would be the centre of the Structure to the north. Postholes 715, 562 and 685 were cut into this floor level. Sealing 115 was a layer of loosely compacted light brown grey sand

138 measuring approximately 0.12 m thick (where excavated). This layer was cut by three small postholes or stake-holes 663, 139 and 141 close to the inner edge the wall slot 130. Sealing this deposit was friable dark brown-orange sand 106 which measured 40 mm thick (where excavated). Cutting this layer was the last of the internal posts exposed 650. Three body sherds SF31 and one large basal sherd SF33 were recovered from deposit 106 as were corroded iron fragments SF113. The latest floor deposit consisted of mid-olive brown sand 096 with occasional charcoal flecks and very occasional gravel inclusions, this layer also contained a deposit of mixed stones 151 and probably represents the last episode of occupation and therefore abandonment of the structure.

Structure 3 (Figure 25)

10.47.13 There were a series of four sand layers which were observed in the baulk section and in the edges of cut features associated with Structure 3. Deposit 643 was encountered at 0.7 m below the current ground surface at 10 m OD and consisted of light grey sterile sand. The thickness of this layer is uncertain as the excavation in this area did not go below this level. Above 643 lay a layer of reddish-brown sand 642 which measured 100 mm to 120 mm thick. Overlying this was a possible occupation horizon, this consisted of 120 mm thick dark grey sand 492 with occasional charcoal flecks and small stone inclusions with a thin lens of iron pan on the upper surface. A similar discontinuous deposit was observed to the west of Structure 3. The layer above this consisted of fine-grained greyish yellow sand with occasional flecks of iron pan, this layer measured between 60 mm and 90 mm thick and Structure 3 was constructed at this level. A very firm dark grey silty sand 309 with occasional charcoal flecks and a lens of iron pan at the lower and upper interfaces. This layer measured 35 mm to 50 mm thick and up to 4 m east to west within Structure 3. Above this was a 70 mm to 80 mm thick layer of loose light yellow brown extremely fine-grained, dust-like sand 365 with very occasional flecks of organic matter and charcoal. This layer was present across the entire area of Structure 3 and appeared to extend further west. Overlying this was mid-yellow brown fine-grained sand 364 with occasional iron pan flecks, this layer measured 40 mm to 60 mm thick and was present across the Structure 3 area. A small perforated stone disc SF127 was recovered from within Structure 3 at this upper level (Plates 114 and 115).



Plate 114: Structure 3 from east entrance.



Plate 115: Perforated stone disc recovered from within Structure 3.

10.47.14 Structure 3 lay approximately 10 m east of Structures 1 and 2 and measured 8 m in external diameter and 7.7 m internally although the northern edge of the structure lay just beyond the limit of the investigation area. The structure consisted of a penannular ring-groove or wall slot 269 filled by 268 with an eastern entrance flanked by large posts forming a small porch area. Although the wall slot at first appeared continuous, in some areas of the structure, particularly the southern wall, there were in fact individual postholes set closely, in some cases less than 50 mm apart (605, 607 and 609) but in others up to 0.2 m apart (529 and 531). The outer wall was not fully excavated. Internally there were six large posts (482, 597, 616, 614, 498 and 616), six smaller posts (584, 466, 467, 602 and 665), three spreads (306, 390 and 677) near the eastern entrance and an almost centrally placed complex furnace or oven feature 391 with two associated stake-holes (524 and 525) and the remains of a flue 436.

Large internal structural posts

10.47.15 Internally there were six large stone-packed postholes, posts 482, 597, 616 and 614 formed an arc around the west interior and posts 498 and 616 flanked the entrance. All of these larger posts had substantial packing stones and measured between 0.4 m and 0.65 m across and between 0.2 m and 0.64 m deep. The fills consisted of sandy deposits with varying degrees of charcoal content.

Smaller postholes, pits and spreads

10.47.16 These smaller posts may have added structural support to the main large posts which formed an arc around the west interior. Posthole 584 lay in close proximity the two most northerly large posts 482, 597 and posthole 615 lay in close proximity to posts 616 and 614. In both cases the sets of three posts could have conceivably taken a tripod form. Two of the smaller posts 466 and 467 may be associated with the central feature 391. The fifth of the smaller posts 665 lay in proximity to the large post 661 towards the eastern entrance and the remaining post 602 lay in the south central area of the structure.

Central Furnace/Oven feature

10.47.17 This feature was uncovered as an amorphous charcoal rich deposit and was subsequently investigated to determine its construction and function. One piece of furnace lining SF107 and seven pieces of slag (SFs 98 and 102) were found in proximity to the feature. The main cut 391 for the possible furnace was irregular in plan measuring approximately 2 m by 2.2 m and between 0.15 m and 0.2 m deep. A deeper secondary irregular cut 483 lay centrally to the main furnace cut and measured between 0.3 m and 0.4 m in width, up to 0.5 m in length and 0.12 m deep. The cut for what remained of the flue 436 was oval in form measuring 0.58 m by 0.65 m and 0.23 m deep. A large heat-shattered stone 512 was set into the central area of the furnace. There were a number of heat affected layers of clay around the large stone and a series of charcoal rich layers towards the surface representing the repeated use of the furnace (Plate 116).



Plate 116: Possible furnace prior to excavation from north-west.



Plate 117: Structure 5 under investigation from east.

Structure 4

10.47.18 The remains of this structure consisted of one arc of a wall slot 270 packed with large sub-rounded stones with one end of a burnt plank 253 surviving *in situ*. The wooden plank fragments were retained for further analysis. This piece of wood suggests that the construction methods, at least partially, involved wooden planks. The stones had been robbed out from most of the remaining circumference of the wall with only some remaining *in situ* giving the impression of a circular structure of a similar diameter to Structures 1 to 3. There were also the remains of three postholes (599, 656 and 303) which appear to be the remains of the eastern extent of the Structure 4 exterior wall. This structure lay immediately east of Structure 3 and within what would have been the interior floor area there was an accumulation of thin dark brown deposits (355, 179, 270, 639 and 640). Material recovered from these floor deposits included small slag fragments and very fine possible hammer-

scale was also noted using magnets across the surface. A metal detector also gave quite high readings across the possible floor area, although some of the signals could be attributed to burning as well as metal waste.

Structure 5

- 10.47.19 This structure was located on the northern limits of the stripped area to the northwest of Structure 1. Only the edge of an arc of stones was visible in the investigation area although from this the structure was extrapolated to a similar diameter of approximately 9 m (if complete) observed in the other structures across the site. The stones were densely packed in the arc itself and became less frequent towards the internal area of the structure (Plate 117). A number of possible floor accumulations were observed in section and were sampled accordingly. There was one feature confirmed as a posthole 278 on the southwest edge of the structure. There were also two deposits or bands of clay (335 and 307) which lay around the outer circumference of what would have been the outer face of the wall-slot for Structure 5. A layer of small natural pebbles and sand 478 lay below the floor levels of this structure, the structure appears to have opportunistically used this natural accumulation as a firm base or foundation for the structure. The same bed of pebbles was observed out with the structure at a similar level in two locations where no archaeological activity was present confirming that it was borne of natural processes. The same pebble layer was also sterile in the sense that it did not contain any organic material or accumulations that might suggest it was manipulated or redeposited to form a surface.

Structure 6

- 10.47.20 This possible structure was located immediately northeast of Structure 3 and immediately north of Structure 4. The structure here consisted of four postholes (529, 264, 234 and 231) forming a WNW to ENE arc which may continue to the north to form a circular structure. Some packing stones were noted in the postholes although no wall-slot was observed for this structure, this may exist to the north beyond the edge of excavation. The dark brown deposits observed in the case of Structure 4 appear to continue through to Structure 6. One quern stone fragment SF126 was recovered from the stone-packing material of Structure 6.

Structure 7

- 10.47.21 What at first was assumed to be an additional structure was shown to be an accumulation of burnt stones and charcoal within a roughly oval intermittent loose kerb arrangement of larger stones 511. No wall slot, postholes or pits were observed within or below the main deposit of material 026. This mound of material was truncated by a relatively recent, probably post-medieval, hedge-boundary 357. A number of pieces of worked flint were recovered from the mound and as well as samples of the deposit a sample of the burnt stones was also retained.

