

border archaeology

archaeology & built heritage
working throughout the UK

Frontispiece: View North of 1st century AD Punic ditches

Appendices

New-lay Strategic Trunk Main
Hutton to Banwell Water Main Pipeline

Somerset

On behalf of

**BRISTOL
WATER**

September 2016

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Appendix 1: Full site matrix

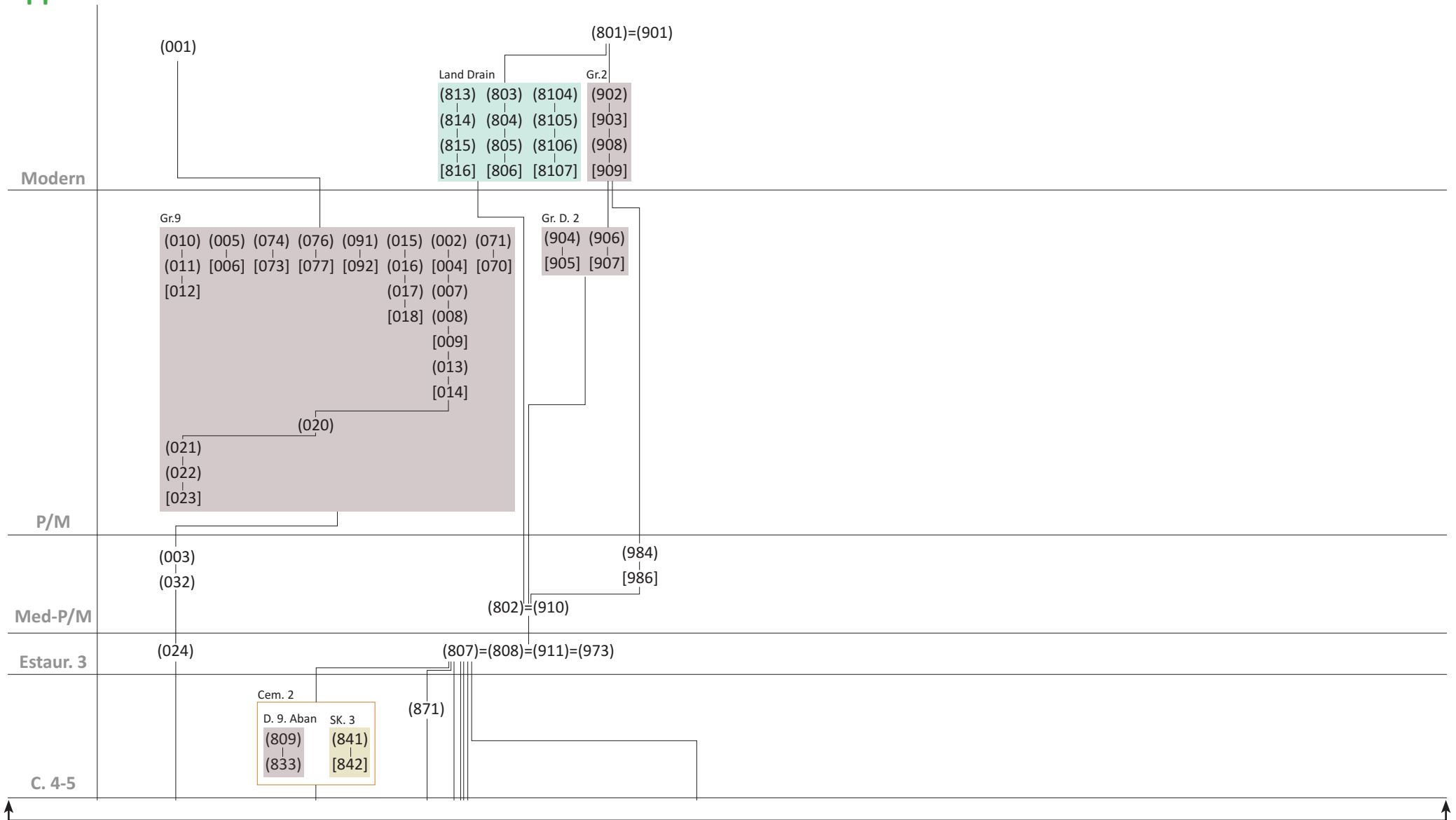


Fig 1b attaches here

Fig 1a: Illustrated site matrix (Part 1)

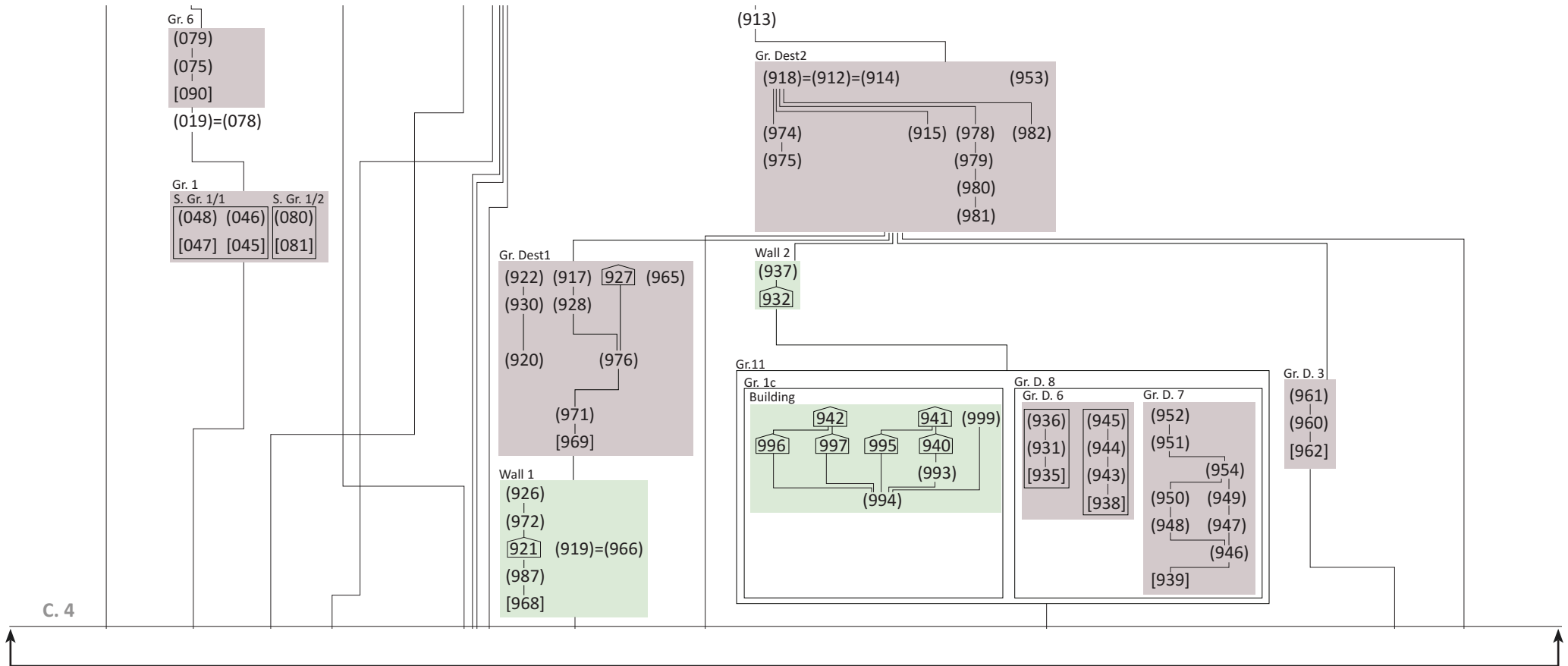


Fig 1b: Illustrated site matrix (Part 2)

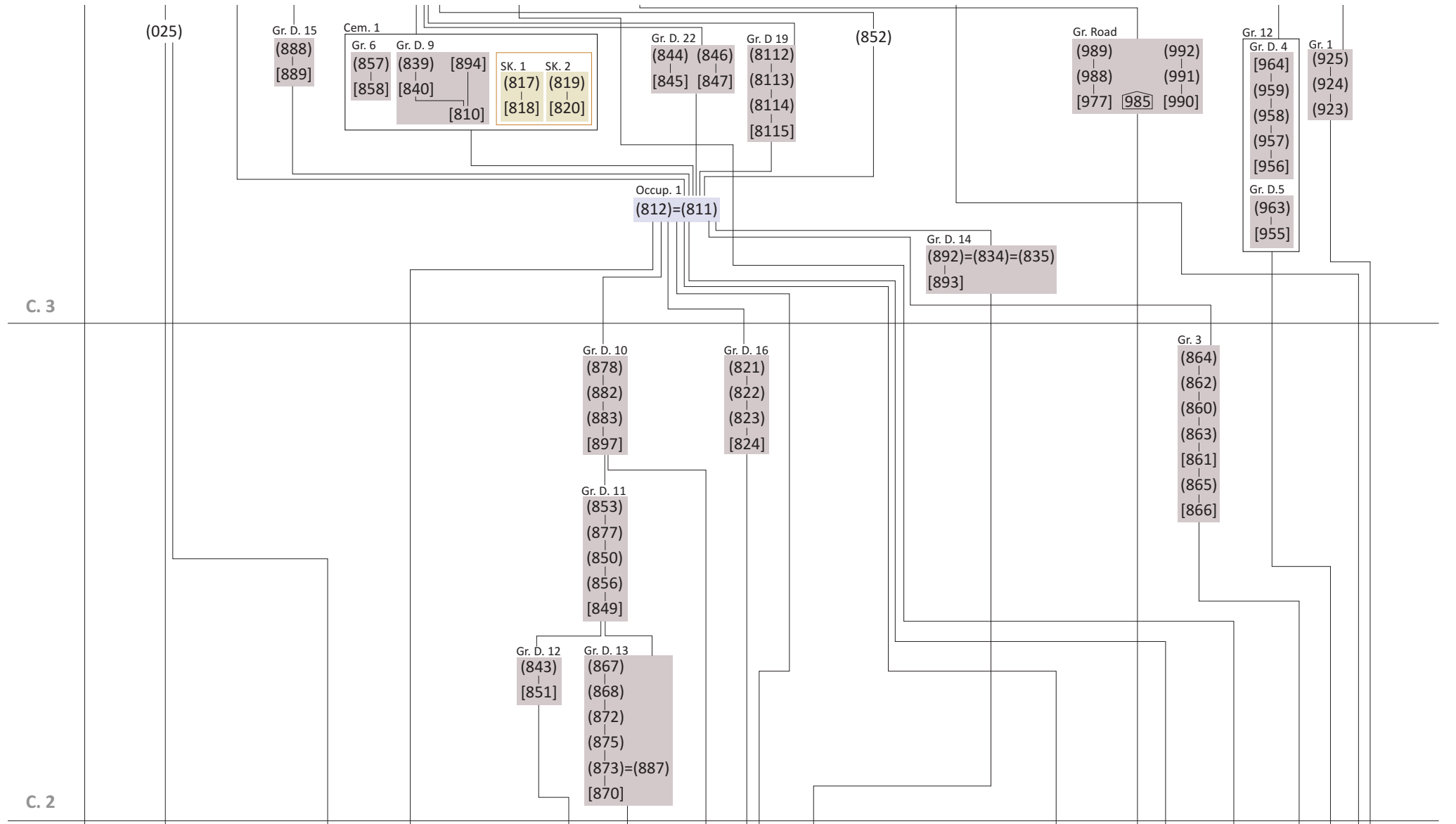


Fig 1d attaches here

Fig 1c: Illustrated site matrix (Part 3)

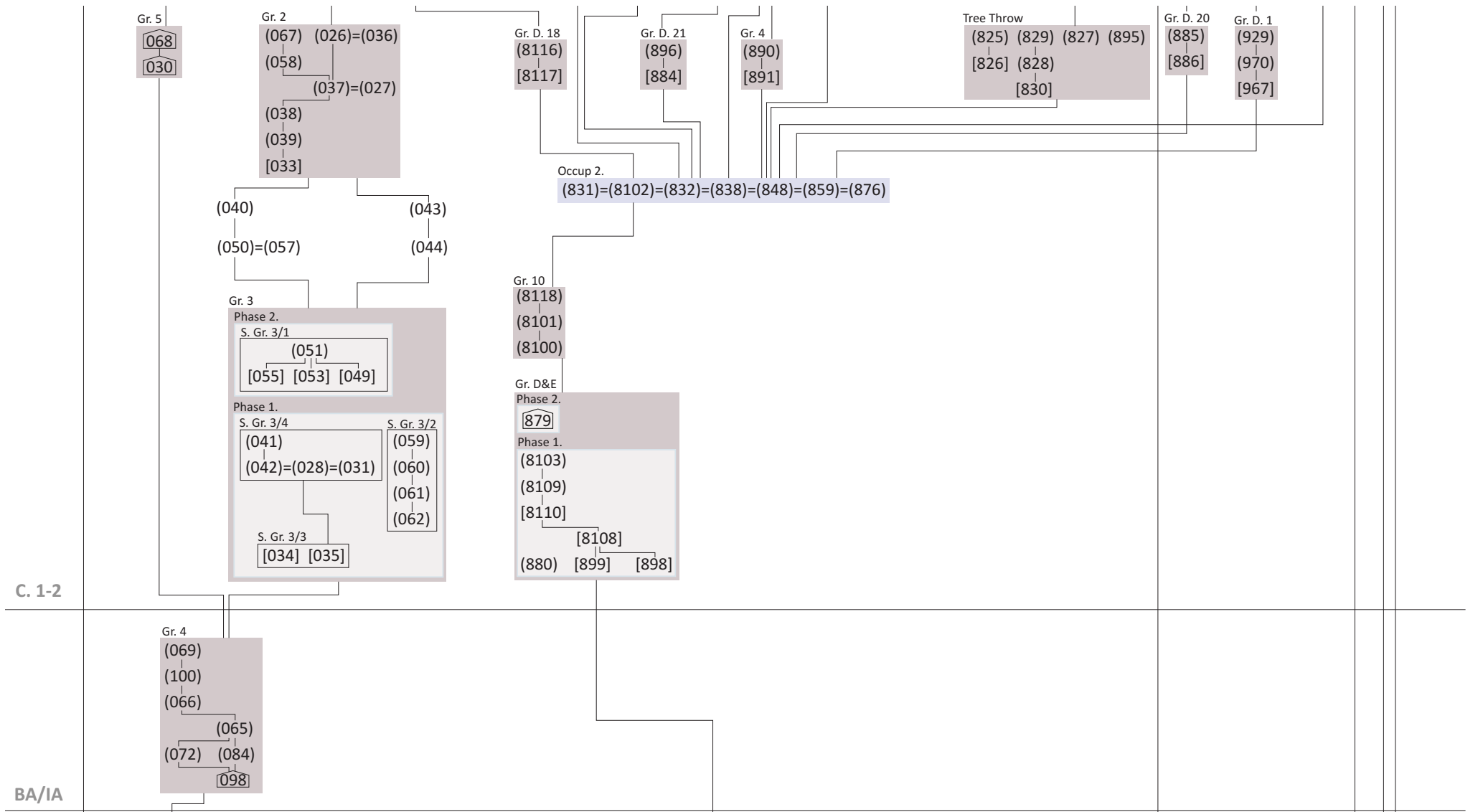


Fig 1e attaches here

Fig 1d: Illustrated site matrix (Part 4)

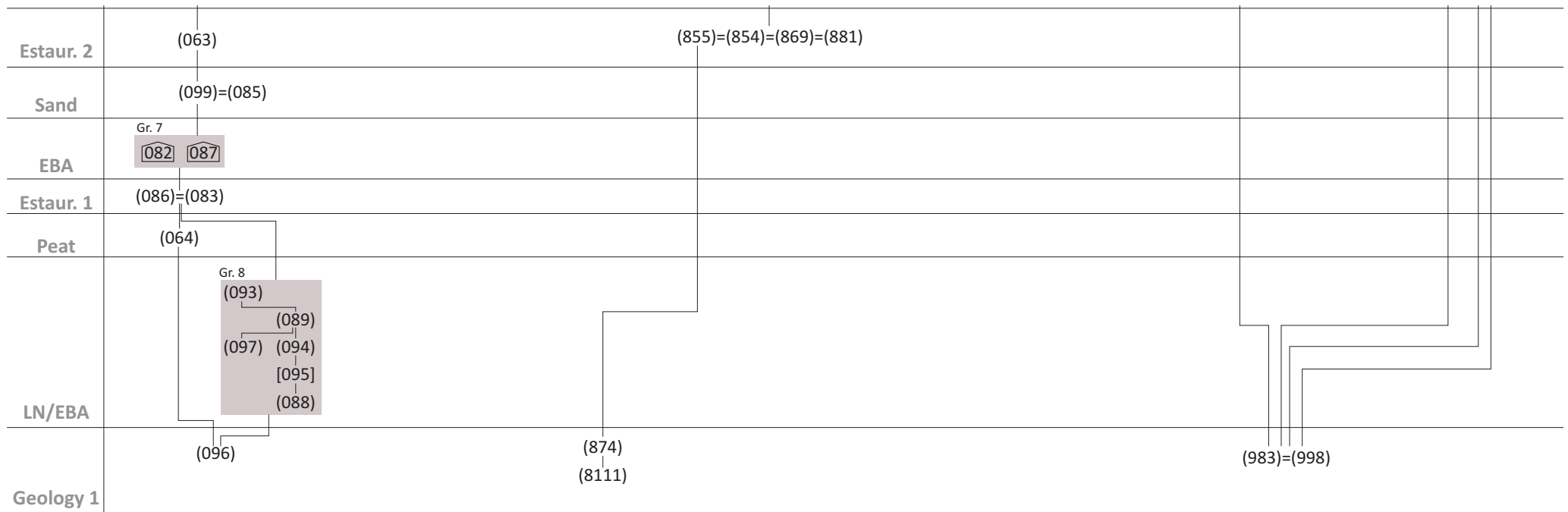


Fig 1e: Illustrated site matrix (Part 5)

Appendix 2: Borehole Survey and Geological Report

Bristol Water pipeline at Banwell, North Somerset: interim geoarchaeological assessment
Keith Wilkinson, ARCA, University of Winchester
July 2012

2.1 Introduction

A visit was made to excavations being conducted by Border Archaeology at Banwell, North Somerset on 4 July 2012. The Border Archaeology archaeological works are being carried out in advance of the construction of a water pipeline by Bristol Water to the north of the village, while the purpose of the visit was to comment on the archaeological and palaeoenvironmental significance of Holocene strata of a c. 400m stretch of the impacted area. This report is an interim statement on the discovery based entirely on stratigraphy recorded in borehole sample chambers.

2.2 Geographic and geological setting

The study area sits at the southern margins of a broad valley north of Banwell and Sandford Hills and at an elevation of +5.5-7.5m OD. The British Geological Survey (BGS 2012) map the Banwell study area as lying on rocks of the Mercia Mudstone Group (Triassic), overlain by Holocene Tidal Flat deposits. The western extreme of the area examined during the visit comprises near-surface outcrops of Blue Anchor Formation limestones (Late Triassic).

Two geotechnical boreholes (GT BH1 and GT BH2) had been drilled at the eastern end of the study area prior to the archaeological works commencing and copies of the borehole logs were examined during the field visit. GT BH2 is located approximately 50m east of borehole (BH6) of the present project and comprised 1.8m of oxidised and grey silt/clays overlying Mercia Mudstone Group (MMG) deposits. GT BH1 was positioned immediately west of Trench 9 and comprised c 7.00m of grey silts, peats and organic muds.

2.3 Methodology

Given that the four trenches excavated by Border Archaeology were flooded at the time of the visit and could not be entered, the geoarchaeological study was conducted by means of a borehole survey. Thus seven boreholes (BH1-6 and BH8) were drilled using manually operated Edelmann (75mm diameter) and gouge (20mm diameter augers) augers. Sediment retained in the auger heads was described on site using standard geological conventions (Tucker 1982, Jones et al. 1999, Munsell Color 2000) and then discarded

2.4 Results

The results of the borehole survey are presented in Figure 58, while lithological descriptions for the geoarchaeological borehole are included as Appendix 1.

Stratigraphy along the pipeline root can conveniently be split into five lithological units.

2.5 Mercia Mudstone Group

Deposits of the MMG were encountered at the base of all boreholes except BH2 (see below). Except in palaeochannel locations (i.e. BH3, BH4 and BH 8) the MMG comprises two lithological layers: an upper brown fine/sand silt and a lower reddish brown compact clay. MMG deposits were encountered at 1.00-1.40m below ground level (BGL) except in channel locations where the outcrop depth is 1.94-3.50m.

2.6 Archaeological deposits and features

Archaeological deposits in the form of silts containing frequent granular charcoal fragments were found separated from the organic strata by grey silt/clays in BH3 and BH4 at 1.35-1.58m and 1.30-1.50m BGL respectively. A probable stone-built archaeological feature was also encountered at 1.00m BGL in BH2 although the manually-operated auger could not penetrate it. Three separate boreholes were drilled in a 1m radius centred on BH3 in order to determine the extent of the feature, but all encountered stone at 1.00m depth. A further borehole 4m to the north did not hit stone and penetrated to 1.30 before encountering MMG strata. It would therefore appear that a stone built structure is located at BH3.

2.7 Grey silt/clays

Grey brown silt/clays overlie the organic and archaeological strata in all boreholes except BH1 and BH8 and to depths of between 0.90-1.50m BGL. These grey clays are probably intertidal mud flat deposits originating in the Severn estuary and likely date from the later prehistoric to Medieval periods. Similar silt/clay strata were noted in BH1, but at this location they are of a reddish brown colour and are therefore likely derived from the MMG outcrop to the north and probably as a result of colluvial processes. Silt/clay strata in BH8 are 3.50m thick and superficially similar to those in the other boreholes. However, shells in certain of these fine-grained strata are of freshwater taxa (e.g. *Lymnaea spp.*) suggesting that deposition in this location was within a freshwater channel. As such it is possible that sedimentation in the vicinity of GT BH1, Trench 2 and BH8 was not synchronous with that occurring elsewhere on the site. Further confirmation of the freshwater channel hypothesis is provided by strata exposed in Trench 2 and sampled in GT BH1, which include thick peats which were neither encountered in Geotechnical borehole 2 to the west or BH8 to the south-east.

2.8 Red brown silt/clays

Iron-stained silt/clays outcrop above the grey silt/clays across much of the study area. The red colour is the result of redox processes consequent on vertical movement of the water table within the sediment sequence. In other words, were it not for water table movement the near surface silt/clays would be a grey colour and therefore these strata can be considered the same as the underlying grey silt/clays.

2.9 Assessment

The borehole study has demonstrated that palaeotopography has varied considerably despite the current flat aspect of the site. Palaeochannels have been encountered at BH3-BH4 (i.e. probably passing beneath Trench 9) and in the GT BH1, Trench 2 and BH8 area. Both palaeochannels are partially filled with organic strata that demonstrably contain well preserved plant remains, while stratigraphic relationships with archaeological features in Trenches 2 and 9 suggest that both palaeochannels pre-date the Romano-British period. Archaeological strata have also been revealed at 1.30-1.58m BGL in BH3 and BH4, i.e. overlying palaeochannel fills in this location. Given the presence Romano-British features at c. 1m depth in Trench 9, i.e. between BH3 and BH4, it is highly likely that the archaeological deposits in the two boreholes are of a broadly similar date. Finally a probable archaeological structure was encountered at 1.00m BGL in BH2, which again is likely to be of Romano-British date.

The palaeochannel fills are assessed as having a high palaeoenvironmental potential on account of the good biological preservation of some infilling deposits and their relationship with archaeological features investigated in adjacent trenches. The archaeological strata found outcropping in BH3 and BH4 are assessed as having a high archaeological potential as they are likely to be associated with Romano-British features revealed in Trench 9. The archaeological structure found in BH2 is also assessed as having a high archaeological potential given its likely relationship with Romano-British features in Trenches 8 and 9. All other deposits are assessed as having moderate or low archaeological and palaeoenvironmental potentials.

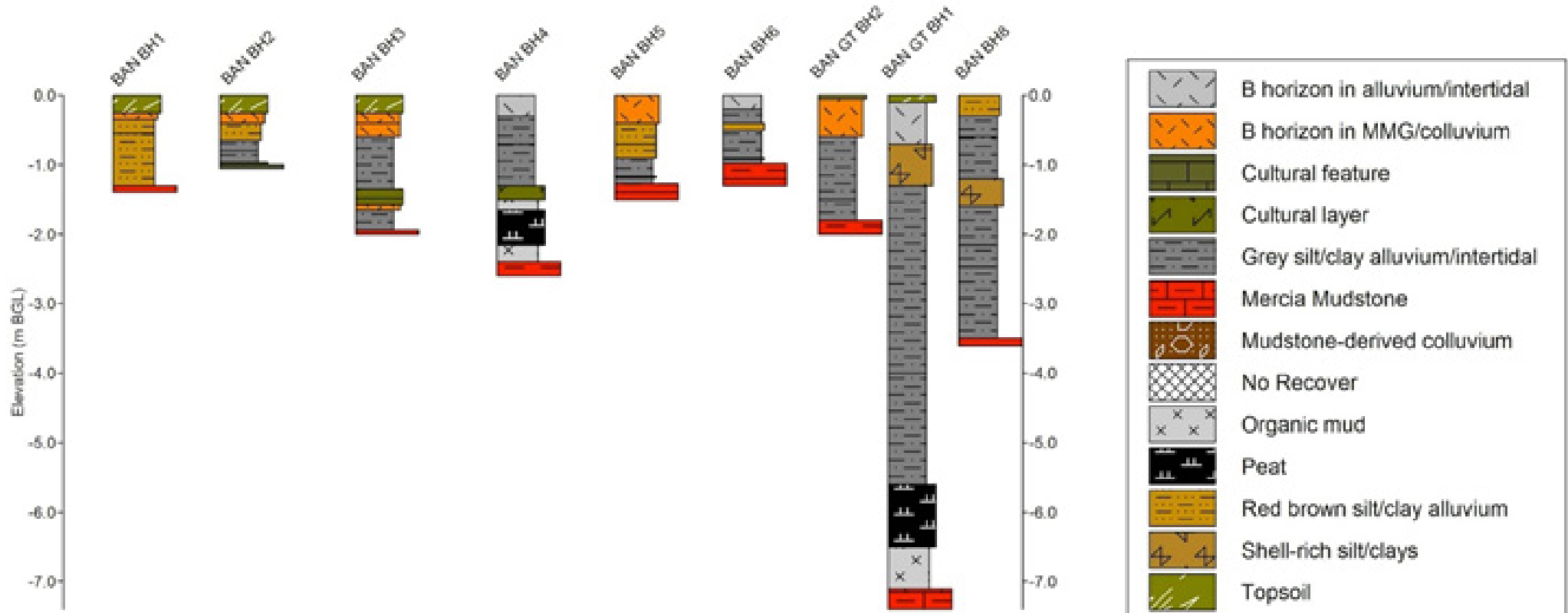


Fig 2: Borehole stratigraphy

Bore	Top (m)	Base (m)	Lithology	Comment
BH1	0.00	0.25	Topsoil	10 YR 4/2 Dark greyish brown humic silt/clay with frequent fine roots. Diffuse boundary to:
	0.25	0.35	B horizon in MMG/colluvium	7.5 YR 4/3 Brown silt/clay with frequent granular carbonate, MMG and charcoal clasts. Poorly sorted. Diffuse boundary to:
	0.35	0.55	Red brown silt/clay alluvium	7.5 YR 4/4 Brown clay with moderate medium sand. Moderately sorted. Diffuse boundary to:
	0.55	1.30	Red brown silt/clay alluvium	7.5 YR 5/2 Brown silt/clay with frequent iron stains. Well sorted. Diffuse boundary to:
	1.30	1.40	Mercia Mudstone	7.5 YR 3/4 Dark brown compact silt/clay with moderate medium sand. Moderately sorted.
BH2	0.00	0.25	Topsoil	10 YR 4/2 Dark greyish brown humic silt/clay with frequent fine roots. Diffuse boundary to:
	0.25	0.40	B horizon in MMG/colluvium	10 YR 5/3 Brown silt/clay with frequent iron stains. Occasional angular carbonate granules, decreasing downwards. Occasional coarse sand. Diffuse boundary to:
	0.40	0.65	Red brown silt/clay alluvium	5 YR 5/3 Reddish brown clay with frequent iron stains, increasing downwards. Sharp boundary to:
	0.65	0.80	Grey silt/clay alluvium/intertidal	2.5 Y 5/2 Greyish brown silt/clay with fine-coarse iron-stained laminae. Rare granular charcoal. Sharp boundary to:
	0.80	0.97	Grey silt/clay alluvium/intertidal	5 Y 3/1 Very dark grey silt/clay with occasional granular charcoal. Diffuse boundary to:
	0.97	1.00	Cultural layer	10 YR 4/2 Dark greyish brown medium sand-silt with granular carbonate and charcoal. Poorly sorted. Sharp boundary to:
	1.00	1.05	Cultural feature	Stone – could not penetrate.
BH3	0.00	0.25	Topsoil	10 YR 3/3 Dark brown humic silt/clay with frequent fine roots. Sharp boundary to:
	0.25	0.40	B horizon in MMG/colluvium	5 YR 4/3 Reddish brown compact clay. Diffuse boundary to:

Bore	Top (m)	Base (m)	Lithology	Comment
	0.40	0.60	B horizon in MMG/colluvium	10 YR 4/3 Brown compact silt/clay with frequent iron stains. Sharp boundary to:
	0.60	1.35	Grey silt/clay alluvium/intertidal	5 Y 4/1 Dark grey silt clay with frequent iron stains, the latter appearing as medium layer-sized bands. Occasional granular-sized charcoal. Diffuse boundary to:
	1.35	1.48	Cultural layer	2.5 Y 4/1 Dark grey silt with frequent granular and coarse sand-sized charcoal. Well sorted. Sharp boundary to:
	1.48	1.58	Cultural layer	2.5 Y 3/1 Very dark grey silt with occasional coarse sand and frequent granular-sized charcoal. Sharp boundary to:
	1.58	1.65	B horizon in MMG/colluvium	7.5 YR 4/3 Brown compact clay. Well sorted. Sharp boundary to:
	1.65	1.94	Grey silt/clay alluvium/intertidal	5 Y 5/1 Grey silt/clay with frequent pebble-sized reeds. Well sorted. Sharp boundary to:
	1.94	2.00	Mercia Mudstone	5 YR 4/3 Reddish brown compact clay. Well sorted
Bore	Top (m)	Base (m)	Lithology	Comment
BH4	0.00	0.30	B horizon in alluvium/intertidal	7.5 YR 4/3 Brown silt/clay with occasional granular carbonate. Sharp boundary to:
	0.30	0.70	Grey silt/clay alluvium/intertidal	2.5 Y 4/1 Dark grey silt/clay with frequent granular-pebble-sized iron stains. Moderate coarse sand-granular-sized mudstone below 0.40m. Well sorted. Diffuse boundary to:
	0.70	1.30	Grey silt/clay alluvium/intertidal	5 Y 5/1 Grey silt/clay with frequent granular iron stains. Diffuse boundary to:
	1.30	1.50	Cultural layer	7.5 YR 5/2 Brown silt with occasional granular charcoal. Sharp boundary to:
	1.50	1.65	Organic mud	2.5 Y 3/1 Very dark grey organic mud with thin layers of 5 YR 4/3 Reddish brown MMG. Well sorted. Diffuse boundary to:
	1.65	2.15	Peat	2.5 Y 2.5/1 Black unhumified peat with frequent granular-pebble-sized plant macro remains (some of which appears burnt). Diffuse boundary to:
	2.15	2.40	Organic mud	2.5 Y 4/2 Dark greyish brown organic mud with frequent fine fibrous plant remains. Well sorted. Sharp boundary to:
	2.40	2.60	Mercia Mudstone	5 YR 4/3 Reddish brown compact clay. Well sorted

Bore	Top (m)	Base (m)	Lithology	Comment
BH5	0.00	0.40	B horizon in MMG/colluvium	7.5 YR 4/3 Brown silt/clay with occasional granular quartz clasts, fine roots and charcoal. Well sorted. Diffuse boundary to:
	0.40	0.70	Red brown silt/clay alluvium	5 YR 4/3 Reddish brown mottled with 10 YR 4/2 Dark greyish brown compact silt/clay with occasional granular charcoal and pebble-sized mudstone clasts. Moderately sorted. Diffuse boundary to:
	0.70	0.90	Red brown silt/clay alluvium	10 YR 5/2 Greyish brown silt/clay with moderate granular iron stains. Well sorted. Diffuse boundary to:
	0.90	1.17	Grey silt/clay alluvium/intertidal	5 Y 5/1 Grey silt/clay with occasional granular-sized iron stains. Well sorted. Sharp boundary to:
	1.17	1.19	Organic mud	2.5 Y 3/1 Very dark grey organic mud. Well sorted. Diffuse boundary to:
	1.19	1.27	Grey silt/clay alluvium/intertidal	5 Y 4/1 Dark grey silt. Well sorted. Sharp boundary to:
	1.27	1.40	Mercia Mudstone	7.5 YR 5/4 Brown silt/fine sand. Moderately sorted. Diffuse boundary to:
	1.40	1.50	Mercia Mudstone	5 YR 4/3 Reddish brown compact clay. Well sorted
BH6	0.00	0.20	B horizon in alluvium/intertidal	10 YR 4/2 Dark greyish brown silt/clay with moderate iron staining and occasional fine roots. Well sorted. Sharp boundary to:
	0.20	0.40	Grey silt/clay alluvium/intertidal	2.5 Y 4/1 Dark grey silt/clay with coarse sand-sized carbonate/mudstone clasts. Frequent iron staining. Occasional pebble-sized patches of 5 Y 3/1 Very dark grey organics. Sharp boundary to:
	0.40	0.50	Red brown silt/clay alluvium	7.5 YR 3/4 Dark brown silt/clay with fine laminae of 2.5 Y 4/1 Dark grey silt/clay. Well sorted. Sharp boundary to:
	0.50	0.90	Grey silt/clay alluvium/intertidal	5 Y 5/1 Grey silt/clay with frequent iron stains as straight laminae and layers. Diffuse boundary to:
	0.90	0.92	Organic mud	2.5 Y 3/1 Very dark grey organic mud. Well sorted. Diffuse boundary to:
	0.92	0.98	Grey silt/clay alluvium/intertidal	5 Y 4/1 Dark grey silt. Well sorted. Sharp boundary to:
Bore	Top (m)	Base (m)	Lithology	Comment
BH6	0.98	1.20	No recover	7.5 YR 5/4 Brown silt/fine sand. Moderately sorted. Diffuse boundary to:
	1.20	1.30	No recover	5 YR 4/3 Reddish brown compact clay. Well sorted

Bore	Top (m)	Base (m)	Lithology	Comment
BH8	0.00	0.30	Red brown silt/clay alluvium	7.5 YR 3/3 Dark brown silt/clay with moderate medium-coarse sand. Diffuse boundary to:
	0.30	0.60	Grey silt/clay alluvium/intertidal	2.5 Y 4/1 Dark grey silt/clay with occasional medium sand. Moderate granular-sized iron stains. Moderately sorted. Sharp boundary to:
	0.60	1.20	Grey silt/clay alluvium/intertidal	5 Y 3/2 Dark olive grey silt/fine sand. Moderately sorted. Diffuse boundary to:
	1.20	1.60	Shell-rich silt/clays	10 YR 3/1 Very dark grey silt with frequent granular-sized freshwater mollusc shells. Well sorted. Sharp boundary to:
	1.60	2.15	Grey silt/clay alluvium/intertidal	5 Y 5/1 Grey silt. Well sorted. Diffuse boundary to:
	2.15	2.47	Grey silt/clay alluvium/intertidal	2.5 Y 5/2 Greyish brown silt with frequent pebble-sized iron stains. Well sorted. Diffuse boundary to:
	2.47	3.50	Grey silt/clay alluvium/intertidal	5 Y 4/1 Dark grey silt with coarse, straight, parallel laminae of 5 Y 3/1 Very dark grey silt. Well sorted.
	3.50	3.60	Mercia Mudstone	5 YR 4/3 Reddish brown compact clay. Well sorted

Table 1: Lithological descriptions of borehole cores

Appendix 3: Roman Pottery Report

Jane Timby, June 2013

3.1 Introduction and methodology

The archaeological work at Banwell, Somerset, resulted in the recovery of 5250 sherds of pottery weighing 87.8 kg dating to the Roman period accompanied by a small group of 18 post-medieval sherds (696 g). The latter are not discussed further in this section, other than for dating purposes. The sherds were moderately well-preserved with an average sherd weight of 16.6 g and with several examples of multiple sherds from single vessels. Pottery was recovered from approximately 44 individual contexts in Trench 8, 40 from Trench 9, 15 from Field 63 with an additional small quantity of unstratified collection. A particularly large percentage, 26.6% by count, came from a single burnt horizon (918) in Trench 9.

The pottery was sorted into fabric types on the basis of the type, size and frequency of the inclusions. Traded or named regional wares are coded using the National Roman fabric reference collection (NRFC) (Tomber and Dore (T and D) 1998). More local wares are described separately and are specific to this assemblage. These have been discriminated on the basis of firing colour, surface finish, inclusions and texture. The assemblage was fully quantified by sherd count, weight and estimated vessel (rim) equivalence (EVE). The data was entered onto an MS Excel spreadsheet a copy of which is deposited with the site archive. Table 2 provides a quantified summary of the defined fabrics.

3.2 Description of fabrics and associated forms

3.2.1 Continental imports

South Gaulish samian (LGF SA). Two sherds, one from a cup Dragendorff (Drag.) 27; the other from a platter.

Central Gaulish samian (LEZ SA). This ware is quite well represented accounting for 1% of the total assemblage by sherd count. Forms include cups Drag. 27 and 33, bowls 31, 36, 37, 38 and 79. There are two stamps:

S1. KAL•ENDIO Lezoux. Calendio 4a. Probably the base of a Drag. 18/31. AD 130-70 (Hartley and Dickinson 2009, 165). Context (811).

S2. PAULLVS. Lezoux. Incomplete. Paullus v, die 8c'. AD 165-200 (Hartley and Dickinson 2011, 112).

Three vessels show rivet repair holes, one from (921) with part of the lead rivet still *in situ*. The other two are a dish Drag. 31 and a Drag. 37 both from (965).

East Gaulish samian. Fourteen sherds of East Gaulish samian are present including one Drag. 37 with a rivet repair hole from ditch [956]. A Drag. 81 bowl from (918) has a post-firing graffiti in the form of a simple cross.

Dressel 20 amphora (BAT AM). Dressel 20 amphorae made in the province of Baetica, Southern Spain were imported into Britain from the later Iron Age through to the 3rd century AD. They were used to transport olive oil and had an estimated capacity of around 66 litres. This is the most common amphora type to be imported and it features on most Roman sites. Just two sherds were found at Banwell.

3.2.2 Regional wares

For Figures see Fig 59

Alice Holt grey ware (ALH RE). Two sherds from a storage jar were recovered from deposit (918).

Dorset black burnished ware (DOR BB1) (Holbrook and Bidwell 1991, 88–114). Dorset black burnished ware is well represented at Banwell accounting for 11.6% by count of the assemblage with forms typical of the 2nd to 4th century with a particular emphasis on the later types. Jars dominate the assemblage accounting for 41.6% EVE with plain-rimmed bowls contributing a further 21.9% and flanged-rim conical bowls 34% (Fig.00. 28). Also present but less common are flat-rim bowls, grooved-rim bowls and oval fish-dishes. One jar from deposit (918) has a post-firing graffiti on the shoulder (Fig. 0.38) whilst another sherd from Field 59 had a six point star on the interior surface (Fig. 00.49). One of the cremation vessels is a DOR BB1 jar (Fig. 00.47).

South West black burnished ware (SOW BB1) (Holbrook and Bidwell 1991, 114–38). South-west BB1 is distinguished from DOR BB1 by a finer sandier texture occasionally with inclusions of flint and white non-calcareous fragments. Vessels include jars (Fig. 00. 36), dishes, bowls and lids (Fig. 00. 37). It is possible that this ware was made in the Somerset area and it accounts for 15.3% of the total Roman assemblage.

Lower Nene Valley white ware (LNV WH). Just two sherds from mortaria.

Mancetter-Hartshill white ware mortaria (MAH WH). A single example with a wide flanged rim was recovered from pit [845].

New Forest wares: New Forest wares were quite rare with just 15 sherds in total from the excavated sites. The recognisable colour-coated (NFO RS2) forms appear to be beakers, (cf Fulford 1975, types 27, 42 and 30) and a bowl (type 77) decorated with rosettes.

Oxfordshire wares: Products of the Oxfordshire industries were quite well represented with 142 sherds. The most frequent are sherds of Oxfordshire colour-coated ware (OXF RS) with examples of Young (1977) beaker forms C20, C23; dishes/bowls C45, C47, C48, C51, C68, C75, C81 and mortaria C97 and C100. Most of these were colour-coated wares, often without the colour-coat present. One flanged bowl (C51), a burnt quite degraded fragment from (918) has part of a legible graffiti inscribed just below the flange (Fig. 00.46). In total these wares account for 2.5% of the total assemblage.

Also present but in minor quantities are seven sherds of Oxfordshire white-ware (OXF WH) six of which are from mortaria (Young 1977, form M22). There are also four white-slipped wares, (OXF WS), two from a mortaria form WC7 and two from a wall-sided bowl (WC3).

Late Roman shelly ware (ROB SH). Just seven sherds of this very distinctive late Roman ware dating to the last quarter of the 4th century are present. The pieces are all from an everted rim jar from context (871).

Savernake ware, Wiltshire (SAV GT). Savernake ware was quite well represented accounting for 2.7% of the assemblage. Most of the sherds are from large handmade storage jars (Fig. 00. 4), with one example of a grooved rim bowl. Products of this industry became quite widely dispersed in the later 1st and 2nd centuries and feature on several other Somerset sites such as Shepton Mallet, Shapwick and Ilchester.

Severn Valley ware (oxidised/reduced) (SVW OX/RE). Collectively Severn Valley wares account for 3.6% of the assemblage and can be divided into three groups: an early variant; oxidised and reduced. Most of the sherds were of the standard oxidised variety which account for 3.3%. Forms noted included tankards, beakers, flared and everted rim jars (Fig.00. 14) flanged rim bowls (Fig. 00.10) and reeded rim bowls. The tankards are the most frequently occurring form and one vessel from ditch [893] has been repaired with a lead rivet (Fig. 00.18). The early variant comprises handmade forms sometimes with a black exterior and with a grog and organic-tempered fabric. There are just a few sherds and the only featured sherd is a cordoned, carinated cup/bowl (Fig. 00.1).

South-west oxidised ware (SOW OX). Seven oxidised sherds, probably part of the south-west white-slipped industry are present and include one everted rim jar and one mortaria (Fig. 00. 29).

Wiltshire black-burnished sandy ware (WIL BW). These black, wheel-made, sandy wares seem to be made in the Wiltshire area although the precise source has not been identified. It starts to appear in some quantity on Cirencester from the Neronian period continuing through well into the 2nd century (Rigby 1982, 153, fabric TF 5).

It is moderately well-represented here forming 3.9 % of the assemblage by sherd count. Vessels include necked jars/bowls (Fig. 00. 2, 13) with expanded or flaring rims, flat-rim hemispherical (Fig. 00. 11) or carinated bowls (Fig.00. 21) and lids. One basesherd from pit [846] has a lead rivet repair (Fig. 00.3).

?*Wiltshire grog-tempered storage jar* (WIL GR). Thirteen sherds from handmade, grog-tempered storage jar with a soapy, waxy feel.

Granitic-tempered (GRMIC). A small group of three very distinctive sherds with a coarse textured fabric dominated by large flecks of biotite and muscovite mica with sub-angular finer grains of feldspar and quartz suggesting a degraded granitic source for the clay. A single small sherd with a similar fabric came from Shapwick (Timby 2007, 572). A likely source for such material probably lies in the south-west peninsula. The sherds come from a jar with a carinated shoulder and decorated with diagonal tooled lines (Fig. 0.45) from a 4th-century destruction horizon (918) so the dating is a little uncertain.

3.2.3 Native wares

Calcite-tempered wares (CALC). A handmade, moderately soft, black ware with calcite tempering. This fabric equates with Peacock (1969, 48) Glastonbury Group 3. It is clear from its incidence elsewhere, particularly in the Gloucestershire region, and from some of the forms that the fabric is not exclusively used for Glastonbury-style vessels. It also probably continues to feature in assemblages dating to the 1st century AD. Peacock suggests the Mendip Limestone as a suitable source for this clay. A small group of 41 sherds which includes a beaded rim and a simple everted rim jar. Sherds in a similar fabric have been recorded from Banwell Moor (Timby 2000, 178).

Limestone-tempered wares (LIME). A dark grey-brown or black, moderately soft, ware with a black exterior surface. The paste contains a moderate to common scatter of ill-sorted, white, rounded to sub-angular, limestone with occasional calcite. A source from the Mendips is likely. Dating to the later Iron Age and early Roman period this ware is quite well-represented here accounting for 1.8% of the assemblage. Featured sherds include beaded rim and simple everted rim jars and a shouldered bowl (Fig. 00. 9, 12, 23-4).

Black sandstone-tempered ware (BWSST). A single handmade, black, sandy ware with sparse fragments of fine quartz sandstone (grains up to 1 mm). This fabric equates with Peacock's Glastonbury-style Group 2 for which a source in the Old Red Sandstone of the Mendip Hills is suggested (Peacock 1969, 46). The sherd comes from a beaded rim jar from the upper fill of ditch [810].

Black sandy ware with flint (BWSAFL). A handmade, black sandy ware with a sparse scatter of angular flint. Limited to just nine bodysherds eight of which came from the upper fill of ditch [810].

3.2.4 Local and unknown wares

Reduced sandy wares

Black-surfaced grey/ oxidised ware (BSGY/BSOX). A moderately small group of wares probably mainly local with sandy fabrics covered in a black slip. Vessels are wheel-made and include copies of BB1 types, for example a well-everted rim jar, dishes (Fig. 00. 31) and colanders (Fig.00.35).

Grey wares (GY1-GY7). A number of 'local' grey ware fabrics were defined although the distinction between the groups sometimes became rather blurred. All are probably part of the little known North Somerset grey ware industry typified in the later period by the kilns known at Congresbury (Usher and Lilley 1964; Lilley and Usher 1972). The commonest of the groups is GY 1 which accounted for 22.6% of the total assemblage; the other fabrics are less common.

GY1: a moderately soft fabric with a gritty, sandy texture with visible quartz, rare limestone and sparse red-brown iron. Quartz grains frequently protrude from the surface. Vessels are wheel-made and are dominated by jars (67.7% EVE) with sharply everted, triangular, necked everted, bifid (Fig. 00. 41) and thickened rims (Fig. 00. 32).