Structure 8

- 10.47.22 This structure was the remains of a possible hard-stand for livestock measuring up to 2.6 m by 3.5 m in plan and up to 0.35 m high. The structure consisted of a series of levelling layers 368 and 343 which were then overlain by a rough layer of sub-rounded stones of varying size. A deposit of clay with small stone inclusions 340 formed a spread down-slope and to the south of the remains of this structure. This measured 1.6 m across and up to 0.11 m thick and may have accumulated through run-off from Structure 8.

Circular crop mark

- 10.47.23 A circular crop mark of approximately 10 m in diameter was observed to the west of the excavation area of 6A and just south of the road-take. This crop-mark became visible after a sustained period of frost in the winter of 2013. The crop mark is located at NGR NX 16436 56875 and may represent an additional structure associated with the Iron Age settlement discovered to the east.

10.48 Site 6B

- 10.48.1 This area was opened as a result of preliminary findings from the evaluation suggesting that there may be significant sub-surface archaeological deposits relating to possible later prehistoric activity. The location of the deposits appeared up slope to the east of a concentration of Iron Age round houses and features at Site 6A. The dip between the two areas saw a rise and fall in water levels each day commensurate with the tides.
- 10.48.2 The most notable feature 042 was located in the centre north of the stripped area. Due to constraints in the excavation area this feature was only partly exposed. The substantial curvilinear feature 042 arced across slope from the southeast to the southwest. The exposed extent of this feature measured 12.3 m in length and ranged from 0.75 m to 1.3 m in width. This shallow deposit was a homogenous loose black charcoal rich sand 042 with a maximum thickness of 30 mm. A series of slots were excavated across the feature. It is likely that the charcoal-rich deposit found is the basal fill of a small curving ditch or gully, the upper edges of which have been truncated by ploughing. The curvilinear feature leads to/ from an area of white-grey silty sand (Plate 118- left of image). This colouration of this deposit may be as a result of podzolisation or borne of ash being dispersed in this area.
- 10.48.3 Directly adjacent to the south east of the curvilinear feature, a series of pits and postholes were visible. These varied in size from 1.6 m to 1.2 m sub-oval in size (Plate 119). Due to the ephemeral and shallow nature of the deposits, and no doubt due to the taphonomic conditions dictated by the immediate dune system, it proved difficult to define the cut edges. Four of the features (061, 062, 058, 045) appeared sub-oval in shape varying in diameter from 1.3 m to 2.8 m. Each deposit consisted of a shallow mid brown charcoal rich fill, with ephemeral interface layers where the deposits met with the underlying sterile wind-blown sandy subsoil.



Plate 118: General shot looking West across site down to site 6.



Plate 119: General shot of large pits from north.

10.49 Site 22

- 10.49.1 This site was uncovered during the topsoil strip for the construction phase of the project around Site 6A and 6B. The archaeology incorporated within Site 22 consisted of a granite stone lined key-hole shaped grain-drying kiln, a group of pits and an isolated series of post-medieval deposits, all on the periphery of Site 6B, with a small partial enclosure of unknown date to the west of 6A.

Grain-drying kiln

- 10.49.2 The stone lined key-hole shaped kiln 032 was situated on the same rise that accommodated Site 6B towards the eastern extent of the Myrtle Cottage site. This possible grain-drying kiln was orientated north to south and measured 6.75 m in length within the limits of excavation, with the flue extending down-slope to the southern baulk edge (Plate 120). The bowl measured 0.5 m deep with the flue measuring up to 0.3 m deep. The outer edge of the bowl measured 2.05 m in diameter, narrowing to 1.25 m in diameter within the dry-stone construction. The flue measured between 1.2 m and 1.8 m wide, narrowing to between

0.2 m and 0.6 m within the dry-stone construction. The flue gap was widest towards the southern baulk edge near the opening or stoke-hole area. There were a series of deposits within both the bowl and flue area signifying multiple episodes of use.



Plate 120: General post-ex shot of kiln.



Plate 121: General shot of stratigraphy of kiln.

10.49.3 The cut for the kiln 032 described above was lined with dry-stone construction 034 around the perimeter of the bowl and flue area. In addition, a stone 092 was found upright in the flue near the point where the flue met the bowl. There may have been a corbelled covering for the south end of the flue, evidenced by the presence of predominantly flat stones which appeared to be collapsed around the mouth of the flue (Plate 121). The primary fill of the flue consisted of slightly compacted mid brown sandy silt 074 (=102) with pink mottling and occasional charcoal flecks. This layer gradually changed to rich orange colour towards the south end of the flue, most likely reflecting the greater oxidation levels and proximity of the heat source towards the open end of the kiln. The initial fill of the kiln bowl consisted of dark brown sandy silt 052 with frequent mixed red and light brown pockets and charcoal flecks. Above this was a layer of compact light grey blue clay lining 051 containing very occasional charcoal flecks. Then came a loose dark reddish-brown silty sand 050 mixed with compact clumps of grey clay and some ash, with occasional charcoal flecks. Over this was a second layer of clay lining 047 consisted of very compact light yellow and brown clay with very occasional charcoal flecks. This was followed by dark brownish black silt 048 and a slight clay content and occasional flecks of charcoal. A layer of medium red brown sandy silt 046 with ash and compact blue grey clay inclusions and frequent small to medium stone inclusions overlay this. This layer, only separated by the upright stone 092 is most likely the same as the mid to dark brown sandy silt 066 with very occasional flecks of charcoal and small to medium rounded and sub angular stones found in the flue. Concentrating on the deposits contained within the flue, the next layer consisted of compact, mixed light brown, blue grey, yellow brown sandy clayey silt 042 with very occasional charcoal flecks, large clay lumps and stone collapse. This was subsequently overlain by two separate layers; dark brown sandy silt with flecks of yellowish brown and blue grey clay 041 and dark brown sandy silt 057 with occasional sub angular stones, and very occasional charcoal flecks. Completing the sequence in the bowl area was a layer of slightly compacted dark brown silty sand and loam 033 with occasional small stones and very occasional charcoal, possibly the remains of an organic (perhaps turf) covering from the kiln's last use and collapse. The flue had a different stratigraphic sequence above layer 066. The first layer in this sequence consisted of mid to dark brown sandy silt 073 with small to medium stones. This layer extended to the southern baulk and was overlain by several deposits, all of which accumulated after the kiln had gone out of use. Around 2 m south of the bowl there were three deposits observed; 093, 096 and 097 all of which had an element of wind-blown sand and may represent the eroded remains of part of the flue covering. At or near the mouth of the flue there were four small separate deposits; 098, 099, 100 and 101, all of which were a mix of clay and sand with charcoal flecks and like the previous deposits may represent the eroded remains of the flue covering. These deposits were all covered by 033, what is perceived to be the remains of organic (possible turf) covering from the kiln's last use and collapse.

10.49.4 The southern baulk section was cleaned and recorded and this revealed a series of layers most likely representing burning and rake-out associated with the kiln. The first of these layers overlying subsoil 002 was mixed dark and light orange / brown sandy silt 031 with

abundant slag and very occasional charcoal flecks; within this deposit was a pocket of loose light brown sand 035. Above this lay dark brown and grey black sandy silt 079 with abundant charcoal and small fragments of slag. This was then overlain by dark red brown sandy silt 072 with peat lumps and occasional charcoal. Next came a mixed layer of dark and light orange / brown silty sand 071 with abundant slag and very occasional charcoal flecks. Above this was a dark brownish black sandy silt 070 with abundant charcoal and small slag fragments and peat lumps. The possible kiln covering 033 completed the sequence.

Post-medieval deposits

- 10.49.5 There were a series of post-medieval deposits forming a possible level platform for a structure 076 uncovered to the north of Site 6B (Plate 122). This platform appeared sub-angular on plan and extended west beyond the western baulk edge. For description of each of the deposits making up this platform (056, 058, 059, 060, 064, 067, 068 and 069) see appendix D. One post-medieval glass shard SF8 was recovered from 059. One post-medieval pot sherd SF5 was recovered from layer 060. An Iron horse harness fragment SF1 and three iron fragments SF7 were recovered from 069, while a copper alloy pin SF2 was recovered from 075 and two copper alloy milled coins SF3 were recovered from 077, both sand layers lay below the structure 078. There were two postholes cut into this platform, 088 and 090. These posts both lay towards the northern extend of the structure and were located 0.55 m apart. The larger of these posts 088 measured 0.4 m in diameter and up to 0.3 m deep. The fill consisted of mid brown fine sand 089 with sub rounded and sub angular stones. The smaller post to the north, 090 measured 0.2 m in diameter and up to 0.2 m deep. The fill consisted of mid brown fine sand 091 with sub angular cobbles used as packing stones.

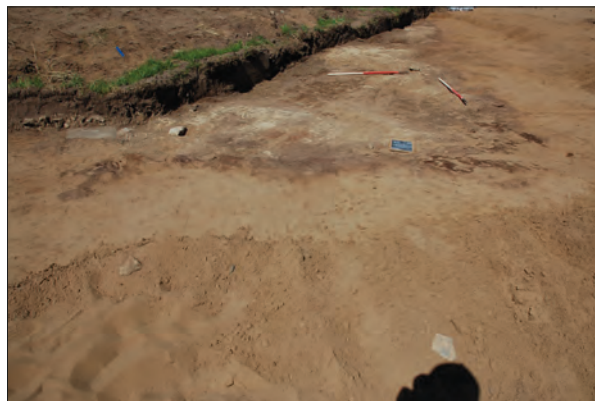


Plate 122: Possible building floor 056-064.

Group of pits

- 10.49.6 There were isolated groups of pits uncovered during the topsoil strip for Site 22, the details for each individual pit can be found in the appendix D. One group of pits lay east of structure 078, pits 080 and 083. One iron fragment SF8 was recovered from fill 081 in pit 080. To the north of Structure 078 lay an additional two postholes/ pits 094 and 086. Two post-medieval pot sherds SF4 were recovered from fill 087 in 086. The remaining pits 025, 030, 015, 043 and two linear features 020 and 011 showed no apparent structural pattern.

Partial enclosure

- 10.49.7 This partial enclosure was situated to the west of Site 6A and consisted of two curvilinear features 037 and 038 framing a sub-rectangular area of approximately 4 m by 4 m within the limits of excavation. The shorter of the two features 037 was orientated east to west and measured 0.3 m by 2.4 m on plan with a maximum depth of 0.14 m. The fill consisted of light yellow brown sand 039 with occasional charcoal and burnt clay. The other curvilinear feature 038 was orientated south to north, perpendicular to 037, and measured between 0.5 m and 0.6 m wide, 4.2 m long within the limits of excavation and 0.4 m deep. The fill consisted of mid to dark brown sand 045 with occasional charcoal and occasional medium sized stones. No internal features were apparent.

10.50 Myrtle Cottage Discussion

Site 6 (A & B) Discussion

- 10.50.1 The site at 6A provides a glimpse of a wider Iron age unenclosed settlement here on the coastal fringe of Galloway. Unenclosed Iron Age settlements tend to be small in scale, and in most cases are single round-houses. In this instance there are a series of six, at least partially exposed round-houses, each of varying construction, with the indication of further such structures indicated by a crop-mark to the west. The different construction methods observed and the presence of possible metal-working activity within Structure 3 suggests a settlement not just of domestic dwelling but with small-scale industrial practises feeding into the economy. This settlement also lies close to a reputed Roman Road leading west to east which would have no doubt had an influence even after the Romans had departed leaving the trade routes and links behind. The Romano-British Fibula Brooch may be a testament to this fact. There is evidence of further Iron Age activity in the form of an enclosed structure at Whitecrook sand quarry (MDG 9430) only 400m east of the Site 6A location. This structure occupied the same dune system and raises the possibility whether this whole coastal fringe was once populated in the Iron Age.
- 10.50.2 Site 6B was located to the northeast of the concentration of Iron age structures at site 6A; this site was situated on the top of a small rise or ridge. Located in a former coastal dune environment, overlooking an Iron Age settlement, the site although revealing some evidence of post-medieval activity (iron shears and a seventeenth century coin from evaluation) much of the archaeology revealed no material culture and may relate to the possible Iron Age activity in 6A where the deposits appear similar in nature and are in most cases devoid of material culture.
- 10.50.3 The charcoal-rich curvilinear feature arcing across Site 6B leads to one possible area of ash or podzolisation. One possible function suggested by both the burning and the form of the curvilinear feature is a flue for a kiln. This theory could be confirmed or dispelled by an analysis of the deposits for the presence of grain or other products being processed in the possible drying kiln.

Site 22

- 10.50.4 The kiln structure on Site 22 displayed evidence for repeated use. The evidence suggests at least three uses with clay repair or lining being administered after each of the first two uses. From the initial uncovering of the kiln structure it was observed that there was a particular concentration of stones and in particular flat stones around the mouth of the flue suggesting this area may have had stone corbelling. This same area showed the greatest concentration of heat colouration on the sides of the flu, the underlying sands and some of the loose stones. The corbelling may have assisted in maintaining the required intensity of heat within the kiln. It is not certain if there were stone lintels along the flu as there were no loose stones found during excavation but there was an organic rich layer O33 present across the structure which suggests that there may have been turf or a similar covering over the kiln and flu. Seven pieces of slag SF009 were recovered from one of the rake-out layers 071 and one possible worked stone SF10 was recovered from the primary fill 102 near the southern mouth of the flue. Samples of the key layers encountered within and outwith the kiln structure were retained for further analysis and dating.

Post-medieval deposits

- 10.50.5 The metal, ceramic and glass artefacts all confirm the post-medieval dates for these deposits. They may be associated with a temporary agricultural out-building or animal shelter situated here some time during the eighteenth to twentieth centuries.

Partial enclosure

- 10.50.6 This partial enclosure remains undated although it was located in close proximity to the position of the known remains of a Brick and Tile-works noted here on the First Edition OS Map of 1850 but not noted on any later editions. The Dumfries and Galloway HER lists this as an area of archaeological interest (HER ref.: MDG26029). Due to the apparent recent nature of the fills and its location, this partial enclosure may represent the remains of a perimeter or boundary line for the Brick and Tile-works. Without expansion and further investigation this cannot be confirmed.
- 10.50.7 The investigations carried out on Site 22 during the construction phase of the A75 Dunragit Bypass revealed elements that may be related to the archaeology discovered during the evaluation and advance works. The kiln could feasibly be related to the Iron Age activity observed in Site 6A, perhaps this was an area set aside from domestic structures for the purpose due to the fumes and waste products generated. Although it must be acknowledged that similar kiln structures are observed into the medieval period. A possible flue was observed during the investigations on Site 6B and this may suggest that there was more than one kiln structure in this location, or perhaps a relocation of one kiln over time. The analysis and dating of the material from Sites 6A, 6B and 22 will be necessary to be conclusive on any apparent relationship and contemporaneity.

Summary

- 11.1 The evaluation and subsequent further investigations in advance of and during the construction phase revealed a plethora of prehistoric archaeology with preliminary interpretations suggesting that new sites of Mesolithic, Neolithic, Bronze Age and Iron Age date have been discovered. These findings complement an already rich relict prehistoric landscape, showing that this same area of coastline was utilised as early as circa 6000 BC during the Mesolithic period (West Challoch) and continued to offer rich resources to encourage settlement during the Iron Age period (Myrtle Cottage) with the Roman occupation and resultant road-building possibly being a catalyst at this time.
- 11.2 The quality of the assemblage recovered offers a rare opportunity for the interpretation of a landscape and how it and its people developed and adapted over seven millennia on this coastline. The findings from the investigations suggest that Dunragit and the surrounding landscape held something important for prehistoric people here. An in-depth study of the assemblages and evidence from the excavations will perhaps shed some light on the reasons why Dunragit may be considered the prehistoric heart of Galloway.