One vessel has a countersunk handle (Fig. 00.8). Other forms include dishes (14.8% EVE) (Fig. 00. 34), bowls (2.7% EVE) (Fig. 00. 26), jugs (9.6% EVE) (Fig. 00. 17; 00.44), tankards (1.5% EVE) (Fig.00. 27) and at less than 1% flasks, lids, storage jars (Fig. 00.42), a mortarium (Fig. 00. 29) and colander. The storage jars are handmade with thumb-impressed rims. A flanged rim bowl from (965) has a broken flanged which has been smoothed and a hole through the base suggesting re-use (Fig. 00.30). Several of the forms, in particular flared rim jars and plain-rimmed dishes copy BB1 forms whilst others appear to be copying Severn Valley wares.

GY2: a finer version of GY1. Jars (Fig. 0. 39-40) dominate the vessel repertoire accounting for 88% EVE with a few bifid rim jugs, lids, dishes and a colander.

GY3: distinguished by having a distinctive red-brown core with a grey or blue-grey fabric. Some vessels are very hard-fired. Nearly all the recognizable vessels are flared rim jars and more rarely bifid rim jugs.

GY4: as GY1 but with a distinctive micaceous content with fine flacks of white mica. Forms include everted rim jars, plain-rimmed dishes and a flask with a triangular rim.

GY5: a grey sandy ware with sparse grog and dark red-brown iron. Wheel-made vessels, mainly jars.

GY6: a hard, blue-grey ware, well-fired with a slightly granular or pimply appearance. Used for wheel-made everted rim (Fig. 00. 33) and flat rim jars. One vessel is decorated with a burnished wavy line.

GY7: a medium-fine sandy ware with a common frequency of fine, well-sorted quartz sand. Wheel-made vessels including everted rim jars, an everted rim bowl and a flask.

Fine grey ware (GYF). Very fine grey sandy textured ware. Limited to a flared rim jar.

Black sandy wares (BW). Mainly wheel-made wares used for jars and dishes including copies of BB1 forms (Fig. 00. 48).

Oxidised / pale sandy wares

Buff wares (BUFF). A miscellaneous group of sandy, fine sandy and fine, sandy, micaceous buff-coloured wares of unknown provenance. The only featured sherd is a two-rib handle probably from a jug or flagon.

Fine pale oxidised ware (OX1). A very fine pale orange ware with a sparse scatter of rounded to sub-angular red-orange ferruginous pellets up to 1-2 mm in size and some fine mica. This ware was used to make flanged bowls (Fig.00. 20), tankards (Fig. 00. 16), everted rim jars and ovoid beakers with small everted rims (Fig. 00.19). The same fabric featured at Shapwick (Timby 2007, fabric OXID2) and Crandon Bridge (Timby 2008, 111) and is very similar to that used for Shepton Mallet-type mortaria and some of the ceramic building material found at Banwell.

Sandy oxidised ware (OX2). A sandy ware characterized by ill-sorted quartz sand with a scatter of rounded larger grains (less than 1 mm) in a fine background, rare sandstone and red iron. The only featured sherd is from a storage jar with an incurving rim.

Fine oxidised ware (OXIDF). A small group of fine sandy oxidised wares. This ware was used for jars, bowls and a ring-necked flagon.

White-slipped oxidised ware (WSOXID). A fine oxidised ware with a white surface slip. Limited to just two sherds including a small flanged cup (Fig. 00.7).

Storage jar (BW/OXSYSJ). Grey, black or orange sandy wares. Handmade thick-walled sherds from storage jars some with thumb-pressed rims (Fig. 00. 43). Such jars are well known in the south-west region from the 2nd to 4th centuries. From sites in Somerset there are similar examples from Brean Down (ApSimon 1965, fig 52.36), Ilchester in grog-tempered fabrics (Leach 1982, fig 73.271–290 and 74.291–293), Bradley Hill (Leech 1981, fig 25.177) and Catsgore (Leech 1982, 154).

3.2.5 Micaceous wares

Fine micaceous black ware (BWFMIC). This is a moderately large group of material accounting for 4.3% of the assemblage. The fabric is a very fine sandy ware with a distinctive fine mica content. Vessels include necked jars (Fig. 00. 15) and bowls, bowls copying samian form Drag 30 often with vertical combed decoration (Fig. 00.5), a grooved rim bowl and a lid. A grooved-rim bowl has a post-firing hole through the wall of the vessel below the rim, possibly a repair hole and a base (from (876) has a central hole again made after firing but unlikely to be a repair hole.

Fine grey micaceous wares (GYFMIC). Another moderately large group probably related to the black ware but distinguished on colour. These wares account for 3.2% of the assemblage and included a similar range of forms including necked jars/bowls (Fig. 00. 6), flat-rim bowls, carinated bowls (Fig. 00.0), everted rim jars/ bowls and lids (Fig.00. 22).

Fine oxidised micaceous ware (OXFMIC). An oxidised variant with just two sherds present.

Grey/ oxidised sandy micaceous ware (GY/OXMIC). Another small group with a distinctively micaceous sandy fabric. The only featured sherd is from an everted rim jar.

3.2.6 Grog-tempered wares

Black grog-tempered ware (BWGR/ BWGRSA). A small group of seven sherds to which can added a further four with a sandier fabric containing grog. Handmade closed vessels.

Grey grog-tempered wares (GYGR). A slightly larger group with both handmade and wheel-made vessels. The only featured sherd is from a large rolled rim storage jar. Possibly a variant or related to the Savernake industry.

Oxidised grog-tempered ware (OXGR). A single sherd of a fine sandy fabric containing sparse grog.

3.2.7 Calcareous wares

Black limestone-tempered ware (BWLl). A small group of five, black wares with a moderately hard, smooth fabric tempered with frequent grains of fine limestone. Used to make wheel-made vessels including a copy of an everted rim BB1-type jar.

Limestone-tempered storage jar (LISJ). A single sherd from a large handmade jar with a sandy fabric containing sparse grains of limestone.

Shelly ware (SHELL). A single small fragment of a coarser fossil-shell-tempered jar came from debris (918).

3.2.8 Discussion of fabrics and forms (Tables 3 and 5)

The Roman pottery assemblage from Banwell spans the 1st through to the later 4th century. The earlier wares are typified by a small number of pre-Roman later Iron handmade native wares in limestone, calcite fabrics probably from sources in the Mendips. These are accompanied by Severn Valley wares, some in the pre-Roman earlier variant of the fabric (cf Timby 1990) but also the more standardized oxidised wares, Savernake wares imported from Wiltshire, fine wheel made black wares probably also from North Wiltshire and a local grey ware (fabric GY1). There are two sherds of South Gaulish samian which are also likely to be later 1st -century arrivals at the site.

The 2nd century sees a proliferation of local wares accompanied still by Savernake wares and Severn Valley wares but also with Dorset and South-west black burnished wares. Central Gaulish samian accounts for 1% by count of the total assemblage. From the mid to later 2nd century or 3rd century some East Gaulish samian was reaching the site. There are no other continental imported fine wares present which could be a reflection of the geographical location, or the economic or functional status of the site. The only other continental imports are two sherds of Baetican amphora from Southern Spain which would have brought olive oil used for cooking or lighting.

This particular amphora type is ubiquitous on Roman sites in Britain but is clearly poorly represented here. A small number of regional imports were reaching the site in the 2nd and 3rd centuries including a Mancetter-Hartshill mortaria, two sherds of Lower Nene Valley white ware mortaria and a southwest oxidised mortaria.

Local North Somerset wares continue to dominate the later Roman assemblage accompanied by substantial numbers of vessels from the BB1 industries and a large number of local copies in wheel made black wares. From the later 3rd century a small number of wares from the Oxfordshire potteries are reaching the site with colour-coated table wares and white-ware and white-slipped mortaria. There are also a small number of vessels from the New Forest industry. Other imports probably reaching the site in the later Roman period are represented by at least one jar from the Alice Holt kilns on the Surrey-Hampshire border and in the last quarter of the 4th century Midlands shell-tempered ware.

Looking at the assemblage overall, local grey wares belonging to the little known North Somerset industry dominate accounting for around 36% by count, 33% by weight followed by products of the south-west and south-east black burnished industries which contribute 15.3% and 11.6% respectively. The remaining 37.1% is spread amongst the other wares all of which contribute less than 5% and often less than 1% overall to the group.

In terms of forms jars very much dominate overall accounting for 60.1% EVE. Within this flared, everted rim jars dominate accounting for 44.3% of the jars (EVE) followed by simple everted rims at 28.3%. This reflects not only quite a conservative and limited range of forms but also the emphasis on the later Roman period and the degree to which BB1 jars and copies thereof dominate the assemblage. A relatively high incidence of sooting on many sherds also attests to their use in cooking. Several sherds have a black tarry substance on external surfaces and a few vessels have an internal calcareous lining from holding or heating water. Storage jars seems quite common in terms of incidence of sherds but are poorly represented in terms of rim eve's.

The second commonest form to feature in the group are bowls which account for 16.8% EVE. Within this group flanged-rim conical bowls account for 48.9% EVE. This is followed by dishes at 12.4% of which plain-sided dishes or 'dog-bowls' account for 75.7% EVE. Both the flanged bowl and the plain-sided dish mirror the BB1 influence seen in the jar forms. The bowl / dish category also shows a fine ware and a coarse ware component with samian and then colour-coated wares contributing to the former.

Drinking vessels including cups, beakers, and tankards form a very small part of the overall assemblage, collectively 2.6%. Similarly pouring or liquid dispensing vessels such as flagons and jugs only contribute 3.6% EVE. Other forms include mortaria at 3.6%, lids and colanders both at less than 1%.

3.2.9 Modified vessels

A number of vessels have been modified after firing. Two bases have been holed, one a base sherd of fabric BWFMIC from context (876); the other a small dish from (965). This latter vessel also had a broken flange which has been smoothed over (Fig.00.30). Four vessels had holes through the walls which are probably rivet repair holes. Three of these are samian vessels: a Drag. 31 Lezoux dish from (965) and two Drag. 37 decorated bowls one from Lezoux (ditch [956] (959) and one in an East Gaulish fabric (965). The fourth vessel in a grooved rim dish in a fine black micaceous ware (BWFMIC) from (876); the hole being just below the rim. In addition, there are three vessels with the lead rivet still *in-situ*. One is another Lezoux dish from (921); one of a base of a Wiltshire black ware (WIL BW) with a very solid repair (Fig. 00.3) and one is a Severn Valley ware tankard (Fig. 00. 18).

Lead rivet repairs tend to be most frequently found on vessels deemed to be of higher value, such as the decorated samian bowls or other samian tableware (cf Willis 2006) and are found on military, civil centres and rural sites. Here there are at least two, probably three vessels which would be considered more mundane with similar such repairs. It is perhaps possible that lead was more readily available nearer a source such as the Mendips and repairs were thus not as costly. A similarly high number of repaired vessels was noted at Crandon Bridge where four samian vessels, one amphora, one mortarium and two local wares had been mended (Timby 2008, 112).

3.2.10 Graffiti

There are at least four vessels with graffiti scratched on the surface after firing. In three cases these take the form of simple crosses; the fourth, although fragmentary appears to be a literate name. Three of the vessels are from burnt debris horizon (918); one is unstratified. They are all late Roman vessels.

G1: (Fig. 0.38). Dorset black burnished ware jar with oblique latticing and a X scratched on the shoulder. Context (918).

G2: East Gaulish bowl, Dragendorff 81 with a X on the outside wall. Context (918).

G3: (Fig. 00.46). Burnt fragment of an Oxfordshire colour-coated flanged bowl with the letters 'NO' etched in under the flange. Context (918).

G4: (Fig. 00.49). Bodysherd from a South-west black burnished ware bowl with a X scratched on the interior surface. SF 3, topsoil.

3.2.11 Site distribution and chronology

On the basis of the pottery the chronology of the site can be divided in early, mid and late Roman. Some of the groups are quite small and thus dating can only be provisional; other groups such as that from the late Roman burnt horizon (918) are very large, in this case 26.6% by count of the total recovered assemblage. The following discusses the assemblages chronologically by location.

3.3 Trench 8

Trench 8 produced a total 2003 sherds of pottery weighing 355.27 kg and with 28.95 eve's. This is about 38% of the total assemblage by count 40.6% by weight. The sherds are quite well preserved with an overall average sherd size of 17.7 g but this varies considerably between individual features. The assemblage spans the late 1st century through to the later 4th century with the greatest concentration of material falling in to the 2nd-4th centuries. It would appear that there is quite a high level of redeposition with 2nd-century sherds occurring throughout the sequence.

Stratigraphically the earliest pottery was recovered from natural clay deposit (869) with three bodysherds, one in fabric GY1, one in BWFMIC and one OXSYMIC, all potentially early Roman wares but not closely datable. A small quantity of pottery was recovered from ditches [898]/[899] with 31 sherds all of which could date to the later 1st century. This includes necked bowls in Wiltshire-type wheel-made black burnished ware (WIL BW), a beaded rim Savernake jar, a few local grey wares, two sherds of limestone-tempered native ware and a fine oxidised ware. Ditch [880] (879) with 46 sherds appears to date to the early 2nd century with a DOR BB1 jar and SOW BB1 beaded-rim dish. Some of the groups would suggest a 1st -century date with sherds of early Severn Valley ware, a piece of South Gaulish samian and Savernake ware; the presence of one sherd of DOR BB1 from (876) as with that from ditch [880] could suggest an early 2nd-century date but it is possibly that small quantities of BB1 were reaching the site earlier. Other features sealed by occupation horizon (811/812) with pottery dating to the 2nd century include ditches [851], [870], [849], [858] and [897], gully [824] and features [861] and [866]. These ditches are sealed by an Occupation Horizon 2 (876/ 8102/ 831-2/ 859/ 838/ 848) producing some 62 sherds with an average sherd size of just 8.3 g. This low sherd size reflects a mixture of 1st and early 2nd-century wares.

A large assemblage of 324 sherds came from ditch [861] (possible smelting pit) which includes Lezoux samian along with SOW BB1 and DOR BB1 jar decorated with acute lattice and zig-zag burnished designs. Another moderately large assemblage came from ditch [858] similarly with BB1 jar, a Drag. 33 Lezoux cup and a small white-slipped flanged cup (Fig.00.7). The average sherd size is noticeably higher at 11 g compared to the sealing deposits. Ditch [870] also had a large assemblage of 182 sherds with a flat-rim BB1 bowl and other 2nd-century wares.

Ditch [893], also apparently sealed by (811/812), yielded a small assemblage of 17 sherds one of which was a sherd of Oxfordshire colour-coated ware; if not intrusive this would suggest a date in the second half of the 3rd century at the earliest. The ditch also produced a Severn Valley ware tankard with a lead rivet repair. Feature (871) produced 24 sherds and 12 fragments of fired clay. The pottery includes four sherds of late Roman shelly ware and is thus one of the latest deposits on the site dating to the later 4th century or beyond.

Occupation horizon (811/812) produced a very large assemblage of 509 sherds, 4954 g, with largely 2nd-century wares mixed with some 1st-century pieces but again with three sherds of OXF RS and a flanged-rim BB1 bowl or dish. Black-burnished wares account for 22.4% and local grey wares for 29%. Also present are eight sherds of Lezoux samian including a stamped piece (S1) with a production date AD 140-60 and eight fragments of ceramic building material. On the basis of the latest pottery this horizon appears to have a *terminus post quem* in the mid to later 3rd century. Features cut into this horizon also have a rather mixed assemblage and pits [889], [845] and [847] all seem to exclusively contain 2nd-century pottery. Of note is that all three pits contain a substantial number of sherds from Savernake ware storage jars. Pit [845] contains the only sherds of Mancetter-Hartshill white-ware mortarium and several vessels in fine black micaceous ware, and pit [847] produced the Wiltshire-type black burnished ware base with a large lead repair (Fig. 00.3). By contrast ditch [810] with 360 sherds was abandoned probably in the second half of the 4th century or later on the basis of five sherds of OXF RS including a bowl (Young 1977, type C75), late DOR BB1 forms and four sherds of New Forest colour-coated ware. Also present are eight fragments of CBM including roofing tile (imbrex) and box-flue.

Small groups of pottery were recovered from the graves [818, 820 and 842]. These are mixed sherds and broadly datable to the later Roman period. Grave [818] had a piece of OXF RS dating to the later 3rd or 4th century. The post-Roman inundation deposit (807) sealing these also produced 52 small sherds with an average sherd size of 7.3 g indicative of a disturbed deposit.

3.4 Trench 9

Trench 9, including the southern extension, produced 2745 sherds weighing 479.2 kg with 60.64 eves. This accounts for 54.4% of the total pottery assemblage recovered. The average sherd size is similar to that from Trench 8 at 17.5 g. As with Trench 8 there is early and late Roman activity but here there is an almost complete absence of 2nd- early 3rd century material and a much greater emphasis on later Roman finds.

The earliest assemblage from the trench is that from feature [967] with 22 sherds from layer (929). This includes several sherds of pre-Roman type native ware in limestone and calcite-tempered fabrics, alongside black sandy wares and a single sherd of local grey ware. The native wares, if not all redeposited would suggest a 1st-century date and, with the accompanying Roman wares, probably in the later 1st century.

Chronologically the next assemblages recorded are from the road surface (985), ditch [956] and the fill (624) of a natural gully. The road surface produced 41 sherds amongst which were three Lezoux samian vessels (Drag. 33, 36 and 79), two Severn Valley ware tankards, a flanged BB1 bowl or dish and a mortaria in the local grey ware (Fig. 00.29). A further nine sherds came from the roadside ditch fill (989). Ditch [956] had two further samian vessels, one an East Gaulish Drag. 37 bowl with a rivet hole and a DOR BB1 jar, whilst (924) also produced an East Gaulish sherd and BB1 alongside local wares amongst which was a large storage jar. Four fragments of CBM also came from this fill. Overall these assemblages, although small, suggest a date in the 3rd century. Colour-coated wares are conspicuously absent.

The levelling layer (919) sealed by wall [921] produced 66 sherds of pottery amongst which were six sherds of OXF RS including Young (1977) forms C51 and C81 and a mortarium suggesting a 4th-century *tpq* for this deposit. There are also three fragments of CBM with two *tegulae* fragments, a number of grey wares including jug and flanged bowls and plain-sided dishes in BB1. Wall [921] also produced a moderately large assemblage of 78 sherds amongst which are 18 BB1 sherds, a Lezoux bowl with an *in-situ* lead rivet, three sherds of OXF RS and one of OXF WH mortaria and several local grey ware jars. This would suggest a date from the mid to later 3rd century onwards. A single piece of Central Gaulish samian from (972) is stamped by the pottery Paullus (S2) dated AD 165-200. Either this material is residual or the levelling layer was still accumulating debris well into the later 3rd century. A very large group of pottery largely dating to the 4th-century came from overlying layer (926), some 290 sherds which include a large number of plain-sided and flanged-rim dishes and bowls in BB1, four sherds of East Gaulish samian and seven sherds of New Forest and Oxfordshire colour-coated ware. In addition, there are 17 fragments of CBM including roofing tile (*tegulae* and *imbrices*) and combed box-flue tile. Wall collapse (965) also produced a number of 3rd and 4th-century vessels in OXF RS and DOR BB1.

The remaining various layers in Trench 9 all date to the 4th century on stratigraphic or ceramic grounds. Those levels with pottery include (915, 930, 922, 917) and the large, burnt destruction horizon (912/914/918).

This latter deposit produced a very large group of 1399 sherds weighing 271 kg and with 33 estimated vessel equivalents (EVE) and 34 pieces of CBM. The overall average sherd weight is high at 19.5 g and the assemblage suggested little ongoing disturbance or high level of residuality and showed quite a diverse collection of fabrics and forms (Figs 00.37-46). Amongst the regional imports is an Alice Holt grey ware jar, Lower Nene Valley mortarium, eighty-two sherds of OXF RS and three of NFO CC including a rosette stamped bowl (Fulford 1975, type 77) dated to the second half of the 4th century. Dorset BB1 accounts for approximately 12% of the group and local grey wares dominate with several jugs, storage jar and colander amongst the usual range of jars, dishes and bowls. Jars account for 60% by eve followed by bowls/dishes at 30.6%. Mortaria are moderately well represented at 3.2%. Three of the four recorded vessels with graffiti came from this context.

Other features with pottery from the Trench 9 extension date to the 4th-century including ditches [935], [938], [939] along with boundary wall (932), paved floor (941-2) and destruction deposits (953). The latter is the only one with New Forest colour-coated ware emphasizing it's later date and probably contemporaneity with (918).

3.5 Field 63

Field 63 produced just nine Roman sherds, two Roman cremation vessels and four fragments of Roman CBM. In addition there is a probable prehistoric sherd of uncertain date from (078) and a small sherd of native limestone-tempered ware from the primary fill of ditch [035] which may be pre or early Roman in date.

The Roman sherds all appear to be of later Roman date. Two local unfeathered wares came from road surface (030) and a further three sherds of North Somerset grey ware from (026). Buried soil horizon produced the flanged rim of a conical bowl in Dorset black burnished ware likely to date to the later 3rd-4th centuries along with a *tegula*. Two jars used as cremation vessels came from this level, one from [045/047]; the other from [081]. The first (Fig. 00.47) is a DOR BB1 jar decorated with an oblique lattice marked by a scored line above the decoration and is probably of later 3rd or 4th century date. The second vessel is a wheel-made local copy of a BB1 jar (Fig. 0.48) imitating the zone of oblique burnishing typical of the later 3rd-4th centuries but not as precisely executed to within the defined decorative zone as most BB1 jars proper. Two further Roman sherds and three fragments of box-flue tile came from the second buried soil horizon (19).

3.6 Field 58a

A small group of 110 sherds of unstratified Roman pottery was collected from the topsoil around Trench 8 in Field 58a. This shows a particularly emphasis on material of earlier Roman date (1st-2nd century) with sherds of Severn Valley ware, Savernake ware, local grey wares and some sherds of DOR BB1.

3.7 Field 59

Two pieces of CBM including one from a combed box-flue and two sherds of post-medieval pottery came from the surface of this field around Trenches 1 to 5..

3.8 Inter-regional Comparison

There have been a number of Roman sites excavated in the Somerset area ranging from small towns (Ilchester and Shepton Mallet (Leach 1982; 20010)); large rural settlements or villages (Catsgore (Leach 1982)); a military site subsequently a settlement (Sea Mills (Ellis 1987)); farmsteads (Bradley Hill (Leach 1981)), Shapwick sites (Gerrard with Aston 2007); a possible river-port (Crandon Bridge (Rippon 2008)), and temples (Lamyatt Beacon, (Leach 1986) Gatcombe (Branigan 1977)). A series of small settlements have also been examined to the north of Banwell, in particular Banwell Moor, Puxton and Kenn Moor (Rippon 2000). Fully quantified pottery data is now available from several of these sites: Sea Mills (1965-68) (Timby 1987); Fosse Lane, Shepton Mallet (Evans 2001), the Shapwick sites (Timby 2007); Kenn Moor (Timby 2000) and Crandon Bridge on the River Parrett to the south (Timby 2008).

Table 4 compares the main components of the Banwell assemblage with those from Shepton Mallet, Shapwick, Kenn Moor and Crandon. From this it can be seen that the level of samian is very similar to that collectively from the Shapwick sites at 1.3% and Kenn Moor at 1% but considerably lower than Shepton Mallet and Crandon. A figure of between 1 and 2% is very typical for smaller rural settlements in this area. The quantity of amphorae varies greatly between the sites and shows a higher incidence in the larger urban settlements such as Shepton Mallet and Ilchester and the port at Crandon. It is present in very minor amounts at Banwell and Shapwick and does not feature in the moderately small assemblage from Kenn Moor. Overall the quantity of amphorae reaching inland sites in Somerset seems very modest and it rarely exceeds 3% of the assemblages (see Timby 2008, Table 4). Other imported fine wares or mortaria are completely absent from Banwell but are better represented, albeit in very small quantities, at Crandon, Sea Mills and Ilchester which is presumably a reflection of their locations as trading ports and their population size. A more diverse spectrum of wares at Sea Mills reflects its first-century military connections.

Many of the other regional traded wares documented at Banwell, for example, from the Alice Holt, Savernake, Severn Valley, Oxfordshire and New Forest kilns all feature on sites across Somerset in small quantities. The Banwell figures for the later colour-coated wares are very similar to those from Kenn Moor and the Shapwick sites perhaps again indicative of a rural status. Significantly greater quantities of these wares were recovered from Ilchester, Bradley Hill, Catsgore and the Gatcombe temple site (cf Timby 2000, table 4). All the Somerset sites were receiving substantial quantities of black burnished wares which generally accounts for between 27% and 48% of the assemblages although higher at Ilchester and Catsgore. It appears slightly lower at Banwell compared with the other sites apart from Crandon but there are commensurately more reduced North Somerset wares at Banwell presumably reflecting more locally available wares amongst which are many BB1 copies. Late Roman shelly ware although never prolific in the West Country has been documented at Banwell, Ilchester, Lamyatt Beacon and Bradley Hill. Its absence on some sites is probably more a reflection of the chronology of the sites.

In conclusion, the assemblage at Banwell appears to be fairly typical of a rural settlement site in North Somerset. There are no ceramic finds which would suggest a military presence but the ceramic building material would indicate a building of some status nearby. The settlement is long-lived ranging from the later 1st-early 2nd century through to the later 4th century. The focus of 2nd century activity appears to lie in Field 8 and perhaps Field 58 with later Roman activity extending across both Fields 8 and 9.

3.9 Catalogue of illustrated vessels

Trench 8

1. Handmade cordoned bowl. Black exterior and red-brown interior. Fabric: early Severn Valley ware variant (ESVW). Occupation deposit (831).
2. Necked cordoned jar. Fabric: WIL BW. Pit 847 (846).
3. Base from a closed vessel. Repaired or modified with a solid lead rivet with a rectangular face on the exterior through the centre of the base with further lead wrapped round one edge. Fabric: WIL BW. Pit [847] (846).
4. Large storage jar decorated with lightly incised motifs. Fabric: SAV GT. Pit [845] (844).
5. Bowl copying samian form Drag. 30 with lightly vertically combed decoration. Fabric: BWFMIC. Pit [845] (844).
6. Necked bowl. Fabric: GYFMIC. Pit [845] (844).
7. Small flanged cup. Fabric: WSOXID. Ditch [849] (850).
8. Everted rim, necked jar with a countersunk handle plugged through the wall of the vessel. Fabric: GY1. Ditch [849] (877).
9. Beaded rim handmade jar. Fabric: LIME. Feature [861] (860).
10. Flanged rim bowl decorated with an incised wavy line on the flange. Fabric: SVW OX. Feature [861] (860).
11. Dropped flat rim bowl Fabric: BWFMIC. Feature [861] (863).
12. Handmade wide-mouthed, beaded rim jar. Oxidised in colour. Fabric: LIME. Feature [861] (863).
13. Necked, wide-mouthed jar. Fabric: WIL BW. Feature [861] (863).
14. Flared rim, cordon necked jar. Fabric: SVW OX. Feature [861] (863).
15. Several sherds from a necked jar with a rolled rim. Fabric: BWFMIC. Gully [824] (821).
16. Tankard. Fabric: OX1. Occupation layer (838).

17. Handed jug with burnished line decoration on the neck and body. Fabric: GY1. Ditch [810] (833).
18. Tankard with a rivet repair hole below the rim with part of the rivet *in-situ*. Fabric: SVW OX. Ditch [893] (892).
19. Sharply everted rim ovoid beaker. Fabric: OX1. Occupation layer (811).
20. Flanged dish. Fabric: OX1. Occupation layer (811).
21. Carinated dish with an overhanging rim. Fabric: WIL BW. Occupation layer (812).
22. Lid. Fabric: GYFMIC. Occupation layer (812).

23. Trench 9

24. Handmade everted rim jar or bowl. Burnished exterior surface. Fabric: LIME. Layer (929).
25. Fragmentary handmade shouldered bowl. Burnished exterior surface. Fabric: LIME. Layer (929).
26. Mortaria with sparse small quartz trituration grits. Fabric: GY1. Road surface (985).
27. Grooved rim bowl. Fabric: GY1. Road surface (985).
28. Tankard with burnished line decoration. Fabric: GY1. Road ditch (985)(989).
29. Flanged rim conical bowl with faint arcaded decoration. Fabric: DOR BB1. Road surface (985).
30. Mortarium. Fabric: SOW OX. Wall collapse (965).
31. Small dish with a broken smoothed flange. The base has been holed. Fabric: GY1. Wall collapse (965).
32. Small flanged rim bowl. Fabric: BSGY1. Wall collapse (965).
33. Wide-mouthed, hooked rim jar. Fabric: GY1. Wall collapse (965).
34. Wide-mouthed, everted rim jar. Fabric: GY6. Wall collapse (965).
35. Dish with a short flat rim. Fabric: GY1. Wall collapse (965).
36. Colander. Fabric: BSGY1. Ditch [935] (931).
37. Everted rim jar. Fabric: SOW BB1. Ditch [935] (931).
38. Beaded rim lid. Fabric: SOW BB1. Burnt destruction layer (918).
39. Everted rim jar with a post-firing X on the upper shoulder. Fabric: DOR BB1. Burnt destruction layer (918).
40. Large wide-mouthed jar. Fabric: GY2. Burnt destruction layer (918).
41. Wide-mouthed jar with a shallow lid-seating. Fabric: GY2. Burnt destruction layer (918).
42. Bifid-rim narrow necked jar. Fabric: GY1. Burnt destruction layer (918).
43. Handmade storage jar with an irregular depressions around the rim. Fabric: GY1. Burnt destruction layer (918).
44. Handmade storage jar with a finger-depressed rim. Fabric: OX2. Burnt destruction layer (918).
45. Necked jug decorated with burnished lines on the neck. Fabric: GY1. Burnt destruction layer (918).
46. Bodysherd from a jar with a shoulder carinated. Decorated with tooled diagonal lines. Fabric: GRMIC. Burnt destruction layer (918).
47. Burnt flange from a bowl, probably Young (1977) form C51. Fabric: OXF RS. Two letters of a legible word ' NO' have been etched into the surface below the flange. Burnt destruction layer (918).

48. Field 63

49. Complete, but broken jar decorated with a lightly incised oblique line lattice. Fabric: DOR BB1. Cremation vessel. [045]/[047] (046/048), SF 5, 6.
50. Complete but broken wheel made jar in a black sandy ware. The form and decoration imitates a later Roman BB1 style jar. The lower part of the decoration extends beyond the demarcated zone. Cremation vessel [81] (80) SF 74.

- Field 59

- Bodysherd from a bowl. Fabric: DOR BB1. Incised 3-line star on the interior surface. Topsoil. SF 3.

Artist's impressions of vessels by Holly Litherland BA (hons.): BAL Archaeological Illustrator

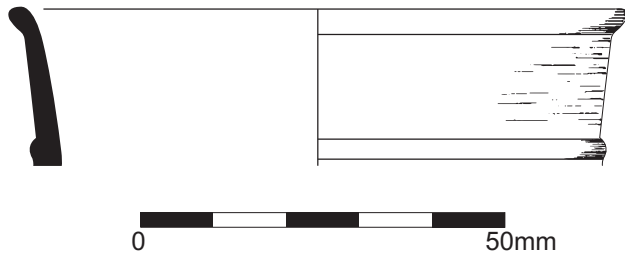


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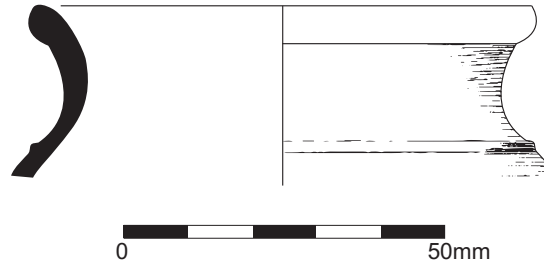


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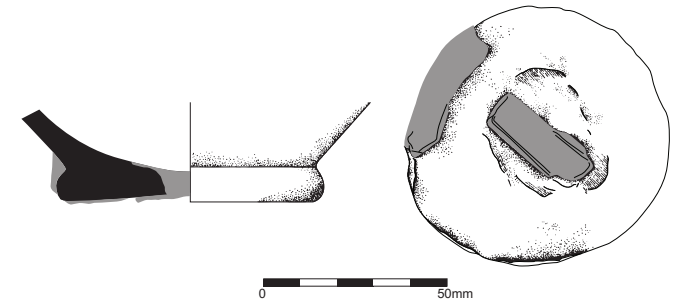


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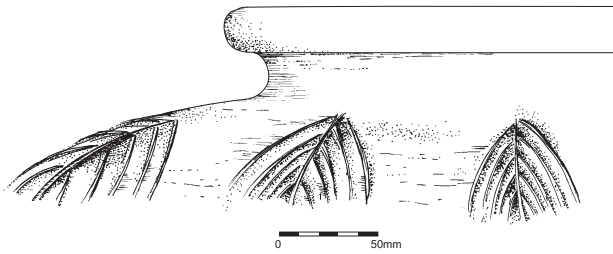


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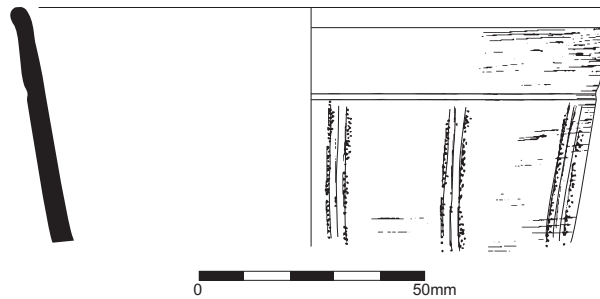


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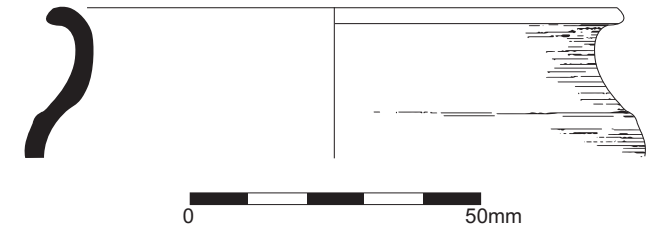


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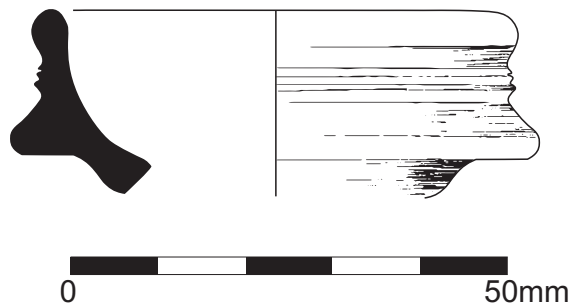


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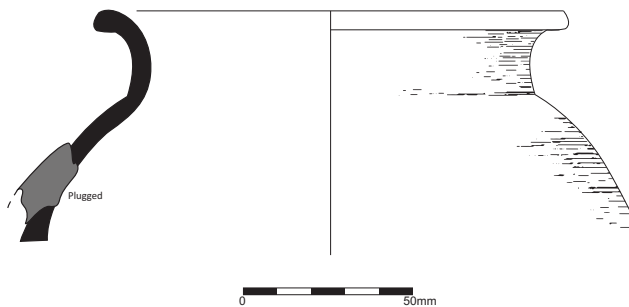


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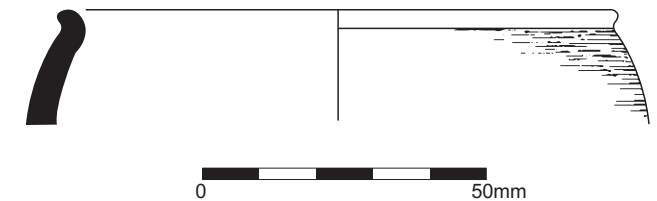


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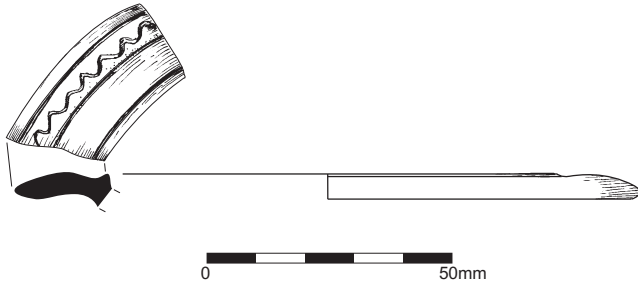


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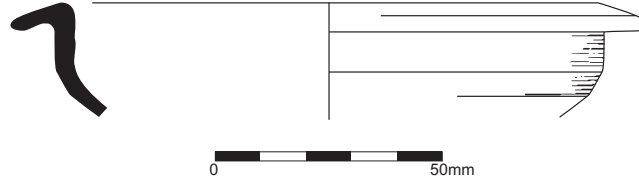


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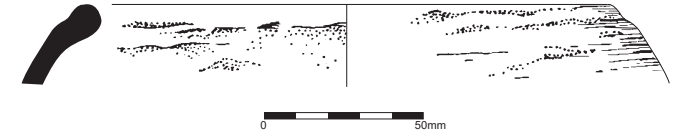


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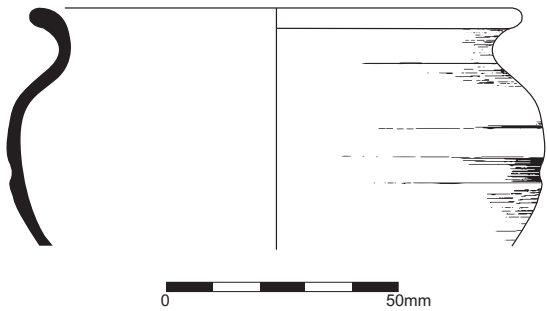


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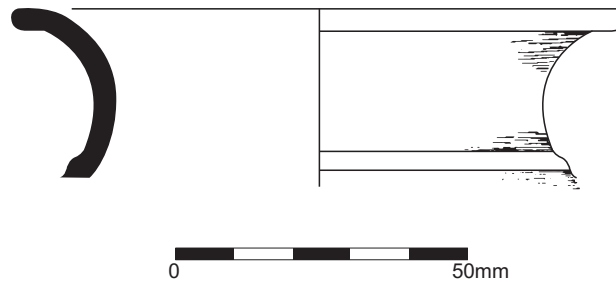


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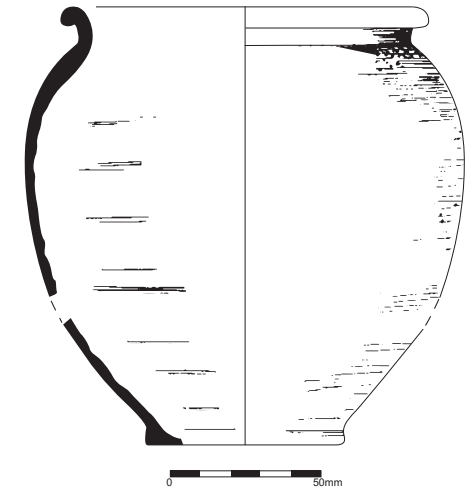


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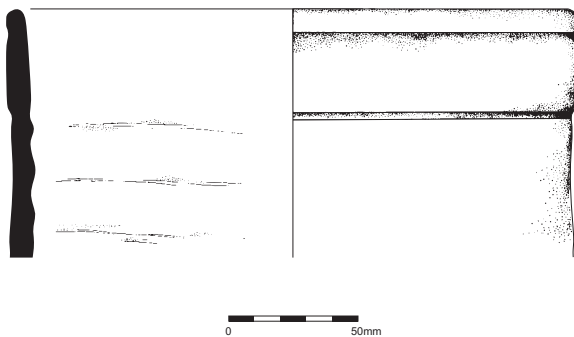


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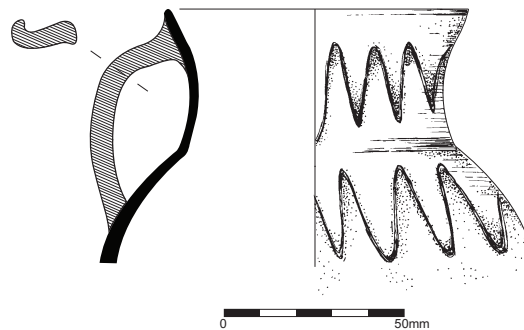


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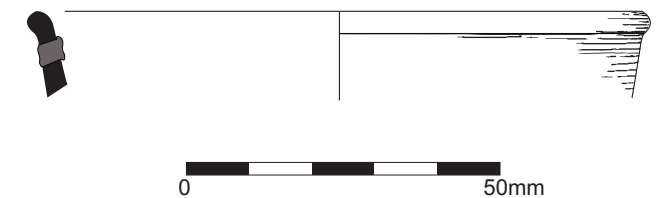


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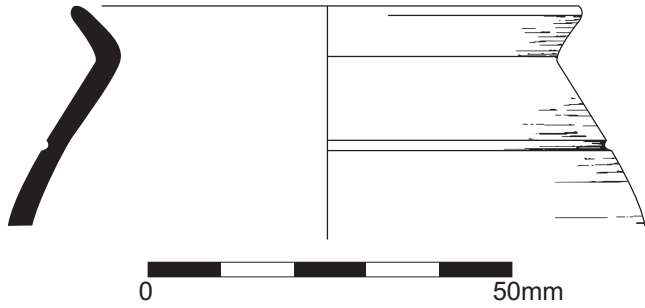


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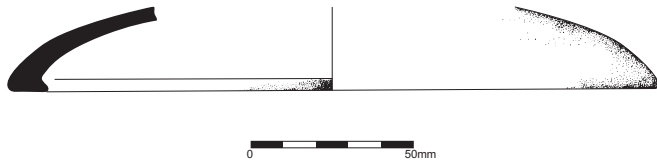


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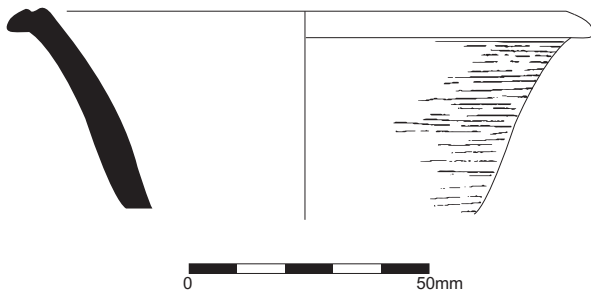


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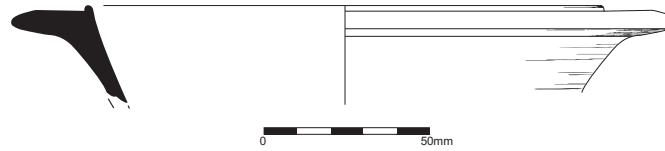


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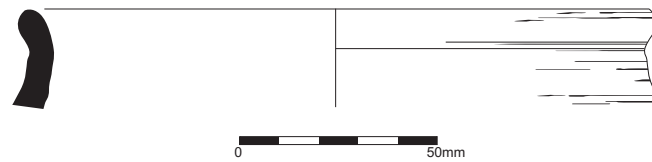


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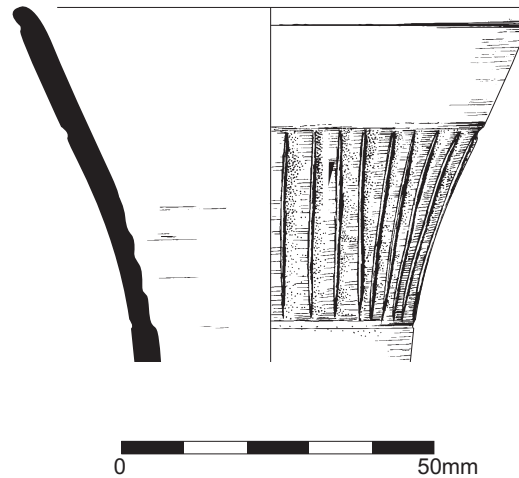


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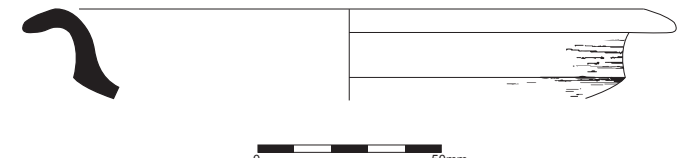


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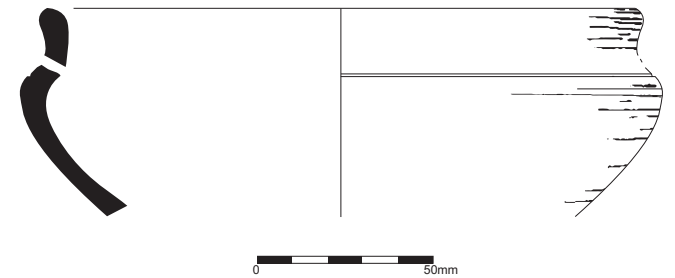


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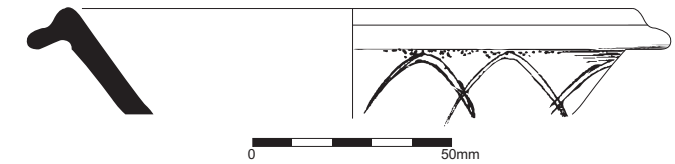


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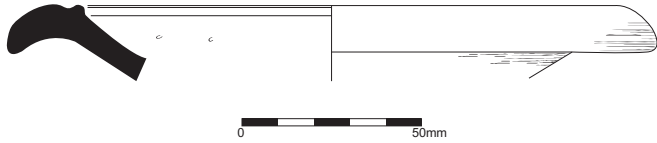


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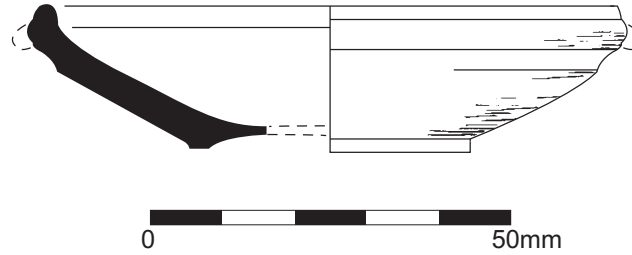


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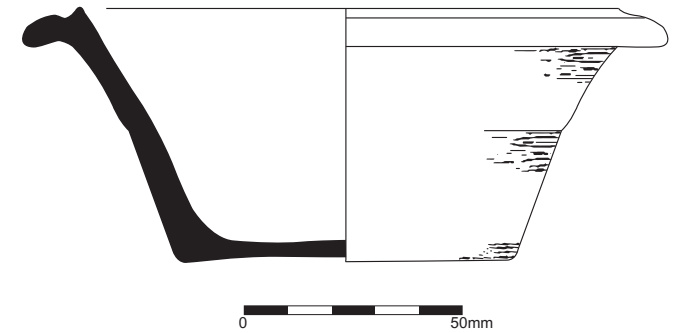