Recommendations

- 12.1 It is recommended after consultation with HS, Mouchel and Transport Scotland that key soil samples from all archaeological investigations associated with this project are analysed for botanical remains in the first instance followed by specialist analyses. It is also recommended that a range of suitable charcoal samples are prepared for AMS dating to enable direct comparison between key features within each of the sites and to provide the opportunity to relate the new areas of significant archaeology to each other as well as to the previously known prehistoric archaeology of the area. In addition, the artefactual assemblages recovered should undergo specialist analyses to produce a typology and to assist in the dating and interpretation of archaeology in each of the sites and to facilitate comparison between them. On a wider scale the results of the ecofactual analyses, artefactual analyses and AMS dating can be used in comparing the rich prehistoric landscape here to similar sites across the region, Scotland and western Europe.
- 12.2 The results of the post-excavation analyses should be published in a suitable format to permit dissemination to as wide an audience as possible including the local community of the Dunragit area.

- 12.3 A summary of the results of the evaluation will be submitted to Discovery and Excavation in Scotland. A copy of the summary is included in Appendix B. The archive for the project, including a copy of the report, will be submitted to the National Monuments Record for Scotland within six months.
- 12.4 The online OASIS form at <http://ads.ahds.ac.uk/project/oasis/> (OASIS Reference: guardarc1-131959) will be completed within three months. Once the Data Structure Report has become a public document by submission or incorporation into the local Sites and Monuments Record, Historic Scotland will validate the OASIS form thus placing the information into the public domain on the OASIS website.

Acknowledgements

- 13.1 GUARD Archaeology would like to thank Amey for commissioning us on behalf of Transport Scotland to undertake the initial evaluation and subsequent investigations in advance of construction. Special thanks go to Archaeologist Declan Hurl for his support and guidance throughout the process and thanks also go to Claire Mason who assisted on the project on behalf of Amey. Thank you also to R. J. McLeod for commissioning us to cover the construction phase of works and to Andy Gillan for his patience. Thank you to Sally Hales of Mouchel for her guidance and support. Thank you to Rod McCullough of Historic Scotland for his advice and guidance throughout the project and to the late Jane Brann for her support. Plant and drivers were supplied by local firm, Luce Bay Plant. The excavations were directed by Warren Bailie and Kevin Mooney with assistance from project officers Iraia Arabaolaza, Alan Hunter Blair, Maureen Kilpatrick, Christine Rennie and Beth Spence. The supervisory staff were Douglas Allan, Kenny Green, Liam McKinstry, Stuart Paterson, Scott Wilson. The excavation crew were John James Atkinson, Laura Vinas Boreland, Michael Briggs, Claudia Caldiera, Joanne Clawley, Stephen Cox, Val Dufeu, Ildiko Egery, Stephanie Glover, John Godbert, Owen Godbert, Hope Hancox, Calum Henderson, Victoria Hill, Thomasz Jenorowski, Shauna Joy, Jessica Lumb, Robert McCorrisken, Rowan McLaughlin, Robert McMorrnan, Sandra Mulligan, Conor Murphy, Farshid Namini, Marco Peterman, Ben Sorrill, Justine Tarelli, Rowena Thomson. Technical support was from Aileen Maule and John Kiely. The illustrations were produced by Fiona Jackson and Gillian McSwan. The report was desk top published by Gillian McSwan. The project was managed for GUARD Archaeology by John Atkinson.

**A75 Dunragit Bypass- Evaluation,
Advance & Construction Works
Data Structure Report**

Section 2: Appendices



www.guard-archaeology.co.uk

Appendix A: Sources Consulted

Canmore- <http://canmore.rcahms.gov.uk>

Pastmap- <http://pastmap.org.uk/>

ScARF- <http://www.socantscot.org/scarf>

National Library Scotland- <http://maps.nls.uk/index.html>

Dumfries and Galloway HER Viewer- <http://www.dumgal.gov.uk>

Appendix B: Discovery And Excavation Scotland Entry

LOCAL AUTHORITY:	Dumfries and Galloway
PROJECT TITLE/SITE NAME:	Dunragit A75 Bypass
PROJECT CODE:	3537 / 3622 / 3774
PARISH:	Old Luce
NAME OF CONTRIBUTOR(S):	Warren Bailie, Kevin Mooney, Iraia Arabaolaza, Maureen Kilpatrick, Christine Rennie
NAME OF ORGANISATION:	GUARD Archaeology Limited
TYPE(S) OF PROJECT:	Evaluation, Advance Works, Construction Works
NMRS NO(S):	NX15NE 69; NX15NW 25.01; NX15NW 6
SITE/MONUMENT TYPE(S):	Prehistoric activity- Mesolithic, Neolithic, Bronze Age, Iron Age
SIGNIFICANT FINDS:	Mesolithic, Neolithic, BRA flints, Cremated human remains, Cremation urns, Neolithic/ BRA Pottery sherds, Jet beads, quern stone fragment
NGR (2 letters, 6 figures)	NX 14911 57544
START DATE (this season)	13 August 2012
END DATE (this season)	March 2014
PREVIOUS WORK (incl. DES ref.)	n/a
MAIN (NARRATIVE) DESCRIPTION: (May include information from other fields)	<p>An archaeological evaluation was carried out by GUARD Archaeology Ltd along the line proposed for the A75 Dunragit Bypass. The trial trench evaluation of over 10 % of the 7.4 km development area identified eleven main areas of potential archaeological significance. These eleven sites will be investigated further in advance of the construction phase of works.</p> <p>After investigation of the eleven areas it was that this was a landscape dominated by prehistoric activity ranging from the Mesolithic through to the Iron Age. Discoveries included a Mesolithic House structure, a Bronze Age Cemetery complex with small barrows and urn cremations, multiple burnt mounds and an unenclosed Iron Age settlement of round-houses.</p> <p>Further investigations during the construction phase revealed more evidence of prehistoric activity across this area of the Galloway coastline. Further funerary activity was discovered in the form of stone-lined pits with cairns and grave goods including jet beads and decorated prehistoric ceramic vessels. Further Mesolithic structures and a flint scatter totalling in excess of 13,500 pieces of lithic were also discovered.</p>
PROPOSED FUTURE WORK:	Advance Works Further Archaeological Investigations after expansion of 11 areas, and Construction Phase topsoil strip monitoring thereafter
SPONSOR OR FUNDING BODY:	Transport Scotland
CAPTION(S) FOR ILLUSTRS:	n/a
ADDRESS OF MAIN CONTRIBUTOR:	52 Elderpark Workspace, 100 Elderpark Street, Glasgow, G51 3TR
EMAIL ADDRESS:	warren.bailie@guard-archaeology.co.uk
ARCHIVE LOCATION (intended/deposited)	NMRS

Appendix C: Conservation

Conservation work on some of the artefacts recovered from the Dunragit investigations was commissioned by Historic Scotland under the call off contract- Reports AOC 22402 and AOC 22312.

Conservation reports included here were commissioned by GUARD Archaeology Limited: AOC 22547, AOC 22474 and AOC 22491.

22547_Conservation Report for A75 Dunragit Bypass

Conservation Report on A75 Dunragit Bypass Artefacts



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Conservation Report on A75 Dunragit Bypass

AOC Project No:	*22547
Prepared by:	Natalie Mitchell/Gretel Evans
Timing:	Assessment report (October 2013)
Conservation report (June 2014)	
Date of Report:	June 2014

This document has been prepared in accordance with AOC standard operating procedures.

Author: Natalie Mitchell

Date: 05/06/14

Approved by: Gretel Evans

Date: 16/06/2014

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Conservation Report on A75 Dunragit Bypass Artefacts

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Summary

A total of 5 artefacts, excavated from the A75 Dunragit Bypass works by GUARD Archaeology, were received for conservation. The artefacts came from 2 different sites.

- Ceramic vessel, originally block-lifted was excavated and re-assembled to give a partial vessel
- Organic object although visible in-situ was unrecoverable from the soil block submitted
- 2 copper alloy objects, originally thought to be coins were buttons, were cleaned and stabilised
- Copper alloy pin was clean and stabilised

List of artefacts selected for conservation.

SF no.	Context	Site	Site name	Material	Description	X-ray no.
2	16	16 (ext)	East Challoch Farm	Ceramic	Partial vessel	n/a
3	18	16 (ext)	East Challoch Farm	Organic	Unknown	2-7
3	77	22	Myrtle Cottage	Copper alloy	2 buttons	1
2	75	22	Myrtle Cottage	Copper alloy	Pin	1

Condition summary

Ceramic

The ceramic was lifted in a very large soil block and supported with abundant bandages and bubble wrap. Brief exposure and examination of the ceramic showed the visible face to be cracked and fragmented with some loose sherds visible.

The soil block was too large to be x-rayed (x-radiography would enhance our understanding of the extent/contents/position of the ceramic within the block).

Organic

It was difficult to distinguish the organic object from its soil matrix. The packing did not prevent the soil from disaggregating and whilst the picture of the object *in situ* does show clear definition of a possible organic object, it was no longer discernible. To assess the location of the organic object in the soil matrix multiple x-

radiographs were taken at various voltages. Unfortunately these did not reveal the presence of any organic object.

Copper alloy

X-radiography of SF3 (77) suggested that they are 2 decorated discs, possibly buttons, which appear joined to each other by a metal loop.

SF2 (75) is a pin with ball head, approximately 55mm in length but is curved rather than straight, probably through burial rather than original.

Conservation summary

Ceramic

During assessment the bandages supporting the ceramic were removed for examination. The exposed face of the ceramic was very fragmented. The vessel appeared to be partial and supported by the soil which was crumbling away. As an emergency measure the fragmented area was isolated with clingfilm and plaster bandages partially applied to support the exposed ceramic until full conservation could be undertaken.

During conservation the plaster bandages were removed and the ceramic excavated from the soil in which it had been lifted. The ceramic was found to be very fragmented, deformed and degraded: possible iron panning had permeated the ceramic solidifying soil deposit to the ceramic itself, particularly at the base.

After excavation of all fragments the following treatment was undertaken:

- Dry clean of all fragments
- Fragments for reconstruction identified
- Fragments for reconstruction had break edges strengthened with 5% Paraloid B72 in acetone
- Fragments bonded with 50% Paraloid B72 in acetone
- One area of reconstruction stabilised with Japanese tissue strip applied to internal face with 10% Paraloid B72 in acetone
- Partial reconstruction completed for areas of the rim, wall and base which gave approximate dimensions of rim diameter 15cm, base diameter 8cm, height 20cm

Organic object

Although visible in the soil *in-situ* as a darker area the organic object was not clearly visible after uplift. Multiple x-radiographs were taken to establish the presence of an organic object but were inconclusive. Examination in the laboratory under magnification failed to reveal the presence of a definitive object. However, examination under magnification did reveal the presence of small dark organic 'flakes' less than 1mm in size throughout the soil deposit concentrated in areas. These were unable to be identified but did not appear to be wood or charcoal; they may be fragments of degraded leather but no further inferences can be drawn. Micro-photographs of the fragments were taken. The soil matrix has been retained. Wet sieving of the deposit is unlikely to recover the fragments as they are likely to disintegrate during the process.

Copper Alloy

Buttons (SF 3 Context 77)

- Object investigated under magnification and using x-radiographs
- Surface soiling and corrosion products removed from top surface of each button whilst the interconnecting wire remained supported in soil; the surfaces were very friable especially around the button edges and so were consolidated during cleaning using 5% and 15% Paraloid B72 in acetone as required.
- Once the button surfaces were clean, the soil and corrosion products surrounding the connecting wire were carefully removed under magnification with a scalpel; the soil was softened using IMS as needed to ease its removal

- Buttons were stabilised using 3% benzotriazole (BTA) in IMS applied with a soft brush, then rinsed with IMS
- A small Japanese tissue repair was applied with 20% Paraloid B72 to the back of a fracture on the button with a broken edge.
- The buttons and adjoining wire were lacquered using 15% Inralac™ in toluene.

Cu Alloy Pin (SF2, Context 75)

- Pin was examined under magnification and by x-radiograph
- Loose surface soil was very carefully removed using a scalpel under microscope.
- The pin was placed in 3% BTA in IMS followed by rinsing in IMS, then lacquered with 15% Inralac™ in toluene.

Handling and storage requirements

Copper Alloy Buttons, SF 3, Context 77

- Following cleaning, one button is fixed to the connecting wire by corrosion products whilst the other is free to move. To avoid this movement causing damage to the extremely fragile button edges they have been packaged in a box, within a plastazote cut-out to minimise movement or pressure being placed on the object. When handling this movement should be kept to a minimum.

Cu Alloy Pin, SF2, Context 75

- As the pin is very fragile and has a small crack in the centre it was packaged in a box, within a plastazote cut out to reduce any risk of damage.

Copper alloy with active corrosion as a result of chlorides must be kept very dry in an environment with an RH less than 30%: deterioration can be very rapid in the presence of moisture. Copper alloy artefacts which are not actively corroding should be kept at an RH of less than 40%. Keep all the artefacts in an air-tight re-sealable polythene box, with an adequate supply of dry silica gel. The indicator strip should be checked once a month to ensure that the correct environmental conditions are maintained. If artefacts are removed from the box for examination, they should be handled with gloves, and only set down on a padded surface, to minimise impact and abrasion damage. They must be returned to the box immediately - not left out overnight, for example. If there are any surface colour changes, or any losses, contact a conservator. Keep the box closed so as not to exhaust the silica gel.

Health and safety considerations

BTA (Benzotriazole) has been used as a corrosion inhibitor: this may be a carcinogen, but the quantities involved are extremely small, and unlikely to be a risk if the appropriate precautions (above) are taken. The benzotriazole forms an inert layer on the surface of the artefact; any excess is removed from the artefacts by rinsing in alcohol, and so any risk to a handler (especially with the surfaces lacquered) is negligible (Koob, 1999 and Knight, 1999). Care should be taken, however, not to disrupt the fragile protective layers by abrasion or high RH.

Materials used

Acetone

IMS (Industrial Methylated Spirits)

Benzotriazole (BTA)
Paraloid B72
Incralac™
Japanese tissue

Conservators: Gretel Evans, Natalie Mitchell

Date: 05/06/2014

Bibliography

Knight, Barry *Toxicity of benzotriazole: myth and reality*. Conservation News No. 70, November 1999 (summarizes Koob, see below)

Koob, Stephen 1999 *BTA residues on archaeological material*. ConsDist List Instance 12.92.

Appendix I: List of all artefacts.

List of artefacts:

SF no.	Context	Site	Site name	Material	Description	X-ray no.
2	16	16 (ext)	East Challoch Farm	Ceramic	Partial vessel	
3	18	16 (ext)	East Challoch Farm	Organic	Unknown	2-7
3	77	22	Myrtle Cottage	Copper alloy	2 possible coins	1
2	75	22	Myrtle Cottage	Copper alloy	Pin	1

Appendix II: Catalogue of all x-rays

List of x-rays

X-ray no.	Volts (KeV)	Time (mins)	Small find nos.
1A	60	3	3 (77); 2 (75)
1B	60	4	3 (77); 2 (75)
1C	70	3	3 (77); 2 (75)
1D	70	4	3 (77); 2 (75)
2	30	5	3 (18)
3	40	5	3 (18)
4	50	5	3 (18)
5	60	5	3 (18)
6	70	5	3 (18)
7	80	5	3 (18)



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22474_Conservation Report on Jet Beads and Ceramic Vessel from East Challoch Farm (A75 Dunragit Bypass)

Conservation Report on Jet Beads and Ceramic Vessel from East Challoch Farm (A75 Dunragit Bypass)



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Conservation Report on Jet Beads and Ceramic Vessel from East Challoch Farm (A75 Dunragit Bypass)

AOC Project No: 22474
Prepared by: Gretel Evans
Date of Report: 30 June 2014

This document has been prepared in accordance with AOC standard operating procedures.

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Conservation Report on Jet Beads and Ceramic Vessel from East Challoch Farm (A75 Dunragit Bypass)

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Summary

A total of 31 jet components from a necklace, and a ceramic food vessel was excavated from East Challoch Farm by GUARD Archaeology Ltd. Some of the jet beads underwent photo-microscopy at National Museums of Scotland. All the finds were then delivered to AOC Archaeology by Dr. Alison Sheridan (NMS).