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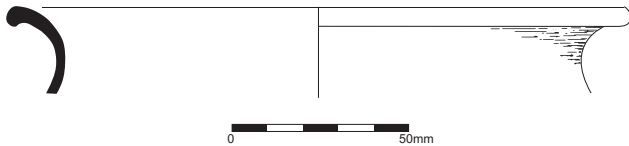


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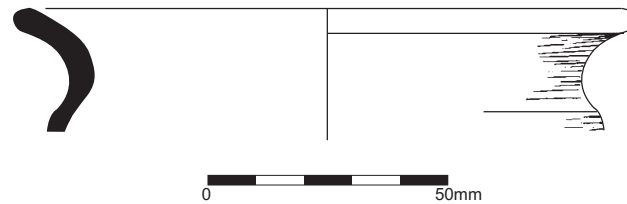


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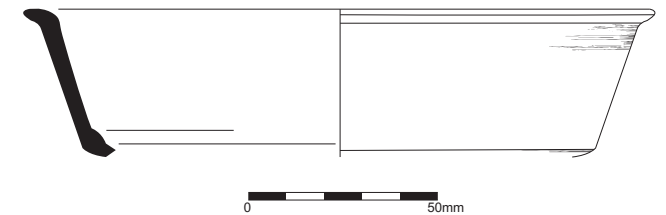


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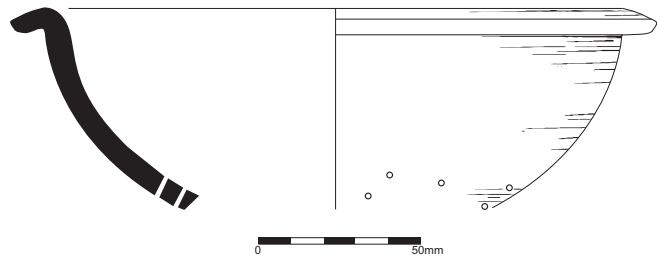


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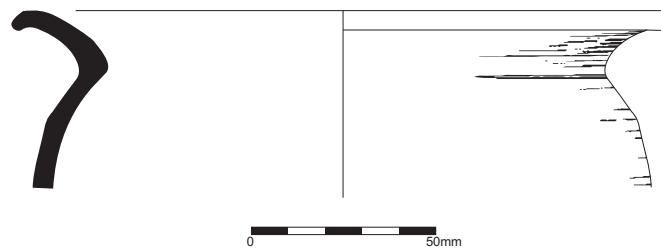


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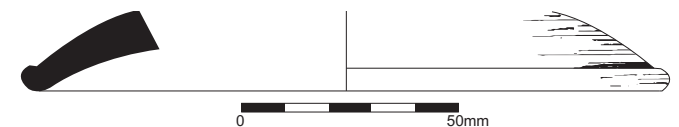


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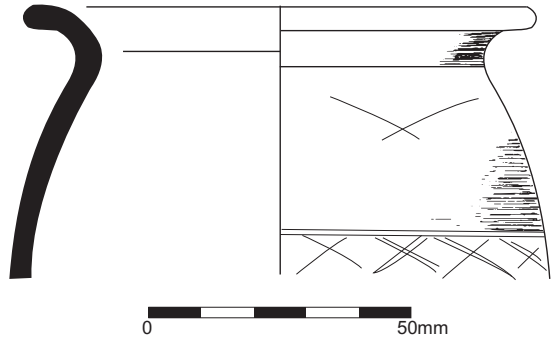


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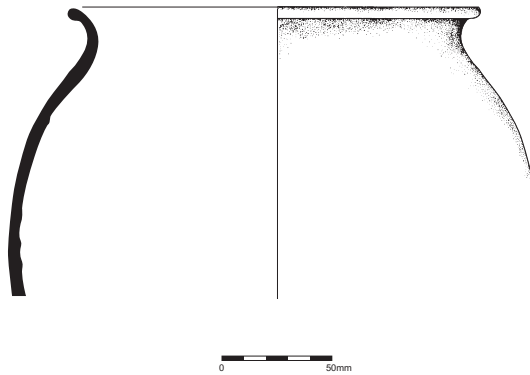


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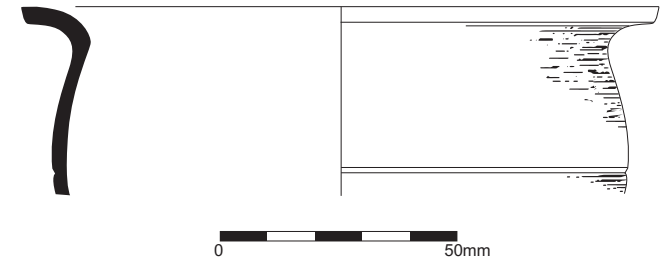


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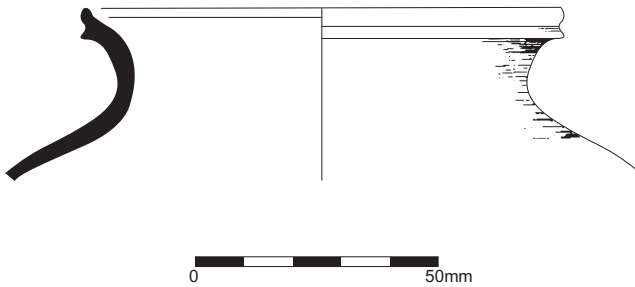


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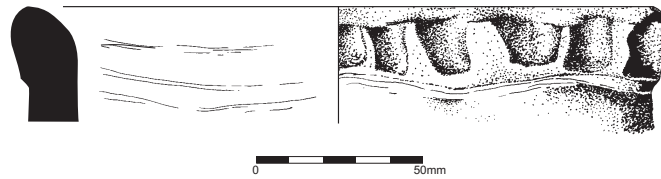


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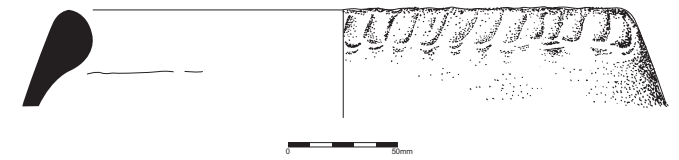


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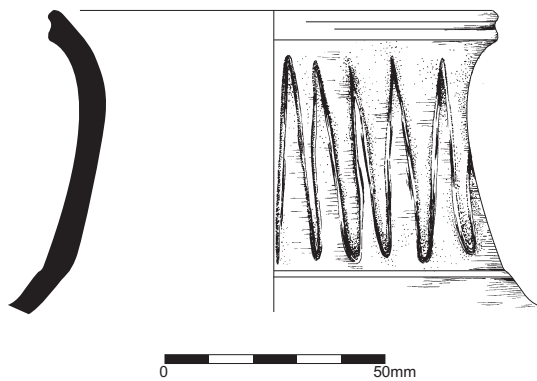


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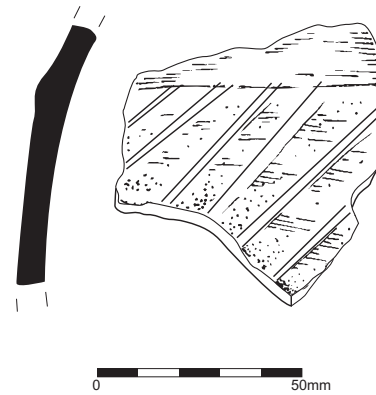


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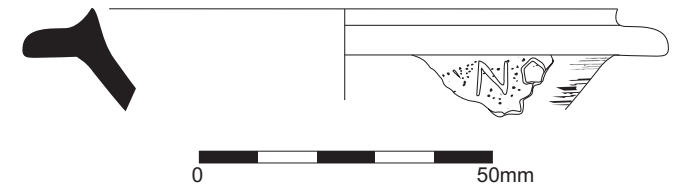


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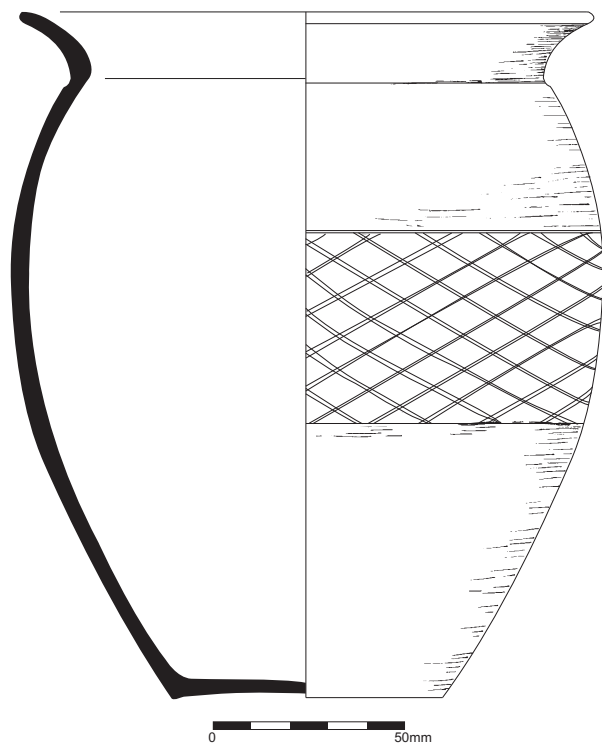


Fig 48: Catalogue of illustrated vessels' number 46

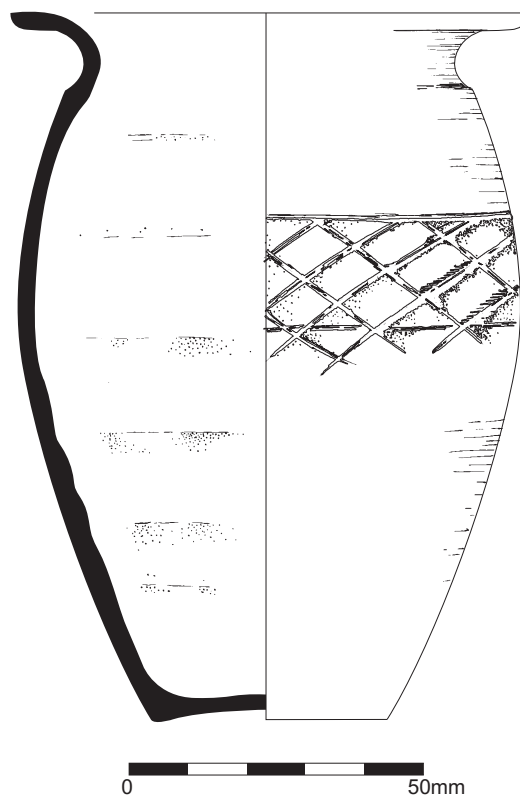


Fig 49: Catalogue of illustrated vessels' number 47

3.10 Ceramic Building Material

A total 105 fragments of ceramic building material was recovered weighing 7471 g. All the fragments appear to be of Roman date. Recognisable pieces amongst the larger fragments include 13 pieces of box-flue tile with combed surfaces and 40 fragments of roofing tile (imbrices and tegulae). Some of the fabrics resemble pottery fabric OX1 suggesting a potentially local source for this particular ware.

The presence of combed box-flue tiles from a hypocaust system would suggest the presence of a moderately well-furnished residence in the area with a bath-house and / or under floor heating.

3.11 Fired Clay

Forty-five small fragments of fired clay were recovered with the pottery weighing 364 g. Most of the pieces are small, amorphous fragments with no discernible purpose. One particular fragment from context (29) (Field 63) may be part of a heath base with some vitrification on one surface.



Fig 50: Catalogue of illustrated vessels' number 48

	Code	T & D 1998 ¹		No	No %	Wt	Wt %	Eve	Eve%
IMPORTS	LGF SA	T&D 1998, 28	South Gaulish samian	2	0.0	42	0.0	0	0.0
	LEZ SA	T&D 1998, 30	Central Gaulish samian	54	1.0	691	0.8	163	1.8
	EGSAM		East Gaulish samian (various)	14	0.3	181	0.2	5	0.1
	BAT AM	T&D 1998, 84	Baetican amphorae	2	0.0	39.5	0.0	0	0.0
REGIONAL	ALH RE	T&D 1998, 138	Alice Holt grey ware	2	0.0	108	0.1	0	0.0
	DOR BB1	T&D 1998, 127	Dorset black burnished ware	609	11.6	13599	15.5	1831	20.0
	LNV WH	T&D 1998, 119	Lower Nene Valley white ware	2	0.0	19	0.0	7	0.1
	MAH WHM	T&D 1998, 188	Mancetter white ware mortaria	1	0.0	157	0.2	15	0.2
	NFO RS2	T&D 1998, 141	New Forest colour-coat	12	0.2	101	0.1	19	0.2
	OXF RS	T&D 1998, 176	Oxon colour-coated ware	110	2.1	1488	1.7	228	2.5
	OXF RSM	T&D 1998, 176	Oxon red slipped mortaria	21	0.4	608	0.7	94	1.0
	OXF WH	T&D 1998, 174	Oxon whiteware	1	0.0	2	0.0	0	0.0
	OXF WHM	T&D 1998, 174	Oxon whiteware mortaria	6	0.1	157	0.2	24	0.3
	OXF WS	T&D 1998, 177	Oxon white-slipped ware	2	0.0	50	0.1	20	0.2
	OXF WS M	T&D 1998, 177	Oxon white slipped mortaria	2	0.0	109	0.1	15	0.2
	ROB SH	T&D 1998, 211	Late Roman shelly ware	7	0.1	27	0.0	5	0.1
	SOW BB1	T&D 1998, 129	South-west BB1	804	15.3	11369.5	13.0	1303	14.2
	SOW OX	T&D 1998, 192	Southwest oxidised ware	6	0.1	45	0.1	3	0.0
	SOW OXM	T&D 1998, 192	Southwest oxidised mortaria	1	0.0	110	0.1	16	0.2
	SVW OX	T&D 1998, 148	Severn Valley ware (oxidised)	172	3.3	2000.5	2.3	257	2.8
	SVW RE		Severn Valley ware (reduced)	5	0.1	50	0.1	22	0.2
	SVW EA		Severn Valley ware (early variant)	8	0.2	63	0.1	7	0.1
	SAV GT	T&D 1998, 191	Savernake ware	140	2.7	11768	13.4	183	2.0
	WIL BB		Wiltshire black burnished ware	205	3.9	2071	2.4	290	3.2
	WIL GR		grog-tempered storage jar ?Wiltshire	13	0.2	430	0.5	7	0.1
	GRMIC		coarse granitic-tempered	3	0.1	62	0.1	0	0.0
NATIVE	CALC		hm calcite-tempered	41	0.8	198	0.2	17	0.2
	LIME		hm limestone-tempered	93	1.8	395.5	0.5	32	0.3

	Code	T & D 1998 ¹		No	No %	Wt	Wt %	Eve	Eve%
LOCAL:sandy	BSGY		black surfaced grey ware	19	0.4	444	0.5	102	1.1
	BSOX		black surfaced oxidised sandy ware	5	0.1	24	0.0	0	0.0
	BUFF		misc buff wares	4	0.1	58	0.1	0	0.0
	BWF		fine black ware	6	0.1	37	0.0	0	0.0
	BWFMIC		fine black micaceous ware	224	4.3	2037	2.3	303	3.3
	BW		other black sandy wares	361	6.9	3862	4.4	312	3.4
	BW/ OXSYSJ		black or orange sandy storage jar	44	0.8	2023	2.3	0	0.0
	GY1		medium-fine grey sandy ware	1187	22.6	19477.5	22.2	2016	22.0
	GY2		finer grey sandy ware	233	4.4	2877	3.3	479	5.2
	GY3		grey with a red core	146	2.8	1996	2.3	292	3.2
	GY4		micaceous grey sandy ware	115	2.2	2107	2.4	103	1.1
	GY5		grey sandy with sparse grog, iron	16	0.3	391	0.4	65	0.7
	GY6		hard dense blue-grey sandy	39	0.7	474	0.5	60	0.7
	GY7		medium-fine grey sandy ware	57	1.1	705	0.8	154	1.7
	GREY		other grey sandy wares	66	1.3	711	0.8	65	0.7
	GYF		fine grey wares	14	0.3	268	0.3	27	0.3
	GYMIC		micaceous grey sandy ware	12	0.2	152	0.2	12	0.1
	GYFMIC		fine grey micaceous ware	169	3.2	1395.5	1.6	284	3.1
	MISC		miscellaneous	2	0.0	5.5	0.0	0	0.0
	OX1		fine pale orange with iron grains	94	1.8	719	0.8	89	1.0
	OX2		oxidised ill-sorted quartz sand	5	0.1	344	0.4	12	0.1
	OXID		other oxidised ware	25	0.5	343	0.4	23	0.3
	OXIDF		oxidised fine ware	12	0.2	77.5	0.1	38	0.4
	OXFMIC		fine oxidised micaceous	2	0.0	14	0.0	0	0.0
	OXMIC		oxidised sandy micaceous	2	0.0	37	0.0	0	0.0
	WHF		fine whiteware	3	0.1	24	0.0	0	0.0
Grog	WSOXID		white-slipped oxidised ware	2	0.0	33	0.0	130	1.4
	BWGR		black grog-tempered ware	7	0.1	102	0.1	3	0.0

	Code	T & D 1998 ¹		No	No %	Wt	Wt %	Eve	Eve%
	BWGRSA		black sandy ware with grog	4	0.1	172	0.2	0	0.0
	GYGR		grey grog-tempered	20	0.4	506	0.6	27	0.3
Calcareous	OXGR		oxidised grog-tempered ware	1	0.0	84	0.1	0	0.0
	BWLI		black wm limestone-tempered ware	4	0.1	28	0.0	0	0.0
	LISJ		limestone-tempered storage jar	1	0.0	26	0.0	0	0.0
Flint	SHELL		shelly ware	1	0.0	3	0.0	1	0.0
Sandstone	BWSAFL		sandy ware with flint	9	0.2	247	0.3	0	0.0
TOTAL	BWSST		black sandy with sandstone	1	0.0	34	0.0	7	0.1
				5250	100.0	87779	100.0	9167	100.0

(Footnotes)

1 Tomber, R, and Dore, J, 1998 *The National Roman fabric reference collection: a handbook*, Museum of London / English Heritage/ British Museum, Eve vessel equivalent

Table 2: Quantified summary of Roman pottery

Form		EVE		EVE %
JAR	beaded rim jar	76		
	simple everted rim	1569		
	neckless, sharply everted	109		
	flared, everted rim	2458		
	rolled or thickened rim everted	361		
	cordoned necked, everted	42		
	triangular rim	125		
	bifid rim	29		
	flat rim	3		
	hooked rim	15		
	large storage jar	148		
	not classified	608		
subtotal		5543	5543	60.1
BOWL	everted rim	206		
	Dragendorff 30 copy	27		
	sharply everted	15		
	flat rim	99		
	reeded rim	6		

Form		EVE		EVE %
	grooved-rim	92		
	flanged-rim	756		
	Young forms C51, C68,C75,C81	139		
	Young form WC3	20		
	Fulford form 77	12		
	Dragendorff 37	10		
	not classified	167		
subtotal		1549	1549	16.8
DISH	plain-walled 'dog-bowl'	861		
	beaded rim plain-walled	4		
	oval fish-dish	23		
	Young forms C45, C47, C48	61		
	Fulford form 59	7		
	Dragendorff 31	87		
	Dragendorff 36	10		
	Dragendorff 79	14		
	not classified	71		
subtotal		1138	1138	12.4
COLANDER		54		
subtotal		54	54	0.6
CUPS	Dragendorff 27	20		
	Dragendorff 33	27		
	other	37		
subtotal		84	84	0.9
BEAKER		101		
sub-total		101	101	1.1
TANKARD		182		
subtotal		182	182	2.0
FLAGON	ring-necked	20		
JUG		228		
FLASK		89		
subtotal		337	337	3.6
MORTARIA		156		
subtotal		156	156	1.7
LID		73		
subtotal		73	73	0.8
TOTAL			9217	100.0

Table 3: Forms (expressed as estimated vessel equivalents (EVE))

Ware	Banwell	Shapwick	Shepton Mallet	Crandon	Kenn Moor
Samian	1.3	1.3	3	4	1
amphora	p	1.8	5	5	0
Native	2.7	7.4	0	p	0.3
Savernake	2.7	p	1	1.3	0.2
Severn Valley ware	3.6	p	4	2	2
BB1	26.9	48.3	37	27	34.2
Oxon	2.6	1	2	5	2
New Forest	0.2	0.5	2	1	0.3
Late shell	0.1	0	0	0	0
grey reduced wares	46	20	42	26	55
other	13.9	19.7	4	28.7	5
TOTAL	100	100	100	100	100

Table 4: Comparison of main ware groups from Banwell with Shapwick, Shepton Mallet, Crandon Bridge and Kenn Moor.

	Code	T & D 1998		Date
IMPORTS	LGF SA	T&D 1998, 28	South Gaulish samian	C1 AD
	LEZ SA	T&D 1998, 30	Central Gaulish samian	C2 AD
	EGSAM		East Gaulish samian (various)	mid-late C2-e C3
	BAT AM	T&D 1998, 84	Baetican amphorae	C1-C3
REGIONAL	ALH RE	T&D 1998, 138	Alice Holt grey ware	C1-C4
	DOR BB1	T&D 1998, 127	Dorset black burnished ware	C2-C4
	LVN WH	T&D 1998, 119	Lower Nene Valley white ware	late C2-C4
	MAH WHM	T&D 1998, 188	Mancetter white ware mortaria	C2-C4
	NFO RS2	T&D 1998, 141	New Forest colour-coat	mid C3-C4
	OXF RS	T&D 1998, 176	Oxon colour-coated ware	mid C3-C4
	OXF RSM	T&D 1998, 176	Oxon red slipped mortaria	mid C3-C4
	OXF WH	T&D 1998, 174	Oxon whiteware	C2-C4
	OXF WHM	T&D 1998, 174	Oxon whiteware mortaria	C2-C4
	OXF WS	T&D 1998, 177	Oxon white-slipped ware	mid C3-C4

	Code	T & D 1998		Date
	OXF WS M	T&D 1998, 177	Oxon white slipped mortaria	mid C3-C4
	ROB SH	T&D 1998, 211	Late Roman shelly ware	late C4+
	SOW BB1	T&D 1998, 129	South-west BB1	C2-C3/4
	SOW OX	T&D 1998, 192	Southwest oxidised ware	mid-late C2-C3
	SOW OXM	T&D 1998, 192	Southwest oxidised mortaria	mid-late C2-C3
	SVW OX	T&D 1998, 148	Severn Valley ware (oxidised)	C1-C4
	SVW RE		Severn Valley ware (reduced)	C1-C4
	SVW EA		Severn Valley ware (early variant)	C1
	SAV GT	T&D 1998, 191	Savernake ware	C1-C2
	WIL BB		Wiltshire black burnished ware	C1-C2
	WIL GR		grog-tempered storage jar ?Wiltshire	C1-C2
	GRMIC		coarse granitic-tempered	?
NATIVE	CALC		hm calcite-tempered	C1
	LIME		hm limestone-tempered	C1
LOCAL:sandy	BSGY		black surfaced grey ware	Roman
	BSOX		black surfaced oxidised sandy ware	Roman
	BUFF		misc buff wares	Roman
	BWF		fine black ware	Roman
	BWFMIC		fine black micaceous ware	Roman
	BW		other black sandy wares	Roman
	BW/ OXSYSJ		black or orange sandy storage jar	Roman
	GY1		medium-fine grey sandy ware	probably later Roman
	GY2		finer grey sandy ware	probably later Roman
	GY3		grey with a red core	probably later Roman
	GY4		micaceous grey sandy ware	probably later Roman

	Code	T & D 1998	Date
	GY5	grey sandy with sparse grog, iron	probably later Roman
	GY6	hard dense blue-grey sandy	probably later Roman
	GY7	medium-fine grey sandy ware	probably later Roman
	GREY	other grey sandy wares	Roman
	GYF	fine grey wares	Roman
	GYMIC	micaceous grey sandy ware	Roman
	GYFMIC	fine grey micaceous ware	Roman
	MISC	miscellaneous	Roman
	OX1	fine pale orange with iron grains	Roman
	OX2	oxidised ill-sorted quartz sand	Roman
	OXID	other oxidised ware	Roman
	OXIDF	oxidised fine ware	Roman
	OXFMIC	fine oxidised micaceous	Roman
	OXMIC	oxidised sandy micaceous	Roman
	WHF	fine whiteware	Roman
	WSOXID	white-slipped oxidised ware	Roman
Grog	BWGR	black grog-tempered ware	C1+
	BWGRSA	black sandy ware with grog	C1
	GYGR	grey grog-tempered	C1+
	OXGR	oxidised grog-tempered ware	C1
Calcareous	BWLI	black wm limestone-tempered ware	C1
	LISJ	limestone-tempered storage jar	C1
	SHELL	shelly ware	C1
Flint	BWSAFL	sandy ware with flint	C1
Sandstone	BWSST	black sandy with sandstone	C1

Table 5: Fabric types

Appendix 4: Prehistoric Pottery and Other Ceramic Material

by Jane Timby, November 2012

4.1 Introduction

The archaeological work resulted in the recovery of 43 sherds of handmade later prehistoric pottery weighing 713 g accompanied by 180 fragments of fired clay representing industrial waste from metal-working.

The ceramic material was recovered from five defined contexts. The sherds were in moderately good condition with an overall average sherd size of 16.6 g.

For the purposes of this assessment the assemblage was sorted into fabrics following the Prehistoric Ceramics Research Group (PCRG (1997)) guidelines and scanned to assess its likely date. The sherds were quantified by sherd count and weight. The resulting information is summarized in Table 6. The industrial waste was simply counted and weighed.

In the following report the assemblage is briefly described followed by a comment of the potential and further work required.

4.2 Pottery

The pottery appears to belong to one phase of later prehistoric date. The group comprises five rimsherds, one basesherd and 37 bodysherds.

The group can provisionally be divided into five main fabric groups: calcite (CA) tempered; fossil shell-tempered (SH); sandstone-tempered (SST); quartzite-tempered (QTZ) and sandy/ other (SA). Overall the assemblage was dominated by sherds containing calcite (46.5%) and fossil shell (32.5%). This is quite a diverse range of fabrics suggesting the exploitation of different geological outcrops including Carboniferous (calcite / limestone), possibly Old Red sandstone (Devonian) and perhaps Jurassic all of which are moderately local to the site.

The featured sherds include two sharply everted, slightly flaring rims from bowls or jars (065, 066); two slack-sided jars with undifferentiated rims with a flat, internally bevelled lip (086) and one jar (072) with a finger-tipped rim. One bodysherd may show the edge of impressed decoration on the break which is probably a carination (066).

Most of the sherds appear to have no finish although at least one piece appears to have been burnished. None are obviously decorated other than the finger-tipped rim.

Most of the pottery came from context (066), the base river silts in Field 63, with 29 sherds, 67% of the assemblage.

This is a small plain-ware assemblage typical of the later Bronze Age or LBA-EIA transitional period. The associated material could suggest LBA metal-working so the identification of this may be a more reliable date for the pottery (see Appendix 13). Comparison of the assemblage with the large assemblage of early-middle Iron Age assemblage from the nearby site at Christon (Morris 1988) suggests some overlap in fabrics but also some differences. Here calcite fabrics dominated indicating a local source of material. Similarly, calcite-tempered fabrics dominate in the Bronze Age assemblage from Brean Down (Woodward 1990). Typological matches for all the Banwell vessels can be found in this latter assemblage.

4.3 Industrial waste

The pottery is accompanied by 180 much degraded fragments of industrial waste weighing 1901 g.

The material includes small fragments of slag, at least one piece of crucible rim, several mould fragments, possible pieces of sprue-cup and small amorphous pieces of fired clay in a fine sandy ware.

Close examination of the mould fragments suggests the manufacture, amongst other things of small items such as round-headed pins, rings and perhaps bracelets. This type of industry is very typical of the late Bronze Age. The presence of the metal-working waste makes this a very important assemblage (see Appendix 13).

The pottery assemblage is very modest but is worth publishing in full alongside the clay mould material. All five rims would warrant illustration.

Context	SF	POTTERY					SA	Tot No	Wt	Industrial	
		CA	SH	SST	QTZ	No				Wt	
065 Base silts		2	3	0	1	1	7	103	56	175	
066 base silts	15	7	5	4	2	0	18	197	66	243	
066	15	4	5	1	0	0	10	207	12	80	
066	19	0	0	0	0	0	0	0	46	403	
066	38	1	0	0	0	0	1	60	0	0	
072 Base silts	67	0	1	0	0	0	1	28	0	0	
072	63	1	0	0	0	0	1	16	0	0	
086 Base clays	77	3	0	0	0	0	3	84	0	0	
088 Base clays	87	2	0	0	0	0	2	18	0	0	
TOTAL		20	14	5	3	1	43	713	180	901	

calcite (CA) tempered; fossil shell-tempered (SH); sandstone-tempered (SST); quartzite-tempered (QTZ) and sandy/other (SA).

Table 6: Prehistoric pottery

Appendix 5: Palaeoenvironmental

Archaeological Services Durham University.
Dr Carrie Drew

5.1 Introduction

This report presents the results of palaeoenvironmental assessment of 101 bulk samples, taken during archaeological works associated with the laying of a water main between Banwell and Hutton, North Somerset. They were taken from a range of archaeological features including ditches, pits and occupation layers. Multiple samples were assessed from three Roman inhumation burials recovered from Trench 8. Trenches 8 and 9 date almost entirely from the Iron Age and Roman periods whereas Field 63 contains activity ranging from prehistoric to post-medieval periods.

5.2 Summary

Bulk soil samples dating predominantly from prehistoric, Iron Age and Roman periods were examined. These contained assemblages of waterlogged seeds and freshwater snails characteristic of the wetland and open water conditions of the Somerset Moors. Charred remains were generally limited, comprising of assemblages of charred cereal grains, weed seeds and charcoal. The cereals were predominantly wheat, with some identified as spelt wheat, and hulled barley.

5.3 Methods

The bulk samples were manually floated and sieved through a 500 μ m mesh. The residues were examined for shells, fruitstones, nutshells, charcoal, small bones, flint, glass, pottery sherds and industrial residues, and were scanned using a magnet for ferrous fragments. The flots were examined at up to x 60 magnification for charred and waterlogged botanical remains using a Leica MZ6 stereomicroscope. Subsampling was undertaken prior to examination where necessary for particularly rich flots. Identification of botanical remains was undertaken by comparison with modern reference material held in the Environmental Laboratory at Archaeological Services Durham University. Plant nomenclature follows Stace (1997). Habitat classifications follow Preston *et al.* (2002). Snail identifications were assisted by the descriptions of Macan (1977).

Selected charcoal fragments were identified, in order to provide material suitable for radiocarbon dating. The transverse, radial and tangential sections were examined at up to x 600 magnification using a Leica DMLM microscope. Identifications were assisted by the descriptions of Schweingruber (1990) and Hather (2000) and modern reference material held in the Environmental Laboratory at Archaeological Services Durham University.

5.4 Results

The assessment is discussed in three broadly defined divisions based on location of the features. These groups comprise features excavated from Trench 8, Trench 9 and Field 63. Within these locations features associated with differing phases of site use have been grouped, ranging from prehistoric to post-Roman. The results of the assessment are presented in Tables 7 to 9. Material suitable for radiocarbon dating is available for many of the samples and is listed in the Tables.

Many of the fills contain evidence of domestic and/or small scale industrial waste, with fragments of animal bone and teeth, fish bone, pottery, charred plant macrofossils and metal remains all recorded. All of the trenches produced some evidence of burning, with the flots and residues including varying amounts of charcoal and/or charred plant remains. Fragments of marine shell were noted in a small number of the later contexts, with a number of these fragments identified as oyster and mussel.

5.5 Trenches 8 and 9

From the samples associated with the skeletons in Trench 8, varying quantities of bone were recovered with the majority probably relating to the skeletons themselves. Much of this bone is uncharred, although limited amounts of calcined or burnt bone were also recovered from some of the fills. A number of pot fragments were recovered, with a greater number in contexts associated with SK1. SK3 was associated with a wooden structure (a possible coffin/bier), and this is reflected in the number of wood fragments recovered from the associated samples. While the wood fragments recovered from the samples were too small to identify to species, larger fragments of the structure previously examined were identified as cf. oak. Only small fragments of charcoal were present in the contexts from SK1 and SK2, and include cf. ash in both.

Low quantities of charred plant remains were recovered from the samples associated with the three skeletons. These were dominated by cultivated crop remains, predominantly wheat, with a small range of weed seeds reflecting wet/damp ground environs and plants of wide habitat niches such as docks, vetches, members of the pea family and grasses. A small number of arable, ruderal and tree/shrub species were also represented.

The other samples from Trench 8 and those from Trench 9 are relatively similar in composition. A number contain small amounts of fired clay/CBM and bone, with burnt or calcined bone generally less prevalent than unburnt bone. Several contexts from Trench 9 also contain small amounts of glass, and/or metal-based remains. Fragments of mortar/cement were recovered from upper gully fill (925) a rubble spread overlying the natural. Small amounts of charcoal are present in a number of the features from both trenches, although quantities are generally limited, even in features identified as potentially charcoal-rich. For example, context (918), a deposit potentially deriving from the burning of a building, contained only limited quantities of charcoal, including fragments of hazel and alder.

5.5.1 From the Trench 8 contexts not associated with the skeletons a number of charred plant macrofossils were also recovered, although no charred material was recovered from either natural estuarine clay layer (854) or linear feature (823). Generally these assemblages were small, and dominated by cereal grains, with wheat predominating and smaller quantities of barley also present. Diagnostic spelt wheat glume bases and spikelet forks, as well as hulled barley grains, were occasionally noted. A single flax seed was identified in context (850), the fill of [849] a 1st /2nd century ditch. Pea fruits were identified in contexts (843) 1st /2nd C ditch, (875) and (877) 2nd C features, and a number of large-seeded members of the pea family were also noted in 2nd C context (850). The small collection of charred weed seeds present were predominantly from damp/wet ground taxa, or those which could exist in a wide range of habitats, such as vetches, docks and grasses. Charred hazel nutshell fragments were occasionally present.

5.5.2 While generally quantities of charred plant remains are low, several features in Trench 8 contain greater concentrations. These included 1st /2nd features interpreted by the excavator as having a possible industrial use (contexts 860, 863 and 865), which were dominated by charred cereal or grass remains. A number of the charred Fabaceae remains in these features were large-seeded, and seven in feature [866] are potentially the charred remains of cultivated peas (cf. *Pisum sativum*). Context (857), the fill of a charcoal-rich feature within an irrigation ditch, also contained a large amount of charred plant remains. These were again predominantly wheat grains and spelt wheat chaff. A number of twisted awn fragments were also present and a bean fragment was also identified.

The 3rd C secondary ditch fill (8113) also contained a notable quantity of charred plant macrofossils. It is possible that this feature represents the dumping of domestic waste into a feature with a relatively sterile primary fill. Ditch fill (8116), by contrast to the many cereal-dominant contexts, contained a large number of grass caryopses and vetch seeds, with a much smaller quantity of charred cereal remains.

Charred plant remains were present in all of the samples from Trench 9, although for many of the contexts these are confined to small assemblages, with charred wheat or indeterminate cereal grains dominating, and the occasional presence of barley grains and spelt wheat glume bases. In a number of these (including the 3rd contexts 980, 915 and 918 from the 'destruction layer') the charred grains were noted as being in poor condition. Only small numbers of charcoal fragments were present in the samples, with species including oak, hazel, alder and ash represented. Fragments of hazelnut were noted in several of the contexts. The remainder of the assemblages include charred grasses and weed seeds of wide niches such as goosefoots, docks and vetches.

Charred examples of wet ground taxa such as spike-rushes and lesser spearwort are also present, and may reflect the use of the local wetland resources. A number of pea family fruits were also noted, particularly within context 3rd C (924). Two fragments of bean were also recovered from 4th C discrete deposit (954).

Only a small number of waterlogged plant remains were recovered from the Trench 8 contexts associated with the skeletons. These include seeds reflecting wet/damp ground conditions, such as sedges, spike-rushes and lesser spearwort, as well as seeds of wider niches such as goosefoots, grasses and buttercups. The other Trench 8 and 9/10 contexts contain a similar range of waterlogged seeds, with many containing a range of ruderal and wet/damp ground taxa and with some limited evidence of arable taxa. Few obligate aquatic seeds were recovered, with only a few crowfoots identified. Tree/shrub taxa include cherries, elder and bramble, which may have been growing in the local vicinity.

5.6 Field 63

From Field 63 small amounts of bone were recovered, predominantly consisting of small fragments of indeterminate unburnt bone or fish bone. While a number of contexts were highlighted as associated with metal-working debris (LBA/EIA contexts 065 and 066 in particular) this was not clearly reflected in the residue contents, although these contexts often contained more notable amounts of charcoal than many of the other samples. Evidence for the early use of coal was also not encountered in the residues.

Snail shells were prevalent in Field 63, especially from prehistoric and Roman ditch contexts. These comprised predominantly of freshwater species, and included members of the *Bithynia*, *Anisus* and *Bathyomphalus* genera, amongst others. Wood and uncharred vegetative material were also present in a number of the ditch features and small amounts of vivianite were noted in two of the contexts from ditch feature [035]. Vivianite is a bluish mineral associated with the decay of organic material within sealed anaerobic conditions, and is frequently associated with cess (McGowand and Prangnell 2006). From the later features, a single fragment of clay pipe was recovered from context (020). Fragments of glass were found in a number of the later features and metal objects were also present. Coal/coal shale and clinker/cinder was also noted in a number of the samples dating to the medieval and post-medieval periods.

In comparison to Trenches 8 and 9, the samples from Field 63 contain much lower numbers of charred remains. In general, very few charred plant remains were recovered from the prehistoric and Roman contexts. From the post-Roman contexts a limited range of charred remains are present, dominated by cereal remains with grass caryopses in contexts (024) and (075) the only charred weed seeds present. Many of the contexts contain small quantities of charcoal although charcoal spread the medieval/post medieval charcoal (032) has not only a more notable quantity of charcoal, which comprises mostly small roundwood and includes oak, ash and hazel, but also has a greater presence of charred plant macrofossils. The grain in (032) is dominated by barley grains, with a number identifiable as hulled barley. This differs from the earlier features where wheat dominated over barley.

The waterlogged seed assemblages from Field 63 offer evidence for the presence of standing water, particularly for the ditch contexts, with abundant waterlogged seeds reflecting wet/damp ground conditions and many of the contexts containing a variety of obligate aquatic species. Cladocera ehippia (the resting eggs of water fleas) were also noted in ditch feature [039], corroborating the presence of standing water. The non-ditch Roman contexts also reflect wet/damp ground conditions, although generally they contained fewer aquatic plants. Pit fill (094) contained no waterlogged remains. Tree/shrub taxa were also present, including bramble, elder, sloe and hawthorn fruitstones and hazel nutshell fragments in a number of the contexts. A sloe fruitstone in (028) showed evidence of having been gnawed by a small mammal. By contrast, the post-Roman contexts in Field 63 generally contain far fewer waterlogged seeds, providing little evidence of standing water during these later periods.

5.7 Discussion

Many of the samples (particularly from Trenches 8 and 9) appear to reflect the use of features for the disposal of domestic waste, with small quantities of charred material present in many, alongside indicators of domestic waste such as pottery fragments, bone and small quantities of other finds.

Charcoal was occasionally recorded in the samples and provided evidence of a range of species likely to represent the local environment. Much of this charcoal was noted as being small roundwood, typical of domestic hearth waste, and the presence of cereal chaff in some of the samples may suggest crop waste also formed some of the fuel requirements.

A range of waterlogged seeds are preserved in many of the contexts, with Field 63 in particular providing conditions of anoxic waterlogged preservation, allowing waterlogged plant remains to be both well-preserved and abundant. While patterns change subtly over the period of occupation of the site the suite of taxa present remains similar across the site, with the predominance of waterlogged wetland indicators reflecting that the nature of the local environment remained generally damp/marsh-like over a long period. Variation in character between different areas of the site is apparent, with Field 63 providing evidence for the presence of areas of standing water, whereas for Trenches 8 and 9 the areas seem more damp/marsh-like. The presence of standing water, predominantly identified in Field 63, may have decreased over time, possibly as a result of drainage activity or natural palaeoenvironmental changes.

While the charred plant macrofossil assemblages were generally small in size, particularly in Field 63, a similar range of cultivated crops, wild food sources and weeds were represented across the site. The charred remains of wheat, barley, pea/bean and fragments of marine shell provide evidence of a diverse diet. Many of the charred plant remains comprise charred cereal remains, predominantly wheat grains and chaff, with a much smaller quantity of barley grains also present. Contexts provisionally dated as Iron Age and/or Roman in origin indicate spelt wheat and hulled barley were the crops used at the site during these periods, which are typical for these periods in England (Greig 1991; Hall and Huntley 2007). A rachis fragment with the appearance of rivet wheat (cf. *turgidum*) was recovered from Iron Age industrial context (860), and possible bread wheat rachis fragments were also noted in Iron Age contexts (863) and (865) potentially suggesting that other varieties of cereal were also utilised, in much lower quantities. However, the use of rivet and bread wheat during these periods is unusual and mixing of material from medieval or post-medieval contexts could have occurred. A single rachis fragment in LIA/ERB context (857) was identified as 6-row barley. A spelt wheat glume base was also noted in EBA context (082), however this could be reworked material associated with the later activity at the site. The smaller quantities of barley grains indicate that barley was generally a secondary crop. The single occurrence of oats in LIA/RB ditch fill (875) is probably from the wild species. In post-Roman context (032) however the cereal assemblage is dominated by hulled barley grains. This differs from the majority of the features where wheat dominates over barley, and may suggest either a change in crop husbandry over the period of use of the site or a different nature to this specific feature. The presence of moderate quantities of spelt chaff together with cereal grains suggests crop processing was undertaken at or near to the site.

Across the site the charred weed seed assemblages are small, and include a similar range of ruderal and wet ground indicators. Some of the charred weed seeds may derive from the local environs, and others may have been brought onto the site with the crops, or as weeds of hay/fodder. Peas, beans and charred hazel nutshells in several of the samples demonstrate that other cultivated crops and wild gathered foods were also used to supplement the diet, with hazelnuts offering a highly nutritious and easily gathered food source (McComb and Simpson 1999).

Sample Context	70 850	81 872	82 873	84 875	91 843	94 877	97 887	101 892
Feature	[849]	[870]	[870]	[870]	[851]	[849]	[870]	[893]
Material available for radiocarbon dating	✓	-	✓	✓	✓	✓	-	
Volume processed (l)	12	7	7	5.6	21	7	0.5	9
Volume of flot (ml)	470	550	700	100	80	130	30	55
Volume of flot assessed (ml)	100	100	100	100	80	130	30	55
Residue contents								
Bone (burnt)	+	-	-	-	-	-	-	-
Bone (calcined)	-	+	-	(+)	++	-	-	-
Bone (unburnt)	-	++	++	(+)	+	++	-	+
Charcoal	-	-	-	(+)	(+)	-	-	-
Fired clay / CBM	(+)	-	-	+	++	-	-	-

Sample Context Feature		70 850 [849]	81 872 [870]	82 873 [870]	84 875 [870]	91 843 [851]	94 877 [849]	97 887 [870]	101 892 [893]
Pot (number of fragments)		3	1	4	2	8	5	-	5
Tooth (total number)		-	-	-	-	1	3	-	-
<i>Flot matrix</i>									
Bud (charred)		-	-	-	-	-	-	(+)	-
Bud (uncharred)		-	-	-	-	-	-	(+)	-
Bud scar (uncharred)		-	(+)	-	-	-	-	-	(+)
Bone (fish)		-	-	-	(+)	-	-	-	-
Bone (unburnt)		-	(+)	-	-	-	-	-	-
Charcoal		+++	-	-	++	++	+	-	(+)
Cladocera (ephippia)		-	-	-	-	-	-	(+)	-
Clinker / cinder		+	-	-	+	-	-	-	-
Insect / beetle		+	++	-	-	(+)	+	++	(+)
Roots (modern)		-	-	-	-	+	+	-	-
Uncharred vegetative material		-	(+)	+	-	-	+++	-	++
Wood		-	+	++	-	-	+	++	-
<i>Charred remains (total count)</i>									
(a) <i>Bromus</i> sp (Bromes)	caryopsis	8	1	4	2	-	1	-	-
(a) <i>Raphanus raphanistrum</i> (Wild Radish)	pod	-	-	-	2	-	-	-	-
(a) <i>Tripleurospermum inodorum</i> (Scentless Mayweed)	achene	-	-	-	-	-	-	1	-
(c) <i>Avena</i> sp (Oat species)	grain	-	-	-	1	-	-	-	-
(c) <i>Cerealia</i> indeterminate	grain	-	-	-	3	26	-	-	4
(c) <i>Cerealia</i> indeterminate	twisted awn frag.	-	-	-	2	4	-	2	-
(c) <i>Hordeum</i> sp (Barley species)	grain	3	-	-	3	2	-	-	-
(c) <i>Hordeum</i> sp (Barley species)	hulled grain	-	-	-	1	-	-	-	-
(c) <i>Hordeum</i> sp (Barley species)	rachis frag.	-	-	-	3	-	-	-	-
(c) <i>Linum usitatissimum</i> (Flax)	seed	1	-	-	-	-	-	-	-
(c) <i>Pisum sativum</i> (Pea)	fruit	-	-	-	1	1	5	-	-

Sample		70	81	82	84	91	94	97	101
Context		850	872	873	875	843	877	887	892
Feature		[849]	[870]	[870]	[870]	[851]	[849]	[870]	[893]
(c) <i>Triticum</i> cf. <i>aestivum</i> (cf. Bread Wheat)	grain	-	-	-	1	-	-	-	-
(c) <i>Triticum spelta</i> (Spelt Wheat)	glume base	42	52	47	-	51	41	18	8
(c) <i>Triticum spelta</i> (Spelt Wheat)	grain	-	-	-	3	-	-	-	3
(c) <i>Triticum spelta</i> (Spelt Wheat)	spikelet fork	-	-	-	-	26	3	2	-
(c) <i>Triticum</i> sp (Wheat species)	glume base	-	-	-	-	-	-	10	-
(c) <i>Triticum</i> sp (Wheat species)	grain	33	1	8	4	42	11	-	-
(c) <i>Triticum</i> sp (Wheat species)	rachis frag.	2	-	2	5	-	-	-	-
(r) <i>Galeopsis</i> sp (Hemp-nettles)	nutlet	-	-	-	-	-	3	-	-
(r) <i>Galium</i> sp (Bedstraws)	seed	-	-	-	-	-	2	-	-
(r) <i>Persicaria maculosa</i> (Redshank)	nutlet	-	-	-	-	-	2	-	-
(r) <i>Plantago lanceolata</i> (Ribwort Plantain)	seed	-	-	1	-	-	-	-	2
(r) <i>Stellaria media</i> (Common Chickweed)	seed	-	-	-	-	-	3	-	-
(w) <i>Carex</i> sp (Sedges)	trigonus nutlet	1	-	-	2	-	-	1	-
(w) Cyperaceae undiff. (Sedge family)	nutlet	-	-	-	-	4	-	-	-
(w) <i>Eleocharis</i> sp (Spike-rushes)	nutlet	2	2	-	2	4	10	10	4
(w) <i>Ranunculus flammula</i> (Lesser Spearwort)	achene	-	-	-	-	1	-	1	1
(x) Apiaceae undiff. (Carrot family)	fruit	1	-	-	-	-	-	-	-
(x) Asteraceae undiff. (Daisy family)	achene	-	-	-	-	-	-	-	2
(x) Brassicaceae undiff. (Cabbage family)	seed	-	-	-	-	2	1	-	-
(x) <i>Chenopodium</i> sp (Goosefoot)	seed	-	-	-	2	-	-	-	-

Sample		70	81	82	84	91	94	97	101
Context		850	872	873	875	843	877	887	892
Feature		[849]	[870]	[870]	[870]	[851]	[849]	[870]	[893]
(x) Fabaceae undiff. (Pea family)	seed	-	3	1	-	3	6	-	4
(x) Large-seeded Fabaceae undiff. (Pea family)	seed	9	-	-	-	-	-	-	-
(x) Poaceae undiff. <1mm (Grass family)	caryopsis	-	15	-	-	17	1	1	3
(x) Poaceae undiff. >1mm (Grass family)	caryopsis	31	-	6	2	4	12	3	4
(x) <i>Rumex</i> sp (Docks)	nutlet	2	1	-	-	5	3	1	1
(x) <i>Vicia</i> sp (Vetches)	seed	13	-	2	3	34	6	7	1

[a-arable; c-cultivated; r-ruderal; w-wet/damp ground; x-wide niche. (+): trace; +: rare; ++: occasional; +++: common; ++++: abundant]

Table 7: Trench 8 ditch contexts from Roman or earlier: residue, flot contents and charred plant remains

Sample		70	81	82	84	91	94	97	101
Context		850	872	873	875	843	877	887	892
Feature		[849]	[870]	[870]	[870]	[851]	[849]	[870]	[893]
<i>Waterlogged remains (abundance)</i>									
(a) <i>Aethusa cynapium</i> (Fool's Parsley)	fruit	-	2	1	-	-	-	2	3
(a) <i>Chenopodium album</i> (Fat-hen)	seed	-	-	-	-	-	-	1	-
(a) <i>Fumaria</i> sp (Fumitories)	Seed	1	-	1	-	-	-	-	-
(a) <i>Raphanus raphanistrum</i> (Wild Radish)	pod	-	-	1	-	-	-	-	-
(a) <i>Thlaspi arvense</i> (Field Penny-cress)	seed	-	1	-	-	-	-	-	-
(a) <i>Urtica urens</i> (Small Nettle)	achene	1	-	-	1	-	-	-	-
(q) <i>Baldellia ranunculoides</i> (Lesser Water-plantain)	fruit	-	-	1	-	-	-	-	-

Sample		70	81	82	84	91	94	97	101
Context		850	872	873	875	843	877	887	892
Feature		[849]	[870]	[870]	[870]	[851]	[849]	[870]	[893]
(q) <i>Lemna</i> sp (Duckweeds)	fruit	-	-	-	-	1	2	-	-
(q) <i>Ranunculus</i> subgenus <i>Batrachium</i> (Crowfoots)	achene	1	-	-	-	-	-	1	2
(q) <i>Zannichellia palustris</i> (Horned Pondweed)	fruit	-	-	-	-	-	1	-	-
(r) <i>Coronopus squamatus</i> (Swine-cress)	fruit	-	1	1	-	-	-	-	-
(r) <i>Galeopsis</i> sp (Hemp-nettles)	nutlet	-	-	-	1	-	1	-	-
(r) <i>Hyoscyamus niger</i> (Henbane)	seed	1	-	-	-	-	-	-	-
(r) <i>Persicaria maculosa</i> (Redshank)	nutlet	-	2	1	-	-	1	-	-
(r) Polygonaceae undiff. (Knotweed family)	nutlet	-	-	-	-	-	-	2	-
(r) <i>Polygonum aviculare</i> (Knotgrass)	nutlet	-	1	-	-	-	-	1	-
(r) <i>Sonchus asper</i> (Prickly Sow-thistle)	achene	-	2	1	-	-	1	2	-
(r) <i>Stellaria media</i> (Common Chickweed)	seed	-	3	2	-	-	3	4	-
(r) <i>Urtica dioica</i> (Common Nettle)	achene	5	-	2	2	-	3	3	-
(t) <i>Corylus avellana</i> (Hazelnut)	nutshell fragment	-	-	1	-	-	-	-	-
(t) <i>Prunus</i> sp (Cherries)	fruitstone	-	2	-	-	-	1	-	-
(t) <i>Prunus</i> cf. <i>spinosa</i> (Sloe)	fruitstone	-	-	-	-	-	-	2	-

Sample		70	81	82	84	91	94	97	101
Context		850	872	873	875	843	877	887	892
Feature		[849]	[870]	[870]	[870]	[851]	[849]	[870]	[893]
(t) <i>Rubus fruticosus</i> agg. (Bramble)	fruitstone	5	-	3	1	1	5	3	3
(t) <i>Sambucus nigra</i> (Elder)	fruitstone	3	3	1	-	1	-	2	4
(w) Alismataceae cf. <i>Alisma plantago-aquatica</i> (cf. Waterplantain)	embryo	-	-	-	-	-	-	1	-
(w) <i>Carex</i> sp (Sedges)	biconvex nutlet	-	1	-	-	-	-	-	-
(w) <i>Carex</i> sp (Sedges)	trigonus nutlet	-	2	1	1	1	3	-	-
(w) <i>Conium maculatum</i> (Hemlock)	fruit	-	1	-	-	-	1	-	2
(w) Cyperaceae undiff. (Sedge family)	nutlet	-	-	-	-	-	-	1	-
(w) <i>Eleocharis</i> sp (Spike-rushes)	nutlet	2	2	2	-	-	2	3	-
(w) <i>Hydrocotyle vulgaris</i> (Marsh Pennywort)	fruit	1	-	-	1	-	-	1	-
(w) <i>Montia fontana</i> (Blinks)	seed	-	-	2	-	-	-	-	-
(w) <i>Ranunculus flammula</i> (Lesser Spearwort)	achene	-	1	1	-	-	2	-	1
(w) <i>Schoenoplectus lacustris</i> (Common Club-rush)	nutlet	-	1	-	-	-	-	-	-
(w) <i>Solanum dulcamara</i> (Bittersweet)	seed	1	1	1	-	-	-	1	1
(x) Apiaceae undiff. (Carrot family)	fruit	-	2	1	-	-	3	2	2

Sample		70	81	82	84	91	94	97	101
Context		850	872	873	875	843	877	887	892
Feature		[849]	[870]	[870]	[870]	[851]	[849]	[870]	[893]
(x) Asteraceae undiff. (Daisy family)	achene	-	-	2	-	-	2	1	-
(x) <i>Chenopodium</i> sp (Goosefoots)	seed	2	2	2	-	1	4	3	1
(x) <i>Cirsium / Carduus</i> sp (Thistles)	achene	-	1	-	-	-	2	1	-
(x) Lamiaceae undiff. (Dead-nettle family)	nutlet	-	-	-	-	-	-	-	2
(x) <i>Mentha</i> sp (Mints)	nutlet	2	-	-	-	-	-	-	-
(x) Poaceae undiff. <1mm (Grass family)	caryopsis	-	-	-	-	1	-	-	-
(x) <i>Potentilla anserina</i> (Silverweed)	achene	1	-	-	-	-	-	-	-
(x) <i>Ranunculus</i> subgenus <i>Ranunculus</i> (Buttercup)	achene	1	1	-	2	1	-	-	2
(x) <i>Rumex</i> sp (Docks)	nutlet	2	2	-	-	-	1	-	-
(x) <i>Rumex</i> sp (Docks)	nutlet in tepals	-	-	1	-	-	-	1	-
(x) <i>Stachys</i> sp (Woundworts)	nutlet	-	2	-	-	-	-	1	-
(x) <i>Trifolium</i> sp (Clovers)	seed	-	-	-	1	1	-	-	1

[a-arable; q-aquatic; r-ruderal; t-tree/shrub; w-wet/damp ground; x-wide niche.

Waterlogged remains are scored from 1-5 where 1: 1-2; 2: 3-10; 3: 11-40; 4: 41-200; 5: >200]

Table 8: Trench 8 ditch contexts from Roman or earlier: waterlogged plant remains

Sample		49	25	28	31	73	74	75	86
Context		854	823	825	827	860	862	863	865
Feature			[824]	[826]		[861]	[861]	[861]	[866]
<i>Material available for radiocarbon dating</i>		-	-	-	(✓)	✓	✓	✓	(✓)
<i>Volume processed (l)</i>		3	7	3	7.5	26	16	21	6.5
<i>Volume of flot (ml)</i>		5	20	20	25	155	20	300	80
<i>Volume of flot assessed (ml)</i>		5	20	20	25	50	20	75	80
<i>Residue contents</i>									
Bone (burnt)		-	(+)	(+)	-	+	+	-	-
Bone (calcined)		-	-	(+)	(+)	+	-	+	(+)
Bone (unburnt)		-	++	++	++	++	(+)	++	+
Charcoal		-	-	-	-	(+)	-	-	-
Clinker / cinder		-	-	-	-	+	-	+	(+)
Daub		-	+	+++	-	-	-	-	-
Fired clay / CBM		-	-	-	-	(+)	+	(+)	+
Heat affected geology		-	-	-	(+)	+	-	-	-
Pot (number of fragments)		-	3	-	2	19	1	28	4
Tooth (total number)		-	-	-	-	6	4	2	2
<i>Flot matrix</i>									
Bone (calcined)		-	-	-	-	-	-	-	(+)
Bone (fish)		-	(+)	-	-	-	-	-	-
Bone (unburnt)		-	-	+++	-	-	(+)	(+)	(+)
Charcoal		-	-	(+)	++	++	+	+++	++
Clinker / cinder		-	-	(+)	-	-	-	+	-
Heather twigs (charred)		-	-	-	-	-	-	-	(+)
Insect / beetle		(+)	-	-	-	-	-	-	-
Roots (modern)		(+)	++	-	-	++	-	+	+
Shell (freshwater / terrestrial)		-	-	(+)	-	-	-	-	-
Wood		-	-	-	-	-	-	-	(+)

Sample		49	25	28	31	73	74	75	86
Context		854	823	825	827	860	862	863	865
Feature			[824]	[826]		[861]	[861]	[861]	[866]
<i>Charred remains (total count)</i>									
(a) <i>Bromus</i> sp (Bromes)	caryopsis	-	-	4	-	8	-	34	3
(a) <i>Fallopia convolvulus</i> (Black Bindweed)	nutlet	-	-	-	-	1	-	-	-
(a) <i>Thlaspi arvense</i> (Field Penny-cress)	seed	-	-	-	-	-	-	1	-
(c) <i>Cerealia</i> indeterminate	grain	-	-	-	-	-	1	6	-
(c) <i>Cerealia</i> indeterminate	rachis frag.	-	-	-	-	-	2	-	-
(c) <i>Cerealia</i> indeterminate	twisted awn frag.	-	-	-	-	-	-	2	3
(c) <i>Hordeum</i> sp (Barley species)	grain	-	-	-	-	12	4	13	2
(c) <i>Hordeum</i> sp (Barley species)	rachis frag.	-	-	-	-	-	-	1	2
(c) <i>Pisum sativum</i> (Pea)	fruit	-	-	-	-	2	-	1	-
(c) <i>Triticum</i> cf. <i>aestivum</i> (cf. Bread Wheat)	rachis frag.	-	-	-	-	-	-	1	2
(c) <i>Triticum spelta</i> (Spelt Wheat)	glume base	-	-	1	-	36	-	40	41
(c) <i>Triticum spelta</i> (Spelt Wheat)	spikelet fork	-	-	1	-	5	-	-	-
(c) <i>Triticum</i> cf. <i>turgidum</i> (cf. Rivet Wheat)	rachis frag.	-	-	-	-	1	-	-	-
(c) <i>Triticum</i> sp (Wheat species)	glume base	-	-	3	1	-	-	33	-
(c) <i>Triticum</i> sp (Wheat species)	grain	-	-	-	1	4	1	21	3

Sample		49	25	28	31	73	74	75	86
Context		854	823	825	827	860	862	863	865
Feature			[824]	[826]		[861]	[861]	[861]	[866]
(c) <i>Triticum</i> sp (Wheat species)	rachis frag.	-	-	-	-	-	1	-	-
(c) <i>Triticum</i> sp (Wheat species)	spikelet fork	-	-	-	-	-	-	12	-
(c) <i>Vicia faba</i> (Bean)	fruit	-	-	1	-	1	-	2	5
(h) <i>Rumex acetosella</i> (Sheep's Sorrel)	nutlet	-	-	-	-	-	-	-	1
(r) <i>Galium aparine</i> (Cleavers)	seed	-	-	-	-	6	-	4	-
(r) <i>Galium</i> sp (Bedstraws)	seed	-	-	-	-	-	-	-	5
(r) <i>Lapsana communis</i> (Nipplewort)	achene	-	-	-	-	-	-	1	-
(r) <i>Persicaria maculosa</i> (Redshank)	nutlet	-	-	1	-	-	-	-	-
(r) <i>Plantago lanceolata</i> (Ribwort Plantain)	seed	-	-	-	-	-	-	-	3
(t) <i>Corylus avellana</i> (Hazelnut)	nutshell frag.	-	-	-	-	1	-	1	1
(w) <i>Carex</i> sp (Sedges)	trigonus nutlet	-	-	4	1	-	-	-	-
(w) Cyperaceae undiff. (Sedge family)	nutlet	-	-	1	-	-	-	2	-
(w) <i>Eleocharis</i> sp (Spike-rushes)	nutlet	-	-	2	1	5	4	22	1
(w) <i>Ranunculus flammula</i> (Lesser Spearwort)	achene	-	-	-	-	-	-	1	3
(x) Brassicaceae undiff. (Cabbage family)	seed	-	-	-	-	-	-	4	-

Sample		49	25	28	31	73	74	75	86
Context		854	823	825	827	860	862	863	865
Feature			[824]	[826]		[861]	[861]	[861]	[866]
(x) <i>Centaurea</i> sp (Knapweeds)	achene	-	-	-	-	-	-	-	1
(x) <i>Chenopodium</i> sp (Goosefoot)	seed	-	-	-	-	1	-	2	-
(x) Fabaceae undiff. (Pea family)	seed	-	-	-	-	-	1	-	3
(x) Large-seeded Fabaceae undiff. (Pea family)	seed	-	-	-	-	3	-	2	-
(x) Poaceae undiff. <1mm (Grass family)	caryopsis	-	-	11	-	17	-	7	5
(x) Poaceae undiff. >1mm (Grass family)	caryopsis	-	-	5	1	6	3	-	21
(x) <i>Ranunculus</i> subgenus <i>Ranunculus</i> (Buttercup)	achene	-	-	-	-	-	-	1	-
(x) Rubiaceae undiff. (Bedstraw family)	nutlet	-	-	-	-	-	-	1	-
(x) <i>Rumex</i> sp (Docks)	nutlet	-	-	1	-	8	1	1	1
(x) <i>Vicia</i> sp (Vetches)	seed	-	-	6	11	5	4	8	-

[a-arable; c-cultivated; h-heathland; r-ruderal; t-tree/shrub; w-wet/damp ground; x-wide niche. (+): trace;
+: rare; ++: occasional; +++: common; ++++: abundant
(✓) there may be insufficient weight of carbon available for radiocarbon dating]

Table 9: Trench 8 non-ditch contexts from Iron Age or earlier: residue, flot contents and charred plant remains

Sample		49	25	28	31	73	74	75	86
Context		854	823	825	827	860	862	863	865
Feature			[824]	[826]		[861]	[861]	[861]	[866]
<i>Waterlogged remains (abundance)</i>									
(a) <i>Aethusa cynapium</i> (Fool's Parsley)	fruit	-	-	-	-	-	-	1	-
(a) <i>Chenopodium album</i> (Fat-hen)	seed	-	-	-	-	-	-	-	1
(a) <i>Fumaria</i> sp (Fumitories)	seed	-	1	-	-	-	-	-	-
(q) <i>Lemna</i> sp (Duckweeds)	fruit	-	-	-	2	-	-	-	2
(q) <i>Ranunculus</i> subgenus <i>Batrachium</i> (Crowfoots)	achene	-	-	-	-	-	-	-	1
(r) <i>Galeopsis</i> sp (Hemp-nettles)	nutlet	-	-	-	-	-	1	-	1
(r) <i>Persicaria maculosa</i> (Redshank)	nutlet	-	-	-	-	-	-	-	1
(r) <i>Urtica dioica</i> (Common Nettle)	achene	-	-	-	-	-	-	3	3
(t) <i>Rubus fruticosus</i> agg. (Bramble)	fruitstone	1	-	1	1	2	-	2	2
(t) <i>Sambucus nigra</i> (Elder)	fruitstone	-	2	-	1	2	2	2	2
(w) <i>Carex</i> sp (Sedges)	trigonus nutlet	-	1	-	-	1	3	3	4
(w) <i>Conium maculatum</i> (Hemlock)	fruit	-	-	-	1	-	-	-	1
(w) Cyperaceae undiff. (Sedge family)	nutlet	-	-	-	-	-	-	-	2
(w) <i>Eleocharis</i> sp (Spike-rushes)	nutlet	-	-	-	-	-	-	-	3
(w) <i>Mentha</i> cf. <i>aquatica</i> (Aquatic Mint)	nutlet	-	-	-	-	-	1	1	1
(w) <i>Ranunculus flammula</i> (Lesser Spearwort)	achene	-	-	-	-	-	-	-	2
(x) Caryophyllaceae undiff. (Pink family)	seed	-	-	-	-	-	-	-	1
(x) <i>Chenopodium</i> sp (Goosefoots)	seed	-	-	-	1	2	-	-	2
(x) Fabaceae undifferentiated (Pea family)	seed	-	-	-	-	-	-	-	1

Sample		49	25	28	31	73	74	75	86
Context		854	823	825	827	860	862	863	865
Feature			[824]	[826]		[861]	[861]	[861]	[866]
(x) <i>Geranium</i> sp (Crane's-bills)	seed	-	-	-	1	-	-	-	-
(x) Poaceae undiff. <1mm (Grass family)	caryopsis	-	-	-	-	-	-	-	2
(x) <i>Ranunculus</i> subgenus <i>Ranunculus</i> (Buttercup)	achene	-	1	-	1	2	1	1	2
(x) <i>Rumex</i> sp (Docks)	nutlet	-	-	-	2	2	-	2	2
(x) <i>Taraxacum officinale</i> agg. (Dandelion group)	achene	-	1	-	-	-	-	-	-
(x) <i>Trifolium</i> sp (Clovers)	seed	-	-	1	-	1	1	1	-

[a-arable; q-aquatic; r-ruderal; t-tree/shrub; w-wet/damp ground; x-wide niche.

Waterlogged remains are scored from 1-5 where 1: 1-2; 2: 3-10; 3: 11-40; 4: 41-200; 5: >200]

Table 10: Trench 8 non-ditch contexts from Iron Age or earlier: waterlogged plant remains

Sample		44	51	71	89	93	104	107	108	116
Context		848	856	857	883	879	896	8100	8102	8116
Feature			[849]	[858]	[884]		[884]	[898]		[8117]
Material available for radiocarbon dating		-	-	✓	(✓)	-	✓	n	(✓)	✓
Volume processed (l)		8.5	8	40	6.5	10	10	8	10	8
Volume of flot (ml)		55	20	130	310	5	130	410	50	90
Volume of flot assessed (ml)		55	20	35	310	5	130	100	50	90
<i>Residue contents</i>										
Bone (burnt)		-	-	+++	-	-	-	-	(+)	-
Bone (calcined)		(+)	-	+	(+)	-	-	-	-	-
Bone (unburnt)		-	(+)	+	+	++	++	+	+++	(+)
Charcoal		-	-	+	-	-	-	-	-	(+)
Fired clay / CBM		-	(+)	++	-	++	(+)	+	++	-
Flint		-	1	-	-	-	-	-	-	-
Fuel ash		(+)	-	-	-	-	-	-	-	-
Heat affected geology		+++	-	-	-	-	-	-	-	-

Sample		44	51	71	89	93	104	107	108	116
Context		848	856	857	883	879	896	8100	8102	8116
Feature			[849]	[858]	[884]		[884]	[898]		[8117]
Metal deposit / precipitation		-	+++	-	(+)	-	-	-	-	(+)
Pot (number of fragments)		-	-	2	-	2	1	2	2	-
Tooth (total number)		-	-	-	-	-	1	1	1	1
Wood		-	-	-	-	-	-	-	-	++
<i>Flot matrix</i>										
Bone (fish)		-	-	-	(+)	-	(+)	-	-	-
Bone (unburnt)		-	-	-	-	-	(+)	-	(+)	-
Charcoal		+	-	++	-	-	+	-	(+)	++
Clinker / cinder		(+)	-	++	-	-	-	-	(+)	-
Insect / beetle		-	-	(+)	+	(+)	+	++	+	+++
Roots (modern)		(+)	(+)	++	(+)	++	-	-	++	-
Uncharred vegetative material		(+)	-	-	+++	-	-	-	-	++
Wood		-	-	-	-	-	-	++	-	+
<i>Charred remains (total count)</i>										
(a) <i>Bromus</i> sp (Bromes)	caryopsis	-	-	4	4	-	3	-	-	2
(a) <i>Chenopodium album</i> (Fat-hen)	seed	-	-	-	-	-	-	-	1	-
(a) <i>Fallopia convolvulus</i> (Black Bindweed)	nutlet	-	-	1	-	-	-	-	-	-
(a) <i>Raphanus raphanistrum</i> (Wild Radish)	pod	-	-	2	-	-	-	-	-	-
(a) <i>Thlaspi arvense</i> (Field Penny-cress)	seed	-	-	1	-	-	1	-	-	-
(a) <i>Urtica urens</i> (Small Nettle)	achene	-	-	-	1	-	-	-	-	-
(c) Cerealia indeterminate	grain	-	-	16	-	-	5	-	1	2
(c) Cerealia indeterminate	twisted awn frag.	-	-	12	-	-	-	-	-	2

Sample		44	51	71	89	93	104	107	108	116
Context		848	856	857	883	879	896	8100	8102	8116
Feature			[849]	[858]	[884]		[884]	[898]		[8117]
(c) <i>Hordeum</i> sp (Barley species)	grain	-	-	-	-	-	-	-	-	1
(c) <i>Hordeum</i> sp (Barley species)	rachis frag.	-	2	-	-	-	-	-	-	1
(c) <i>Hordeum vulgare</i> (6-row Barley)	rachis frag.	-	-	1	-	-	-	-	-	1
(c) <i>Pisum sativum</i> (Pea)	fruit	-	-	1	-	-	-	-	-	-
(c) <i>Triticum</i> cf. <i>aestivum</i> (cf. Bread Wheat)	grain	-	-	-	1	-	-	-	-	-
(c) <i>Triticum</i> cf. <i>aestivum</i> (cf. Bread Wheat)	rachis frag.	-	-	-	-	-	-	-	-	2
(c) <i>Triticum spelta</i> (Spelt Wheat)	glume base	-	-	21	-	-	31	-	6	6
(c) <i>Triticum spelta</i> (Spelt Wheat)	spikelet fork	-	-	26	-	-	1	-	-	6
(c) <i>Triticum</i> sp (Wheat species)	glume base	-	-	162	-	-	-	8	-	10
(c) <i>Triticum</i> sp (Wheat species)	grain	-	-	36	3	-	18	1	1	7
(c) <i>Triticum</i> sp (Wheat species)	spikelet fork	-	1	-	-	-	-	-	-	2
(c) <i>Vicia faba</i> (Bean)	fruit	-	-	1	1	-	-	-	-	-
(h) <i>Rumex acetosella</i> (Sheep's Sorrel)	nutlet	-	-	2	-	-	-	-	1	-
(r) <i>Galium aparine</i> (Cleavers)	seed	-	-	5	-	-	-	-	-	-
(r) <i>Galium</i> sp (Bedstraws)	seed	-	-	-	-	-	-	-	-	4
(r) <i>Lapsana communis</i> (Nipplewort)	achene	-	-	1	-	-	-	-	-	1
(r) <i>Persicaria maculosa</i> (Redshank)	nutlet	-	-	-	2	-	1	-	-	-
(r) <i>Polygonum aviculare</i> (Knotgrass)	nutlet	-	-	-	3	-	-	-	-	-

Sample		44	51	71	89	93	104	107	108	116
Context		848	856	857	883	879	896	8100	8102	8116
Feature			[849]	[858]	[884]		[884]	[898]		[8117]
(r) <i>Stellaria media</i> (Common Chickweed)	seed	-	-	-	5	-	-	-	-	-
(t) <i>Corylus avellana</i> (Hazelnut)	nutshell frag.	-	-	1	-	-	-	-	-	-
(t) <i>Luzula</i> sp (Wood- rushes)	seed	-	-	-	-	-	-	-	2	-
(w) <i>Carex</i> sp (Sedges)	trigonus nutlet	-	-	11	-	-	-	-	2	-
(w) Cyperaceae undiff. (Sedge family)	nutlet	-	-	-	2	-	2	-	-	-
(w) <i>Eleocharis</i> sp (Spike- rushes)	nutlet	1	-	16	5	-	-	-	1	-
(w) <i>Ranunculus flammula</i> (Lesser Spearwort)	achene	-	-	4	1	-	-	-	2	7
(w) <i>Ranunculus sardous</i> (Hairy Buttercup)	achene	-	-	-	1	-	-	-	-	-
(w) <i>Schoenoplectus lacustris</i> (Common Club- rush)	nutlet	-	-	-	-	-	-	-	-	1
(x) Brassicaceae undiff. (Cabbage family)	seed	-	-	-	2	1	-	1	-	-
(x) <i>Chenopodium</i> sp (Goosefoot)	seed	-	-	3	-	-	-	-	-	2
(x) <i>Cirsium / Carduus</i> sp (Thistles)	achene	-	-	-	-	-	-	-	-	1
(x) Fabaceae undiff. (Pea family)	seed	-	-	-	4	-	2	-	1	8
(x) Lamiaceae undiff. (Dead-nettle family)	nutlet	-	-	-	2	-	-	-	-	-
(x) Poaceae undiff. <1mm (Grass family)	caryopsis	1	-	3	5	-	-	-	2	7
(x) Poaceae undiff. >1mm (Grass family)	caryopsis	-	-	4	10	-	14	4	1	50

Sample		44	51	71	89	93	104	107	108	116
Context		848	856	857	883	879	896	8100	8102	8116
Feature			[849]	[858]	[884]		[884]	[898]		[8117]
(x) <i>Rumex</i> sp (Docks)	nutlet	-	-	2	2	-	-	-	1	3
(x) <i>Vicia</i> sp (Vetches)	seed	-	-	2	-	-	5	-	4	13

[a-arable; c-cultivated; h-heathland; r-ruderal; t-tree/shrub; w-wet/damp ground; x-wide niche. (+): trace; +: rare; ++: occasional; +++: common; ++++: abundant
(✓) there may be insufficient weight of carbon available for radiocarbon dating]

Table 11: Trench 8 Iron Age/Roman contexts: residue, flot contents and charred plant remains

Sample		44	51	71	89	93	104	107	108	116
Context		848	856	857	883	879	896	8100	8102	8116
Feature			[849]	[858]	[884]		[884]	[898]		[8117]
<i>Waterlogged remains (abundance)</i>										
(a) <i>Aethusa cynapium</i> (Fool's Parsley)	fruit	-	-	-	2	-	2	2	1	-
(a) <i>Thlaspi arvense</i> (Field Penny-cress)	seed	-	-	-	-	-	-	2	-	1
(a) <i>Tripleurospermum inodorum</i> (Scentless Mayweed)	achene	-	-	-	1	-	-	-	-	-
(a) <i>Urtica urens</i> (Small Nettle)	achene	-	-	-	-	-	-	-	-	1
(q) <i>Lemna</i> sp (Duckweeds)	fruit	-	-	-	-	-	-	-	-	2
(q) <i>Ranunculus</i> subgenus <i>Batrachium</i> (Crowfoots)	achene	-	-	-	-	-	-	-	1	-
(r) <i>Galeopsis</i> sp (Hemp-nettles)	nutlet	-	-	-	-	-	2	-	-	-
(r) <i>Hyoscyamus niger</i> (Henbane)	seed	-	-	-	2	-	-	-	-	-

Sample		44	51	71	89	93	104	107	108	116
Context		848	856	857	883	879	896	8100	8102	8116
Feature			[849]	[858]	[884]		[884]	[898]		[8117]
(r) <i>Lamium</i> sp (Dead-nettles)	nutlet	-	-	-	-	-	-	1	2	3
(r) <i>Persicaria maculosa</i> (Redshank)	nutlet	-	-	-	2	-	-	3	1	-
(r) <i>Polygonum aviculare</i> (Knotgrass)	nutlet	-	-	-	1	-	-	2	-	-
(r) <i>Sonchus asper</i> (Prickly Sow-thistle)	achene	-	-	-	1	-	-	8	-	-
(r) <i>Stellaria media</i> (Common Chickweed)	seed	-	-	-	2	-	-	3	-	1
(r) <i>Urtica dioica</i> (Common Nettle)	achene	-	2	-	3	-	3	1	3	5
(t) <i>Prunus</i> sp (Cherries)	fruitstone	-	-	-	2	-	-	-	-	-
(t) <i>Rubus fruticosus</i> agg. (Bramble)	fruitstone	2	3	2	3	-	3	2	4	3
(t) <i>Rubus idaeus</i> (Wild Raspberry)	fruitstone	1	-	-	1	-	-	-	-	-
(t) <i>Sambucus nigra</i> (Elder)	fruitstone	3	2	2	1	1	4	2	3	3
(w) Alismataceae cf. <i>Alisma plantago-aquatica</i> (cf. Water-plantain)	embryo	-	-	-	1	-	-	-	-	-
(w) <i>Carex</i> sp (Sedges)	trigonus nutlet	-	-	2	1	1	1	1	1	-
(w) <i>Conium maculatum</i> (Hemlock)	fruit	-	-	-	1	-	2	1	1	3
(w) Cyperaceae undiff. (Sedge family)	nutlet	-	-	-	2	1	-	-	-	-

Sample		44	51	71	89	93	104	107	108	116
Context		848	856	857	883	879	896	8100	8102	8116
Feature			[849]	[858]	[884]		[884]	[898]		[8117]
(w) <i>Eleocharis</i> sp (Spike-rushes)	Nutlet	-	-	-	4	-	2	1	-	3
(w) <i>Mentha</i> cf. <i>aquatica</i> (Aquatic Mint)	nutlet	-	-	-	-	-	-	-	2	-
(w) <i>Montia fontana</i> (Blinks)	seed	-	-	1	-	-	-	1	-	2
(w) <i>Ranunculus flammula</i> (Lesser Spearwort)	achene	-	-	-	1	-	-	-	1	-
(w) <i>Schoenoplectus lacustris</i> (Common Club-rush)	nutlet	-	-	-	-	-	-	-	-	2
(w) <i>Solanum dulcamara</i> (Bittersweet)	seed	-	-	-	1	-	1	-	-	1
(x) Apiaceae undiff. (Carrot family)	fruit	-	-	-	2	-	-	1	-	-
(x) Brassicaceae undiff. (Cabbage family)	seed	-	-	-	1	-	-	-	-	-
(x) Caryophyllaceae undiff. (Pink family)	seed	-	-	-	1	-	-	-	-	-
(x) <i>Cenococcum geophilum</i> (Soil fungus)	sclerotia	-	1	-	-	-	-	-	-	-
(x) Chenopodiaceae undiff. (Goosefoot family)	seed	-	-	-	2	-	-	-	-	-
(x) <i>Chenopodium</i> sp (Goosefoots)	seed	-	1	-	-	-	3	3	1	3
(x) <i>Cirsium / Carduus</i> sp (Thistles)	achene	-	1	-	2	-	2	3	1	1
(x) Fabaceae undifferentiated (Pea family)	seed	-	-	1	-	-	-	-	-	-

Sample		44	51	71	89	93	104	107	108	116
Context		848	856	857	883	879	896	8100	8102	8116
Feature			[849]	[858]	[884]		[884]	[898]		[8117]
(x) <i>Potentilla anserina</i> (Silverweed)	achene	-	-	-	-	-	-	-	-	1
(x) <i>Ranunculus</i> subgenus <i>Ranunculus</i> (Buttercup)	achene	-	-	2	3	2	1	2	-	1
(x) <i>Rumex</i> sp (Docks)	nutlet	-	-	-	-	-	-	2	1	2
(x) <i>Stachys</i> sp (Woundworts)	nutlet	-	-	-	-	-	-	1	1	-
(x) <i>Trifolium</i> sp (Clovers)	Seed	2	-	2	-	2	-	-	2	-

[a-arable; q-aquatic; r-ruderal; t-tree/shrub; w-wet/damp ground; x-wide niche.

Waterlogged remains are scored from 1-5 where 1: 1-2; 2: 3-10; 3: 11-40; 4: 41-200; 5: >200]

Table 12: Trench 8 Iron Age/Roman contexts: waterlogged plant remains

Sample		27	30	68	102	117	118
Context		812	828	833	894	8114	8113
Feature			[830]	[810]	[810]	[8115]	[8115]
<i>Material available for radiocarbon dating</i>		-	✓	✓	-	(✓)	✓
<i>Volume processed (l)</i>		8	3	13	7.5	10	10
<i>Volume of flot (ml)</i>		50	25	460	60	600	170
<i>Volume of flot assessed (ml)</i>		50	25	100	60	100	170
<i>Residue contents</i>							
Bone (calcined)		(+)	(+)	-	-	-	-
Bone (unburnt)		+	-	++	(+)	(+)	+

Sample		27	30	68	102	117	118
Context		812	828	833	894	8114	8113
Feature			[830]	[810]	[810]	[8115]	[8115]
Charcoal		-	-	(+)	-	-	-
Daub		++	-	-	-	-	-
Fired clay / CBM		-	++	-	-	-	-
Pot (number of fragments)		16	4	2	2	-	4
Snails		-	-	-	-	+	-
Tooth (total number)		-	-	3	-	-	-
Wood		-	-	++	-	-	-
<i>Flot matrix</i>							
Bud (uncharred)		-	-	+	-	-	+
Bud scar (uncharred)		-	-	(+)	-	(+)	(+)
Bone (unburnt)		(+)	-	-	-	-	-
Charcoal		(+)	++	(+)	-	+	++
Cladocera (ephippia)		-	-	-	(+)	-	-
Clinker / cinder		(+)	-	-	-	-	-
Coal / coal shale		(+)	-	-	-	-	-
Insect / beetle		-	-	+	+	+	-
Shell (freshwater / terrestrial)		-	-	-	-	+	-
Uncharred vegetative material		-	-	+++	+	++	-
Uncharred vegetative material cf. bud		-	-	++	-	-	+
Wood		-	-	+++	-	+	-
<i>Charred remains (total count)</i>							
(a) <i>Bromus</i> sp (Bromes)	caryopsis	-	-	-	-	1	-
(a) <i>Chrysanthemum segetum</i> (Corn marigold)	achene	-	-	-	1	-	-

Sample		27	30	68	102	117	118
Context		812	828	833	894	8114	8113
Feature			[830]	[810]	[810]	[8115]	[8115]
(a) <i>Thlaspi arvense</i> (Field Penny-cress)	seed	-	-	-	-	-	1
(a) <i>Tripleurospermum inodorum</i> (Scentless Mayweed)	achene	-	-	-	1	-	-
(c) Cerealia indeterminate	grain	-	2	-	2	-	2
(c) Cerealia indeterminate	twisted awn frag.	-	1	-	-	-	-
(c) <i>Hordeum</i> sp (Barley species)	grain	-	-	-	-	-	1
(c) <i>Triticum spelta</i> (Spelt Wheat)	glume base	-	-	11	8	5	15
(c) <i>Triticum spelta</i> (Spelt Wheat)	spikelet fork	-	-	-	2	-	-
(c) <i>Triticum</i> sp (Wheat species)	grain	-	-	9	1	1	7
(r) <i>Galium aparine</i> (Cleavers)	seed	1	-	-	-	-	-
(r) <i>Galium</i> sp (Bedstraws)	seed	-	-	-	-	-	5
(r) <i>Plantago lanceolata</i> (Ribwort Plantain)	seed	-	-	-	-	-	1
(r) <i>Stellaria media</i> (Common Chickweed)	seed	-	-	-	-	-	1
(t) Rosaceae cf. <i>Alchemilla</i> sp (cf. Lady's-mantles)	achene	-	-	-	-	-	1
(w) <i>Carex</i> sp (Sedges)	biconvex nutlet	-	1	-	1	-	-
(w) <i>Carex</i> sp (Sedges)	trigonus nutlet	-	-	-	-	-	2
(w) <i>Eleocharis</i> sp (Spike-rushes)	nutlet	2	-	-	1	-	4
(w) <i>Ranunculus flammula</i> (Lesser Spearwort)	achene	-	-	-	1	-	2
(x) Asteraceae undiff. (Daisy family)	achene	-	-	-	-	-	3
(x) <i>Chenopodium</i> sp (Goosefoot)	seed	-	-	-	-	-	1
(x) Fabaceae undiff. (Pea family)	seed	-	-	-	5	-	3
(x) Poaceae undiff. <1mm (Grass family)	caryopsis	-	-	-	-	1	8
(x) Poaceae undiff. >1mm (Grass family)	caryopsis	-	-	5	2	3	2
(x) <i>Prunella vulgaris</i> (Selfheal)	nutlet	-	-	-	2	-	-

Sample		27	30	68	102	117	118
Context		812	828	833	894	8114	8113
Feature			[830]	[810]	[810]	[8115]	[8115]
(x) <i>Ranunculus</i> subgenus <i>Ranunculus</i> (Buttercup)	achene	-	-	-	-	-	2
(x) <i>Rumex</i> sp (Docks)	nutlet	5	-	2	-	-	1
(x) <i>Vicia</i> sp (Vetches)	seed	4	-	2	-	-	4

[a-arable; c-cultivated; r-ruderal; t-tree/shrub; w-wet/damp ground; x-wide niche. (+): trace; +: rare; ++: occasional; +++: common; ++++: abundant
(✓) there may be insufficient weight of carbon available for radiocarbon dating]

Table 13: Trench 8 Roman contexts not directly associated with skeletons: residue, flot contents and charred plant remains

Sample		27	30	68	102	117	118
Context		812	828	833	894	8114	8113
Feature			[830]	[810]	[810]	[8115]	[8115]
<i>Waterlogged remains (abundance)</i>							
(a) <i>Aethusa cynapium</i> (Fool's Parsley)	fruit	-	-	-	4	-	-
(a) <i>Fumaria</i> sp (Fumitories)	seed	-	-	-	-	-	1
(a) <i>Raphanus raphanistrum</i> (Wild Radish)	pod	-	-	-	-	1	-
(a) <i>Thlaspi arvense</i> (Field Penny-cress)	seed	-	-	-	-	1	-
(q) <i>Lemna</i> sp (Duckweeds)	fruit	3	-	-	1	-	-
(q) <i>Ranunculus</i> subgenus <i>Batrachium</i> (Crowfoots)	achene	-	-	1	2	1	2
(q) <i>Zannichellia palustris</i> (Horned Pondweed)	fruit	-	-	-	1	1	-
(r) <i>Coronopus squamatus</i> (Swine-cress)	fruit	-	-	1	-	2	1
(r) <i>Hyoscyamus niger</i> (Henbane)	seed	-	-	2	1	-	1

Sample		27	30	68	102	117	118
Context		812	828	833	894	8114	8113
Feature			[830]	[810]	[810]	[8115]	[8115]
(r) <i>Lamium</i> sp (Dead-nettles)	nutlet	-	-	-	-	-	1
(r) <i>Persicaria maculosa</i> (Redshank)	nutlet	-	-	2	-	-	-
(r) <i>Polygonum aviculare</i> (Knotgrass)	nutlet	-	-	1	-	1	-
(r) <i>Sonchus asper</i> (Prickly Sow-thistle)	achene	-	-	2	2	3	1
(r) <i>Stellaria media</i> (Common Chickweed)	seed	-	-	-	1	2	2
(t) <i>Betula</i> sp (Birch sp)	bract	1	-	-	-	-	-
(t) <i>Cornus sanguinea</i> (Dogwood)	fruitstone	-	-	1	-	-	-
(t) <i>Crataegus monogyna</i> (Hawthorn)	fruitstone	-	-	3	-	-	-
(t) <i>Prunus cf. spinosa</i> (Sloe)	fruitstone	-	-	2	-	-	-
(t) <i>Rubus fruticosus</i> agg. (Bramble)	fruitstone	-	1	4	3	2	5
(t) <i>Sambucus nigra</i> (Elder)	fruitstone	-	1	4	3	3	2
(w) Alismataceae cf. <i>Alisma plantago-aquatica</i> (cf. Waterplantain)	embryo	-	-	-	1	-	-
(w) Alismataceae undiff. (Waterplantain family)	embryo	-	-	-	-	-	1
(w) <i>Bolboschoenus maritimus</i> (Sea Club-rush)	nutlet	-	-	-	-	-	1
(w) <i>Carex</i> sp (Sedges)	biconvex nutlet	-	-	-	1	-	-
(w) <i>Carex</i> sp (Sedges)	trigonous nutlet	-	-	1	2	2	1
(w) <i>Conium maculatum</i> (Hemlock)	fruit	-	-	3	1	2	1
(w) Cyperaceae undiff. (Sedge family)	nutlet	-	-	-	1	-	2
(w) <i>Eleocharis</i> sp (Spike-rushes)	nutlet	-	-	2	-	-	2

Sample		27	30	68	102	117	118
Context		812	828	833	894	8114	8113
Feature			[830]	[810]	[810]	[8115]	[8115]
(w) <i>Ranunculus flammula</i> (Lesser Spearwort)	achene	-	-	1	-	-	1
(w) <i>Ranunculus sardous</i> (Hairy Buttercup)	achene	-	-	1	-	-	2
(w) <i>Schoenoplectus lacustris</i> (Common Club-rush)	nutlet	-	-	-	-	1	-
(w) <i>Solanum dulcamara</i> (Bittersweet)	seed	-	-	1	-	1	-
(w) <i>Thalictrum flavum</i> (Common Meadow-rue)	achene	-	-	1	-	-	-
(x) Apiaceae undiff. (Carrot family)	fruit	-	-	-	1	1	2
(x) Asteraceae undiff. (Daisy family)	achene	-	-	1	1	1	1
(x) Brassicaceae undiff. (Cabbage family)	seed	-	-	-	-	3	-
(x) <i>Cenococcum geophilum</i> (soil fungus)	sclerotia	-	-	-	-	-	2
(x) <i>Chenopodium</i> sp (Goosefoots)	seed	-	-	2	2	2	2
(x) <i>Cirsium / Carduus</i> sp (Thistles)	achene	-	-	2	-	-	-
(x) <i>Mentha</i> sp (Mints)	nutlet	-	-	2	-	-	-
(x) Poaceae undiff. <1mm (Grass family)	caryopsis	-	-	-	-	1	-
(x) <i>Potentilla anserina</i> (Silverweed)	achene	-	-	-	1	-	-
(x) <i>Potentilla</i> cf. <i>reptans</i> (cf. Creeping Cinquefoil)	achene	-	-	1	-	-	-
(x) <i>Potentilla</i> sp (Cinquefoils)	achene	-	-	1	-	-	-
(x) <i>Ranunculus</i> subgenus <i>Ranunculus</i> (Buttercup)	achene	-	-	3	2	3	1
(x) <i>Rumex</i> sp (Docks)	nutlet	-	-	2	1	-	3
(x) <i>Rumex</i> sp (Docks)	nutlet in tepals	-	-	-	-	2	-

Sample		27	30	68	102	117	118
Context		812	828	833	894	8114	8113
Feature			[830]	[810]	[810]	[8115]	[8115]
(x) <i>Stachys</i> sp (Woundworts)	nutlet	-	-	2	-	-	-
(x) <i>Trifolium</i> sp (Clovers)	seed	1	1	-	-	-	-

[a-arable; q-aquatic; r-ruderal; t-tree/shrub; w-wet/damp ground; x-wide niche.