As the finds were excavated in a damp condition they were retained in cold storage to prevent any deterioration, drying out or mould growth while conservation assessment and treatment were carried out.

Dr. Alison Sheridan requested that the beads undergo x-radiography after surface cleaning but prior to cleaning sediment from perforations. They were to then undergo x-radiography again after cleaning perforations.

After experimental trials the jet beads were dried extremely slowly in a solvent-rich atmosphere to limit deterioration such as cracking, splitting and delaminating; good results were achieved. After drying, some of the beads that exhibited cracks, splits and crazing were consolidated. Only one of the beads suffered complete collapse; this has been re-adhered.

GUARD Archaeology Ltd. requested that the ceramic vessel was strengthened and supported by application of plaster bandages, then returned to them for excavation. After excavation the ceramic was returned to AOC for conservation.

List of artefacts selected for conservation

SF no.	Context no.	Material	Description	Notes
5	3	Ceramic	Food vessel	
6	13	Jet	Terminal	Consolidated
7	13	Jet	Spacer	Consolidated
8	13	Jet	Bead	Re-adhered
9	13	Jet	Bead	
10	13	Jet	Bead	
11	13	Jet	Bead	
12	13	Jet	Bead	
14	13	Jet	Spacer	Consolidated

15	13	Jet	Bead	Consolidated
16	13	Jet	Bead	Consolidated
17	13	Jet	Terminal	Consolidated
18	13	Jet	Bead	Consolidated
19	13	Jet	Spacer	Consolidated; fragment re-adhered
20	13	Jet	Bead	Consolidated
21	13	Jet	Bead	Consolidated
22	13	Jet	Spacer	Consolidated
23	13	Jet	Bead	
24	13	Jet	Spacer	Consolidated
25	13	Jet	Spacer	Consolidated
26	13	Jet	Bead	
28	13	Jet	Bead	Consolidated
29	13	Jet	Bead	
30	13	Jet	Bead	Consolidated
31	13	Jet	Bead	Consolidated
32	13	Jet	Bead	
33	13	Jet	Bead	Consolidated
34	13	Jet	Bead	Consolidated
35	13	Jet	Bead	
36	13	Jet	Bead	
37	13	Jet	Bead	
38	13	Jet	Bead	Consolidated

Description

Jet Beads

There are 31 components of the jet necklace; these comprise 2 terminals, 6 spacers and 23 beads. The terminals are roughly triangular but curved, and have one perforation at the apex and three at the base end. The spacers are roughly oblong in shape, with indents either side where the three perforations on each long side are located. The beads are biconical in shape and vary in length from about 9-25mm with a lengthwise perforation. Accurate measurements can be found on the pre-conservation digital microscope images. The biconical bead SF28 was wedged in to one of the perforations of the terminal SF19.

Dr Alison Sheridan studied the beads prior to conservation and has noted wear, tool marks and other features of interest. The beads appear to be jet; this can be confirmed with XRF analysis.

Ceramic

The ceramic was lifted with its fill and the exterior wrapped with crepe bandages to support it by GUARD Archaeology Ltd, after excavation. The vessel measures approximately 23cm in diameter, 14 cm in height. There is impressed decoration around the rim and body of the ceramic.

Condition summary

Jet Beads

On arrival the beads were in a damp condition and were kept in cold storage to prevent deterioration, drying out or mould growth. Examination of the beads showed cracking and crazing of the surface indicating their vulnerable condition. The majority had soiling adhering to the surface, and sediment within the perforations.

Jet is notoriously difficult to stabilise from a damp or wet state. It will start to decay from when it is first mined from its geological seam and undergoes further stresses both during burial and after excavation.

Most of the beads were packed and labelled in such a way that their orientation within the ground was recorded; usually this referred to left/right orientation, sometimes additionally up/down orientation was recorded. As far as practically possible this information was retained throughout the conservation process. Up/down orientation was possible to retain for the flat spacer beads but not possible to retain for the bi-conical beads.

Ceramic

Removal of the crepe bandages showed the ceramic to be vulnerable in areas where it was cracked and fragmentary. This area was faced with non-woven polyester and 20% Paraloid B72 in acetone to hold the fragments together during the subsequent excavation of the fill. After isolating the ceramic with a separating layer, the exterior was then wrapped with plaster bandages to strengthen and support it prior to excavation. The ceramic was then returned to GUARD Archaeology Ltd. for excavation of the fill; subsequently it was returned to AOC Archaeology for conservation of the ceramic.

Conservation summary

Prior to conservation the beads were recorded photographically by digital microscope. The digital microscope has software measurement and calibration capabilities. In addition to a measurement scale in each digital image, all of the beads have been measured for their maximum width and length and this is digitally recorded in the images.

After carrying out x-radiography trials to ascertain the optimum voltage and exposure all of the beads were x-rayed prior to any cleaning. They were then x-rayed after surface cleaning; and x-rayed again after cleaning of perforations.

Surface cleaning of the beads was carried out using cotton wool swabs lightly dampened with deionised water and/or 50:50 IMS:deionised water. Later, cleaning of the perforations was carried out using cocktail sticks and damp cotton wool swabs as above. When cleaning perforations the beads were first examined for signs of stringing material, and the sediment removed was also examined for signs of stringing material; none was found.

After cleaning, one bead (SF35) was selected to undergo drying trials. The bead was placed in a desiccation chamber in an IMS-rich atmosphere and observed over time. After drying, examination of the bead showed it to be intact with only a small split at one end. This method was considered successful and rolled out to all the beads.

Examination of the beads after drying showed that some of the beads showed typical signs of deterioration in the form of cracking, crazing, and cupping. Beads showing such signs were consolidated for stability. Consultation with Mary Davies (Archaeological Conservator, Cardiff Museum) recommended 5% Butvar B98 in IMS and this was successfully used to consolidate beads under vacuum impregnation. The consolidated beads were then dried slowly in an IMS-rich atmosphere.

Beads which required to be consolidated were photographed with digital microscope prior to consolidation. The beads which were consolidated have been noted in the 'List of Artefacts Selected for Conservation' above.

During the conservation process only one bead (SF8) suffered collapse; this was re-adhered using 15-20% Paraloid B72 in acetone.

All beads were photographed with digital microscope after conservation.

In order to preserve the original orientation and find number of the bead during x-radiography and the conservation process, small grip-seal polythene bags were modified to include a label denoting the information, and the bag heat-sealed to retain the bead in that orientation. This method has also been used for packing the beads, allowing them to be safely handled but information retained.

Ceramic

Preliminary conservation work was carried out to offer protection to the ceramic during excavation of its fill by GUARD Archaeology Ltd (see above 'Condition summary').

After excavation the ceramic was returned to AOC Archaeology for conservation. Removal of the fill showed multiple open cracks and areas with loose fragments visible in the interior. In addition the ceramic had suffered deformation through burial and was now more oval in circumference than round. There was burial deposit adhering to the exterior of the ceramic.

Unstable cracks and loose or detached fragments were secured in the interior of the vessel using small strips of Japanese tissue applied across the break edges using 10% Paraloid B72 in acetone. The outer plaster support was removed. The temporary non-woven polyester facing on the exterior (applied prior to excavation and plaster bandages to support the fragmentary area) was removed mechanically and with acetone. Soil from the exterior of the ceramic was removed and retained. The exposed fragmentary area showed multiple cracks and loose fragments from the exterior with loss of rim and side wall in places. Open cracks were consolidated from the exterior with 15-20% Paraloid B72 in acetone. Detached fragments were re-adhered with 50% Paraloid B72 in acetone. After the consolidant had cured the internal Japanese tissue support strips and excess adhesive were removed from the interior of the ceramic, mechanically and with acetone.

Handling and storage requirements

Jet

Jet is a form of compressed, and partly altered, land vegetation: jet is a resinous, hard, black form of lignite capable of taking a high polish. It is difficult to preserve if found in wet or damp conditions. Archaeological jet is particularly prone to cracking and surface deformation following excavation.

The original quality of the jet can be a crucial factor in determining whether it is likely to become dry and stable without too much deformation, cracking or lamination.

Relative humidity (RH) of the storage environment should be around 45-55% and stable. High RH can cause degradation of inclusions such as pyrite causing the jet to crack and split.

Jet is fragile, and losses can easily occur during handling, as a result of cracks, laminations, and internal stresses generated during drying. Handle with great care; ensure that it is kept within the recommended RH, and seek advice from a conservator if cracks or deformation occur. Place on a padded surface if removing from its storage container.

Ceramic

Wear gloves when handling archaeological ceramics to avoid: a) contamination from the objects, b) contamination of the objects. Handling should be limited to as little as possible since the vessel is reconstructed and the fabric is fairly friable. The joins are too weak for excessive handling.

Ceramic sherds should be examined on a smooth padded surface, and the vessel should have soft support by either acid free tissue, or similar, or preferably a tray of sand or rice to bed the object in to prevent rolling.

Oscillating temperatures may cause the surface to spall and the reconstructed vessel is subject to restrictions regarding the synthetic adhesive, and should be kept at room temperature or below to prevent cold flow of the adhesive.

The relative humidity (RH) of the storage environment should be kept below 65% to prevent fungal/bacterial growth upon the objects. A stable RH is important to avoid the solution, migration and re-crystallisation of soluble salts in porous ceramics.

Health and safety considerations

After handling archaeological material, wash hands immediately; do not allow food, drink or food preparation areas to become contaminated with soil or other debris.

Appendix I: List of all artefacts.

List of artefacts:

SF no.	Context no.	Material	Description
5	3	Ceramic	Food vessel
6	13	Jet	Terminal
7	13	Jet	Spacer
8	13	Jet	Bead
9	13	Jet	Bead
10	13	Jet	Bead
11	13	Jet	Bead
12	13	Jet	Bead
14	13	Jet	Spacer
15	13	Jet	Bead
16	13	Jet	Bead
17	13	Jet	Terminal
18	13	Jet	Bead
19	13	Jet	Spacer
20	13	Jet	Bead
21	13	Jet	Bead
22	13	Jet	Spacer
23	13	Jet	Bead
24	13	Jet	Spacer
25	13	Jet	Spacer
26	13	Jet	Bead
28	13	Jet	Bead
29	13	Jet	Bead
30	13	Jet	Bead
31	13	Jet	Bead
32	13	Jet	Bead
33	13	Jet	Bead
34	13	Jet	Bead
35	13	Jet	Bead
36	13	Jet	Bead
37	13	Jet	Bead
38	13	Jet	Bead

Appendix II: Catalogue of all x-rays

List of x-rays

X-ray no.	Artefacts	kV	Time (secs)	Notes
1	Bi-conical beads	30	18	Before cleaning
2	Spacers and terminals	30	18	Before cleaning
3	Bi-conical beads	30	12	After surface clean
4	Spacers and terminals	30	12	After surface clean
5	All jet beads	30	15	After perforations cleaned
6	Spacers and terminals	30	15	After perforations cleaned

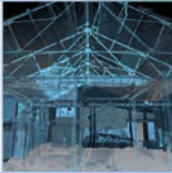
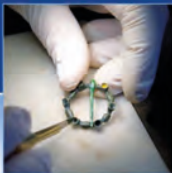


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22491_Conservation Report on Jet Beads (2nd assemblage) from East Challoch Farm (A75 Dunragit Bypass)

Conservation Report on Jet Beads (2nd assemblage) from East Challoch Farm (A75 Dunragit Bypass)



Conservation Report on Jet Beads (2nd assemblage) from East Challoch Farm (A75 Dunragit Bypass)

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Summary

Following archaeological works at East Challoch farm carried out by GUARD (Project 3622) a total of 137 jet beads and a single quartz fragment were excavated. The morphology of the beads suggests the possible presence of two objects; a necklace and bracelet. These finds were additional to the previous discovery of 31 jet bead necklace components and food vessel excavated earlier in June 2014. The beads were damp from their burial environment and so upon delivery to AOC archaeology were placed into cold storage. This prevented any further deterioration from drying or mould growth prior to conservation treatments being carried out.

A work plan was agreed including a request from Dr. Alison Sheridan (National Museums of Scotland) for the beads to undergo X-Radiography between the stages of surface cleaning and sediment removal from the perforations and then again after perforation cleaning. The beads were also photographed by digital microscope to record their condition as well as interesting features such as tool marks.

The successful conservation strategy devised for the initial set of 31 jet beads carried out by AOC Archaeology earlier in the year was employed for this assemblage of jet components.

List of artefacts selected for conservation

SF no.	Context no.	Material	Description
67	62	Jet	Fastener
68	62	Jet	Terminal
69	62	Jet	Spacer
70	62	Jet	Spacer
71	62	Jet	Bead
72	62	Jet	Bead
73	62	Jet	Bead
74	62	Jet	Bead
75	62	Jet	Bead
76	62	Jet	Bead
77	62	Jet	Bead
78	62	Jet	Bead
79	62	Jet	Bead
80	62	Jet	Bead
81	62	Jet	Bead
82	62	Jet	Spacer
83	62	Jet	Bead
84	62	Jet	Bead
85	62	Jet	Bead
86	62	Jet	Bead
87	62	Jet	Bead
88	62	Jet	Bead
89	62	Jet	Bead
90	62	Jet	Bead
91	62	Jet	Bead
92	62	Jet	Bead
93	62	Jet	Bead
94	62	Jet	Bead
95	62	Jet	Bead
96	62	Jet	Bead
97	62	Jet	Bead
98	62	Jet	Bead
99	62	Jet	Bead
100	62	Jet	Terminal
101	62	Quartz	Stone
102	62	Jet	Bead
103	62	Jet	Spacer
104	62	Jet	Bead
105	62	Jet	Bead
106	62	Jet	Bead
107	62	Jet	Bead
108	62	Jet	Bead
109	62	Jet	Bead
110	62	Jet	Bead
111	62	Jet	Bead
112	62	Jet	Bead
113	62	Jet	Bead
114	62	Jet	Bead
115	62	Jet	Bead
116	62	Jet	Bead
117	62	Jet	Bead
118	62	Jet	Bead
119	62	Jet	Bead
120	62	Jet	Bead
121	62	Jet	Bead
122	62	Jet	Bead
123	62	Jet	Bead
124	62	Jet	Bead
125	62	Jet	Bead
126	62	Jet	Bead
127	62	Jet	Bead
128	62	Jet	Bead
129	62	Jet	Bead
130	62	Jet	Bead
131	62	Jet	Bead

of Jet Beads (2nd assemblage). December 2014. AOC Project No. 22491

Description

There are 136 jet elements including 4 terminals, 4 spacers, 1 fastener and 127 bi-conical beads. In addition there is also a quartz crystal. The four terminals may be indicative of the presence of a bracelet in addition to a necklace. The beads have a highly polished finish with visible tool and wear marks on some examples, in particular around the bead terminals. The beads vary greatly in size and so accurate measurements can be seen in the pre conservation digital microscope images.

Terminals (SF68, SF100, SF172, SF176) - There are two morphologies of terminal. The two largest (SF68, 100) are a recurved triangular shape with one perforation at the apex and four at the base end. The four shallow perforations at the base intersect through the base to the adjacent side of the bead. The smaller terminal beads (SF172, 176) are shaped like an isosceles triangle. The smaller size may indicate that they are terminals from a bracelet rather than the necklace.

Spacer beads (SF69, SF70, SF82, SF103) - These are trapezoid in shape with perforations exiting on either side of the longest edges. SF70 and SF82 have five perforations along one edge which exit to 7 perforations along the opposite edge. Two

perforations at each end of these bead divide to create additional holes on the opposite edge. Details of this can be seen on the X-radiograph. SF69 and SF103 have 4 perforations along each edge.

Fastener (SF67) - This is triangular in shape with one singular central perforation.

Bi-conical beads- These beads are small but very variable in length from approximately 8-27mm. Therefore whilst retaining a basic bi-conical shape, some of the smallest are almost round whereas the largest form a pill type shape.

Quartz (SF101) - The quartz is roughly shaped by the minerals natural cleavage planes. It does not have any perforations and there are no visible working marks.

Condition summary

The orientation of each bead was recorded on excavation; these included either a left/right orientation and occasionally up/down. This has been retained through the process by the packaging techniques used as well as photographic records.