Waterlogged remains are scored from 1-5 where 1: 1-2; 2: 3-10; 3: 11-40; 4: 41-200; 5: >200]

Table 14: Trench 8 Roman contexts not directly associated with skeletons: waterlogged plant remains

Sample		7	8	9	10	11	12	14	47	19
Context		817	817	817	817	817	817	817	852	811
Feature		[818]	[818]	[818]	[818]	[818]	[818]	[818]		
<i>Material available for radiocarbon dating</i>		-	✓	(✓)	(✓)	-	-	-	-	-
<i>Volume processed (l)</i>		14	10	3	2	2	2	2	10.5	8
<i>Volume of flot (ml)</i>		20	25	10	10	5	5	5	5	25
<i>Volume of flot assessed (ml)</i>		20	25	10	10	5	5	5	5	25
<i>Residue contents</i>										
Bone (burnt)		-	-	-	-	(+)	-	-	(+)	-
Bone (calcined)		(+)	(+)	-	-	-	-	-	+	(+)
Bone (unburnt)		+++	+++	-	-	-	-	-	++	+
Charcoal		-	-	-	-	-	-	-	(+)	-
Clinker / cinder		+	-	-	-	-	-	-	-	-
Daub		-	-	-	-	-	-	-	-	++
Fired clay / CBM		++	++	-	-	(+)	-	+	++	-
Heat affected geology		-	-	-	-	-	-	-	+	-

Sample		7	8	9	10	11	12	14	47	19
Context		817	817	817	817	817	817	817	852	811
Feature		[818]	[818]	[818]	[818]	[818]	[818]	[818]		
Pot (number of fragments)		15	14	-	6	21	14	7	2	3
Tooth (total number)		-	-	2	-	1	-	-	-	-
<i>Flot matrix</i>										
Bone (fish)		-	-	-	-	-	-	-	-	(+)
Bone (unburnt)		(+)	+	(+)	(+)	-	(+)	(+)	-	-
Charcoal		-	(+)	-	-	(+)	(+)	-	(+)	(+)
Clinker / cinder		+	-	-	(+)	-	-	-	-	-
Coal / coal shale		-	-	-	-	-	-	-	-	(+)
Insect / beetle		(+)	-	(+)	-	(+)	-	(+)	(+)	(+)
Roots (modern)		++	++	+	-	-	(+)	(+)	+	+
<i>Charred remains (total count)</i>										
(a) <i>Raphanus raphanistrum</i> (Wild Radish)	pod	-	-	-	-	-	-	-	1	-
(c) <i>Cerealia</i> indeterminate	grain	-	3	1	1	2	-	1	-	-
(c) <i>Cerealia</i> indeterminate	twisted awn frag.	-	2	-	2	1	-	-	-	1
(c) <i>Hordeum</i> sp (Barley species)	grain	-	1	1	-	-	-	-	-	-
(c) <i>Triticum spelta</i> (Spelt Wheat)	glume base	1	1	-	2	2	-	3	-	2
(c) <i>Triticum spelta</i> (Spelt Wheat)	spikelet fork	-	1	-	-	-	-	1	-	-
(c) <i>Triticum</i> sp (Wheat species)	glume base	7	7	2	1	4	1	1	-	5
(c) <i>Triticum</i> sp (Wheat species)	grain	-	1	1	-	-	-	-	-	-
(c) <i>Triticum</i> sp (Wheat species)	spikelet fork	1	1	-	-	-	1	-	-	-
(t) <i>Corylus avellana</i> (Hazelnut)	nutshell frag.	-	-	-	1	-	-	-	-	-

Sample		7	8	9	10	11	12	14	47	19
Context		817	817	817	817	817	817	817	852	811
Feature		[818]	[818]	[818]	[818]	[818]	[818]	[818]		
(t) <i>Luzula</i> sp (Wood-rushes)	seed	-	-	-	-	-	-	1	-	1
(w) <i>Rorippa nasturtium-aquaticum</i> (Water-cress)	seed	-	1	-	-	-	-	-	-	-
(x) Poaceae undiff. <1mm (Grass family)	caryopsis	-	-	-	-	-	-	1	-	1
(x) Poaceae undiff. >1mm (Grass family)	caryopsis	-	2	2	1	-	-	-	2	4
(x) <i>Rumex</i> sp (Docks)	nutlet	-	-	-	-	1	-	-	4	2
(x) <i>Vicia</i> sp (Vetches)	seed	4	3	2	-	-	3	-	-	9
<i>Waterlogged remains (abundance)</i>										
(t) <i>Sambucus nigra</i> (Elder)	fruitstone	2	1	1	-	1	-	1	-	-
(w) <i>Eleocharis</i> sp (Spike-rushes)	nutlet	4	2	-	3	1	2	-	-	2
(w) <i>Montia fontana</i> (Blinks)	seed	-	-	-	-	-	-	-	-	1
(w) <i>Ranunculus flammula</i> (Lesser Spearwort)	achene	2	-	-	-	-	-	-	-	-
(x) <i>Chenopodium</i> sp (Goosefoots)	seed	-	-	-	-	-	-	-	-	1
(x) Poaceae undiff. <1mm (Grass family)	caryopsis	-	-	-	1	-	-	-	-	-
(x) <i>Ranunculus</i> subgenus <i>Ranunculus</i> (Buttercup)	achene	2	-	1	-	-	-	-	-	-

[a-arable; c-cultivated; t-tree/shrub; w-wet/damp ground; x-wide niche. (+): trace; +: rare; ++: occasional; +++: common; ++++: abundant

Waterlogged remains are scored from 1-5 where 1: 1-2; 2: 3-10; 3: 11-40; 4: 41-200; 5: >200

(✓) there may be insufficient weight of carbon available for radiocarbon dating]

Table 15: Trench 8 skeleton 1

Sample		15	16	17	18
Context		819	819	819	819
Feature		[820]	[820]	[820]	[820]
<i>Material available for radiocarbon dating</i>		-	(✓)	-	-
<i>Volume processed (l)</i>		3	6	4.5	7
<i>Volume of flot (ml)</i>		10	5	30	30
<i>Volume of flot assessed (ml)</i>		10	5	30	30
<i>Residue contents</i>					
Bone (unburnt)		++	+++	++++	++
Clinker / cinder		-	-	-	(+)
Fired clay / CBM		+	++	-	++
Pot (number of fragments)		-	4	2	1
Snails		(+)	-	-	-
Tooth (total number)		2	2	2	-
<i>Flot matrix</i>					
Bone (unburnt)		-	(+)	++++	(+)
Charcoal		-	-	-	(+)
Coal / coal shale		-	-	(+)	-
Insect / beetle		(+)	-	-	-
Roots (modern)		+	++	+	+
<i>Charred remains (total count)</i>					
(c) Cerealia indeterminate	grain	-	1	-	1
(c) Cerealia indeterminate	twisted awn frag.	1	1	1	1
(c) <i>Hordeum</i> sp (Barley species)	grain	-	1	-	-

Sample		15	16	17	18
Context		819	819	819	819
Feature		[820]	[820]	[820]	[820]
(c) <i>Triticum spelta</i> (Spelt Wheat)	glume base	-	-	4	-
(c) <i>Triticum</i> sp (Wheat species)	glume base	1	-	2	1
(c) <i>Triticum</i> sp (Wheat species)	grain	-	1	-	-
(c) <i>Triticum</i> sp (Wheat species)	spikelet fork	1	-	-	-
(t) <i>Luzula</i> sp (Wood-rushes)	seed	-	2	-	-
(w) <i>Eleocharis</i> sp (Spike-rushes)	nutlet	1	-	1	-
(x) Poaceae undiff. <1mm (Grass family)	caryopsis	-	3	-	-
(x) Poaceae undiff. >1mm (Grass family)	caryopsis	-	2	1	1
(x) <i>Vicia</i> sp (Vetches)	seed	2	1	1	3
<i>Waterlogged remains (abundance)</i>					
(t) <i>Rubus fruticosus</i> agg. (Bramble)	fruitstone	-	1	-	-
(t) <i>Sambucus nigra</i> (Elder)	fruitstone	1	2	2	1
(x) <i>Chenopodium</i> sp (Goosefoots)	seed	1	-	-	-
(x) <i>Ranunculus</i> subgenus <i>Ranunculus</i> (Buttercup)	achene	1	-	-	1
(x) <i>Trifolium</i> sp (Clovers)	seed	-	-	-	1

[c-cultivated; t-tree/shrub; w-wet/damp ground; x-wide niche. (+): trace; +: rare; ++: occasional; +++: common; ++++: abundant]

Waterlogged remains are scored from 1-5 where 1: 1-2; 2: 3-10; 3: 11-40; 4: 41-200; 5: >200

(✓) there may be insufficient weight of carbon available for radiocarbon dating]

Table 16: Trench 8 skeleton 2

Sample	40	52	53	54	55	56	57	58	59	60	61	62	63	64	65	72	76
Context	841	841	841	841	841	841	841	841	841	841	841	841	841	841	841	841	841
Feature	[842]	[842]	[842]	[842]	[842]	[842]	[842]	[842]	[842]	[842]	[842]	[842]	[842]	[842]	[842]	[842]	
Material available for radiocarbon dating	(✓)	✓	✓	✓	✓	✓	-	✓	(✓)	✓	-	-	✓	(✓)	-	✓	✓
Volume processed (l)	6	3.5	11.5	5.5	8	9.5	2	7	7.75	10	2	<1	10	6.5	5	15	15
Volume of flot (ml)	55	15	45	55	50	35	10	50	30	70	65	10	60	135	160	30	75
Volume of flot assessed (ml)	55	15	45	55	50	35	10	50	30	70	65	10	60	135	160	30	75
Residue contents																	
Bone (burnt)	+	+	-	(+)	+	-	-	-	-	(+)	-	-	+	-	-	+	+
Bone (calcined)	-	+	+	(+)	+	+	(+)	+	+	(+)	-	-	+	-	-	+	+
Bone (unburnt)	+++	+	++	+	+	+	++	+	+	+++	++	++	++	++++	++	+	++
Charcoal	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	+
Fired clay / CBM	+	++	++	+	+	+++	-	+	+	+	-	-	+	+	+	++	+
Pot (number of fragments)	-	-	4	-	-	3	-	-	2	-	-	-	1	-	-	-	2
Tooth (total number)	-	-	3	-	-	-	-	-	3	-	-	1	-	-	-	-	2
Wood	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-

Sample	40	52	53	54	55	56	57	58	59	60	61	62	63	64	65	72	76
Context	841	841	841	841	841	841	841	841	841	841	841	841	841	841	841	841	841
Feature	[842]	[842]	[842]	[842]	[842]	[842]	[842]	[842]	[842]	[842]	[842]	[842]	[842]	[842]	[842]	[842]	
<i>Flot matrix</i>																	
Bone (unburnt)	-	+	+	-	-	(+)	-	(+)	(+)	-	+++	(+)	+	++	-	-	-
Charcoal	(+)	(+)	(+)	-	(+)	++	(+)	-	-	++	-	-	-	-	-	(+)	+
Clinker / cinder	-	-	-	-	-	+	-	(+)	-	-	-	-	-	-	-	-	+
Coal / coal shale	-	-	-	-	-	-	-	-	(+)	(+)	-	-	(+)	(+)	-	-	-
Fuel ash	-	-	(+)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Insect / beetle	(+)	-	(+)	+	+	(+)	-	-	+	(+)	-	+	+	(+)	-	-	+
Earthworm egg case	-	-	-	-	-	-	-	-	-	-	-	(+)	-	-	-	-	(+)
Plastic fragment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(+)
Roots (modern)	-	-	+	-	(+)	+	++	(+)	(+)	(+)	-	+	-	-	-	++	++
Uncharred vegetative material	+++	+++	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-
Wood	-	-	-	+++	++	-	-	+++	++	+++	++	+	++	++	++	-	-

[(+): trace; +: rare; ++: occasional; +++: common; ++++: abundant. (✓) there may be insufficient weight of carbon available for radiocarbon dating]

Table 17: Trench 8 skeleton 3: residue and flot contents

Sample		40	52	53	54	55	56	57	58	59	60	61	62	63	64	65	72	76
Context		841	841	841	841	841	841	841	841	841	841	841	841	841	841	841	841	841
Feature		[842]	[842]	[842]	[842]	[842]	[842]	[842]	[842]	[842]	[842]	[842]	[842]	[842]	[842]	[842]	[842]	
<i>Charred remains (total count)</i>																		
(a) <i>Raphanus raphanistrum</i> (Wild Radish)	pod	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-
(a) <i>Thlaspi arvense</i> (Field Penny-cress)	seed	-	-	-	-	1	-	-	-	-	1	-	-	1	-	-	-	-
(c) <i>Cerealia</i> indeterminate	grain	1	2	7	5	13	9	-	5	5	6	2	-	4	6	-	1	6
(c) <i>Cerealia</i> indeterminate	rachis frag.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-
(c) <i>Cerealia</i> indeterminate	twisted awn frag.	-	-	5	2	4	11	2	1	2	1	-	-	6	2	-	-	-
(c) <i>Hordeum</i> sp (Barley species)	grain	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	1	2
(c) <i>Hordeum</i> sp (Barley species)	rachis frag.	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1	-	-
(c) <i>Triticum spelta</i> (Spelt Wheat)	glume base	-	4	14	5	7	12	-	-	2	4	3	-	4	-	6	8	6
(c) <i>Triticum spelta</i> (Spelt Wheat)	spikelet fork	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	7	-
(c) <i>Triticum</i> sp (Wheat species)	glume base	-	2	-	5	-	9	3	-	4	6	4	-	11	-	2	-	10
(c) <i>Triticum</i> sp (Wheat species)	grain	1	4	-	1	4	8	-	1	1	1	-	-	1	-	1	4	4
(c) <i>Triticum</i> sp (Wheat species)	spikelet fork	-	2	-	3	4	5	-	-	2	6	2	-	1	-	-	-	1
(c) <i>Vicia faba</i> (Bean)	fruit	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-

Sample		40	52	53	54	55	56	57	58	59	60	61	62	63	64	65	72	76
Context		841	841	841	841	841	841	841	841	841	841	841	841	841	841	841	841	841
Feature		[842]	[842]	[842]	[842]	[842]	[842]	[842]	[842]	[842]	[842]	[842]	[842]	[842]	[842]	[842]	[842]	
(h) <i>Danthonia decumbens</i> (Heath-grass)	caryopsis	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-
(r) <i>Lamium</i> sp (Dead-nettles)	nutlet	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
(r) <i>Plantago lanceolata</i> (Ribwort Plantain)	seed	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-
(r) <i>Stellaria media</i> (Common Chickweed)	seed	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
(t) <i>Corylus avellana</i> (Hazelnut)	nutshell frag.	-	-	-	-	-	1	-	-	-	-	-	-	-	1	-	-	-
(t) <i>Luzula</i> sp (Wood-rushes)	seed	-	1	-	-	-	-	-	-	-	1	-	-	-	-	6	-	-
(t) Rosaceae undiff. (Rose family)	fruitstone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
(w) <i>Carex</i> sp (Sedges)	biconvex nutlet	-	1	-	2	-	-	-	-	2	-	1	-	-	-	-	-	-
(w) <i>Carex</i> sp (Sedges)	trigonus nutlet	3	-	5	-	1	4	-	3	1	2	-	-	1	4	-	5	1
(w) <i>Cladium mariscus</i> (Great Fen-sedge)	nutlet	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
(w) <i>Conium maculatum</i> (Hemlock)	fruit	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
(w) Cyperaceae undiff. (Sedge family)	nutlet	1	-	-	1	-	-	-	1	-	-	-	-	-	-	-	1	-
(w) <i>Eleocharis</i> sp (Spike-rushes)	nutlet	1	9	6	-	1	2	-	4	3	1	3	-	5	2	2	4	5

Sample		40	52	53	54	55	56	57	58	59	60	61	62	63	64	65	72	76
Context		841	841	841	841	841	841	841	841	841	841	841	841	841	841	841	841	841
Feature		[842]	[842]	[842]	[842]	[842]	[842]	[842]	[842]	[842]	[842]	[842]	[842]	[842]	[842]	[842]	[842]	[842]
(w) <i>Montia fontana</i> (Blinks)	seed	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
(w) <i>Ranunculus flammula</i> (Lesser Spearwort)	achene	1	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-
(x) Asteraceae undiff. (Daisy family)	achene	-	1	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-
(x) <i>Chenopodium</i> sp (Goosefoot)	seed	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-
(x) Fabaceae undiff. (Pea family)	seed	-	-	3	2	1	-	-	1	1	-	-	-	2	1	-	1	-
(x) Poaceae undiff. <1mm (Grass family)	caryopsis	-	-	8	2	3	2	-	-	-	3	-	-	2	4	-	4	8
(x) Poaceae undiff. >1mm (Grass family)	caryopsis	1	-	-	-	2	2	-	3	1	-	1	-	3	-	1	-	-
(x) <i>Ranunculus</i> subgenus <i>Ranunculus</i> (Buttercup)	achene	-	-	-	1	-	-	-	-	-	1	1	-	-	-	-	1	-
(x) Rubiaceae undiff. (Bedstraw family)	nutlet	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
(x) <i>Rumex</i> sp (Docks)	nutlet	1	-	-	-	2	3	-	1	-	4	-	-	2	3	-	2	-
(x) <i>Vicia</i> sp (Vetches)	seed	-	-	15	5	8	12	1	12	7	5	1	-	10	5	-	7	6

[a-arable; c-cultivated; h-heathland; r-ruderal; t-tree/shrub; w-wet/damp ground; x-wide niche]

Table 18: Trench 8 skeleton 3: charred plant remains

Sample		40	52	53	54	55	56	57	58	59	60	61	62	63	64	65	72	76
Context		841	841	841	841	841	841	841	841	841	841	841	841	841	841	841	841	841
Feature		[842]	[842]	[842]	[842]	[842]	[842]	[842]	[842]	[842]	[842]	[842]	[842]	[842]	[842]	[842]	[842]	
<i>Waterlogged remains (abundance)</i>																		
(q) <i>Lemna</i> sp (Duckweeds)	fruit	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
(r) <i>Urtica dioica</i> (Common Nettle)	achene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
(t) <i>Betula</i> sp (Birch sp)	bract	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-
(t) <i>Rubus fruticosus</i> agg. (Bramble)	fruitstone	1	2	-	2	-	1	-	1	-	-	-	-	-	2	1	2	-
(t) <i>Rubus idaeus</i> (Wild Raspberry)	fruitstone	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
(t) <i>Sambucus nigra</i> (Elder)	fruitstone	3	1	3	3	2	2	1	3	2	3	3	1	2	-	3	1	1
(w) <i>Carex</i> sp (Sedges)	biconvex nutlet	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-
(w) <i>Carex</i> sp (Sedges)	trigonus nutlet	2	2	-	1	1	1	-	1	2	-	1	-	1	2	1	-	-
(w) <i>Eleocharis</i> sp (Spike-rushes)	nutlet	-	-	-	-	-	-	-	-	-	1	-	-	5	-	1	2	-
(w) <i>Thalictrum flavum</i> (Common Meadow-rue)	achene	-	-	-	-	1	-	-	-	-	-	-	-	-	1	-	-	-
(x) Apiaceae undiff. (Carrot family)	fruit	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-

(x) <i>Chenopodium</i> sp (Goosefoots)	seed	-	-	-	2	1	-	-	-	1	-	1	-	2	1	-	-	-
(x) <i>Mentha</i> sp (Mints)	nutlet	-	-	-	-	-	-	-	3	-	-	-	-	2	2	2	-	-
(x) Poaceae undiff. <1mm (Grass family)	caryopsis	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-
(x) Poaceae undiff. >1mm (Grass family)	caryopsis	-	-	-	-	1	-	-	-	-	-	-	-	-	-	1	-	-
(x) <i>Potentilla</i> sp (Cinquefoils)	achene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
(x) <i>Ranunculus</i> subgenus <i>Ranunculus</i> (Buttercup)	achene	2	2	-	2	1	-	1	1	-	2	-	1	2	2	3	-	2
(x) <i>Rumex</i> sp (Docks)	nutlet	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
(x) <i>Stachys</i> sp (Woundworts)	nutlet	1	-	-	-	-	-	-	1	-	-	-	-	-	-	1	-	-
(x) <i>Trifolium</i> sp (Clovers)	seed	1	2	2	1	3	1	1	-	-	-	2	-	1	2	-	-	1

[q-aquatic; r-ruderal; t-tree/shrub; w-wet/damp ground; x-wide niche]

Table 19: Trench 8 skeleton 3: waterlogged plant remains

Sample	83	92	99	109	110	111	112	114	115
Context	915	908	918	924	925	946	954	958	957
Feature						[939]	[939]	[956]	[956]
<i>Material available for radiocarbon dating</i>	✓	✓	✓	✓	(✓)	(✓)	✓	✓	✓
<i>Volume processed (l)</i>	9	10	10	10	7	5	10	9	4
<i>Volume of flot (ml)</i>	30	20	150	110	60	50	265	800	700
<i>Volume of flot assessed (ml)</i>	30	20	150	110	60	50	100	100	100
<i>Residue contents</i>									
Bone (burnt)	(+)	-	-	+	-	-	-	+	-
Bone (calcined)	(+)	-	+	+	-	-	+	-	(+)
Bone (unburnt)	+	-	++	+++	+++	(+)	++	++	++
Clinker / cinder	-	(+)	-	-	-	-	-	-	-
Fired clay / CBM	+	++	+	++	+	-	++	+	-
Glass	-	-	2	-	1	-	-	-	-
Hammerscale (ball / flake)	-	+ / +	-	-	-	-	-	-	-
Heat affected geology	-	++	-	-	-	-	-	-	-
Metal object / Metal-based remains	-	1	3	2	-	-	-	3	-
Mortar / cement	-	+	-	-	+++	-	-	-	-
Pot (number of fragments)	8	2	22	65	38	1	3	8	2
Snails	-	(+)	-	-	-	-	-	-	-
Tooth (total number)	-	-	4	-	4	-	-	-	-
<i>Flot matrix</i>									
Bone (calcined)	-	-	-	-	(+)	-	-	-	-
Bone (fish)	-	-	+	-	(+)	-	(+)	-	-
Bone (unburnt)	-	-	(+)	+	+	-	+	-	-

Sample		83	92	99	109	110	111	112	114	115
Context		915	908	918	924	925	946	954	958	957
Feature							[939]	[939]	[956]	[956]
Charcoal		++	(+)	++	+	(+)	-	-	(+)	++
Cladocera (ephippia)		-	-	-	-	-	++	+	-	+
Clinker / cinder		-	++	-	+	+	-	-	-	-
Coal / coal shale		-	++	-	++	-	-	-	-	-
Crinoids		-	-	-	(+)	-	-	-	-	-
Earthworm egg case		-	-	-	+	++	-	+	-	-
Insect / beetle		-	-	-	+	+	+	-	-	++
Roots (modern)		+++	++	-	(+)	+	-	-	-	-
Shell (freshwater / terrestrial)		-	+	-	-	-	-	-	-	-
Uncharred vegetative material		-	-	-	-	-	-	-	-	++
Wood		-	-	-	-	-	-	+	-	+++
<i>Charred remains (total count)</i>										
(a) <i>Bromus</i> sp (Bromes)	caryopsis	-	-	-	-	-	-	12	-	1
(a) <i>Tripleurospermum inodorum</i> (Scentless Mayweed)	achene	-	-	-	-	-	-	5	-	-
(c) <i>Cerealia</i> indeterminate	grain	3	1	8	4	1	-	136	3	-
(c) <i>Cerealia</i> indeterminate	twisted awn frag	-	-	-	1	1	-	1	-	-
(c) <i>Hordeum</i> sp (Barley species)	grain	-	-	-	-	-	-	2	-	-
(c) <i>Hordeum</i> sp (Barley species)	rachis frag.	-	-	-	-	-	-	1	5	9
(c) <i>Triticum spelta</i> (Spelt Wheat)	glume base	-	-	-	-	-	15	105	71	72
(c) <i>Triticum spelta</i> (Spelt Wheat)	spikelet fork	-	-	-	-	-	-	7	3	6
(c) <i>Triticum</i> sp (Wheat species)	glume base	-	-	-	-	1	-	-	-	-

Sample		83	92	99	109	110	111	112	114	115
Context		915	908	918	924	925	946	954	958	957
Feature							[939]	[939]	[956]	[956]
(c) <i>Triticum</i> sp (Wheat species)	grain	1	3	2	3	1	2	166	6	18
(c) <i>Triticum</i> sp (Wheat species)	rachis frag.	-	-	-	-	-	-	-	1	1
(c) <i>Triticum</i> sp (Wheat species)	spikelet fork	-	-	-	-	-	1	-	-	-
(c) <i>Vicia faba</i> (Bean)	fruit	-	-	-	-	-	-	2	-	-
(r) <i>Persicaria maculosa</i> (Redshank)	nutlet	-	-	-	-	-	-	-	2	-
(r) <i>Plantago lanceolata</i> (Ribwort Plantain)	seed	-	-	2	4	1	-	6	-	-
(t) <i>Corylus avellana</i> (Hazelnut)	nutshell frag.	1	-	2	1	2	-	-	-	-
(t) <i>Rubus fruticosus</i> agg. (Bramble)	fruitstone	-	-	-	-	-	-	2	-	-
(w) <i>Carex</i> sp (Sedges)	biconvex nutlet	-	-	-	-	-	-	-	2	-
(w) <i>Carex</i> sp (Sedges)	trigonus nutlet	-	-	-	-	-	-	1	-	-
(w) <i>Eleocharis</i> sp (Spike-rushes)	nutlet	-	-	-	6	2	4	5	4	2
(w) <i>Ranunculus flammula</i> (Lesser Spearwort)	achene	-	-	-	1	-	2	-	1	4
(x) Brassicaceae undiff. (Cabbage family)	seed	-	-	-	1	-	-	-	-	-
(x) <i>Centaurea</i> sp (Knapweeds)	achene	-	-	-	-	-	-	3	1	-
(x) <i>Chenopodium</i> sp (Goosefoot)	seed	1	-	2	-	3	-	6	-	1
(x) Fabaceae undiff. (Pea family)	seed	1	-	1	11	2	-	20	-	1
(x) Lamiaceae undiff. (Dead-nettle family)	nutlet	-	-	-	-	2	-	-	-	-
(x) Poaceae undiff. <1mm (Grass family)	caryopsis	-	-	-	-	2	-	7	2	3
(x) Poaceae undiff. >1mm (Grass family)	caryopsis	-	-	-	11	1	1	45	5	5
(x) <i>Prunella vulgaris</i> (Selfheal)	nutlet	-	-	1	-	1	-	-	-	1
(x) <i>Ranunculus</i> subgenus <i>Ranunculus</i> (Buttercup)	achene	-	-	-	-	-	-	1	-	-

Sample		83	92	99	109	110	111	112	114	115
Context		915	908	918	924	925	946	954	958	957
Feature							[939]	[939]	[956]	[956]
(x) <i>Rumex</i> sp (Docks)	nutlet	-	-	3	3	4	-	10	3	1
(x) <i>Vicia</i> sp (Vetches)	seed	-	-	1	7	3	-	84	-	5

[a-arable; c-cultivated; r-ruderal; t-tree/shrub; w-wet/damp ground; x-wide niche. (+): trace; +: rare; ++: occasional; +++: common; ++++: abundant
(✓) there may be insufficient weight of carbon available for radiocarbon dating]

Table 20: Trench 9: residue, flot contents and charred plant remains

Sample		83	92	99	109	110	111	112	114	115
Context		915	908	918	924	925	946	954	958	957
Feature							[939]	[939]	[956]	[956]
<i>Waterlogged remains (abundance)</i>										
(a) <i>Aethusa cynapium</i> (Fool's Parsley)	fruit	-	-	-	-	-	2	1	-	1
(a) <i>Fumaria</i> sp (Fumitories)	seed	-	-	-	-	-	-	-	1	-
(a) <i>Thlaspi arvense</i> (Field Penny-cress)	seed	-	-	-	-	-	-	-	-	1
(a) <i>Urtica urens</i> (Small Nettle)	achene	-	-	-	-	-	-	-	-	1
(q) <i>Ranunculus</i> subgenus <i>Batrachium</i> (Crowfoots)	achene	-	-	-	-	-	2	3	-	2
(r) <i>Coronopus squamatus</i> (Swine-cress)	fruit	-	-	-	-	-	-	1	-	-
(r) <i>Hyoscyamus niger</i> (Henbane)	seed	-	-	-	-	-	-	-	1	2
(r) <i>Persicaria maculosa</i> (Redshank)	nutlet	-	-	-	3	-	-	-	-	2
(r) <i>Polygonum aviculare</i> (Knotgrass)	nutlet	-	-	-	-	-	-	-	-	1
(r) <i>Sonchus asper</i> (Prickly Sow-thistle)	achene	-	-	-	-	-	4	-	-	1
(r) <i>Stellaria media</i> (Common Chickweed)	seed	-	-	-	1	-	-	-	-	2
(r) <i>Urtica dioica</i> (Common Nettle)	achene	-	-	-	-	-	2	-	-	-

Sample		83	92	99	109	110	111	112	114	115
Context		915	908	918	924	925	946	954	958	957
Feature							[939]	[939]	[956]	[956]
(t) <i>Prunus</i> sp (Cherries)	fruitstone	-	-	-	-	-	-	-	-	1
(t) <i>Rubus fruticosus</i> agg. (Bramble)	fruitstone	-	1	-	2	-	3	2	4	2
(t) <i>Sambucus nigra</i> (Elder)	fruitstone	-	-	1	3	1	-	1	4	2
(w) <i>Ajuga reptans</i> (Bugle)	nutlet	-	-	-	2	-	-	-	-	-
(w) <i>Carex</i> sp (Sedges)	biconvex nutlet	-	-	-	-	-	-	-	-	1
(w) <i>Carex</i> sp (Sedges)	trigonus nutlet	-	-	-	-	-	1	-	1	1
(w) <i>Conium maculatum</i> (Hemlock)	fruit	-	-	-	-	-	-	-	1	1
(w) <i>Eleocharis</i> sp (Spike-rushes)	nutlet	-	-	-	1	-	2	1	2	1
(w) <i>Ranunculus flammula</i> (Lesser Spearwort)	achene	-	-	-	-	-	-	-	-	2
(w) <i>Solanum dulcamara</i> (Bittersweet)	seed	-	-	-	-	-	-	-	1	-
(x) Apiaceae undiff. (Carrot family)	fruit	-	1	-	-	-	4	1	-	1
(x) Asteraceae undiff. (Daisy family)	achene	-	-	-	-	-	2	-	1	2
(x) Caryophyllaceae undiff. (Pink family)	seed	-	-	-	-	-	-	1	-	-
(x) <i>Chenopodium</i> sp (Goosefoots)	seed	-	-	1	1	1	2	2	2	3
(x) <i>Cirsium / Carduus</i> sp (Thistles)	achene	-	-	1	-	-	-	-	-	-
(x) Lamiaceae undiff. (Dead-nettle family)	nutlet	-	-	-	-	-	-	-	1	-
(x) Poaceae undiff. <1mm (Grass family)	caryopsis	2	1	-	-	-	-	-	-	-
(x) Poaceae undiff. >1mm (Grass family)	caryopsis	-	1	-	-	-	-	-	-	-
(x) <i>Potentilla</i> sp (Cinquefoils)	achene	-	-	-	-	-	-	-	-	1
(x) <i>Prunella vulgaris</i> (Selfheal)	nutlet	-	-	-	-	-	-	-	-	1
(x) <i>Ranunculus</i> subgenus <i>Ranunculus</i> (Buttercup)	achene	1	-	3	3	3	2	-	3	-

Sample		83	92	99	109	110	111	112	114	115
Context		915	908	918	924	925	946	954	958	957
Feature							[939]	[939]	[956]	[956]
(x) <i>Rumex</i> sp (Docks)	nutlet	-	1	-	2	-	-	2	-	-
(x) <i>Taraxacum officinale</i> agg. (Dandelion group)	achene	1	-	-	1	-	-	-	-	-
(x) <i>Trifolium</i> sp (Clovers)	seed	-	-	2	2	2	-	-	-	-
(x) <i>Vicia</i> sp (Vetches)	seed	-	-	-	-	-	1	-	-	-

[a-arable; q-aquatic; r-ruderal; t-tree/shrub; w-wet/damp ground; x-wide niche]

Table 21: Trench 9: waterlogged plant remains

Sample		23	24	26	29	30	32	33	34	35	38	40	41	42
Context		066	069	065	066	072	082	083	084	063	089	094	088	097
Feature												[095]		
Material available for radiocarbon dating		✓	-	✓	-	(✓)	-	-	(✓)	-	✓	-	-	(✓)
Volume processed (l)		62	15	62	<0.1	1.5	8	8	1.75	4	9.5	8.5	7.5	10
Volume of flot (ml)		1150	200	1300	5	65	100	20	220	25	270	45	150	340
Volume of flot assessed (ml)		1150	200	1300	5	65	100	20	220	25	270	45	150	340
Residue contents														
Bone (burnt)		-	-	-	-	-	-	-	-	-	(+)	-	-	-
Bone (fish)		++	-	+	-	-	(+)	-	-	-	-	-	-	-
Bone (unburnt)		+	++	++	(+)	(+)	++	-	+	++	-	-	-	++
Charcoal		+++	(+)	+++	(+)	-	-	-	+	-	(+)	-	-	++
Flint		-	-	-	-	-	-	-	-	-	1	-	1	-
Fractured flint		-	-	-	-	-	-	-	-	-	-	-	(+)	-

Sample		23	24	26	29	30	32	33	34	35	38	40	41	42
Context		066	069	065	066	072	082	083	084	063	089	094	088	097
Feature												[095]		
Modern roots		-	-	-	-	-	-	-	-	-	-	-	-	-
Pot (number of fragments)		1	-	2	-	-	-	-	-	-	-	-	-	-
Snails		++	++	+++	+	++++	+++	-	+++	+	-	-	(+)	-
Tooth (total number)		-	-	-	-	-	1	-	-	-	-	-	-	-
Wood		-	-	-	-	++	+	-	++	-	-	-	-	-
<i>Flot matrix</i>														
Bud (charred)		-	-	-	-	(+)	-	(+)	-	-	-	-	-	-
Bud (uncharred)		+	(+)	(+)	-	(+)	+	+	+	(+)	(+)	-	-	-
Bud scar (uncharred)		-	-	-	-	(+)	(+)	-	+	(+)	-	-	(+)	-
Bone (fish)		+	(+)	-	-	-	-	(+)	(+)	-	-	-	-	-
Bone (unburnt)		-	-	-	-	-	-	(+)	-	-	-	-	-	-
Charcoal		+++	(+)	+++	-	++	(+)	(+)	++	(+)	+++	+	(+)	++
Clinker / cinder		-	-	-	-	-	-	-	-	-	-	-	(+)	+
Coal / coal shale		-	-	-	-	-	-	-	-	-	-	-	+	+
Insect / beetle		++	++	++	+++	+++	-	-	(+)	(+)	(+)	-	+	-
Moss		-	-	-	-	+	-	-	-	-	-	-	-	-
Roots (modern)		-	-	-	-	-	-	-	-	-	-	++	+	-
Shell (freshwater / terrestrial)		++	+	++	++	+++	+	+	++	+	-	-	+	-
Tuber / rhizome (uncharred)		-	-	-	-	(+)	-	-	-	-	-	-	-	-
Uncharred vegetative material		++	++	++	-	-	++	+	-	-	-	-	++	-

Sample		23	24	26	29	30	32	33	34	35	38	40	41	42
Context		066	069	065	066	072	082	083	084	063	089	094	088	097
Feature												[095]		
Uncharred vegetative material cf. bud		-	-	-	-	+	(+)	-	(+)	-	(+)	-	-	-
Wood		+++	+	+++	-	+++	+++	++	++++	+++	-	-	+	-
<i>Charred remains (total count)</i>														
(c) <i>Cerealia</i> indeterminate	twisted awn frag.	-	-	-	-	-	-	-	1	-	-	-	-	-
(c) <i>Hordeum</i> sp (Barley species)	hulled grain	-	-	1	-	-	-	-	-	-	-	-	-	-
(c) <i>Triticum spelta</i> (Spelt Wheat)	glume base	-	-	-	-	-	1	-	-	-	-	-	-	-

[c-cultivated. (+): trace; +: rare; ++: occasional; +++: common; ++++: abundant (✓) there may be insufficient weight of carbon available for radiocarbon dating]

Table 22: Field 63 prehistoric contexts: residue, flot contents and charred plant remains

Sample		23	24	26	29	30	32	33	34	35	38	40	41	42
Context		066	069	065	066	072	082	083	084	063	089	094	088	097
Feature												[095]		
<i>Waterlogged remains (abundance)</i>														
(a) <i>Fumaria</i> sp (Fumitories)	seed	-	1	-	-	-	-	2	-	-	-	-	-	-
(q) <i>Groenlandia densa</i> (Opposite-leaved Pondweed)	fruit	2	-	-	-	-	-	-	-	-	-	-	-	-
(q) <i>Hippuris vulgaris</i> (Mare's-tail)	fruit	3	3	3	1	3	3	-	3	2	2	-	-	-
(q) <i>Lemna</i> sp (Duckweeds)	fruit	2	-	2	-	-	-	-	-	-	-	-	-	-
(q) <i>Myriophyllum</i> sp (Water-milfoils)	fruit	2	2	2	-	1	-	-	-	2	1	-	-	-
(q) <i>Potamogeton</i> sp (Pondweeds)	large fruit	3	2	2	-	2	-	-	-	-	2	-	1	-

Sample		23	24	26	29	30	32	33	34	35	38	40	41	42
Context		066	069	065	066	072	082	083	084	063	089	094	088	097
Feature												[095]		
(q) <i>Potamogeton</i> sp (Pondweeds)	small fruit	2	1	1	-	-	-	-	-	-	-	-	-	-
(q) <i>Ranunculus</i> subgenus <i>Batrachium</i> (Crowfoots)	achene	3	2	3	1	4	5	-	3	3	3	-	2	-
(q) <i>Zannichellia palustris</i> (Horned Pondweed)	fruit	5	3	4	1	2	2	1	4	2	3	-	2	1
(r) <i>Atriplex</i> sp (Oraches)	seed	-	-	1	-	1	-	-	-	1	-	-	-	-
(r) <i>Galeopsis</i> sp (Hemp-nettles)	nutlet	1	-	-	-	1	-	-	-	-	-	-	-	-
(r) <i>Persicaria maculosa</i> (Redshank)	nutlet	-	-	-	-	-	-	-	-	1	-	-	-	-
(r) <i>Polygonum aviculare</i> (Knotgrass)	nutlet	-	-	-	-	1	-	-	-	-	-	-	-	-
(r) <i>Sonchus asper</i> (Prickly Sow-thistle)	achene	1	1	1	-	2	1	-	1	-	-	-	-	-
(r) <i>Stellaria media</i> (Common Chickweed)	seed	1	-	-	1	1	1	1	1	1	1	-	-	-
(t) <i>Betula</i> sp (Birch sp)	bract	-	-	1	-	-	-	-	-	-	-	-	-	-
(t) <i>Cornus sanguinea</i> (Dogwood)	fruitstone	-	-	-	-	-	-	-	-	-	1	-	-	-
(t) <i>Corylus avellana</i> (Hazelnut)	nutshell fragment	2	-	-	-	1	-	-	-	-	1	-	1	-
(t) <i>Crataegus monogyna</i> (Hawthorn)	fruitstone	2	-	1	-	-	1	1	-	2	-	-	-	-
(t) <i>Prunus spinosa</i> (Sloe)	fruitstone	2	-	1	-	-	1	-	1	-	-	-	-	-
(t) <i>Rubus fruticosus</i> agg. (Bramble)	fruitstone	2	-	2	1	2	3	1	3	3	2	-	1	1
(t) <i>Rubus idaeus</i> (Wild Raspberry)	fruitstone	1	-	-	-	-	-	1	-	-	-	-	-	-
(t) <i>Sambucus nigra</i> (Elder)	fruitstone	2	2	-	-	2	1	1	2	2	1	-	1	3
(w) <i>Carex</i> sp (Sedges)	trigonus nutlet	1	-	2	1	-	2	-	1	1	-	-	1	-
(w) Cyperaceae undiff. (Sedge family)	nutlet	2	-	-	-	1	2	-	1	-	-	-	-	-
(w) <i>Eleocharis</i> sp (Spike-rushes)	nutlet	-	-	-	-	-	-	-	-	-	1	-	-	-
(w) <i>Lycopus europaeus</i> (Gipsywort)	nutlet	-	-	1	-	-	-	-	-	-	-	-	-	-

Sample		23	24	26	29	30	32	33	34	35	38	40	41	42
Context		066	069	065	066	072	082	083	084	063	089	094	088	097
Feature												[095]		
(w) <i>Ranunculus sardous</i> (Hairy Buttercup)	achene	-	-	-	-	-	-	1	-	-	-	-	-	-
(w) <i>Ranunculus sceleratus</i> (Celery-leaved Buttercup)	achene	-	-	1	-	1	-	-	-	-	-	-	-	-
(w) <i>Rorippa nasturtium-aquaticum</i> (Water-cress)	seed	-	-	-	-	2	1	-	1	2	-	-	-	-
(w) <i>Solanum dulcamara</i> (Bittersweet)	seed	-	-	2	-	-	-	-	-	-	-	-	-	-
(x) <i>Apium</i> sp (Marshworts)	fruit	-	-	-	-	3	2	-	1	1	-	-	-	-
(x) <i>Cenococcum geophilum</i> (soil fungus)	sclerotia	-	-	-	-	-	-	1	-	-	2	-	-	3
(x) <i>Chenopodium</i> sp (Goosefoots)	seed	1	-	2	-	2	2	1	-	-	-	-	-	-
(x) <i>Cirsium / Carduus</i> sp (Thistles)	achene	1	1	1	-	1	-	1	1	-	-	-	-	-
(x) Poaceae undiff. <1mm (Grass family)	caryopsis	1	1	-	-	2	-	-	1	2	-	-	-	-
(x) Poaceae undiff. >1mm (Grass family)	caryopsis	1	-	-	-	-	-	-	-	-	-	-	-	-
(x) <i>Potentilla anserina</i> (Silverweed)	achene	-	-	-	-	2	-	1	-	-	-	-	-	-
(x) <i>Ranunculus</i> subgenus <i>Ranunculus</i> (Buttercup)	achene	1	1	3	1	4	1	3	3	2	-	-	-	-
(x) <i>Rumex</i> sp (Docks)	nutlet	-	-	-	-	2	2	2	2	1	-	-	-	-
(x) <i>Rumex</i> sp (Docks)	nutlet in tepals	1	-	-	-	1	2	-	1	1	-	-	-	-

[a-arable; q-aquatic; r-ruderal; t-tree/shrub; w-wet/damp ground; x-wide niche]

Table 23: Field 63 prehistoric contexts: waterlogged plant remains

Sample	1	2	3	5	6	13	14	15	19	21	22
Context	26	27	28	26	28	40	41	42	51	43	44
Feature						[035]	[035]	[035]	[033]	[035]	[035]
<i>Material available for radiocarbon dating</i>	-	-	-	-	-	-	-	-	-	-	-
<i>Volume processed (l)</i>	8.5	8.5	9	11	9.5	9	9	7.5	8.5	4	5
<i>Volume of flot (ml)</i>	170	160	155	395	115	210	180	115	115	70	70
<i>Volume of flot assessed (ml)</i>	170	160	155	395	115	210	180	115	115	70	70
<i>Residue contents</i>											
Bone (burnt)	-	-	-	-	-	-	+	-	-	-	-
Bone (fish)	(+)	(+)	(+)	-	(+)	+	-	+	-	-	-
Bone (unburnt)	++	+	(+)	++	(+)	+	-	+	(+)	(+)	(+)
Charcoal	(+)	-	-	-	-	-	-	-	-	-	-
Pot (number of fragments)	-	-	-	1	-	-	-	-	-	-	-
Slag	-	-	-	-	-	-	+++	-	-	-	-
Snails	++	++	+	+++	+	+++	++	++	+++	++	+
Tooth (total number)	2	-	-	-	-	-	1	1	-	-	-
Wood	-	-	-	-	(+)	-	-	-	-	-	-
<i>Flot matrix</i>											
Bone (unburnt)	(+)	-	-	(+)	-	-	-	(+)	-	-	-
Bone (fish)	-	-	-	-	-	-	-	-	(+)	-	-
Bud (charred)	-	-	-	-	-	(+)	-	-	-	-	-
Bud (uncharred)	(+)	-	-	+	+	-	-	-	-	-	-
Bud scar (uncharred)	(+)	-	+	-	+	-	(+)	(+)	-	-	(+)
Charcoal	+	(+)	(+)	+	(+)	-	(+)	-	-	+	(+)

Sample		1	2	3	5	6	13	14	15	19	21	22
Context		26	27	28	26	28	40	41	42	51	43	44
Feature							[035]	[035]	[035]	[033]	[035]	[035]
Cladocera (ephippia)		++	-	-	-	-	-	-	-	-	-	-
Clinker / cinder		-	-	-	-	-	-	-	(+)	-	-	-
Coal / coal shale		(+)	-	-	-	-	-	-	-	-	-	-
Crinoids		-	-	-	-	-	-	-	-	-	+	-
Earthworm egg case		-	-	-	+	-	-	+	-	+	+	-
Insect / beetle		++	+++	(+)	+	-	+	++	-	+	++	(+)
Moss		-	(+)	-	-	-	-	-	-	-	-	-
Shell (freshwater / terrestrial)		++	+++	++	+++	++	+++	++++	+++	++++	+++	+++
Uncharred vegetative material		+	-	-	+++	++	-	+	++	++	+	-
Uncharred vegetative material cf. bud		-	(+)	-	-	-	-	-	-	(+)	-	-
Vivianite		-	-	-	-	-	-	(+)	+	-	-	-
Wood		++	+++	(+)	+++	++	++	++	++	+	+	++++
<i>Charred remains (total count)</i>												
(c) <i>Hordeum</i> sp (Barley species)	grain	-	1	-	-	-	-	-	-	-	-	-
(c) <i>Hordeum</i> sp (Barley species)	rachis frag.	-	1	-	-	-	-	-	-	-	-	-
(t) <i>Crataegus monogyna</i> (Hawthorn)	fruitstone	-	-	-	-	1	-	-	-	-	-	-

[c-cultivated; t-tree/shrub. (+): trace; +: rare; ++: occasional; +++: common; ++++: abundant]

Table 24 Field 63 Roman ditch contexts: residue, flot contents and charred plant remains

Sample		1	2	3	5	6	13	14	15	19	21	22
Context		26	27	28	26	28	40	41	42	51	43	44
Feature							[035]	[035]	[035]	[033]	[035]	[035]
<i>Waterlogged remains (abundance)</i>												
(a) <i>Aethusa cynapium</i> (Fool's Parsley)	fruit	-	1	-	-	-	-	1	-	-	-	-
(a) <i>Fallopia convolvulus</i> (Black Bindweed)	nutlet	-	-	-	-	-	-	1	-	-	-	-
(a) <i>Fumaria</i> sp (Fumitories)	seed	-	1	-	-	-	1	-	1	-	-	-
(a) <i>Raphanus raphanistrum</i> (Wild Radish)	pod	-	1	1	1	-	-	-	-	-	-	-
(a) <i>Thlaspi arvense</i> (Field Penny-cress)	seed	-	2	1	-	-	-	-	-	1	-	-
(h) <i>Rumex acetosella</i> (Sheep's Sorrel)	nutlet	-	-	-	1	-	-	-	-	-	-	-
(q) <i>Ceratophyllum demersum</i> (Rigid Hornwort)	achene	-	-	-	-	-	-	-	-	-	1	-
(q) <i>Groenlandia densa</i> (Opposite-leaved Pondweed)	fruit	4	3	1	3	1	3	3	3	3	2	2
(q) <i>Hippuris vulgaris</i> (Mare's-tail)	fruit	-	-	-	-	1	1	-	-	-	-	1
(q) <i>Myriophyllum</i> sp (Water-milfoils)	fruit	-	-	1	-	-	-	-	-	-	-	-
(q) <i>Potamogeton</i> sp (Pondweeds)	large fruit	-	-	2	-	2	-	1	-	-	-	2
(q) <i>Potamogeton</i> sp (Pondweeds)	small fruit	-	-	-	-	2	1	-	1	-	-	-
(q) <i>Ranunculus</i> subgenus <i>Batrachium</i> (Crowfoots)	achene	4	4	2	4	1	3	4	2	3	3	2
(q) <i>Zannichellia palustris</i> (Horned Pondweed)	fruit	4	3	2	3	3	2	4	5	3	3	2
(r) <i>Atriplex</i> sp (Oraches)	seed	-	-	-	-	-	-	-	-	1	-	-
(r) <i>Hyoscyamus niger</i> (Henbane)	seed	1	-	-	-	-	-	-	-	-	-	-
(r) <i>Persicaria maculosa</i> (Redshank)	nutlet	1	2	-	1	-	1	3	-	1	-	1
(r) Polygonaceae undiff. (Knotweed family)	nutlet	-	-	-	-	-	-	-	1	-	-	-
(r) <i>Polygonum aviculare</i> (Knotgrass)	nutlet	-	-	-	1	-	-	-	-	2	-	-
(r) <i>Sonchus asper</i> (Prickly Sow-thistle)	achene	2	-	1	-	-	1	2	1	2	2	1