On arrival the beads were damp and so to prevent deterioration, drying out or mould growth were placed in cold storage. The bead surfaces and perforations were obscured by soil however the majority appeared to be intact on visual inspection. Examination under magnification revealed some beads were unstable as a result of cracks and crazing. The large beads were more prone to crazing and spalling and the small biconical beads were predisposed to cracking along the length of their central perforation.

Conservation summary

During the conservation process the beads were removed from cold storage in small batches to minimise drying. The beads were then returned to cold storage until ready for the drying process. The orientation of each bead was preserved by placing each into individual grip seal bags with a label denoting left and right (L and R). Both label and bead were held in position within re-sealable by heat sealing the bag to retain their original orientation. This method has also been used for packing the beads, allowing them to be safely handled but information retained.

Beads were removed from their packaging and individually photographed using a USB digital microscope (Dinocam). Left and right orientations are recorded as seen looking at the photograph. The digital microscope software also allowed for a scale and bead measurements (length and width) to be recorded in the images.

Treatment processes:

Prior to conservation treatment all beads were X-Radiographed. They were also X-radiographed after surface cleaning and after perforation cleaning. The beads were X-radiographed in the same order on each X-ray plate to allow for easy comparison.

Each bead was photographed using a digital microscope recording both bead size and orientation. Photography was carried out before and after each stage of conservation. Images have been labelled with the bead number and stored in separate computer files for each stage of conservation.

Soil was removed from the bead surfaces using cotton swabs of 70:30 IMS and water. The swabs were blotted before application to avoid over wetting the jet. Prior to cleaning the perforations evidence of stringing material was looked for both visually under magnification and on the X-radiographs. Soil was carefully

removed using a thinned cocktail stick and small dampened cotton swabs as previously described. This was carried out with great care. No evidence of stringing material was found whilst cleaning the beads.

Following these processes the beads were ready to be dried. They were dried very slowly to minimise cracking and spalling. Each bag was pierced and placed in an IMS rich atmosphere for two weeks. In the last days of drying the IMS was removed from the chamber and the door opened slightly in order to slowly allow the beads to acclimatise to the external atmosphere.

The beads were individually examined under magnification to identify if they required consolidation to prevent further cracking and surface loss. Those selected for consolidation are listed in Appendix II. The selected beads were photographed using a digital microscope and then consolidated using 5% Butvar B98 in IMS under vacuum impregnations for 15 minutes.

The beads were then removed from the 5% Butvar B98 in IMS solution and placed within an IMS rich atmosphere and left to dry for one week. They were then photographed using the digital microscope.

SF178 and SF134 had sheered in half and required joining. After consolidation the fragments were adhered using 20% Paraloid B72 in Acetone.

The slow drying of the beads has greatly minimised the amount of deterioration that the beads could have undergone and the results have been very favourable, preserving evidence of their manufacture.

Handling and storage requirements

On exposure to the environment archaeological jet can be vulnerable to damage, in particular cracking and surface deformation following excavation. The original quality of the jet can be a crucial factor in determining whether it is likely to become dry and stable without extensive deformation, cracking or lamination.

In storage or on display the risk of damage to the jet should be managed by providing a stable relative humidity (RH) between 45-55%. Fluctuations may result in accelerated deformation of the beads. High RH can cause degradation of inclusions such as pyrite causing the jet to crack and split.

Jet is inherently fragile and damage risk due to physical forces should be minimised. Jet should be handled with great care and be placed on a padded surface if removing from its storage container. Should any cracks or deformation occur seek advice from a conservator.

Health and safety considerations

After handling archaeological material, wash hands immediately; do not allow food, drink or food preparation areas to become contaminated with soil or other debris.

East Challoch Farm (A75 Dunragit Bypass): Conservation of Jet Beads (2nd assemblage). December 2014. AOC Project No. 22491

Appendix I: List of all artefacts.

List of artefacts:

SF no.	Context no.	Material	Description	Dims (mm)	Consolidated beads
67	62	Jet	Fastener	34 x 16	
68	62	Jet	Terminal	52 x 30	
69	62	Jet	Spacer	37 x 17	Consolidated
70	62	Jet	Spacer	50 x 17	Consolidated
71	62	Jet	Bead	25	
72	62	Jet	Bead	20	
73	62	Jet	Bead	15	
74	62	Jet	Bead	18	Consolidated
75	62	Jet	Bead	25	
76	62	Jet	Bead	22	Consolidated
77	62	Jet	Bead	15	
78	62	Jet	Bead	20	Consolidated
79	62	Jet	Bead	20	Consolidated
80	62	Jet	Bead	15	
81	62	Jet	Bead	23	
82	62	Jet	Spacer	47 x 17	Consolidated
83	62	Jet	Bead	25	Consolidated
84	62	Jet	Bead	18	Consolidated
85	62	Jet	Bead	17	
86	62	Jet	Bead	10	
87	62	Jet	Bead	15	
88	62	Jet	Bead	10	
89	62	Jet	Bead	18	
90	62	Jet	Bead	20	
91	62	Jet	Bead	13	
92	62	Jet	Bead	15	
93	62	Jet	Bead	15	
94	62	Jet	Bead	14	
95	62	Jet	Bead	12	
96	62	Jet	Bead	12	
97	62	Jet	Bead	20	Consolidated
98	62	Jet	Bead	20	Consolidated
99	62	Jet	Bead	20	Consolidated
100	62	Jet	Terminal	43 x 25	
101	62	Quartz	Stone	12	
102	62	Jet	Bead	20	
103	62	Jet	Spacer	35 x 18	Consolidated
104	62	Jet	Bead	12	
105	62	Jet	Bead	17	Consolidated
106	62	Jet	Bead	17	Consolidated
107	62	Jet	Bead	22	Consolidated
108	62	Jet	Bead	23	Consolidated
109	62	Jet	Bead	20	Consolidated
110	62	Jet	Bead	16	Consolidated
111	62	Jet	Bead	24	
112	62	Jet	Bead	20	Consolidated
113	62	Jet	Bead	20	Consolidated
114	62	Jet	Bead	20	
115	62	Jet	Bead	20	Consolidated
116	62	Jet	Bead	20	Consolidated
117	62	Jet	Bead	20	
118	62	Jet	Bead	15	
119	62	Jet	Bead	13	
120	62	Jet	Bead	10	
121	62	Jet	Bead	18	
122	62	Jet	Bead	17	
123	62	Jet	Bead	13	
124	62	Jet	Bead	23	
125	62	Jet	Bead	16	
126	62	Jet	Bead	15	Consolidated
127	62	Jet	Bead	13	Consolidated
128	62	Jet	Bead	18	Consolidated
129	62	Jet	Bead	15	Consolidated
130	62	Jet	Bead	20	Consolidated
131	62	Jet	Bead	15	

Project No.

Appendix II: Catalogue of all x-rays

List of x-rays

X-Ray no.	Artefacts	kV	Times(secs)	Notes
1	Bi-conical beads	30	18	Before cleaning
2	Bi-conical beads	30	18	Before cleaning
3	Bi-conical beads	30	18	Before cleaning
4	Bi-conical beads	30	18	Before cleaning
5	Bi-conical beads	30	18	Before cleaning
6	Spacers and terminals	30	18	Before cleaning
7	Spacers and terminals	30	18	Before cleaning
8	Bi-conical beads	30	18	After surface clean
9	Bi-conical beads	30	18	After surface clean
10	Bi-conical beads	30	18	After surface clean
11	Bi-conical beads	30	18	After surface clean
12	Bi-conical beads	30	18	After surface clean
13	Spacers and terminals	30	18	After surface clean
14	Bi-conical beads	30	18	After surface clean
15	Bi-conical beads	30	18	After perforations cleaned
16	Bi-conical beads	30	18	After perforations cleaned
17	Bi-conical beads	30	18	After perforations cleaned
18	Bi-conical beads	30	18	After perforations cleaned
19	Bi-conical beads	30	18	After perforations cleaned
20	Spacers and terminals	30	18	After perforations cleaned
21	Bi-conical beads	30	18	After perforations cleaned

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