Sample		1	2	3	5	6	13	14	15	19	21	22
Context		26	27	28	26	28	40	41	42	51	43	44
Feature							[035]	[035]	[035]	[033]	[035]	[035]
(r) <i>Stellaria media</i> (Common Chickweed)	seed	-	-	-	1	-	-	1	-	1	1	1
(r) <i>Urtica dioica</i> (Common Nettle)	achene	-	2	-	-	-	-	-	-	-	-	-
(t) <i>Corylus avellana</i> (Hazelnut)	nutshell fragment	-	-	-	-	-	-	-	1	-	-	-
(t) <i>Crataegus monogyna</i> (Hawthorn)	fruitstone	-	-	-	-	1	1	-	1	-	-	-
(t) <i>Prunus spinosa</i> (Sloe)	fruitstone	-	-	1	-	-	-	-	-	-	-	-
(t) <i>Rubus fruticosus</i> agg. (Bramble)	fruitstone	2	1	1	1	1	-	2	-	3	-	1
(t) <i>Sambucus nigra</i> (Elder)	fruitstone	1	2	-	2	1	2	2	2	1	-	2
(w) <i>Carex</i> sp (Sedges)	biconvex nutlet	1	-	-	-	-	-	-	-	-	-	-
(w) <i>Carex</i> sp (Sedges)	trigonus nutlet	-	1	1	-	1	2	-	-	-	1	-
(w) Cyperaceae undiff. (Sedge family)	nutlet	-	-	-	1	-	-	-	1	-	-	-
(w) <i>Eleocharis</i> sp (Spike-rushes)	nutlet	-	-	-	1	-	-	-	-	1	-	-
(w) <i>Lysimachia vulgaris</i> (Yellow Loosestrife)	seed	-	-	1	-	-	-	-	-	-	-	-
(w) <i>Montia fontana</i> (Blinks)	seed	1	3	-	-	1	1	2	1	2	1	-
(w) <i>Ranunculus flammula</i> (Lesser Spearwort)	achene	-	2	-	1	-	-	1	-	-	-	-
(w) <i>Ranunculus sardous</i> (Hairy Buttercup)	achene	-	1	-	2	1	-	-	-	-	-	-
(w) <i>Rorippa nasturtium-aquaticum</i> (Water-cress)	seed	-	2	-	3	-	4	5	3	2	4	3
(w) <i>Solanum dulcamara</i> (Bittersweet)	seed	1	-	-	-	-	-	-	-	-	-	-
(x) <i>Apium</i> sp (Marshworts)	fruit	-	-	-	3	-	3	4	-	2	3	2
(x) Apiaceae undiff. (Carrot family)	fruit	4	-	-	-	-	-	-	3	-	-	-
(x) Asteraceae undiff. (Daisy family)	achene	-	-	-	1	-	-	-	-	-	-	-
(x) Brassicaceae undiff. (Cabbage family)	seed	-	-	-	-	-	-	-	-	1	-	-

Sample		1	2	3	5	6	13	14	15	19	21	22
Context		26	27	28	26	28	40	41	42	51	43	44
Feature							[035]	[035]	[035]	[033]	[035]	[035]
(x) Caryophyllaceae undiff. (Pink family)	seed	-	-	1	-	-	-	-	-	-	-	-
(x) <i>Chenopodium</i> sp (Goosefoots)	seed	-	-	-	1	-	-	-	1	2	-	-
(x) <i>Cirsium</i> / <i>Carduus</i> sp (Thistles)	achene	2	2	1	-	1	-	1	1	-	1	-
(x) <i>Heracleum sphondylium</i> (Hogweed)	fruit	-	-	-	1	-	-	-	-	-	-	-
(x) Poaceae undiff. <1mm (Grass family)	caryopsis	-	-	-	1	-	2	3	2	3	-	1
(x) <i>Potentilla anserina</i> (Silverweed)	achene	-	-	-	-	-	-	1	-	-	-	-
(x) <i>Ranunculus</i> subgenus <i>Ranunculus</i> (Buttercup)	achene	1	2	1	3	1	-	2	1	1	-	-
(x) <i>Rumex</i> sp (Docks)	nutlet	-	-	-	-	-	1	-	-	-	1	-
(x) <i>Rumex</i> sp (Docks)	nutlet in tepals	-	-	2	2	-	-	-	-	2	-	-

[a-arable; h-heathland; q-aquatic; r-ruderal; t-tree/shrub; w-wet/damp ground; x-wide niche]

Table 25: Field 63 Roman ditch contexts: waterlogged plant remains

Sample	16	17	18	31	31	31	39	
Context		19	46	48	80	80	80	78
Feature			[045]	[047]	[081]	[081]	[081]	
						Pot fill	Outside of pot	
<i>Material available for radiocarbon dating</i>	-	(✓)	-	-	-	-	-	-
<i>Volume processed (l)</i>	8	27	16	1	1.5	4	9	
<i>Volume of flot (ml)</i>	50	380	160	10	10	20	240	
<i>Volume of flot assessed (ml)</i>	50	380	160	10	10	20	240	
<i>Residue contents</i>								
Bone (calcined)	-	-	-	-	-	-	(+)	-
Bone (fish)	-	++	(+)	-	-	-	(+)	-
Bone (unburnt)	++++	+++	+++	-	-	-	-	-
Marine shell	++	-	-	-	-	-	-	-
Metal object	-	1	-	-	-	-	-	-
Pot (number of fragments)	-	2	1	-	-	-	-	-
Snails	-	-	(+)	-	-	-	(+)	-
Tooth (total number)	-	4	2	-	-	-	-	-
<i>Flot matrix</i>								
Bone (fish)	-	-	-	-	-	++	(+)	-
Bone (unburnt)	++	-	-	-	-	-	-	-
Bud (uncharred)	(+)	(+)	-	-	-	-	-	-
Bud scar (uncharred)	-	-	+	-	-	-	-	-
Charcoal	(+)	-	(+)	-	-	-	-	-
Clinker / cinder	-	-	-	-	-	+	-	-
Coal / coal shale	-	-	-	-	-	-	+	-

Sample		16	17	18	31	31	31	39
Context		19	46	48	80	80	80	78
Feature			[045]	[047]	[081]	[081]	[081]	
						Pot fill	Outside of pot	
Earthworm egg case		+++	+	-	+	+	-	-
Insect / beetle		++	++	++	++	++	+++	-
Residue from pot lining (carbonised)		-	-	-	-	+++	-	-
Roots (modern)		+++	++	++	-	-	+++	-
Shell (freshwater / terrestrial)		-	+	+	-	-	-	(+)
Shell (marine)		+	-	-	-	-	-	-
Uncharred vegetative material		-	++	+	+	++	-	(+)
Wood		+	++	-	-	-	+	+
<i>Charred remains (total count)</i>								
(c) <i>Cerealia</i> indeterminate	grain	-	1	-	-	-	-	-
(c) <i>Hordeum</i> sp (Barley species)	grain	1	1	-	-	-	-	-
(c) <i>Hordeum</i> sp (Barley species)	rachis frag.	-	1	-	-	-	-	-
(c) <i>Triticum spelta</i> (Spelt Wheat)	glume base	-	2	-	-	-	-	-
(c) <i>Triticum</i> sp (Wheat species)	grain	-	-	-	-	-	1	-
(x) Poaceae undiff. <1mm (Grass family)	caryopsis	1	-	-	-	-	-	-
(x) Poaceae undiff. >1mm (Grass family)	caryopsis	-	-	1	-	-	-	-
(x) <i>Rumex</i> sp (Docks)	nutlet	-	1	-	-	-	-	-

[c-cultivated; x-wide niche. (+): trace; +: rare; ++: occasional; +++: common; ++++: abundant
(✓) there may be insufficient weight of carbon available for radiocarbon dating]

Table 26: Field 63 Roman non-ditch contexts: residue, flot contents and charred plant remains

Sample		16	17	18	31	31	31	39
Context		19	46	48	80	80	80	78
Feature			[045]	[047]	[081]	[081]	[081]	
						Pot fill	Outside of pot	
<i>Waterlogged remains (abundance)</i>								
(a) <i>Aethusa cynapium</i> (Fool's Parsley)	fruit	-	1	-	-	-	-	-
(a) <i>Fumaria</i> sp (Fumitories)	seed	-	2	-	-	-	-	-
(a) <i>Thlaspi arvense</i> (Field Penny-cress)	seed	-	-	1	-	-	-	-
(h) <i>Rumex acetosella</i> (Sheep's Sorrel)	nutlet	-	1	-	-	-	-	-
(q) <i>Baldellia ranunculoides</i> (Lesser Water-plantain)	fruit	-	1	-	-	-	-	-
(q) <i>Ceratophyllum demersum</i> (Rigid Hornwort)	achene	-	1	-	-	-	-	1
(q) <i>Groenlandia densa</i> (Opposite-leaved Pondweed)	fruit	3	4	4	-	-	-	-
(q) <i>Hippuris vulgaris</i> (Mare's-tail)	fruit	-	-	-	-	-	-	3
(q) <i>Lemna</i> sp (Duckweeds)	fruit	-	-	-	-	-	-	1
(q) <i>Myriophyllum</i> sp (Water-milfoils)	fruit	-	-	-	-	-	-	3
(q) <i>Potamogeton</i> sp (Pondweeds)	large fruit	1	-	1	-	-	-	2
(q) <i>Potamogeton</i> sp (Pondweeds)	small fruit	-	-	-	-	-	-	2
(q) <i>Ranunculus</i> subgenus <i>Batrachium</i> (Crowfoots)	achene	2	3	3	2	-	-	3
(q) <i>Zannichellia palustris</i> (Horned Pondweed)	fruit	3	4	3	2	3	-	4
(r) <i>Sonchus asper</i> (Prickly Sow-thistle)	achene	-	1	2	-	-	-	-
(r) <i>Stellaria media</i> (Common Chickweed)	seed	-	-	-	-	1	-	-
(r) <i>Urtica dioica</i> (Common Nettle)	achene	1	2	2	-	-	-	-
(t) <i>Cornus sanguinea</i> (Dogwood)	fruitstone	1	-	-	-	-	-	-

Sample		16	17	18	31	31	31	39
Context		19	46	48	80	80	80	78
Feature			[045]	[047]	[081]	[081]	[081]	
						Pot fill	Outside of pot	
(t) <i>Crataegus monogyna</i> (Hawthorn)	fruitstone	1	1	-	-	-	-	-
(t) <i>Rubus fruticosus</i> agg. (Bramble)	fruitstone	-	2	2	1	-	1	-
(t) <i>Rubus idaeus</i> (Wild Raspberry)	fruitstone	-	-	-	-	-	1	-
(t) <i>Sambucus nigra</i> (Elder)	fruitstone	2	1	3	1	1	-	1
(w) <i>Carex</i> sp (Sedges)	trigonus nutlet	2	2	2	-	-	-	-
(w) <i>Eleocharis</i> sp (Spike-rushes)	nutlet	1	-	-	-	-	-	-
(w) <i>Hydrocotyle vulgaris</i> (Marsh Pennywort)	fruit	-	-	1	-	-	-	-
(w) <i>Mentha</i> cf. <i>aquatica</i> (Aquatic Mint)	nutlet	-	1	-	1	-	-	-
(w) <i>Mercurialis perennis</i> (Dog's Mercury)	seed	-	1	-	-	-	-	-
(w) <i>Montia fontana</i> (Blinks)	seed	-	1	2	-	-	-	-
(w) <i>Ranunculus flammula</i> (Lesser Spearwort)	achene	1	-	1	-	-	-	-
(w) <i>Rorippa nasturtium-aquaticum</i> (Water-cress)	seed	2	2	2	-	-	-	-
(w) <i>Solanum dulcamara</i> (Bittersweet)	seed	-	1	-	-	-	-	-
(x) <i>Apium</i> sp (Marshworts)	fruit	2	3	3	-	-	1	-
(x) Apiaceae undiff. (Carrot family)	fruit	-	-	-	2	1	-	-
(x) <i>Chenopodium</i> sp (Goosefoots)	seed	-	-	1	-	-	-	-
(x) <i>Cirsium</i> / <i>Carduus</i> sp (Thistles)	achene	1	2	-	-	-	-	-
(x) Poaceae undiff. <1mm (Grass family)	caryopsis	-	2	-	-	-	-	-
(x) Poaceae undiff. >1mm (Grass family)	caryopsis	-	-	2	-	-	-	-

Sample		16	17	18	31	31	31	39
Context		19	46	48	80	80	80	78
Feature			[045]	[047]	[081]	[081]	[081]	
						Pot fill	Outside of pot	
(x) <i>Ranunculus</i> subgenus <i>Ranunculus</i> (Buttercup)	achene	2	2	2	-	1	1	-
(x) <i>Rumex</i> sp (Docks)	nutlet	-	-	-	-	-	1	-
(x) <i>Rumex</i> sp (Docks)	nutlet in tepals	-	-	2	-	-	-	-

[a-arable; h-heathland; q-aquatic; r-ruderal; t-tree/shrub; w-wet/damp ground; x-wide niche. Waterlogged remains are scored from 1-5 where 1: 1-2; 2: 3-10; 3: 11-40; 4: 41-200; 5: >200]

Table 27: Field 63 Roman non-ditch contexts: waterlogged plant remains

Sample		4	8	9	10	11	12	25	27	28
Context		7	17	10	8	20	32	24	75	74
Feature			[018]	[012]	[008]	[023]				[073]
Material available for radiocarbon dating		-	✓	-	-	-	✓	-	-	-
Volume processed (l)		11	8	9	11	9	8	9	25	8.5
Volume of flot (ml)		80	40	80	65	60	240	25	1500	100
Volume of flot assessed (ml)		80	40	80	65	60	240	25	1500	100
Residue contents										
Bone (burnt)		(+)	-	-	-	(+)	-	-	-	-
Bone (calcined)		+	(+)	++	+	-	-	-	-	-
Bone (unburnt)		+	(+)	+	+	++	-	(+)	(+)	(+)
Charcoal		-	-	-	-	-	++	-	-	-
Clay pipe		-	-	-	-	1	-	-	-	-
Coal shale		-	-	-	-	-	-	-	-	+
Fired clay / CBM		+	-	+	+	-	-	-	-	(+)

Sample		4	8	9	10	11	12	25	27	28
Context		7	17	10	8	20	32	24	75	74
Feature			[018]	[012]	[008]	[023]				[073]
Glass		2	-	1	2	1	-	1	-	3
Hammerscale (ball / flake)		-	-	-	(+)/(+)	-	-	-	-	-
Marine shell		(+)	-	(+)	(+)	(+)	-	-	-	(+)
Metal object		3	-	-	1	3	-	1	-	-
Pot (number of fragments)		-	-	-	-	1	-	-	-	-
Snails		-	-	-	-	(+)	-	-	(+)	-
Tooth (total number)		-	-	-	-	-	-	-	1	-
Wood		-	-	-	-	-	-	-	+	(+)
<i>Flot matrix</i>										
Bone (calcined)		(+)	-	(+)	-	-	-	-	-	-
Bone (unburnt)		-	-	+	+	+	-	-	-	-
Charcoal		(+)	(+)	(+)	(+)	(+)	++++	(+)	-	-
Clinker / cinder		+	+	++	-	+	-	-	+	+
Coal / coal shale		+++	+	+++	-	++	-	(+)	-	+
Earthworm egg case		-	+	-	-	+	-	-	++	+
Insect / beetle		+	+++	-	-	-	+	-	+++	-
Shell (freshwater / terrestrial)		-	+	(+)	+	-	(+)	-	-	(+)
Roots (modern)		+++	-	++	+++	++	-	+++	++	+++
Uncharred vegetative material		-	-	-	-	-	-	-	++	-
Wood		-	-	-	-	-	-	-	(+)	-
<i>Charred remains (total count)</i>										

Sample		4	8	9	10	11	12	25	27	28
Context		7	17	10	8	20	32	24	75	74
Feature			[018]	[012]	[008]	[023]				[073]
(c) <i>Cerealia</i> indeterminate	grain	-	5	-	-	-	2	2	1	-
(c) <i>Hordeum</i> sp (Barley species)	grain	1	-	-	-	-	14	2	-	-
(c) <i>Hordeum</i> sp (Barley species)	hulled grain	-	-	-	-	-	6	-	-	-
(c) <i>Hordeum</i> sp (Barley species)	rachis frag.	-	-	-	-	-	-	-	1	-
(c) <i>Triticum spelta</i> (Spelt Wheat)	glume base	-	-	-	-	-	1	-	-	-
(c) <i>Triticum</i> sp (Wheat species)	grain	-	-	1	-	-	-	-	1	-
(x) Poaceae undiff. <1mm (Grass family)	caryopsis	-	-	-	-	-	-	1	-	-
(x) Poaceae undiff. >1mm (Grass family)	caryopsis	-	-	-	-	-	1	-	1	-
<i>Waterlogged remains (abundance)</i>										
(q) <i>Groenlandia densa</i> (Opposite-leaved Pondweed)	fruit	-	-	-	-	-	-	-	3	-
(q) <i>Ranunculus</i> subgenus <i>Batrachium</i> (Crowfoots)	achene	-	-	-	-	-	2	-	3	-
(q) <i>Zannichellia palustris</i> (Horned Pondweed)	fruit	-	-	-	-	-	-	-	4	2
(r) <i>Hyoscyamus niger</i> (Henbane)	seed	-	-	1	-	-	-	-	-	-
(r) <i>Sonchus asper</i> (Prickly Sow-thistle)	achene	-	-	-	-	-	-	-	2	-
(r) <i>Urtica dioica</i> (Common Nettle)	achene	-	-	-	-	-	1	-	-	-
(t) <i>Rubus fruticosus</i> agg. (Bramble)	fruitstone	-	-	-	-	1	-	1	2	2
(t) <i>Rubus idaeus</i> (Wild Raspberry)	fruitstone	-	1	-	-	1	-	-	-	-
(t) <i>Sambucus nigra</i> (Elder)	fruitstone	1	1	1	2	1	1	-	2	3
(w) <i>Carex</i> sp (Sedges)	biconvex nutlet	-	-	-	-	-	-	-	-	1
(w) <i>Carex</i> sp (Sedges)	trigonus nutlet	1	-	-	-	1	-	-	2	-
(w) <i>Mentha</i> cf. <i>aquatica</i> (Aquatic Mint)	nutlet	-	-	-	-	-	-	-	-	1

Sample		4	8	9	10	11	12	25	27	28
Context		7	17	10	8	20	32	24	75	74
Feature			[018]	[012]	[008]	[023]				[073]
(w) <i>Ranunculus sceleratus</i> (Celery-leaved Buttercup)	achene	-	-	-	-	-	-	-	1	-
(w) <i>Sparganium erectum</i> (Branched Bur-reed)	fruitstone	-	-	-	-	-	-	-	1	-
(x) <i>Apium</i> sp (Marshworts)	fruit	-	-	-	-	-	-	-	4	-
(x) Lamiaceae undiff. (Dead-nettle family)	nutlet	-	-	-	-	-	-	-	-	1
(x) Poaceae undiff. <1mm (Grass family)	caryopsis	-	-	-	-	-	-	-	1	-
(x) <i>Ranunculus</i> subgenus <i>Ranunculus</i> (Buttercup)	achene	-	1	-	-	-	-	1	-	4
(x) <i>Trifolium</i> sp (Clovers)	seed	-	-	-	-	-	-	-	-	1

[c-cultivated; q-aquatic; r-ruderal; t-tree/shrub; w-wet/damp ground; x-wide niche. (+): trace; +: rare; ++: occasional; +++: common; ++++: abundant.

Waterlogged remains are scored from 1-5 where 1: 1-2; 2: 3-10; 3: 11-40; 4: 41-200; 5: >200

Table 28: Field 63 post-Roman contexts

Appendix 6: Palaeoenvironmental assessment, organic artefacts

By Dr Carrie Drew, beetle identification was by Dr Stephen Davis, processing by Janet Beveridge. photography and small find by Jennifer Jones

Archaeological Services Durham University
April 2013

6.1 Summary

This report presents the results of palaeoenvironmental assessment of over 70 waterlogged wood pieces excavated during archaeological works at Banwell, Somerset. Nine small finds comprising possible ochre, worked bone and tooth were also assessed and conserved, where required. A single beetle fragment and fragments of shell, nutshell and charcoal were also identified. A pot was excavated, and the pottery fragments were washed and air-dried. The soil fills from around and within the pot were washed to recover bone, plant macrofossils or other finds.

The waterlogged wood pieces mostly contained limited evidence for any conversion beyond possible side shoot trimming, however several of the pieces were identifiable as worked wooden artefacts and further pieces had an end worked towards a rough point, suggesting use as stakes, markers or posts. There was a range of species present, including elm, field maple, hazel, ash, oak, birch, yew, willow/poplar, and members of both the Cherry and the Maloideae (hawthorns, apple, whitebeams, pear) groups. Many of the pieces consisted of small-diameter branch or stemwood.

A pot from (80) Δ74, which had been lifted as a block, was excavated. Bone and charred plant remains were absent from the soil within and around the pot. Assemblages of uncharred seeds characteristic of the wetland and open water conditions of the Somerset moors were present. A small number of tiny fish bones were also recovered from the fill of the pot.

Five bone/antler objects were conserved and conservation records were prepared, with the finds photographed before and after conservation. Two samples of possible red ochre were received for energy dispersive X-ray fluorescence (EDXRF) analysis. A few fragments of shell, nutshell and charcoal were also cleaned and recorded and a small fragment of beetle was cleaned and identified as a probable leaf beetle (cf. *Donacia* sp), a typical waterside beetle.

6.2 Objective

The objective of the scheme of works was to assess the material, conserve the bone and tooth artefacts, and provide the client with appropriate recommendations.

6.3 Methods

Samples were received by Archaeological Services on 14th August 2012, with further finds received on 29th November 2012 and 7th December 2012. Assessment and report preparation was conducted between 30th January and 4th April 2013.

A CD of photographs accompanies this report

The hand-recovered waterlogged wood pieces were hand-washed under cold running water, following English Heritage (2010) guidelines. The items were visually examined under both natural and artificial light to record obvious external features such as evidence of working, following the methodologies of Goodburn (1991) and Sands (1997). Assessment of suitability for tree-ring dating (dendrochronology) follows the guidelines of Mills (1988). Maximum dimensions of the waterlogged wood pieces were recorded. A small wood sample was removed from each piece to provide unexposed surface sections for species identification. Temporary thin sections in transverse, radial and tangential planes were examined using a Leica DMLM microscope at up to x600 magnification. Identifications were assisted by the descriptions of Hather (2000) and Schweingruber (1990), and modern reference material held in the Environmental Laboratory at Archaeological Services Durham University. After assessment, to preserve and retain humidity the wood fragments were resealed in polythene bags or boxes containing a small amount of water or wrapped in cling-film, as appropriate, and stored in cool conditions.

Micro-excavation was undertaken on the possible cremation pot from (80) Δ74. The pot was made up of 42 broken fragments held around the clay soil fill. Its deformed shape suggests it had been compressed within the burial environment. The pot was excavated in spits, but no bone was encountered and stratified layers were not evident. The soil from within the pot was therefore treated as a single fill. This was washed over a 500μm mesh and scanned at up to x60 magnification for small bone fragments, botanical remains and artefacts. Soil from around the pot was washed and examined separately. Identification of botanical remains was undertaken by comparison with modern reference material held in the Environmental Laboratory at Archaeological Services Durham University. Plant nomenclature follows Stace (1997). Habitat classifications follow Preston *et al.* (2002).

A number of artefacts were received wet for assessment and conservation. These were surface cleaned, dried in a controlled environment, re-adhered where necessary and re-packed. Conservation records were prepared for each object, (included on the accompanying CD), and they were photographed before and after conservation. Two samples of possible red ochre were received for energy dispersive X-ray fluorescence (EDXRF) analysis.

The single freshwater snail shell was identified to species using the descriptions of Macan (1977). Snail nomenclature follows Anderson (2005) and habitat classification follows Macan (1977).

6.4 Results

Waterlogged wood pieces

Over 70 fragments of waterlogged wood were assessed. Four of these pieces (small finds $\Delta 56$, $\Delta 66$, $\Delta 90$, WO18) were identified as elm and three ($\Delta 14$, WO16, $\Delta 91$) as field maple. Six examples of oak were present ($\Delta 73$, WO17, $\Delta 31$, $\Delta 84$, one of the fragments from $\Delta 49$ and the wood pieces from (833) [810]). Additionally, all of the timber fragments from context (841) were cf. oak, although a positive identification of these fragments was not possible due to the poor condition of the wood. Several examples of ash were present in the assemblage ($\Delta 4$, $\Delta 48$, $\Delta 51$, $\Delta 60$, $\Delta 78$), with ash also noted within four mixed wood small finds ($\Delta 45$, $\Delta 46$, $\Delta 49$, $\Delta 50$). Twenty-three examples of hazel were present (small finds $\Delta 26$, $\Delta 30$, $\Delta 33$, $\Delta 42$, $\Delta 44$, $\Delta 52$, $\Delta 54$, $\Delta 55$, $\Delta 57$, $\Delta 58$, $\Delta 59$, $\Delta 61$, $\Delta 64$, $\Delta 65$, $\Delta 68$, $\Delta 69$, $\Delta 70$ and $\Delta 83$), with hazel also present in mixed-wood small finds ($\Delta 43$, $\Delta 45$, $\Delta 46$, $\Delta 49$, $\Delta 50$). Two examples of Maloideae (Hawthorns, apple, whitebeams and pear) ($\Delta 25$ and $\Delta 53$) and of the Cherry family ($\Delta 47$ and $\Delta 27$) were present. Single examples of yew ($\Delta 4$), birch ($\Delta 29$), alder (from context (606)), and cf. willow/poplar ((839) [840]) were also present.

Species identification was not attempted on a single wood fragment from small find $\Delta 43$, as the fragment comprised a possible artefact and identification of an area suitable for sampling without disturbing a potentially interpretative surface was not possible.

Twenty-six of the waterlogged wood pieces contained clear evidence of conversion. Three further pieces had evidence for limited, rough, conversion although it was slightly unclear, and on fifteen fragments it was very unclear as to whether conversion had occurred or not, predominantly due to surface condition. Evidence was often difficult to positively identify or interpret as many of the pieces were water-abraded. Three items ($\Delta 4$, $\Delta 14$, $\Delta 25$) were identified as wooden artefacts and a further piece from $\Delta 43$ may comprise another artefact although the evidence is less clear. Two further items ($\Delta 27$ and $\Delta 68$) also showed particularly clear examples of deliberate working although they were not obvious artefacts.

Five wood pieces identified as artefacts or with particularly good tool marks are recommended for conservation ($\Delta 4$, $\Delta 14$, $\Delta 25$, $\Delta 27$, $\Delta 68$). A number of other pieces are also highlighted as potentially suitable for conservation. These consist of worked points, or other minimally converted pieces.

(80) $\Delta 74$ Excavated Pot

The soil from inside and around the excavated pot did not contain bone fragments, charred plant remains or artefacts. Low quantities of uncharred seeds, insect/beetle remains and earthworm egg cases were present which are likely to have been preserved by the waterlogged conditions. The suite of uncharred seeds includes aquatic, wet ground and ruderal species, and reflects the presence of aquatic and waterside habitats in the vicinity. A number of very small fish bones were also present in the pot fill but their tiny size suggests these do not represent food waste. A number of the pot sherds had a slight residue charred on their inside face possibly indicating the pot was formerly used as a cooking vessel.

(066) $\Delta 24$: Bone handle- X-ray 6537 [Fig 60]]

Description

Bone handle made from modified metacarpal 91mm long x 28mm wide max tapering to 22mm. The circular natural perforation is 11mm diameter. The hollow end of the handle may have been roughly worked to taper it, though this could be damage. Nothing was found inside the handle and there is no evidence of working inside the perforation. The butt end of the handle shows impact damage, shaping and wear, as does the edge of the perforation. The black streaks on the bone surface are probably mineral discolouration acquired in the burial environment.

Condition

Received wet. Stable following conservation.

Conservation treatment

Surface soil removed mechanically with solution of water/IMS/non-ionic detergent applied using cotton wool swabs. Gradually dried in a controlled environment.

Analysis

None.

Storage

May be stored in conditions of ambient temperature and relative humidity, avoiding extremes of both.

(862) Δ26: Pig tusk [Fig 61]

Description

Part of a small male pig (*Sus scrofa*) tusk, received wet in several pieces, some joining. Most of the point is intact, but is in two sections which will no longer join, due to object distortion. The two joined pieces are 62 & 44mm long. The complete tusk had a rounded triangular section 12 x 10mm max. The point is faceted on one side due to natural wear, as pig tusks grow continuously and are worn by being constantly ground against each other. No evidence of working was observed.

Condition

Received wet. Stable but distorted after conservation.

Conservation treatment

Surface soil removed mechanically with solution of water/IMS/non-ionic detergent applied using cotton wool swabs. Gradually dried in a controlled environment.

Joined using Paraloid B72 adhesive.

Analysis

None.

Storage

May be stored in conditions of ambient temperature and relative humidity, avoiding extremes of both.

(918) Δ30: Antler/bone point [Fig 62]

Description

Possibly complete pointed object 132mm long, received wet in two joining pieces. Sub-rectangular to oval in section 15 x 11mm max. The object is slightly faceted with one flattened face running along most of its length which shows evidence of wear. One end is sharply pointed, with little evidence of damage/wear. The other end has been squared off and also has two facets which do not show wear.

Condition

Received wet in two joining pieces. Stable after conservation.

Conservation treatment

Surface soil removed mechanically with solution of water/IMS/non-ionic detergent applied using cotton wool swabs. Gradually dried in a controlled environment.

Joined using Paraloid B72 adhesive.

Analysis

Unclear as to whether this is antler or a metapodial bone from a very large animal (Prof P Rowley-Conwy pers comment).

Storage

May be stored in conditions of ambient temperature and relative humidity, avoiding extremes of both.

(066) Δ75: Bone handle- X-ray 6537 [Fig 63]

Description

Bone handle made from a metatarsal, 86mm long x 29mm wide tapering to 18mm. The butt end has been squared off and has evidence of impact damage and wear. The other end has been skilfully tapered with no evidence of this working remaining.

The whole surface appears well-used and worn with a high natural polish. There are many multi-directional shallow scratches over the surface.

The sub-circular perforation is 9.5mm diameter. As received, two fragments of wood were found inside, filling the perforation. These were sampled for species identification and found to be alder/hazel (*Alnus/Corylus*). The close fit of the wood fragments suggests they had been deliberately placed, perhaps as packing (possibly along with adhesive) to hold a ?flint blade.

Condition

Received wet. Stable after conservation.

Conservation treatment

Surface soil removed mechanically with solution of water/IMS/non-ionic detergent applied using cotton wool swabs. Gradually dried in a controlled environment.

Wet wood brushed with a solution of polyethylene glycol 400/4000 during drying.

Analysis

Wood sampled and identified microscopically as alder/hazel (*Alnus/Corylus*).

Storage

May be stored in conditions of ambient temperature and relative humidity, avoiding extremes of both.

(086) Δ80: Rectangular bone object [Fig 64]

Description

Incomplete object, received wet, fashioned from the rib bone of a large animal. It is rectangular 66 x 37mm max x 5.5-7mm thick, its shape preserving the natural curve of the rib.

Long edges are damaged but original and have been cut into a series of small scallops at c4-5 per 20mm. Where intact, these appear worn. One short end is broken, the other is damaged but possibly retains part of an original rounded end. There are two small (2.5 & 3.5mm diam) countersunk perforations close together in the centre of the object. Some wear is evident around these, but tool marks are still clearly visible.

The concave side has a series of long shallow surface scratches parallel to the object's length, particularly to one side of the perforations, with a few deeper scratches at one end lying at right angles to these. The other side has scratches mainly at right angles to the length, as well as a curved worn area towards the broken end.

Condition

Received wet. Stable after conservation.

Conservation treatment

Surface soil removed mechanically with solution of water/IMS/non-ionic detergent applied using cotton wool swabs. Gradually dried in a controlled environment.

Analysis

None.

Storage

May be stored in conditions of ambient temperature and relative humidity, avoiding extremes of both.

(087) <36> and (089) <37>: Red ochre/clay samples [Fig 65]

Description

Two irregularly shaped pieces of sandy clay with areas of red-coloured material (extensive in the sample from context [089]).

The pieces were surface analysed using non-destructive energy dispersive X-ray fluorescence (EDXRF). As well as a range of earth elements, significant levels of iron and manganese were detected. The colour of the material and the EDXRF analyses results suggest that these are pieces of red ochre.

Condition

Received wet. Stable after conservation.

Conservation treatment

Air dried.

Analysis

Surface EDXRF detected a range of earth elements and significant levels of iron and manganese.

Storage

May be stored in conditions of ambient temperature and relative humidity, avoiding extremes of both.

Other hand-recovered finds

The single beetle fragment from (066) <44> was identified as the underside of cf. *Donacia* sp, a typical waterside beetle. Three shells were also examined, these comprised the upper part of an oyster shell from context (923), a further oyster shell fragment from context (003), and (066) Δ35 was identified as a great pond snail (*Lymnaea stagnalis* -Linnaeus), a common freshwater species in small ponds and fairly swift rivers. A number of waterlogged hand-recovered nutshells were examined. These comprised single complete waterlogged hazel nutshells from (038) <45> and (066) <44>. Eight further fragments of hazel nutshell were present from (066) <44> Bag 62. Five hazel nutshell fragments were also present in (066) <44> Bag 55. Sixteen Hazel nutshell fragments were present from (065).

An antler fragment of red deer-size (*Cervus elaphus*-size) was recovered from (085) Δ81. During cleaning a hard laminated concretion surrounding the antler was noted, which may have been caused by taphonomic processes in the burial environment. There is no clear working or evidence of modification on the antler piece. A small bone fragment (Δ25 from (066)) of indeterminate species or element was also examined. This fragment presents no evidence of working or other modification. A single charcoal fragment was also assessed. This comprised a fragment of blackthorn (*Prunus spinosa*) from (066). A fragment labelled as charcoal from context (027) when examined was determined to be a dried-out wood fragment. This could not be identified to species due to its poor condition.

In general, the waterlogged wood pieces are likely to contain sufficient carbon for radiocarbon dating, however the timber planks and wood fragments from (841) are in extremely poor condition and several fragments may need to be combined to provide a radiocarbon date.

The waterlogged wood descriptions, the palaeoenvironmental assessment of the soil from within and around the excavated pot, and photographs of some of the waterlogged wood pieces and the conserved small finds are presented in Appendices 1-3. Further photographs and the conservation reports for the small finds are included on the accompanying CD.

6.5 Discussion

The internal structure of most of the hand-recovered waterlogged wood pieces was well enough preserved to be able to identify the wood to species in the majority of the cases, albeit many of the pieces were soft and some degradation was noted in many of the pieces. The occurrence of wood buried within waterlogged conditions is not atypical for Somerset (Coles & Orme 1985) and a range of tree species has been utilised in Somerset since prehistoric times, with the resources of both the surrounding hills and lower-lying levels used by the inhabitants (ibid.). The waterlogged wood pieces demonstrate at Banwell that a diverse range of wood species was being utilised, reflecting the variety of the local environment. Wet willow, alder and birch carr woodlands were some of the first to colonise the wetlands (English Nature 1997; Natural England 1996) prior to the incursion of drier woodland trees such as ash, oak and elm. Yew is still present in the nearby Mendip uplands, and again has been utilised since the prehistoric period, with yew artefacts identified from sites on the Somerset Levels (Aston & Burrow 1982) such as the Sweet Track and Meare Heath. Field maple and ash dominate the limestone slopes of the Mendip hills, with hazel also common (British Geological Survey 2013). While there is little clear evidence from the assemblage for wood management techniques, many of the wood fragments are hazel, and the straightness and lack of forks, particularly for small finds Δ26 and Δ52, may indicate the presence of some coppiced poles, as identified elsewhere in waterlogged Somerset deposits (Coles & Coles 1986; Rackham 1977). Small finds Δ49 and Δ51 also provide tentative evidence of hazel boles, which may have been produced by coppicing or other woodland management techniques.

Most of the hand-recovered wood pieces appear to be minimally-converted large wooden fragments. In many of the pieces degradation has made it difficult to clearly identify conversion.

Such abrasion is caused by the effects of water flow and natural abrasion from sands and silt (Wayne Smith 2003). A number of the pieces (including Δ26, Δ31, Δ52, Δ54) have ends worked roughly to a point and may comprise broken off ends of stakes/posts. It is probable that some of the other pieces of wood examined are wood conversion debris, made up of wooden pieces removed and discarded during the gathering of smaller pieces. The pieces themselves appear to not have been needed for firewood or timber and were discarded with no further use. The presence of a number of wooden artefacts provides clear evidence of wood conversion at the site, with the presence of a possible mallet (Δ14) evidence of tool manufacture.

A number of the wood fragments (for example W016, Δ30, Δ46) contained evidence of insect tracks and degradation which may indicate that wood pieces were lying exposed or utilised for other purposes prior to deposition (Lyons & O'Donnell 2009). A number of the pieces also contain evidence for recent damage, potentially caused during or post-excavation.

The small finds similarly provide evidence of human occupation in the area, with a wide range of materials being worked. The presence of ochre, a clay stained with colouring minerals, at the site is unsurprising, considering there are ochre caves less than a mile to the east of the site, which later in the post-medieval period, formed the most accessible and extensive ochre workings in the Mendips.

Context	Small find number	Evidence of conversion?	Suitable for tree ring dating?	Recommended for conservation?	Wood species	Photographs
026	90	✓	X	X	Elm	1-8
042	91	✓	X	?	Field Maple	9-10
065	73	X?	X	X	Oak	11-14
066	4	✓	X	✓	Ash	15-19
066	14	✓	X	✓	Field Maple	20-24
066	W016	?	?	X	Field Maple	25-26
066	W017	✓	X	?	Oak	27-29
066	26	✓	X	?	Hazel	30-33
066	29	✓?	X	X	Birch	34-35
066	30	X	X	X	Hazel	36-37
066	31	✓	X	X	Oak	38-41
066	33	✓	X	?	Hazel	42-45
066	42	✓?	X	X	Hazel	46-50
066	43	✓?	X	?	Hazel + ?	51-55
066	44	✓	X	X	Hazel	56-57
066	45	?	X	X	Hazel + Ash	58-59
066	46	?	X	X	Hazel + Ash	60-63
066	47	?	X	X	Blackthorn	64-65
066	48	?	X	X	Ash	66-67
066	49	✓	?	X	Hazel + Oak + Ash	68-69

Context	Small find number	Evidence of conversion?	Suitable for tree ring dating?	Recommended for conservation?	Wood species	Photographs
066	50	?	X	X	Hazel + Ash	70-71
066	51	✓	?	X	Ash	72-74
066	52	✓	X	?	Hazel	75-88
066	53	X	X	X	Maloideae	89-95
066	54	✓	X	X	Hazel	96-99
066	55	?	X	X	Hazel	100-102
066	56	✓	X	X	Elm	103-104
066	57	X	X	X	Hazel	105-106
066	58	?	X	X	Hazel	107-109
066	59	X	?	X	Hazel	110-111
066	60	?	?	X	Ash	112-115
066	61	✓	X	X	Hazel	116-117
066	64	✓	X	X	Hazel	118-119
066	65	X	X	X	Hazel	120-122
066	66	?	X	X	Elm	123-126
066	68	✓	X	✓	Hazel	127-130
066	69	?	X	X	Hazel	131-133
066	70	✓	X	X	Hazel	134-136
066	78	?	?	X	Ash	137-138
85	W018	?	?	X	Elm	139-142
85	84	✓	?	?	Oak	143-146
87	83	✓	?	?	Hazel	147-153
507	4	?	X	X	Yew	154-157
606		?	?	X	Alder	158-166
833	[810]	✓	X	X	Oak	167-168
839	[840]	?	X	X	cf. Willow/ Poplar	169-170
841	TP1	✓	X	X	cf. Oak	171-174
841	TP2	✓	X	X	cf. Oak	175-178
841	Timbers	✓	X	X	cf. Oak	179-193
883	25	✓	X	✓	Maloideae	194-197
873	27	✓	X	✓	Cherries family	198-200

Table 29: Summary table of waterlogged wood samples

Sample		31	31
Context		80	80
Location of deposit		Inside pot	Outside pot
<i>Material available for radiocarbon dating</i>		-	-
<i>Volume processed (l)</i>		1.5	1
<i>Flot matrix</i>			
Bone (unburnt)	fish	++	-
Carbonised residue		+++	-
Clinker / cinder		+	-
Earthworm egg case		+	+
Insect / beetle		++	++
Vegetative material (uncharred)		++	+
<i>Waterlogged remains (abundance)</i>			
(q) <i>Ranunculus</i> subgenus <i>Batrachium</i> (Crowfoot)	achene		2
(q) <i>Zannichellia palustris</i> (Horned Pondweed)	fruit	3	2
(r) <i>Stellaria media</i> (Common Chickweed)	seed	1	-
(t) <i>Rubus fruticosus</i> agg. (Bramble)	fruitstone	-	1
(t) <i>Sambucus nigra</i> (Elder)	fruitstone	1	1
(w) <i>Mentha</i> cf. <i>aquatica</i> (Aquatic Mint)	nutlet	-	1
(x) Apiaceae (Carrot family)	fruit	1	2
(x) <i>Ranunculus</i> subgenus <i>Ranunculus</i> (Buttercup)	achene	1	-

Table 30: Palaeoenvironmental data from pot (80) Δ74



Plate 1: SF24 Bone handle



Plate 2: SF24 Bone handle



Plate 3: SF26 Pig tusk



Plate 4: SF26 Pig tusk



Plate 5: SF30 Antler bone point



Plate 6: SF30 Antler bone point



Plate 7: SF75 Bone handle



Plate 8: SF75 Bone handle



Plate 9: SF80 Bone object, possible comb



Plate 10: SF80 Bone object, possible comb



Plate 11: Ochre

Appendix 7: Human bone

By Dr Anwen Caffell, Archaeological Services, Durham University,
Nov 2013

This report presents the analysis of human bone fragments recovered from three inhumation burials and disarticulated bone during archaeological works at Banwell, North Somerset.

7.1 Results

From the entirety of the skeletal remains a minimum number of individuals (MNI) count of six was concluded with remains from four adults, a perinate and an infant present. Most of the bone however was recovered from three relatively complete inhumation burials of moderate preservation. The three skeletons were radiocarbon dated to the Roman period and all were identified as possible males, with varying degrees of confidence. All three skeletons contained a variety of pathological conditions and non-metric traits.

All three skeletons were radiocarbon dated to the Roman period, and the dates broadly ranged from the early 2nd century AD to the mid-5th century AD. The dates for each skeleton are provided in Table 31.

Sk No.	Radiocarbon Date Range	Material dated
1	230-389 calAD	Tooth – lower right 2 nd molar
2	129-264 and 333 calAD	Tooth – lower left 1 st molar
3	325 to 425 calAD	Tooth – lower left 1 st molar

Table 31: Radiocarbon dates

The burials probably lay beside or near a Roman road, and the burial area had apparently been demarcated by a substantial ditch [810]. Other features associated with Roman activity/occupation were identified during excavation, and the excavated area lay adjacent to a probable Roman villa.

Disarticulated remains were also recovered from various contexts, with disarticulated remains also present in two samples taken from the grave of Skeleton 3. The contexts are listed in Table 32.

Field	Trench	Context	Sample
63	-	066	-
58a	8	811	-
58a	8	833	-
-	8	841 (Sk 3)	40
-	8	841 (Sk3)	60

Table 32: Contexts containing disarticulated remains

7.2 Methods

The hand-collected human remains and samples were received by Durham Archaeological Services on 14th August 2012. The skeletal remains were analysed in full. Their state of preservation was recorded through examining their completeness (expressed as a percentage) and condition. Surface preservation was assessed using the seven-category grading system defined by McKinley (2004), ranging from 0 (excellent) to 5+ (extremely poor). Excellent preservation implied no erosion of the bone surfaces with clear surface morphology, whereas extremely poor preservation indicated heavy and penetrating erosion of the bone surface resulting in complete loss of surface morphology and modification of the bone shape. The amount of fragmentation evident was assessed subjectively, and categories of fragmentation ranged from minimal (indicating little or no fragmentation of the bones) to extreme (indicating extensive breaking of most bones into multiple small pieces).

An attempt was made to estimate age-at-death, sex, and stature where preservation allowed. Age was determined using standard methods specified in Cox (2000). For adults, age is estimated from degenerative changes seen in the pelvis (Brooks and Suchey 1990; Lovejoy *et al.* 1985) and ribs (İşcan *et al.* 1984, 1985; İşcan and Loth 1986), supplemented through analysis of dental wear (Brothwell 1981). Adults were divided into broad age categories: young adult (18-25 years), young middle adult (26-35 years), old middle adult (36-45 years), and mature adult (46+ years). The latter category could include individuals far older than 46 years of age. Any adult that could not be placed into one of these age groups was simply categorised as an adult (18+ years). Assessment of sex can only be carried out in adult individuals. Sex was determined through examination of the shape of the pelvis and skull (cranium and mandible), supplemented with measurements of certain bones, as described in Mays and Cox (2000). Measurements were taken where possible and used to calculate skeletal indices (Bass 1987) and stature (Trotter 1970). Finally the skeletons were examined for any evidence of disease or trauma (Roberts and Manchester 2005; Ortner 2003).

Disarticulated bone was recorded according to McKinley (2004), identifying the bone element, side, percentage of bone element present, surface preservation, age-at-death, sex (where possible), as well as recording any other features of interest (e.g. non-metric traits, pathological conditions).

7.3 Results

A small quantity of disarticulated remains was recovered. A single humerus shaft was found in Field 63, a femur shaft and 5th metatarsal from Trench 8 (Contexts (833) fill of cemetery ditch and (811) the occupation horizon below the grave cuts respectively), and four fragments from context (841) (within the grave of Skeleton 3) that included parts of vertebrae, clavicle and a tooth (see Table 38). A summary of the data for each skeleton is presented in Table 33, and a detailed catalogue is provided in Table 38.

7.4 Preservation

All three skeletons were relatively complete (see Table 38), and most areas of the body were present in all individuals. This probably relates to the fact that the burials were relatively undisturbed and had not been cut by later burials or other features. All three skeletons had a moderate surface preservation, with some degree of surface erosion across most bones that had masked fine surface detail. Some of the bones from Skeleton 1 had developed an unusual 'laminated' appearance, where a thick outer layer of the cortex had partially (in places fully) separated from the inner cortex (Figure 66 B). Unfortunately, the bones from all skeletons were severely fragmented, and some of the bones from Skeleton 2 were extremely fragmented. Teeth were also prone to fragmentation, with crowns frequently separated from the roots (Figure 66 A). The amount of fragmentation in particular, coupled with the moderate surface preservation, hindered analysis. Surface preservation of the disarticulated remains ranged from Grade 3 (moderate) to Grade 0 (excellent). None of the bones were complete, with completeness ranging from 20-90%.

Sk No	Preservation			Age Group	Age	Sex	Stature	Dental Disease	Skeletal Pathology
	SP	F	C						
1	3 (Mod)	Severe	80-90%	OMA?	36-45?	M?	-	Calculus; Dental abscess; AMTL; DEH	Sinusitis; Fractured ankle and soft tissue trauma; Osgood-Schlatter's Disease; Degenerative disc disease; DJD of spine, right TMJ, right shoulder, left hip; OA of right hip; Schmorl's nodes
2	3 (Mod)	Severe/Extreme	70-80%	OMA/MA?	36+?	M??	-	Calculus; Periodontal disease; Dental caries; Dental abscess; AMTL; DEH; Fractured tooth; Small chips to enamel; Slight crowding of mandible	Transitional vertebra at LS border; Sinusitis; Endocranial bone formation; Lamellar bone both tibiae and metatarsals; Degenerative disc disease; DJD of spine, left shoulder; OA of spine, left wrist and hand
3	3 (Mod)	Severe	80-90%	OMA	36-45	M	-	Calculus; Periodontal disease; Dental caries; DEH; Small chips to enamel	Transitional vertebra at TL border; Absent occipitomastoid sutures; Lamellar bone both tibiae; Fractured ribs (x4); DJD and OA of spine; Lytic lesion in L2; Fusion of L3-4

SP = Surface Preservation, grades according to McKinley (2004); F = Fragmentation (minimal, slight, moderate, severe, extreme); C = Completeness; AMTL = ante-mortem tooth loss; DEH = dental enamel hypoplasia; DJD = degenerative joint disease; OA = osteoarthritis; TMJ = temporomandibular joint

Table 33: Summary of osteological and palaeopathological results (articulated skeletons)

7.5 Minimum Number of Individuals

The minimum number of individuals represented by the remains from Banwell (including disarticulated and articulated remains) was six. There were a minimum of four adults, as all three articulated skeletons had both a left humerus and right femur, so the disarticulated left humerus and right femur must have come from at least one other individual. A small number of non-adult bones in the grave of Skeleton 3 indicated the presence of at least one perinate/neonate, and a disarticulated deciduous tooth had probably come from an infant aged 6-12 months. However, these elements were probably residual within the grave fill.

7.6 Assessment of Age-At-Death

All three individuals were adults. Two (Skeletons 1 and 3) were probably old middle adults aged 36-45 years, while Skeleton 2 was probably aged at least 35 years of age and so was either another old middle adult or a mature adult.

It was possible to estimate the age of Skeleton 3 (36-45 years) fairly securely, based on degeneration of the pubic symphysis and auricular surface of the pelvis, and degeneration of the sternal ends of the ribs. Dental wear was more ambiguous: the 1st and 2nd molars suggested a younger age, but the 3rd molars showed a degree of wear consistent with the 36-45 year age group.

The age estimate for Skeleton 1 (36-45? years) was more tentative as the degeneration of the auricular surface suggested an age of 36-45 years but dental wear suggested a younger age range of 17-35 years. Since dental wear can be influenced by diet (Walker *et al.* 1991) the age suggested by the auricular surface was viewed as more reliable.

Dental wear was the only means of estimating age available for Skeleton 2 (35+? years), and hence the age estimate must be considered the least reliable of the three. The left molars were heavily worn, suggesting an age of 36-45 years or older, while the single surviving right molar suggested a slightly younger age of 26-35 years. It was tentatively suggested that this individual was probably older than 35 years of age.

The disarticulated remains from Context 841 (associated with Skeleton 3) included three fragments probably from a perinate (around the time of birth) or neonate (0-1 month), as well as a deciduous incisor that probably came from an infant aged c. 6-12 months. The remaining disarticulated bone was probably adult.

7.7 Sex Estimation

All three individuals were probably/possibly males. As with age estimation, the sex estimate for Skeleton 3 was the most confident. Most areas of the pelvis and skull could be observed in this individual and most features displayed definite male traits. Metrical analysis also suggested the individual was male.

Skeleton 1 was probably male, but although most skull traits were observable only a few pelvic traits (which are the most reliable for sex estimation) could be observed. Most traits suggested the individual was possibly male; metrical analysis was limited by post-mortem damage but even measurements of damaged bones fell into the male range.

The sex estimate for Skeleton 2 was the least confident. No pelvic traits could be observed, and although the skull overall tended towards a male appearance, some traits were indeterminate or possibly female. Metric analysis was not possible. This individual was tentatively suggested to be a possible male.

It was not possible to estimate sex for any of the disarticulated remains.

7.8 Metric Analysis

Unfortunately it was not possible to calculate stature for any of the skeletons as the long bones were too fragmented. Likewise, it was not possible to calculate the cranial index, which describes the shape of the cranium, as all the crania were too fragmented.

The platymeric and platycnemic indices describe the degree of flattening of the femoral and tibial shafts respectively. It was possible to calculate the platymeric index for both femora from Skeleton 3, and for the right femur of Skeleton 2. Both skeletons had flattened femora, with their indices falling into the platymeric range (Table 34). It was only possible to calculate the platycnemic index for the right tibia of Skeleton 3. This tibia was of average shape, with the index (69.48) falling into the mesocnemic range.

Sk No.	R Femur		L Femur	
	Index	Range*	Index	Range*
1	-	-	-	-
2	79.61	P	-	-
3	74.32	P	75.52	P

P = *Platymeric* (flattened), E = * *Eurymeric* (rounded), S = *Stenomic* (extremely rounded)

Table 34: *Platymeric index*

7.9 Non-Metric Traits

Non-metric traits are small variations in shape which occur in a minority of skeletons. There may be a genetic basis for most traits (Saunders 1989), but some traits may be caused by mechanical stress (Kennedy 1989), or environmental stress (Trinkhaus 1978).

Cranial non-metric traits were observed in all three individuals (see Table 40). They all shared mandibular tori, lumps of bone on the internal surface of the mandible. These were bilateral in Skeletons 1 and 3, but only occurred on the left side in Skeleton 2. Small holes that are normally present in the cheekbones were absent in Skeleton 1 (absent zygomaticofacial foramen), and Skeleton 3 had highest nuchal lines (additional thin ridges of bone on the occipital bone at the back of the cranium). Skeleton 2 had a range of traits including ossicles (additional small bones) in the lambdoid sutures, at lambda and at asterion (various points on the back and sides of the cranium). He also had variation in the presence/absence and location of various small holes, including a parietal foramen, an extrasutural mastoid foramen, bridging of the supraorbital notch, and an accessory supraorbital foramen. The latter two traits are located just above the orbit.

Post-cranial traits were also observed in all three skeletons (see Table 40). All three individuals had vastus notches (small notches in the side of the kneecap), while Skeleton 3 also had vastus fossae (small hollows on the side of the kneecap). Skeletons 1 and 3 both had small grooves in their scapulae (circumflex sulcus), and spicules of bone on the neck of the femur (exostosis in the trochanteric fossa). Skeletons 2 and 3 shared several lower-limb traits, including acetabular creases (a small depression in the surface of the hip joint), plaque (a roughened area of bone on the neck of the femur), hypotrochanteric fossae (depressions on the femur shaft), and double inferior talar facets (variation in the shape of facets in the ankle bone). Corresponding variation in ankle facet shape was seen in the calcaneus of Skeleton 2 (double anterior calcaneal facets). Skeleton 1 had lateral tibial squatting facets, while Skeleton 2 had a medial talar facet (both traits essentially involving additional facets at the ankle joint).

In addition, Skeleton 1 had a peroneal tubercle (nodule of bone on the side of the heel bone), Skeleton 2 had double atlas facets (variation in the shape of the first neck vertebra), and Skeleton 3 had an accessory sacral facet (an additional facet in the pelvis).

7.10 Pathological Conditions 1: Congenital Conditions

Heredity and environment can predispose an individual to developmental anomalies, and mild expressions of these anomalies are commonly observed in archaeological populations (Barnes 1994).

7.10.1 Transitional Vertebrae

A normal spinal column is made up of seven cervical (neck) vertebrae, twelve thoracic (chest) vertebrae, five lumbar (lower back) vertebrae, the five fused vertebral segments of the sacrum, and four segments of the coccyx. If one of the 'borders' between these different types of vertebrae shift during development then a vertebra from one group can become incorporated with the adjacent group. If this happens, the vertebra will take on the appearance of the adjacent group, rather than developing as the 'correct' type of vertebra (Barnes 1994). For example, the 12th thoracic vertebra might become incorporated with the lumbar vertebrae and develop the appearance of a lumbar vertebra rather than a thoracic vertebra. These border shifts and the resulting transitional vertebrae can occur at any of the borders between vertebra types (*ibid.*).

Two of the individuals from Banwell had transitional vertebrae. Skeleton 3 had a slight shift at the border between his thoracic and lumbar vertebrae. The left apophyseal joint between the 12th thoracic and 1st lumbar vertebra was thoracic in shape (with flattened facets), while the right joint was the lumbar shape (with curved facets) that is normal for this joint. In all other respects, both vertebrae appeared typical for their type. This was a very mild caudal (downwards) border shift at the thoraco-lumbar border.

Skeleton 2 had a transitional vertebra at the border between the lumbar vertebrae and the sacrum. However, because his spine was much less well preserved than that of Skeleton 3 it was not possible to work out the direction of the shift. The lowest lumbar vertebra had a broad left transverse process (the part of the vertebra that projects to the side) which had a raised area with a rough and porous texture on the inferior surface. This raised area was likely in contact with the sacrum beneath, suggesting the vertebra was partially incorporated into the sacrum (sacralisation). Alternatively, this may have been the first sacral vertebra attempting to separate from the rest of the sacrum and become a lumbar vertebra (lumbarisation). Unfortunately the right side of the vertebra was not preserved, so it was not possible to tell whether both sides were affected.

Sacralisation or lumbarisation has been reported in around 3-5% of individuals, and sacralisation is more frequent (Aufderheide and Rodríguez-Martín 1998). During the Roman period, lumbarisation had affected 0.3%, and sacralisation had affected 1.2%, of the British population (Roberts and Cox 2003). Sacralisation has been associated with lower back pain (Sture 2001; Barnes 1994) as well as degenerative changes and disc herniation further up the spine as a result of reduced mobility (Sture 2001).

7.10.2 Craniosynostosis/Sutural Agenesis

The bones in the cranial vault meet at joints named sutures. Failure of a suture to develop is known as sutural agenesis, whereas premature fusion of a suture is known as craniosynostosis (Barnes 1994). Since the presence of sutures allows the cranium to expand in size during childhood to accommodate the growing brain, if a suture is absent or fuses too early it can prevent the cranium from growing in a certain direction. If other sutures are present and open then the brain and cranium will grow in that direction instead, and the shape of the cranium will be altered. Sutural agenesis can be hereditary and runs in families. Craniosynostosis can be caused by a variety of factors, including foetal cranial position in utero, birth trauma, infection whilst in the womb, endocrine dysfunction and metabolic disorders (such as rickets) (Jimenez *et al.* 1994). In general, craniosynostosis affects males more often than females (Aufderheide and Rodríguez-Martín 1998).

In Skeleton 3 both occipitomastoid sutures (short sutures in the region behind the ears) were completely absent, and there was no evidence on the internal or external surface of the cranium that they were ever present. Since sutures tend to fuse together, and even become completely obliterated, with age, and Skeleton 3 was an old-middle adult, it is possible that the absence of these sutures was age-related. However, other sutures in the same region were either completely unfused, or in the early stages of fusion. Unfortunately the cranium was too fragmented to assess whether there were any changes to cranial shape that would indicate the sutures were congenitally absent or had fused during childhood.

Premature suture closure was observed in 0.12% of skeletons in the Romano-British period (Roberts and Cox 2003). At Poundbury, Dorset, the occipitomastoid sutures were absent in three non-adults, and premature fusion of other sutures was observed in six other individuals (two non-adults and four adults; Farwell and Molleson 1993). Premature fusion or absence of the occipitomastoid suture was observed in the cranium of an adult individual, and absence of the sagittal suture was seen in a child, both from Arbeia Roman fort, Tyne-and-Wear (Croom and Caffell 2010; Croom and Caffell 2005).

7.11 Pathological Conditions 2: Infectious Disease

Bone can respond to an infection through laying down new bone. Initially, this new bone is disorganised woven bone, but with time and healing the woven bone becomes remodelled into lamellar bone (Roberts and Manchester 2005). Since it takes time for bone to respond, acute illnesses (where the patient either recovers or dies within a short space of time) are unlikely to leave any trace on the skeleton. However, chronic conditions (where the individual lives with the condition for a while before death or recovery) may be evident (*ibid.*).

7.11.1 Maxillary Sinusitis

Maxillary sinusitis commonly occurs as a result of upper respiratory tract infections, pollution, smoke, dust allergies, or a dental abscess that penetrates the sinus cavity (Roberts and Manchester 2005). Maxillary sinusitis was seen in two of the skeletons from Banwell. Skeleton 1 had porosity on the posterior wall of his left sinus; his right sinus was unaffected. Skeleton 2 had lamellar bone and porosity in his right sinus, while his left sinus was unaffected. Maxillary sinusitis was found to affect about 1.2% of the population in Roman Britain (Roberts and Cox 2003), but since this is a crude prevalence the true prevalence of the condition was probably higher.

7.11.2 Endocranial Bone Formation

New bone formation on the endocranial (internal) surface of the cranium is more commonly seen in infants and young children, and is believed to result following inflammation or haemorrhage of the meningeal blood vessels. Many possible causes have been identified, including chronic meningitis, trauma, anaemia, neoplastic disease (cancer), metabolic diseases (scurvy and rickets), venous drainage disorders and tuberculosis (Lewis 2007).

Skeleton 2 had well-remodelled flattened nodules of lamellar bone on the endocranial surface of the occipital bone, located in the sagittal and transverse sulci which transmit the vein that drains blood from the skull. Since the lesions were well-remodelled the condition was healed. Roberts and Cox (2003) reported that five individuals showed evidence for this condition in the Roman period, but they do not give a prevalence rate.

7.11.3 Periosteal Reaction

Superficial inflammation of the bone is known as a periosteal reaction, which may result in the deposition of new bone on the bone surface. Woven and lamellar bone is frequently found on the lower legs of archaeological skeletons, and its prevalence has often been used as a general measure of stress in past populations (Roberts and Manchester 2005). Inflammation of these bones may be due to infection, but other causes are possible, including low-grade trauma and chronic ulceration (*ibid.*).

The tibiae (shins) of two skeletons from Banwell had lamellar bone formation, indicative of a long-standing healed inflammation. In Skeleton 2, both tibiae had striated lamellar bone on the medial and lateral midshafts, and this individual also had smooth nodules of lamellar bone on the metatarsals of both feet. In Skeleton 3, striated lamellar bone was observed on the medial midshafts of both tibiae, extending onto the lateral midshaft of the left tibia. Roberts and Cox (2003) suggest that around a quarter of tibiae were affected by periosteal reactions in the Roman period.

7.12 Pathological Conditions 3: Trauma

7.12.1 Fractures

Skeleton 1 had injured his right ankle. He had a probable healed fracture through the distal joint of the tibia (the postero-lateral corner) with associated soft-tissue damage to the fibrous joint between the tibia and fibula (manifested rough and irregular projections of bone on the part of the tibia that articulates with the fibula, Figure 67). Although ankle injuries are relatively common (de Vries *et al.* 2005), isolated fractures of the postero-lateral part of the tibia (known as Volkmann's triangle) are rare, frequently caused through slipping on ice or snow during winter (Neumaier *et al.* 1997). This type of fracture can be complicated to treat in modern patients, often resulting in joint instability and associated osteoarthritis, and larger fragments usually require fixation (de Vries *et al.* 2005). However, fractures classified as Type I (according to Haraguchi *et al.* 2006) are most likely to heal successfully with minimally invasive treatment, and this was the type of fracture sustained by Skeleton 1. Skeleton 1 did have osteophytes around the margins of the distal joint surface, which could indicate joint changes associated with the injury. Fractures of the tibia have been observed in Romano-British populations (28 fractures in 2406 individuals, Roberts and Cox 2003), but the type of fracture sustained is not noted.

Skeleton 3 had suffered four rib fractures. Two had occurred in left rib shaft fragments, but the side of the other two shaft fragments could not be determined. All four fractures were well healed, and showed little or no displacement of the bone (Figure 68). Rib fractures occur as a result of falls, blows to the torso, or even coughing, and they are commonly seen in archaeological populations (Roberts and Manchester 2005). Rib fractures were observed in Romano-British populations, with 137 fractures occurring in a sample of 4042 individuals (Roberts and Cox 2003). However, the prevalence of this injury could not be calculated.

7.12.2 Osgood-Schlatter's Disease

The large quadriceps muscle on the front of the thigh anchors to the front of the shin below the knee, at a point known as the tibial tuberosity. Osgood-Schlatter's Disease is an avulsion fracture of the tibial tuberosity, where the bone at the attachment point is pulled away from the rest of the tibia (Aufderheide and Rodríguez-Martín 1998; Dandy and Edwards 2003). It is caused either by a direct blow to the tibial tuberosity, or by the quadriceps muscle exerting too much pull on the attachment side. It is a condition that tends to occur in boys between 10-15 years of age, and is often seen in athletes (Aufderheide and Rodríguez-Martín 1998). In modern patients the majority of injuries heal well simply through the restriction of activities that cause pain, and once healed 95% of individuals experience no further pain or problem at the injury site (Dandy and Edwards 2003).

This condition was observed in the left tibia of Skeleton 1; his right tibia was normal (Figure 69). It seems likely that he suffered this injury as a teenager. The conservative treatment that has proved successful in modern patients (restriction of painful activity) would have been easily achievable in the Roman period, and it is highly probable that once the injury healed he would have experienced no further pain or inconvenience as an adult.

7.12.3 Pathological Conditions 4: Joint Disease

The term 'joint disease' encompasses a large number of conditions with different causes, which all affect the joints of the skeleton. Factors influencing the development of degenerative joint disease and osteoarthritis include advancing age, physical activity, occupation, workload and genetics. Other joint diseases may have inflammatory causes, such as septic arthritis. Different joint diseases affect the joints differently, and diagnosis is based on the appearance of the lesions combined with the pattern of distribution throughout the skeleton (Roberts and Manchester 2005).

7.12.4 Joint Disease of the Spine: Degenerative Disc Disease

Degenerative changes to the vertebral bodies were recorded when osteophytes (bony outgrowths) were present around the margins of the body surfaces, coupled with porosity of the body surfaces (Rogers 2000).

The amount of fragmentation observed in the skeletons from Banwell made recording joint disease in the spine particularly difficult. Skeleton 3 was the only individual where all the vertebrae could be identified and arranged in order. The spines of the other two individuals were so fragmented that it was impossible to identify all the vertebrae or place them in order.

Skeletons 1 and 2 both had evidence for degenerative disc disease (DDD). In Skeleton 1, the bodies of the 1st to 4th lumbar vertebrae (in the lower back) were affected. In Skeleton 2, two cervical (neck) vertebrae and the joint between the 5th lumbar vertebra and the sacrum (at the base of the spine) were affected.

7.12.5 Joint Disease of the Spine: Degenerative Joint Disease and Osteoarthritis

The apophyseal joints between the neural arches of the vertebrae are synovial joints, and so are vulnerable to degenerative joint disease and osteoarthritis. Degenerative joint disease (DJD) was recorded when osteophytes and porosity (combined) affected the apophyseal joints. Osteoarthritis (OA) was recorded when the apophyseal joints showed signs of eburnation (polishing), either alone or in addition to osteophytes and porosity.

DJD had affected the vertebrae of all three skeletons. In Skeleton 1, two neck vertebrae were involved (probably the 4th and 5th cervical vertebrae). DJD was observed in at least two thoracic and at least one lumbar vertebra from Skeleton 2. In Skeleton 3, nine thoracic (T2-T7 and T9-T11) and one lumbar vertebra showed signs of DJD. The frequency of DJD in the different vertebra types is shown in (Table 35). The thoracic vertebrae were most frequently affected (17.8% of facets), followed by the lumbar vertebrae (8.0% of facets) and cervical vertebrae (2.6% of facets). There was a tendency for the right side of the spine to be more frequently affected by DJD than the left side in all vertebra types.

Vertebral Facet		DJD		OA		Total
		n	%	n	%	n
Cervical	Superior Right	1	5.6	0	0.0	18
	Superior Left	0	0.0	2	9.5	21
	Superior Unsided	-	-	-	-	0
	Inferior Right	1	5.0	0	0.0	20
	Inferior Left	0	0.0	2	10.5	19
	Inferior Unsided	-	-	-	-	0
	Total	2	2.6	4	5.1	78
Thoracic	Superior Right	7	29.2	1	4.2	24
	Superior Left	2	10.5	0	0.0	19
	Superior Unsided	0	0.0	0	0.0	14
	Inferior Right	7	36.8	1	5.3	19
	Inferior Left	3	13.6	0	0.0	22
	Inferior Unsided	0	0.0	0	0.0	9
	Total	19	17.8	2	1.9	107
Lumbar	Superior Right	0	0.0	0	0.0	6
	Superior Left	0	0.0	0	0.0	6
	Superior Unsided	1	9.1	3	27.3	11
	Inferior Right	2	15.4	1	7.7	13
	Inferior Left	1	7.1	2	14.3	14
	Inferior Unsided	-	-	-	-	0
	Total	4	8.0	6	12.0	50

Vertebral Facet		DJD		OA		Total
		n	%	n	%	n
Sacrum	Superior Right	0	0.0	0	0.0	2
	Superior Left	0	0.0	0	0.0	2
	Total	0	0.0	0	0.0	4

Table 35: Spinal Joint Disease: Vertebral facets affected by DJD and OA

Osteoarthritis of the spine was observed in Skeletons 2 and 3. Skeleton 2 had OA in two cervical vertebrae (C6-7), two thoracic vertebrae (T1-2), and in at least two lumbar vertebrae. In Skeleton 3, OA affected the 2nd and 3rd cervical vertebrae. The frequency of OA in different vertebra types is shown above in Table 35. In contrast to DJD, the lumbar vertebrae were most affected by OA (12.0% of facets), followed by the cervical vertebrae (5.1%) and thoracic vertebrae (1.9%). On balance the left side of the spine was more likely to be affected by OA, particularly the neck and lower back.

7.12.6 Postcranial Joint Disease: Degenerative Joint Disease and Osteoarthritis

Skeletons 1 and 2 had both suffered from both DJD and OA in non-spinal joints. Skeleton 1 had degenerative changes to his right temporomandibular joint (TMJ), where the lower jaw articulates with the base of the cranium, right shoulder (acromio-clavicular joint between the shoulder blade and the collarbone), and left hip. He also had osteoarthritis of his right hip.

Skeleton 2 had DJD in the left shoulder (acromio-clavicular joint). They had also developed OA in their left wrist (joint between the pisiform and triquetral) and hand, affecting the joint at the base of the thumb (first metacarpo-phalangeal joint), and one of the finger joints (distal interphalangeal joint).

Degeneration of the TMJ may be associated with the loss of teeth during life, as the changes in chewing stresses alter the pattern of force transmitted through the joint (Aufderheide and Rodríguez-Martín 1998). Skeleton 1 had lost six teeth during life (see below), and it is possible the degeneration of his TMJ was associated with this. DJD and OA of the hips are frequently observed in modern populations, particularly in elderly individuals, as the hips are a major weight-bearing joint (Roberts and Manchester 2005; Aufderheide and Rodríguez-Martín 1998).

7.12.7 Schmorl's Nodes

Schmorl's nodes manifest as indentations in the upper and lower surfaces of the vertebral bodies. They are caused by the pressure of herniated vertebral discs (Aufderheide and Rodríguez-Martín 1998), and it is often thought that trauma is one of the major causes, although vertebrae weakened by infection, osteoporosis or neoplastic disease may be more vulnerable (Roberts and Manchester 2005). However, recent research has linked them to vertebra shape and size, suggesting they may have a developmental cause (Plomp *et al.* 2012).

Schmorl's nodes were observed in the bodies of six thoracic and three lumbar vertebrae in Skeleton 1.

7.13 Pathological Conditions 5: Miscellaneous

The second lumbar vertebra of Skeleton 3 had osteophytes around the left margin of the superior body surface, associated with a destructive lesion (Figure 70). One circular lesion had penetrated from the body surface right through to the left wall of the body, where the hole was surrounded by lamellar bone (Figure 70). These lesions were not typical of DJD, and their cause is unknown. The 3rd and 4th lumbar vertebrae were also fused by a large thick osteophyte on the right side (since broken post-mortem, Figure 71).

7.14 Dental Health

Analysis of the teeth from archaeological populations provides information on health, diet and oral hygiene. Teeth and jaws survived in all three skeletons, and these were examined macroscopically for evidence of pathological changes.

Overall there were 80 tooth positions and 58 teeth present (Table 36). These included three loose teeth (i.e. sockets had not survived). In addition, there were three broken teeth, where only the roots had survived; these were not included in the total number of teeth present as they would not have shown evidence for pathological conditions. Twelve teeth had been lost post-mortem (15.0%). Most dental diseases increase in frequency with age, so it is likely that the individuals from Banwell will show a high prevalence of dental disease since all were probably over 35 years of age.

SK No	Teeth	Sockets	Lost PM		Lost AM		Calculus		Caries		DEH	
			n	%	n	%	n	%	n	%	n	%
1	11	24	6	25.0	6	25	8	72.7	0	0.0	2	18.2
2	19	27	4	14.8	5	18.5	17	89.5	2	10.5	4	21.1
3	28	29	2	6.9	0	0.0	27	96.4	2	7.1	4	14.3
Total	58	80	12	15.0	11	13.8	52	89.7	4	6.9	10	17.2

Table 36: Dental disease summary

7.15 Dental Health 1: Calculus

Plaque that is not removed from the teeth effectively, or regularly, can mineralise and form concretions of calculus on the tooth surfaces (Hillson 1996). Mineralisation of plaque can also be common when the diet is high in protein (Roberts and Manchester 2005). Calculus is common in archaeological populations of all periods (Roberts and Manchester 2005).

All three individuals had calculus deposits on their teeth (Figure 71), and the proportion of teeth with calculus was 89.7% (see Table 36). This is double the frequency of 43.4% reported for Romano-British populations by Roberts and Cox (2003). The majority of the teeth in all individuals from Banwell had slight calculus deposits or flecks of calculus on the surfaces. However, a small number of teeth in all three individuals had moderate deposits, and Skeleton 1 had heavy deposits of calculus on one of his lower incisors.

7.16 Dental Health 2: Periodontal Disease

Calculus deposits between and around the necks of the teeth can aggravate the gums leading to inflammation of the soft tissues (gingivitis). In turn, gingivitis can progress to the bone itself, leading to resorption of the bone supporting the teeth and the loss of the periodontal ligaments that anchor the teeth into the sockets (Roberts and Manchester 2005). In skeletal material it can be difficult to differentiate between periodontal disease and continuous eruption, where the teeth continue to erupt in order to maintain occlusion despite heavy wear, since both conditions result in exposure of the tooth roots (Roberts and Manchester 2005).

Skeleton 3 had slight periodontal disease affecting both sides of his mandible and his left maxilla. Skeleton 2 possibly had moderate periodontal disease in his mandible, but the exposure of the tooth roots may have been due to continuous eruption. It was not possible to determine whether Skeleton 1 had suffered from periodontal disease. Roberts and Cox (2003) observed that around 29.3% of individuals had suffered periodontal disease during the Roman period.

7.17 Dental Health 3: Dental Caries

Dental caries (tooth decay) occurs when bacteria in the plaque metabolise sugars in the diet and produce acid. This acid then causes loss of minerals from the teeth that eventually leads to the formation of a cavity (Zero 1999). Simple sugars can be found naturally in fruits, vegetables, dried fruits and honey, as well as processed refined sugar. Since the latter three contain the most sucrose they are the most cariogenic. Complex sugars are usually less cariogenic and are found in carbohydrates, such as cereals. However, processing carbohydrates, including grinding grains or cooking them, will usually increase their cariogenicity (Moynihan 2003).

Two of the individuals (Skeletons 2 and 3) had developed carious lesions in their teeth, and the prevalence of caries at Banwell was 6.9% (see Table 36). This is only slightly lower than the average caries prevalence observed in Roman Britain (7.5%, Roberts and Cox 2003). Skeleton 3 had a large carious lesion that had destroyed the entire crown of his lower right second molar, with a small cavity in the root of the adjacent lower right first molar. Skeleton 2 had a small cavity in his lower right second molar (at the junction between the crown and the root) and another small cavity in the crown of his upper right first premolar (at the point of contact between this tooth and the second premolar).

Sources of sugar in the diet in the Roman period in Britain included locally available fruits and vegetables, while imported dried fruits (e.g. figs) and honey would have been of particular danger to teeth (Moore and Corbett 1973). The location of the carious lesions observed at Banwell (where it can be ascertained) is consistent with relatively coarse diets that might be fairly low in sugar, with cavities resulting from stagnation of food debris around the necks of the teeth and in between the crowns (*ibid.*). The prolonged contact of food debris with the teeth would have encouraged the development of cavities.

7.18 Dental Health 4: Dental Abscesses

Dental abscesses occur when bacteria enter the pulp cavity of a tooth, causing inflammation and a build-up of pus at the apex of the root. Eventually a hole forms in the surrounding bone, allowing the pus to drain out and relieve the pressure. Abscesses can form as a result of dental caries, heavy tooth wear, fractures to the teeth, or periodontal disease (Roberts and Manchester 2005).

Probable dental abscesses occurred in two individuals: Skeletons 1 and 2 each had a single lesion. Skeleton 1 had a U-shaped margin to the alveolar bone at the position of the lower left first molar, opening onto a hollow area with porous walls. Skeleton 2 had a large hollow area surrounding the root of his upper right second premolar. Both of the teeth from the affected tooth positions had been lost during life. The frequency of dental abscesses at Banwell was 2.5% (see Table 36), which was slightly lower than the average frequency of 3.9% observed in Roman Britain (Roberts and Cox 2003).

7.19 Dental Health 5: Ante-Mortem Tooth Loss

The loss of teeth during life is known as ante-mortem tooth loss (AMTL). It can occur as a result of dental caries, pulp-exposure through heavy tooth wear, or periodontal disease. Once the tooth has been lost the empty socket is filled in with bone (Roberts and Manchester 2005).

AMTL was seen in two individuals: Skeletons 1 and 2. Skeleton 1 had lost six teeth (a quarter of his observable dentition), while Skeleton 2 had lost five teeth during life. Overall, 13.8% of the teeth had been lost during life (see Table 36). This is comparable with the prevalence of AMTL observed in Roman Britain, where 14.1% of teeth on average were lost during life (Roberts and Cox 2003).

7.20 Dental Health 6: Dental Enamel Hypoplasia

Dental enamel hypoplasia (DEH) is the presence of lines, grooves or pits on the surface of the tooth crown. These occur as a result of defective enamel formation during growth (Hillson 1996).

They represent a period when crown formation was halted, usually due to a period of severe stress (such as malnutrition or disease) during the first seven years of childhood. Trauma can also cause DEH formation, usually in single teeth.

DEH was observed in a small number of teeth in each individual, with an overall prevalence of 17.2% of teeth affected (see Table 36). This is nearly double the frequency of DEH observed on average in Roman Britain (9.1%, Roberts and Cox 2003), although it should be noted that the average is based on a relatively small number of sites where the proportion of teeth affected by DEH was provided.

7.21 Dental Health 7: Dental Trauma

Injuries to the teeth and surrounding tissues are common in modern populations (Glendor *et al.* 2007), and the causes include violence, sporting activities, traffic accidents, falls, rough play, use of teeth as a tool, and biting hard objects (*ibid.*). In modern populations most dental injuries occur before the age of 20, and they are more common in boys than in girls (*ibid.*). The typical causes of dental trauma change with age. Young children and elderly adults are more likely to suffer trauma as the result of a fall, adolescents are more likely to experience trauma as the result of sporting activities, and adults are more likely to suffer injuries from fights (*ibid.*).

Skeleton 2 had fractured the crown of their lower right 2nd molar (Figure 72). The enamel was lost from the disto-lingual corner of the crown, and the underlying dentine was exposed. He also had small chips to the enamel of three of his incisors. Skeleton 3 also had small chips to the enamel of four teeth (one incisor and three molars).

7.22 Dental Health 8: Dental Anomalies

Skeleton 2 had slight crowding of his anterior mandible, where there was not quite enough room to accommodate his teeth in their normal positions.

7.23 Funerary Practices

The three individuals were apparently buried within a dedicated area demarcated by a substantial ditch. It seems likely that the burials were located beside or near a Roman road. A summary of the mortuary practices observed is provided in Table 37.

SK No	Context No	Grave No	Position	Hand Position	Orientation	Other
1	817	818	Extended, supine	Right arm flexed at elbow, hand over left torso; Left arm flexed at elbow, hand below right elbow	North-South	-
2	819	820	Extended, prone	Right arm flexed at elbow, hand beneath left forearm/ left pelvis; Left arm straight alongside torso, hand next to left hip	North-South	-
3	841	842	Extended, supine	Right arm alongside torso, hand on right femur; Left arm alongside torso, hand next to left hip	North-South	Wooden coffin or bier

Table 37: Summary of funerary practice

Each individual had been buried within their own grave cut, and there was no evidence for any intercutting or disturbance of the burials. The bodies had been placed with their heads to the north and feet to the south. All three had been buried in an extended position with the legs straight. However, while two had been buried supine (lying on their backs), Skeleton 2 had been buried prone (lying face down). Arm and hand positions varied slightly, with arms either straight by the sides, flexed at the elbows, or a combination of the two. Skeleton 3 had been buried on a wooden structure which was interpreted as either a bier or a coffin. There was no evidence for similar structures in the graves of Skeletons 1 and 2.

7.24 Discussion

During the Roman period the dead were buried outside settlements, in compliance with Roman law (Ottaway 1993), and roadside cemeteries were frequently found along the major routes into settlements, as seen at York (*ibid.*). The location of the burials at Banwell, within a defined area beside a road, is therefore fairly typical of the Roman period. The presence of inhumation burials at Banwell is also consistent with the known transition from cremation burial to inhumation burial in most areas during the 2nd century AD (Hope 1999).

The lack of intercutting of the graves at Banwell might suggest the graves were marked in some way, or were still visible when later burials occurred. Orderly burials were observed at the large Roman cemetery at Cannington, Somerset, and it was suggested that the lack of intercutting meant that grave locations were known or marked (Rahtz *et al.* 2000). There, evidence was found to suggest that two graves were marked with stones and three with wooden posts.

All three individuals from Banwell were buried in a north-south orientation, with the heads to the north. In contrast, at Cannington the burials were aligned on a west-east axis and none were buried in a north-south (or inverted) orientation (Rahtz *et al.* 2000). Although it seems that the dominant orientation for Romano-British burials was west-east, O'Brien (1999) has noted that smaller cemeteries of the period tend to favour north-south (or inverted) burial alignments, and suggests that this may indicate persistence of local Iron Age burial traditions. The orientation of the graves at Banwell would therefore be consistent with the practices observed at smaller (particularly more rural) cemeteries.

In terms of body position, during the Roman period inhumation burials tended to be extended (with the legs straight) and supine (on their backs) (Hope 1999), and at Cannington, 98.3% of the burials were placed in this position (Rahtz *et al.* 2000). Two of the burials at Banwell conform to this pattern: Skeletons 1 and 3 were both buried extended and supine. Although Skeleton 2 also had the legs extended, this individual was buried prone (face down). Prone burial is more commonly found in small and/or rural cemeteries, particularly in the 4th century AD (Philpott 1991). However, Skeleton 2 was the earliest of the three burials, dating to the 2nd-3rd centuries AD rather than the 4th century. Prone burial may be used to signify 'outcast' status, with the location of the burial frequently at the margin or beyond the borders of the main cemetery during the Roman period (*ibid.*), but Skeleton 2 was buried within the same area as Skeletons 1 and 3. Philpott (1991) has suggested various reasons for prone burials. These include that prone burial may have been desirable for ritual reasons, that the body was buried in haste with lack of concern for the body position, that it was intended to dishonour or punish the dead (prevent entry to the afterlife), or that something prevented the body from being laid out in a normal position.

Skeleton 3 was either buried in a wooden coffin, or was laid on a wooden bier. There was no evidence for the use of similar structures in the burial of the other two individuals from Banwell. Wooden coffins were widely used in the Roman period and were present in over half the burials surveyed by O'Brien (1999). Their use apparently became more frequent during the 3rd century AD (Philpott 1991), and it is interesting that Skeleton 3 was the latest of the three burials (dating to the 4th to 5th centuries AD). Although no evidence for wooden coffins was seen at Cannington, poor conditions for organic preservation may have contributed to this lack of evidence (Rahtz *et al.* 2000).

The lack of grave intercutting at Banwell meant that the three inhumation burials were relatively complete, although preservation of the bone was not ideal with a moderate amount of surface erosion and a large amount of fragmentation acting to hinder osteological analysis. Even so, it was still possible to obtain data on these individuals. All three individuals were probably males, and all were old-middle or mature adults. The sex-ratio within Roman cemeteries has frequently been found to be biased towards males, although this sex-bias is usually most pronounced in large urban cemeteries and least pronounced at rural sites (Davison 2000). The small number of bones/teeth from a perinate/

neonate and an infant within the grave fill of Skeleton 3 were probably residual, and might indicate earlier graves had been disturbed. Their presence is interesting as children under two years of age were frequently excluded from formal cemeteries before the 4th century AD (Watts 1989; Scott 1999).

Two of the individuals had relatively minor developmental anomalies affecting the spine, which in Skeleton 2 may have led to reduced spinal mobility and lower back pain (Sture 2001). Skeleton 3 had potentially experienced premature fusion or absence of two small sutures in his cranium. All three skeletons had dental enamel hypoplasia, suggesting they had experienced episodes of stress (poor nutrition and/or disease) during childhood (Hillson 1996). However, none showed evidence for cribra orbitalia, porosity in the orbit roofs that has also been associated with childhood stress, particularly some types of anaemia (Walker *et al.* 2009). It was not possible to evaluate whether their adult stature had been affected as a result of childhood stress, as the bones were too fragmented to measure.

All three skeletons showed evidence for injuries suffered during life. Skeleton 1 had fractured his right ankle and damaged soft tissues associated with the ankle joint, probably as a result of slipping and falling (Neumaier *et al.* 1997). This type of injury can be difficult to treat in modern patients leading to joint instability (de Vries *et al.* 2005), but the fracture had healed in Skeleton 1. He had also injured his left tibia having suffered an avulsion fracture of the tibial tuberosity (Osgood-Schlatter's disease), probably when he was a teenager. He had probably not suffered any further pain or consequences as a result of the injury once it had healed (Dandy and Edwards 2003). Skeleton 3 had four well-healed fractures in his ribs, two of which occurred on the left side (the location of the other two fractures could not be determined). These fractures could have occurred following a fall or a blow to the torso (Roberts and Manchester 2005). Skeleton 2 had fractured a tooth, possibly through biting on a hard object, or through a fall or blow to the face (Glendor *et al.* 2007).

Skeletons 2 and 3 had evidence for healed inflammation of the lower legs, a fairly common finding in the Roman period (Roberts and Cox 2003). Skeletons 1 and 2 had suffered an upper respiratory tract infection, possibly through exposure to air polluted with smoke or dust, although dental abscesses may also lead to sinusitis (Roberts and Manchester 2005). Skeleton 2 had evidence for a healed inflammation on the inside of his cranium, possibly associated with the veins draining blood from the skull.

Joint disease was frequently observed in the Banwell individuals, which is unsurprising considering they were older-middle aged or mature adults. All three had some form of joint degeneration of the spine, with all three suffering from degenerative joint disease of the spinal synovial joints. Skeletons 1 and 2 also suffered from degeneration of the vertebral discs, and Skeletons 2 and 3 had experienced osteoarthritis of the spinal synovial joints. Two individuals (Skeletons 1 and 2) had also experienced degenerative joint disease and osteoarthritis elsewhere in the body, including the jaw, shoulder, hip, wrist and hand.

Evidence for dental disease was seen in all three individuals, again probably associated with their relatively advanced ages. Deposits of mineralised plaque of the teeth might indicate inadequate oral hygiene practices (Hillson 1996), and these deposits had probably contributed to the development of periodontal disease in Skeletons 2 and 3. These same individuals had also developed tooth decay, with the locations of the cavities consistent with development following prolonged contact with food debris trapped in-between and around the necks of the teeth (Moore and Corbett 1973). Potential dental abscesses were observed in Skeletons 1 and 2, both of whom had lost teeth during life. This ante-mortem tooth loss probably resulted from tooth decay, dental abscesses and periodontal disease, and in Skeleton 1 it might have led to the development of degenerative changes in his temporomandibular (jaw) joint (Aufderheide and Rodríguez-Martín 1998).

7.25 Conclusions

The human remains excavated from Banwell comprised the inhumation burials of three adult probable males, all probably aged 36-45 years or older. Pathological conditions observed included those typically associated with older individuals, including joint disease of the spine and extra-spinal joints and dental disease. The patterns of dental disease were fairly typical for the period, and it seems likely that poor oral hygiene had contributed to the development of tooth decay and periodontal disease, ultimately leading to the loss of teeth during life.

Two skeletons had healed skeletal injuries, one had fractured a tooth, and all three had evidence for healed inflammation (including sinusitis in two individuals). All three had probably suffered from poor nutrition and/or disease during childhood that had left lines of defective enamel formation in their teeth. Unfortunately, it was not possible to determine whether their adult stature had been affected as a result as the bones were too fragmented to measure.

Most features relating to their burial were fairly typical for small and/or rural cemeteries in the later Roman period in Britain. They were buried within a defined area outside a settlement and next to a road, on a north-south orientation. The extended supine position of two of the burials was typical of the period, but one individual was buried in a prone position. Prone burial tends to be more commonly seen in small rural cemeteries. One of the skeletons was buried in a wooden coffin, or on a wooden bier.

Analysis of the human remains from Banwell has contributed to an understanding of the lives of these individuals. It has also provided additional data to widen our understanding of Roman burial tradition, one of the research aims highlighted in the Research Agenda for the Archaeology of South West England (Webster 2007). The small sample size prevents further conclusions from being drawn about the larger population.

SKELETON 1	
Surface Preservation	Grade 3 (Moderate)
Fragmentation	Severe
Completeness	80-90%
Bones Present	Cranium, mandible, ear ossicle (x1); C1-7, T10-12 (plus 52 fragments), L1-5, S1; 3 right and 4 left ribs; right shoulder, arm, hand (8 carpals, MC1-5, 5 proximal, 4 intermediate, 5 distal phalanges); left shoulder, arm, hand (7 carpals, MC1-5, 5 proximal, 4 intermediate, 4 distal phalanges); 3 hand sesamoid bones; right os coxa, leg, foot (7 tarsals, MT1-5, 1 foot sesamoid); left os coxa, leg, foot (7 tarsals, MT1-5, 5 proximal, 3 intermediate, 1 distal phalanx, 2 sesamoids)
Age	36-45 years? (old middle adult)
Sex	Male?
Stature	-
Non-Metric Traits	See Appendix 7.9
Congenital conditions	-
Infectious disease	Maxillary sinusitis: porosity on posterior wall of left sinus. Right sinus unaffected
Trauma	<p><i>Fractured ankle:</i> the distal joint surface of the right tibia has a disturbance to the normal smooth surface in the postero-lateral corner, with a line extending from the lateral margin of the joint medially and then curving distally. In this area the surface of the joint is slightly roughened and a little porous. Probable fracture to the posterior malleolus (Volkmann's triangle). The posterior margin of the fibular notch is bordered by thick nodules of lamellar bone which are smooth on the posterior surface but rougher along the lateral margins and anterior surface. The interosseous crest is sharp and projects laterally where it meets the superior margin of the fibular notch. There are also some osteophytes on the antero-lateral corner of the fibular notch. Probable soft tissue trauma to the ankle. Unfortunately most of the relevant area of the right fibula is not preserved.</p> <p><i>Osgood-Schlatter's Disease:</i> the left tibial tuberosity is lacking the proximal part. There is a pronounced 'step' from the flat proximal area to the anterior surface of the distal part of the tuberosity. Along the division there are irregular projections of bone, projecting superiorly. The right tibial tuberosity is normal</p>

Joint Disease		Degenerative disc disease (porosity and osteophytes combined): L1-4 DJD of spinal apophyseal joints (porosity and osteophytes combined): C4 C5 right side DJD of extra-spinal joints (porosity and osteophytes combined): right TMJ, right acromio-clavicular joint, left hip OA of extra-spinal joints (eburnation alone or with porosity and/or osteophytes): right hip (acetabulum and proximal femur) Schmorl's nodes: six thoracic bodies, L1-3																
Dental Pathology		11 teeth present (1 loose), 24 sockets, 2 broken (roots only) 6 teeth lost PM; 6 teeth lost AM; 8 teeth with calculus; 2 teeth with DEH 1 potential abscess – U shaped margin to the alveolar bone at the position of LM ₁ with rounded margins, opening onto a hollow area with porous walls																
Wear	R	-	-	-	-	X	/	X	B	X	X	/	/	6	-	-	-	L
Calculus		-	-	-	-	X	/	X	B	X	X	/	/		-	-	-	
DEH		-	-	-	-	X	/	X	B	X	X	/	/		-	-	-	
Caries		-	-	-	-	X	/	X	B	X	X	/	/		-	-	-	
Present		-	-	-	-	X	/	X	B	X	X	/	/	P(l)	-	-	-	
Tooth Positions		8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8	
		8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8	
Present		P	P	P	P	P	P	P	P	/	/	/	B	X	X	P	P	
Caries										/	/	/	B	X	X			
DEH								L	L	/	/	/	B	X	X			
Calculus	M bl	S bl	S bd	F b	F lb	M lbmd	S md	H mlodb	/	/	/	B	X	X				
Wear	4	3	5	3	3	4	5	5	/	/	/	B	X	X	5	2		

Dental pathology key:

Teeth present: P = tooth present; P(l) = tooth present but socket absent; B = broken tooth (root only); X = lost ante-mortem; / = lost post-mortem; - = socket absent

Caries: S = small; M = medium; L = large; b = buccal; l = lingual; m = mesial; d = distal; o = occlusal

DEH: L = lines; G = grooves; P = pits

Calculus: F = flecks; S = slight; M = moderate; H = heavy; b = buccal; l = lingual; m = mesial; d = distal; o = occlusal

Table 38a: Catalogue of articulated skeletons: Skeleton 1

SKELETON 2	
Surface Preservation	Grade 3 (Moderate)
Fragmentation	Severe / Extreme
Completeness	70-80%
Bones Present	Cranium, mandible, ear ossicle (x1); C1-7, T1-2 (plus 26 fragments), L5 (plus 15 fragments), S1, Cx1; 2 right and 2 left ribs; right shoulder, arm (distal humerus, proximal ulna, midshaft radius), hand (6 carpals, MC1-5, 5 proximal, 4 intermediate, 5 distal phalanges); left shoulder, arm, hand (2 carpals, MC1, 3-5, 5 proximal, 4 intermediate, 3 distal phalanges); right os coxa, leg, foot (7 tarsals, MT1-5, 2 proximal phalanges, 1 foot sesamoid); left os coxa, leg, foot (7 tarsals, MT1-5, 4 proximal, 1 distal phalanx, 2 foot sesamoids)
Age	36+ years? (old middle / mature adult?)
Sex	Male??
Stature	-
Non-Metric Traits	See Appendix 7.9
Congenital conditions	<i>Transitional vertebra at lumbosacral border:</i> only part of the inferior body and part of the left transverse process of L5 preserved. The transverse process is broader A-P than usual and there is a raised area on the inferior surface. This raised area is rough and porous, having the appearance of a pseudoarthrosis. The corresponding part of the sacrum was lost-post-mortem. Difficult to determine the direction of the border shift due to poor preservation of the spine and sacrum
Infectious disease	<i>Maxillary sinusitis:</i> lamellar bone and porosity in right sinus; left side unaffected <i>Endocranial bone formation:</i> well remodelled flattened nodules of lamellar bone in the sagittal and transverse sulci of the occipital bone <i>Periosteal reaction:</i> well remodelled striated lamellar bone on the medial and lateral midshafts of both tibiae. Difficult to gauge extent due to extreme fragmentation. Rounded smooth nodules of lamellar bone with well-defined margins on the metatarsals of both feet: R MT3 (medial surface of distal half of shaft), LMT3 (medial surface of proximal and distal shaft), LMT4 (lateral surface of proximal shaft, and less pronounced on proximal half of medial shaft)
Trauma	-

Joint Disease		<p><i>Degenerative disc disease (porosity and osteophytes combined):</i> two cervical vertebrae (probably C5-6), L5-S1</p> <p><i>DJD of spinal apophyseal joints (porosity and osteophytes combined):</i> at least two thoracic vertebrae (two superior right apophyseal facets), and at least one lumbar vertebra (one inferior left facet, one inferior right facet, one un-sided superior facet)</p> <p><i>OA of spinal apophyseal joints (porosity and osteophytes combined):</i> C6-7, T1-2, at least two lumbar vertebrae (inferior left facets x2, inferior right facet, un-sided superior facets x3)</p> <p><i>DJD of extra-spinal joints (porosity and osteophytes combined):</i> left acromio-clavicular joint</p> <p><i>OA of extra-spinal joints (eburnation alone or with porosity and/or osteophytes):</i> left pisiform (joint with triquetral), left MC1 (distal joint), intermediate hand phalanx (distal joint)</p>															
Dental Pathology		<p>19 teeth present, 27 sockets</p> <p>4 teeth lost PM; 5 teeth lost AM; 17 teeth with calculus; 2 teeth with caries; 4 teeth with DEH; possible moderate periodontal disease in mandible (possibly root exposure due to continuous eruption)</p> <p>1 potential abscess – buccal wall of socket for RP² lost post-mortem exposing large hollow area surrounding most of root</p> <p>Fracture to RM₂ – enamel lost from disto-lingual corner of the crown from the occlusal surface to just above the CEJ, dentine exposed, enamel margins worn</p> <p>Small chips to the enamel of LI₁, RI¹, LI¹</p> <p>Slight crowding of anterior mandible</p>															
Wear	R	-	-	6	/	3	4	3	5	5	3	5	X	X	/	-	-
Calculus		-	-	S m	/	S lb	F l	S ml		S bm	S blmd	S b	X	X	/	-	-
DEH		-	-		/				L	L			X	X	/	-	-
Caries		-	-		/	Sd							X	X	/	-	-
Present		-	-	P	/	P	P	P	P	P	P	P	X	X	/	-	-
Tooth Positions		8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
		8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Present		X	P	X	/	P	P	/	P	P	P	P	P	P	P	P	X
Caries		X	Sb	X	/			/									X
DEH		X		X	/		L	/				L					X
Calculus	X	S mb	X	/	S l	S ml	/		S blmd	S mbd	S mbdl	S lm	F bld	M bd	F mdl	X	
Wear	X	4	X	/	2	3	/	5	5	4	3	4	5	6	5	X	
																L	

Table 38b: Catalogue of articulated skeletons: Skeleton 3

SKELETON 3	
Surface Preservation	Grade 3 (Moderate)
Fragmentation	Severe
Completeness	80-90%
Bones Present	Cranium, mandible, ear ossicles (x2); C1-7, T1-12, L1-5, S1 (plus 6 fragments); 12 right and 8 left ribs; right shoulder, arm, hand (8 carpals, MC1-5, 5 proximal, 4 intermediate, 4 distal phalanges); left shoulder, arm, hand (8 carpals, MC1-5, 5 proximal, 4 intermediate, 5 distal phalanges); 2 hand sesamoid bones; right os coxa, leg, foot (5 tarsals, MT1); left os coxa, leg, foot (6 tarsals); 2 foot sesamoids; distal end proximal/ intermediate foot phalanx, distal end distal 1 st foot phalanx
Age	36-45 years (old middle adult)
Sex	Male
Stature	
Non-Metric Traits	See Appendix 7.9
Congenital conditions	<p><i>Transitional vertebra at thoracolumbar border:</i> the inferior right apophyseal joint of T12 is lumbar in shape (curved, facing antero-laterally) while the inferior left apophyseal facet is thoracic in shape (flat, facing anteriorly); there are two large costal facets (one on each pedicle). L1 has a lumbar shaped superior right apophyseal facet and a thoracic shaped superior left apophyseal facet. Slight caudal border shift affecting right apophyseal joint only</p> <p><i>Potential craniosynostosis/ sutural agenesis:</i> both occipitomastoid sutures are completely absent and there is no evidence they were ever present on the internal or external surfaces of the cranium. The lateral part of the left lambdoid suture is completely unfused, the right lambdoid suture is still very open on the external surface but obliterated on the internal surface. It is impossible to assess cranial shape due to the extensive fragmentation</p>

Infectious disease	<p><i>Periosteal reaction:</i> the right tibia has striated lamellar bone on the medial surface of the midshaft. The left tibia has striated lamellar bone on the medial surface of the midshaft, and smooth deposits of lamellar bone along the anterior crest extending onto the anterior third of the medial shaft and slightly onto the lateral surface. Slightly striated lamellar bone on the lateral midshaft</p>
Trauma	<p><i>Four rib fractures:</i> 1) probable left rib shaft fragment, well healed fracture through shaft, subtle bulge on superior and inferior margins and internal surface, covered in well remodelled lamellar bone, no obvious displacement. 2) probable left rib shaft fragment, subtle well healed fracture through shaft, slight bulge on superior and inferior margins, well remodelled lamellar bone on the surfaces of the shaft, no obvious displacement. 3) small unisided shaft fragment, healed fracture, bulge on inferior surface and in costal groove (superior part lost post-mortem), surface covered in well remodelled lamellar bone, too small to determine whether any displacement. 4) small unisided shaft fragment, bulges on superior and inferior margins, well remodelled lamellar bone, too small to determine whether any displacement</p>
Joint Disease	<p>DJD of spinal apophyseal joints (porosity and osteophytes combined): T2-7, T9-11, and L2 OA of spinal apophyseal joints (porosity and osteophytes combined): C2-3</p> <p>L2 – has osteophytes around the left side of the superior body surface, and a deep lytic area along the left margin occupying the space of the annular ring, 16 x 6mm. Most margins are clear and sharp, the lateral margin is rougher and more indistinct. One circular lesion has penetrated right through from the body surface to the left body wall where the hole measures 4 x 4mm. The margins of the hole are rounded, and it is surrounded by deposits of lamellar bone</p> <p>L3-4 were fused by a large thick osteophyte at the right side of the body, which has since broken post-mortem. The osteophyte begins at the midline and extends laterally to the right, emerging from the antero-lateral body wall and extending 13mm antero-laterally before curving supero-inferiorly. The anterior and lateral surfaces were generally smooth though slightly irregular. The body joint space was preserved, and apart from the osteophyte located along the right side of the annular ring the body surfaces are normal.</p>
General Comment	<p><i>Individual shows tendency for bone-forming:</i> enthesal changes prevalent, especially the lateral epicondyle of the right humerus, olecranon process of the right ulna, both patellae, posterior calcanei</p>

Field	Trench	Context	Sample	Bone	Bone detail	Side	Preservation		Age Group	Sex	Other
							%	SP			
63	-	66	-	humerus	mid-distal thirds of shaft	L	60	0	Ad / A	?	
58a	8	811	-	MT5	proximal & distal ends damaged	L	90	3	A	?	
58a	8	833	-	femur	proximal-mid-distal thirds of shaft	R	70	3	A?	?	
-	8	841	40	thoracic vertebra	right neural arch	-	30	0	P / N	-	
-	8	841	40	vertebra	body	-	20	3	P / N	-	
-	8	841	60	clavicle	lateral third	L	30	2	P / N	-	
-	8	841	60	upper deciduous central incisor	crown & part root	L	60	1	I	-	Root at least three-quarters complete, but tip broken off post-mortem. Probably c. 6-12 months old

Table 39: Catalogue of articulated skeletons: Skeleton 3

Cranial Trait	Skeleton 1		Skeleton 3		Skeleton 3	
	R	L	R	L	R	L
Highest Nuchal Line	-	-	A	A	P	P
Ossicle at Lambda		-		P		A
Ossicle in Lambdoid	-	-	P	P	A	A
Parietal Foramen	-	-	A	P	A	A
Ossicle at Bregma		-		A		A
Metopic Suture		A		A		A
Ossicle in Coronal	-	-	A	A	A	A
Ossicle at Pterion	-	-	-	-	-	-
Ossicle at Parietal Notch	-	A	A	-	A	A
Ossicle at Asterion	-	-	P	A	-	A
Auditory Torus	A	A	A	A	A	A
Foramen of Huschke	A	A	A	A	-	-
Mastoid Foramen Extrasutural	-	-	P	-	-	-
Sutural Mastoid Foramen	-	-	A	-	-	-
Posterior Condylar Canal Open	-	-	-	-	-	-
Double Condylar Facet	A	A	-	-	A	A
Precondylar Tubercle		A		-		-
Double Anterior Condylar Canal	A	A	-	A	A	A
Incomplete Foramen Ocale	-	-	-	A	A	A
Open Foramen Spinosum	-	-	-	A	A	A
Accessory Lesser Palatine Foramen	-	-	-	-	-	-
Palatine Torus		-		A		-
Maxillary Torus	-	-	-	-	-	-
Mandibular Torus	P	P	A	P	P	P
Absent Zygomaticofacial Foramen	P	P	-	A	A	A
Bridging of the Supraorbital Notch	-	A	-	P	-	-
Accessory Supraorbital Foramen	A	A	-	P	-	-
Accessory Infraorbital Foramen	-	-	-	-	-	-
Anterior Ethmoid Foramen	-	-	-	-	-	-
Extrasutural	-	-	-	-	-	-
Posterior Ethmoid Foramen	-	-	-	-	-	-
Extrasutural	-	-	-	-	-	-
Stafne's Defect	A	A	A	A	A	A
Lateral Atlas Bridging	A	-	-	A	A	-
Double Atlas Facet	A	A	P	P	A	A
Posterior Atlas Bridging	A	A	-	A	A	A
Transverse Foramen Bipartite	A (0/1)	A (0/1)	-	-	-	-
Suprascapular Foramen	-	-	-	-	-	-
Accessory Acromial Facet	A	-	-	A	A	-
Circumflex Sulcus	P	-	-	-	P	P
Sternal Foramen		-		-		-
Supracondyloid Process	A	A	-	A	A	A
Septal Aperture	A	A	A	A	A	A
Accessory Sacral Facet	-	-	-	-	P	-

Cranial Trait	Skeleton 1		Skeleton 3		Skeleton 3	
	R	L	R	L	R	L
Acetabular Crease	A	A	P	P	P	-
Allen's Fossa	-	-	A	-	A	A
Poirier's Facet	-	-	A	-	A	A
Plaque	-	-	P	P	P	P
Hypotrochanteric Fossa	-	-	P	P	P	P
Exostosis in Trochanteric Fossa	-	P	P	P	A	-
Third Trochanter	-	-	A	A	A	-
Emarginate Patella	A	A	A	A	A	A
Vastus Notch	P	A	A	P	P	P
Vastus Fossa	A	A	A	A	P	P
Medial Tibial Squatting Facet	A	A	A	A	-	-
Lateral Tibial Squatting Facet	P	P	A	A	-	-
Peroneal Tubercle	P	-	-	A	A	-
Double Anterior Calcaneal Facet	A	A	P	P	A	-
Absent Anterior Calcaneal Facet	A	A	A	A	A	-
Double Inferior Talar Facet	A	A	P	P	P	P
Medial Talar Facet	A	A	A	P	A	A
Lateral Talar Extension	A	A	A	A	A	A
Os Trigonum	A	A	-	-	A	A

A = bone present and trait absent;
P = bone present and trait present;
- = trait unobservable (bone not present or too damaged to observe)

Table 40: Non-metric traits



Plate 12: Fragmentation of left lower molar (Skeleton 1)



Plate 13: Well-healed fracture of left rib - arrowed (Skeleton 3)



Plate 14: Third and fourth lumbar vertebrae fused on right side by large osteophytes (skeleton 3)



Plate 15: Unusual preservation of right femur with outer cortex separated from inner cortex (skeleton 1)



Plate 16: Right tibia with bone spicules along posterior margin of fibular notch - arrowed, indicative of soft-tissue injury to the right ankle (skeleton 1)

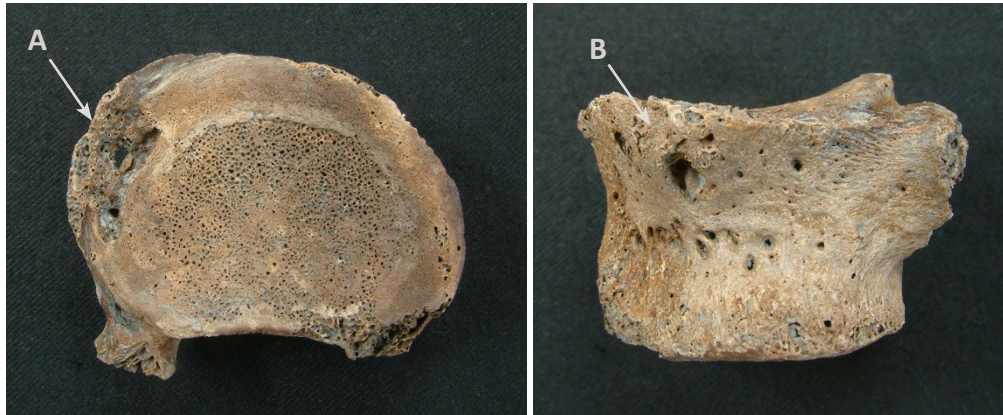


Plate 17: Second lumbar vertebra with osteophytes and destructive lesion at the margin of the superior body surface (A), with hole surrounded by lamellar bone on the left side (B) (Skeleton 3)



Plate 18: Lower right second molar with fracture to crown (arrow), note AMTL of adjacent teeth (Skeleton 2)



Plate 19: Calculus on mandibular teeth (Skeleton 2)

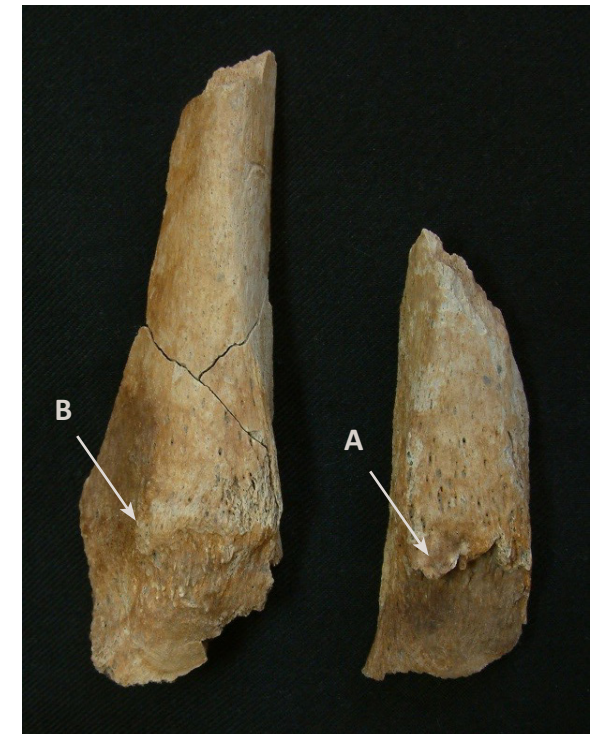


Plate 20: Osgood-Schlatter's disease of left tibia (A), with normal tibia (B) as comparison (skeleton 1)

Appendix 8: Radiocarbon dating

Eight samples were submitted for C14 dating, three from the skeletons contained insufficient carbon for a date, the other produced dates from the three skeletons and from wood in 087 the lower stake way and 066 a flooding horizon.

Dates were from Scottish University Environmental Research Centre. The list below gives dates BP (1950) to 1 sigma (68%) probability and the calibrated date. The graphs give the calibrated date range.

SUERC-47109 (GU30696) 2 July 2013 Wood Hazel **087** 2670 +/- 29, **797calBC** 95% probability

SUERC-47108 (GU30695) 2 July 2013 Wood Ash **066** 2516 +/- 27 **540calBC or 721calBC** 95% probability

SUERC-47651 (GU31241) 9 September 2013 Sk 1; 1743 ± 30 **389calAD** 95% probability

SUERC-48336 (GU31242) 8 October 2013, Sk 2 1796 ± 34 **264calAD** 95% probability

SUERC-48337 (GU31243) 8 October 2013, Sk 3 1650 ± 34 **466calAD** 95% probability

Calibration Plot

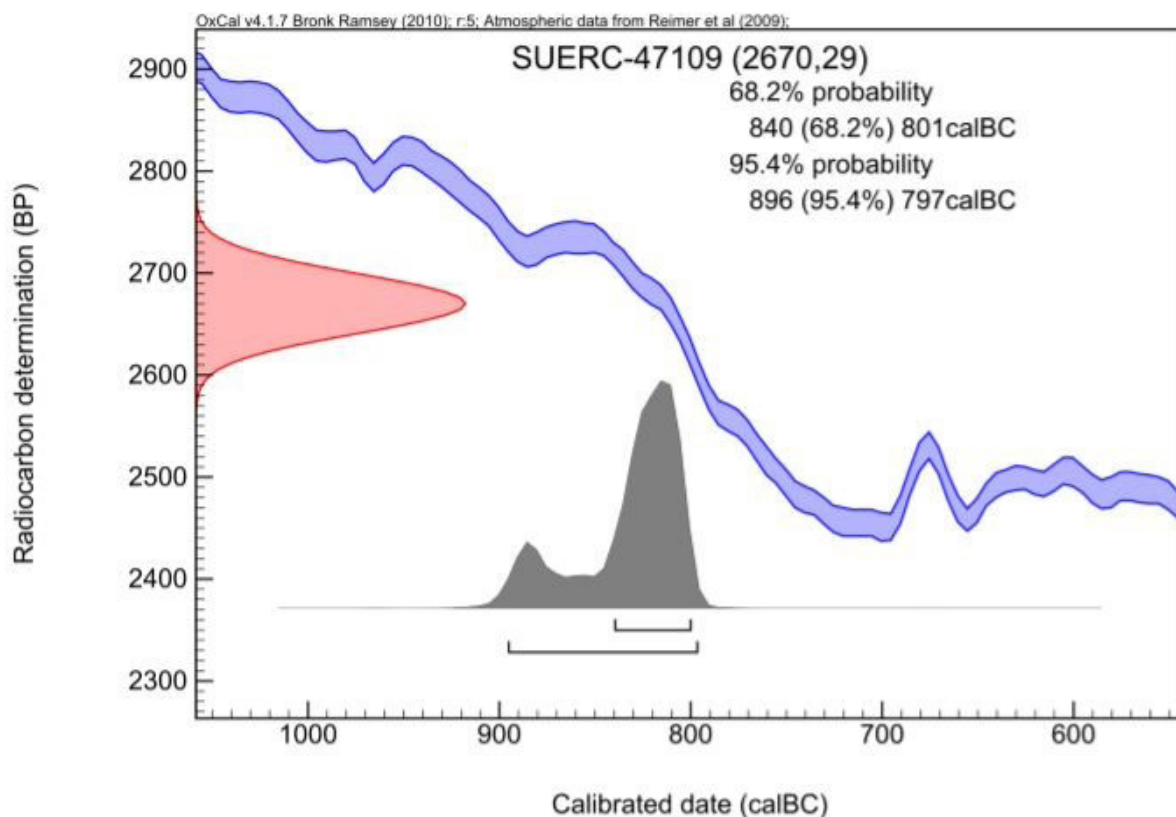


Fig 50: C14 graph context (087)

Calibration Plot

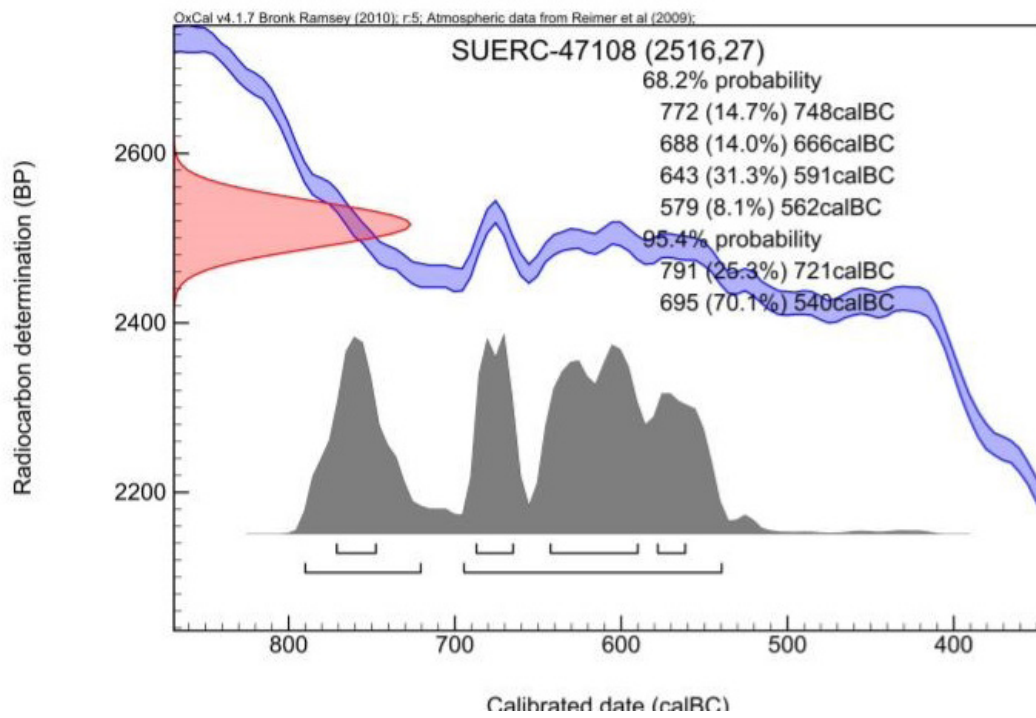


Fig 51: C14 graph context (066)

Calibration Plot

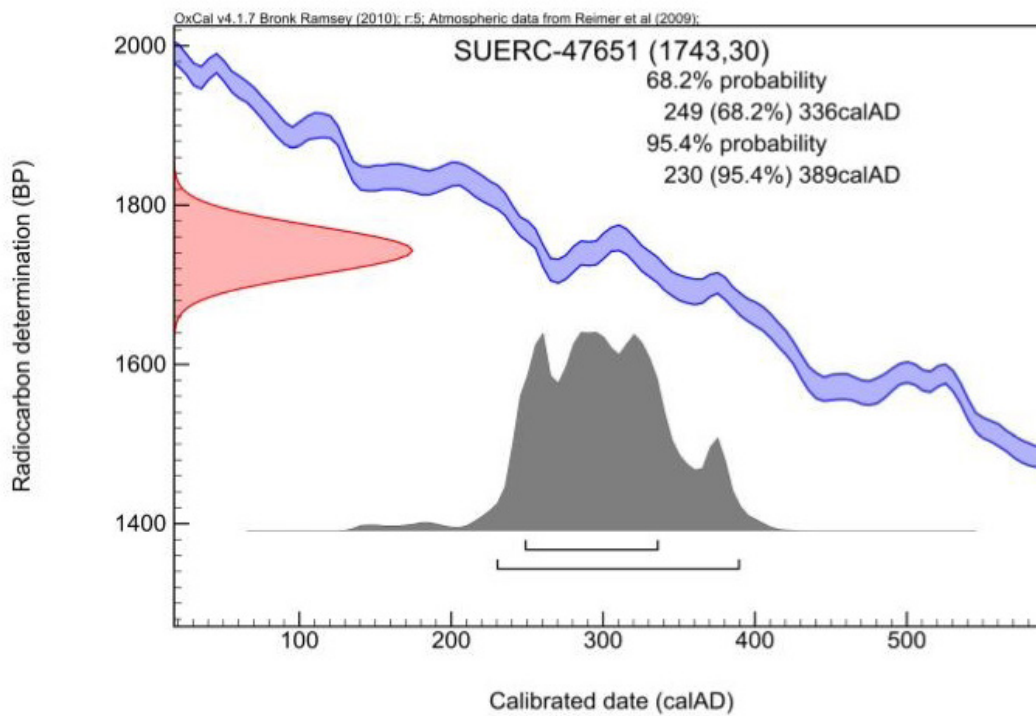


Fig 52: C14 graph skeleton 1

Calibration Plot

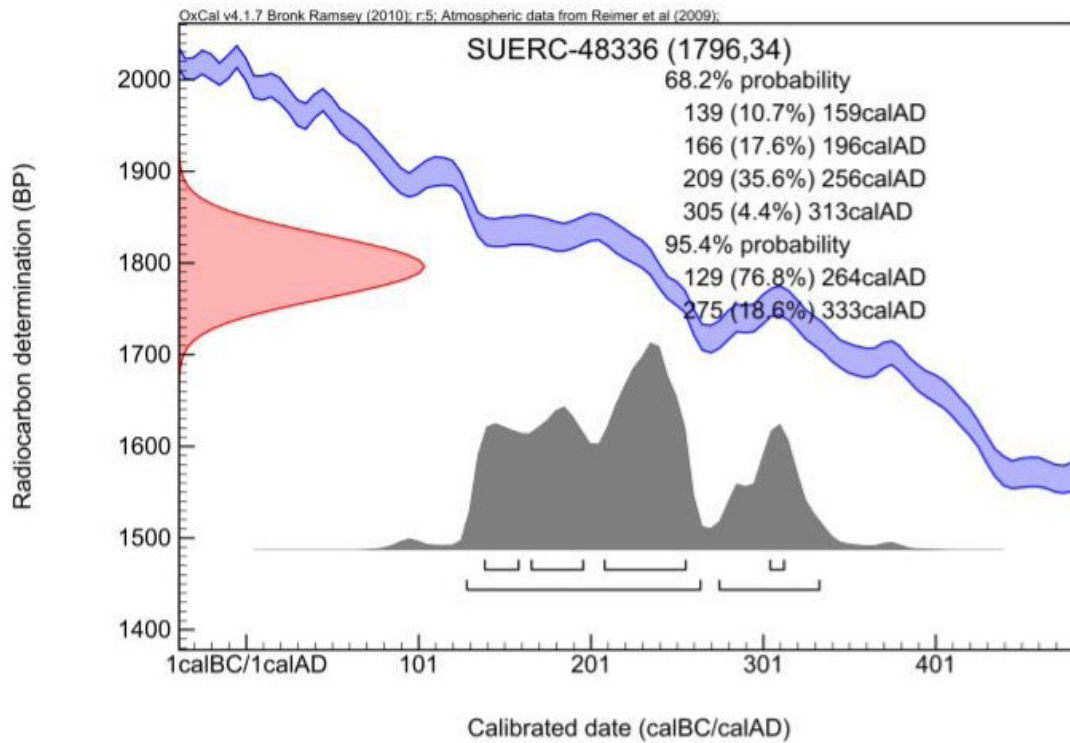


Fig 53: C14 graph skeleton 2

Calibration Plot

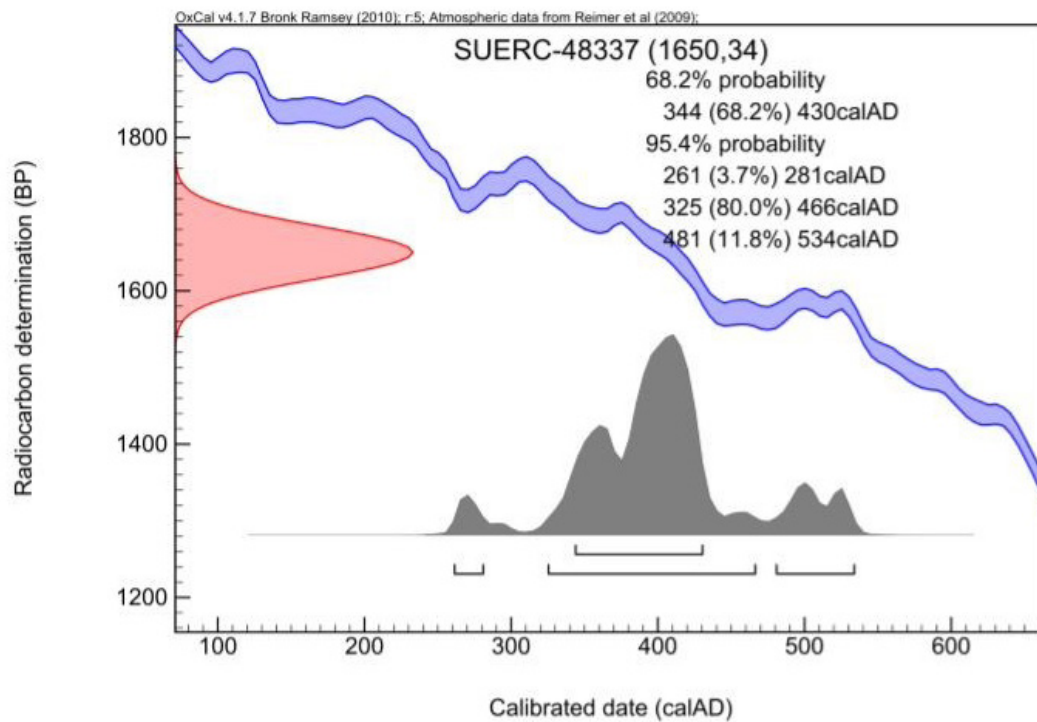


Fig 54: C14 graph skeleton 3

Appendix 9: Animal Bone

Assessment of vertebrate remains from excavations at Banwell, North Somerset (site code: BWB12)

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PRS 2014/16

9.1 Summary

Ten boxes (approximately 250 litres) of hand-collected animal bone recovered from the excavations were submitted for washing and assessment. Bone came mostly from Iron Age to Late Roman features. However, there was also a small assemblage of prehistoric date recovered from river silts in Field 63.

Regardless of date or area, the vertebrate assemblage was dominated by the remains of cattle, with smaller quantities of caprovid fragments. Other species identified included pig, horse and dog, with occasional cervid and wild bird fragments. Chicken bones were also recovered from a deposit of unknown date. Of particular note was the presence of a rib fragment of a small whale from a debris deposit of Roman date in Trench 9. Much of the material represented primary butchery waste, with some remains representing refuse from secondary carcass preparation.

9.2 Methods

Ten boxes of hand-collected vertebrate remains (of varying sizes but an approximate total of 250 litres) from the Banwell pipeline excavation site code: BWB12 were submitted to Palaeoecology Research Services (PRS) Limited, Kingston upon Hull, for washing and an assessment of their bioarchaeological potential.

Subjective records were made of the state of preservation, colour of the bone fragments, and the appearance of broken surfaces ('angularity'). Other information, such as fragment size, dog gnawing, burning, butchery and fresh breaks, was noted where applicable. Where fragments of the same bone could be confidently refitted the pieces were recorded as a single element.

Where possible, fragments were identified to species or species group using the PRS modern comparative reference collection. Remains that could not be identified to species were described as the 'unidentified' fraction. Within this fraction fragments were grouped into a number of categories: large mammal (assumed to be cattle, horse or large cervid), medium-sized mammal 1 (assumed to be caprovid, pig or small cervid), medium-sized mammal 2 (assumed to be dog, cat or hare), unidentified bird and completely unidentifiable.

Nomenclature for mammals follows Corbet and Southern (1977) and birds follow Walters (1980).

9.3 Results

Vertebrate material (in total 1994 fragments) was recovered from five areas, although only three, Field 63 (437 fragments), Trench 8 (924), Trench 9 (631), produced sizeable quantities, with single fragments from Fields 64 and 65. Ditch fills, river silts and occupation horizons provided the bulk of the assemblage, with a large proportion of the remains being of Iron Age or Roman date. A collection of Late Bronze Age material was recovered from Field 63.

On the basis of preliminary dating information supplied by the excavator, the bones from each of the main areas were assigned to various broad chronological categories (as detailed below) and are ordered in the tables according to these groups.

Prehistoric (incorporating pre-Bronze Age; ?Bronze Age and Bronze Age)

Late Bronze Age

Iron Age (incorporating Iron Age)

Iron Age/Roman (incorporating Iron Age/early Roman; Iron Age/Roman)

Roman

Late Roman

Medieval/Post-medieval (incorporating post-Roman; early medieval; medieval/post-medieval; post-medieval)

Details of the species identified by area and chronological period can be found in Tables 41 to 43 and the results are summarised by area in the following text sections.

9.4 Trench 8

Archaeological features encountered in Trench 8 included a series of intercutting ditches and occupation horizons of Iron Age and Roman date. This area produced over 46% of the vertebrate assemblage from the whole site, with a total of 924 fragments recovered from 45 deposits. The remains were mainly concentrated in the ditch and gully fills and from the occupation horizons. Context 811, a trench wide occupation layer of Roman date, produced the greatest quantity of bones amounting to 243 fragments, with moderate assemblages also recovered from several of the fills of ditches [870] (1st -2nd C) and 893 (3rd C) and [810] (3rd C). Contexts 825 (tree throw) and 836=871 a possible hedgeline were assigned a broad Roman date.

The assemblages recovered from this trench were, on the whole, of good to fair preservation, although some of the larger groups of material, in particular from nine deposits (Contexts 809, 811, 823, 833, 835, 838, 850, 853 and 871), were of a somewhat varied condition, including both well and poorly preserved fragments. Material from Context 871, the hedgerow, was in a very poor condition, with most bones eroded and battered. For eight of these assemblages, colour was also variable within the material from individual deposits; typically the dark brown fragments were of better preservation than those of lighter brown colouration. However, overall, the colour of the fragments was fawn/light brown, with the occasional white bone—a result of prolonged burning or subjection to high temperatures. Context 811 produced a collection of almost calcined fragments which were white and chalky to the touch.

Fresh breakage damage was evident throughout with some of the larger assemblages again being affected quite badly, resulting in a high degree of fragmentation. Butchery marks, including chops and knife marks were quite frequently observed on cattle and large mammal fragments. This included split long bones (e.g. from Contexts 811 and 833) and chopped mandibles (e.g. from Contexts 809, 8100), with possible skinning cuts noted on a horse mandible from Context 811.

Cattle remains and large mammal fragments were predominant throughout the deposits of both the late Iron Age and Roman date. Proportions of the main domestic mammals (cattle, pig and caprovids) were relatively constant between the periods represented, with preliminary study suggesting that cattle formed approximately 60% of the assemblage dated to the late Iron Age, increasing to 63% in the Roman period, with a corresponding decrease in caprovid remains in the later period (from 36% of the assemblage to 30%). Very few pig remains were identified throughout—just seven in total, with five of these from Roman deposits. Fragments of dog were also present but somewhat scarce being recovered from just three deposits (mandible from Context 879; calcaneum and metatarsal 4 from Context 811; canine from Context 833). Two human bones were identified from Context 811 and 833; these were returned to the excavator.

Iron Age cattle remains were mainly recovered from ditch fills, in particular the fills of ditches 849 and 870 (including Contexts 850, 853 and 873), whilst those of Roman date were from occupation horizon 811 and ditch fills, 809 and 833 (both Ditch 810). Initial examination of skeletal element representation suggested that these cattle assemblages were dominated by refuse from primary butchery, i.e. fragments representing heads (e.g. mandibles, isolated teeth and pieces of skull) and terminal limb elements such as metapodials and phalanges. Cranial fragments from Context 873

represented at least two individuals, with one showing a perforation with a rounded margin in the nuchal region of the skull. Similar pathologies have been noted on cattle skulls from a number of sites ranging in date from Roman to the post-medieval (Brothwell *et al.* 1996). Although the aetiology of this condition is unknown, it is suggested that either congenital factors or pressure from yoking may be the cause (Brothwell *et al.* *ibid*); but see also Fabiš and Thomas (2011). Similar cattle and large mammal cranial material was present within the assemblages from Contexts 843 and 811, although in the latter case mandibles and isolated teeth were also relatively common.

Whether of Iron Age or Roman date, skeletal element representation for caprovids was comparable to that of cattle, with mandibles, isolated teeth and metapodials often the most frequently occurring fragments. There was also some evidence for refuse from secondary carcass preparation with the presence of radius, tibia and other long bone fragments, the medium-sized mammal 1 fraction of the assemblages typically being dominated by such remains.

The relatively large quantity of horse fragments from the Iron Age deposits was recovered from five deposits but the bulk of the fragments were from Context 873 (primary fill of ditch 870) and included an articulating spinal column, with sacrum and ribs. This deposit also produced a mandible and part of a horse fore limb, including a humerus, a radius and an ulna (these were definitely from a single individual), with a scapula and a metacarpal (complete with lateral metapodials), which were probably from the same leg. Foetal remains representing a foal or a calf were also present in the assemblage from Context 873, whilst a small metacarpal from Context 850 possibly represented a foal. Only occasional horse bones came from the later deposits and these were, generally, restricted to rather small or battered fragments; the exceptions being a complete (although freshly broken) metacarpal from Context 838, a humerus shaft from Context 811 and a large part of a pelvis from Context 8101.

Other species represented in the deposits were few and of little interpretative value. Overall 27 of the fragments were measurable, whilst two were mandibles with teeth *in situ*.

9.5 Trench 9

This trench produced 631 fragments representing 30 deposits, most of which were of Roman or late Roman date. The vertebrate material was recovered from ditch and gully fills, several deposits associated with boundary wall 921, debris from a burnt building, a road surface, and a number of levelling layers. Just under half (304 fragments) of the assemblage was recovered from Context 918, a debris deposit from a burnt building of Romano-British date. No information was available for Context 916.

Most of the bones were of good to fair preservation and light brown in colour, although a few deposits (including Contexts 918, 941 and 965) produced dark brown fragments. Fresh breakage was observed in most assemblages, with some being more seriously affected than others, e.g. the material from Contexts 930, 941, 951 and 966. Eroded, rounded and slightly battered fragments were also recorded from Contexts 929, 932, 951 and 966, with the bones from ditch fill 989 described as being of both variable colour and preservation. Evidence of butchery was clear on the numerous cattle and large mammal fragments from Context 918, and also noted from other contexts. Most notable were the longitudinally split long bones, together with chopped ribs, shafts and pelvises. Possible filleting marks were observed on a cattle mandible from Context 951.

As seen in the Trench 8 deposits, cattle and large mammal remains provided the bulk of the assemblage in the Roman and late Roman deposits. Caprovid and pig remains were also represented but in somewhat smaller quantities, although medium-sized mammal 1 fragments were relatively numerous. A higher frequency of cattle and large mammal remains was apparent in the deposits of Late Roman date when compared to those more broadly assigned to the Roman period. However, dating of the deposits is rather broad and somewhat poorly defined and this would need to be addressed before any detailed interpretation could be undertaken.

Other species identified included horse, dog and chicken, with fragments of cervid and cetacean (from Context 918), which could not be identified more closely. The marine mammal fragment was a rib from a small whale (Jacqui Mulville pers. comm.). Horse remains were spread between ten deposits and were mostly small fragments such as teeth, carpals, tarsals and phalanges. The most complete skeletal elements, a humerus, a radius and a metacarpal, were recovered from Context 989. Three deposits, Contexts 929, 965 and 989, produced pieces of dog skull and maxilla. Only the maxilla from Context 965 had teeth *in situ*.

For cattle remains from both the Roman and Late Roman deposits there was an emphasis on head and terminal limb elements, suggesting a prevalence of primary butchery waste, with a component representing refuse from secondary carcass preparation also evident (particularly from Context 918). This was also reflected in the fraction that could only be identified as far as identified as 'large mammal' which consisted mostly of shaft, rib and skull fragments, together with some pieces of scapula and a few vertebrae. The assemblage from Context 918 was particularly noteworthy for the presence of parts of several cattle skulls and large mammal cranial fragments, with similar remains, although less numerous, from Contexts 941 and 965.

Caprovid remains from Trench 9 were almost exclusively teeth, metapodials and mandible fragments, with occasional pieces of scapula, radius and tibia encountered. Additional shaft fragments were recorded in the medium-sized mammal 1 fraction. Again, this would appear to be mainly primary and secondary butchery refuse, with, perhaps, a small component of domestic waste.

Eight mandibles and isolated teeth were available for the provision of age-at-death data, whilst 14 of the bones were measurable.

9.6 Field 63

In total, there were 27 contexts (including river silts, buried soil horizons, surfaces and ditch fills) from Field 63 which produced 437 fragments of bone. The deposits and features from which the material was recovered dated from the prehistoric, Roman and medieval/post medieval periods. However, approximately 60% of the remains came from a single river silt deposit, Context 066, of Late Bronze Age date, whilst only four other assemblages (from Context 027, 028, 030 and 046) consisted of ten or more fragments.

Preservation of the remains from this field was mostly described as good, with the fragments being mainly dark brown in colour. The material from Context 066 included a few paler fragments and pieces of bone which were of more battered appearance, whilst the small assemblages from Contexts 003 and 010 were of somewhat variable preservation. Fresh breakage damage was apparent throughout but was only occasionally noted in most deposits, although it was more frequently observed in several assemblages of Roman date (Contexts 019, 026 and 028). Some dog gnawing was apparent, particularly on bones from Context 066. This deposit also produced the greatest number of butchered fragments, of which chopped (both sagittally and axially) cattle and large mammal vertebrae were the most frequently occurring examples. Split large mammal shaft fragments, again primarily from Context 066, were also encountered.

As already noted, the largest accumulation of bone from Late Bronze Age deposits (Context 065 and 066), was mostly concentrated (260 of a total of 269) in Context 066 (river silt). The assemblage was dominated by cattle and large mammal remains, with caprovid fragments the next most commonly occurring.

For these deposits, cattle were represented by a range of skeletal elements with those fragments suggesting butchery waste from primary carcass preparation providing the largest component of the assemblage. This was evinced by large quantities of mandibles and phalanges, with tibia and radius, vertebra and rib fragments from secondary jointing also present but in smaller quantities. Some of the caprovid remains may have represented single individuals—a skull with both mandibles was identified, and some of the metapodials were of a consistent size, appearance and fusion state to suggest an association. More than one individual was present, however.

Two horse metapodial fragments were also recovered from Context 066, whilst fragments of horse skull, a distal humerus and an isolated incisor were identified from Context 065. Pig remains from the former included a humerus (from a young individual), a chopped scapula, an occipital fragment from a skull with a series of knifemarks and a tibia shaft fragment.

Part of an immature goose, represented by some of its limb bones and its pelvis, together with an ulna identified as crow/rook (*Corvus corone* L./*Corvus frugilegus* L.) and two humerii (a pair) from a raven (*Corvus corax* L.) were also recovered from Context 066. The goose bones were from a small individual, possibly a small grey goose (*Anser* sp.) or perhaps a Barnacle goose (cf. *Branta leucopsis* Bechstein), although the nature of the bones suggested that the bird was immature which may account for their small size.

Other vertebrate remains recovered from this field included a further small collection of material (20 fragments) of prehistoric date from five deposits (Contexts 072, 084, 085, 086 and 089) (Iron Age to Bronze Age respectively), most of which were fluvial or clay layers. Context 086 produced a maxilla of red deer (*Cervus elaphus* L.) and an isolated upper molar likely to be associated. Other remains included the left and right side of a horse pelvis (Context 089), pig and caprovid mandibles (Contexts 085 and 086) and several cattle fragments, including an almost complete scapula and a metatarsal from Context 072, a distal tibia from Context 084 and skull fragments from Contexts 072 and 086.

Deposits assigned to the Roman period produced 57 fragments, with cattle and large mammal fragments prevalent, and caprovid, pig and equid remains also present but in small numbers. No attempt was made to distinguish between horse, mule and donkey so the presence of the last two cannot be excluded. The large mammal remains were primarily rib fragments, of which some may have been horse, whilst the large mammal vertebrae, almost certainly cattle, from Context 028 probably represented a single animal. Additionally, a vole mandible was recorded from Context 030.

Medieval and later deposits produced very little vertebrate material, although a fragment of antler, with possible tool marks, was identified from Context 003 (a buried soil horizon of medieval/post-medieval date).

Context 046 was the fill of [045] the pottery burial. This deposit produced 74 well preserved bones. Over half of the identified fragments represented the mandibles and terminal limb elements (metapodials and phalanges) of at least one juvenile lamb/kid. A single caprovid skull fragment, possibly related to the other remains, was also present. Chicken remains from this deposit represented the pelvis and legs of one individual, with a tibiotarsus from another and an ulna which may have been related to either of these or could have been from a third individual.

Overall, 14 mandibles with teeth *in situ* were noted from this area, together with 41 measurable fragments.

9.7 Discussion

Excavations at Banwell produced a moderate assemblage of vertebrate remains, which were mostly of fair to good preservation. However, there were some indications that a number of the assemblages included material likely to be of mixed origin, with these remains having been initially dumped elsewhere. This was evidenced by the presence of fragments exhibiting erosion, rounded edges, variable colour and differing preservation. To some extent, the colour of the bones correlated with the preservation of the bone, i.e. the dark brown fragments were of better preservation than those that were fawn or light brown (this seemed to be the case for remains from Trench 8 and Field 63). The dark colouration is typical of fragments that have been preserved in waterlogged deposits and these remains would probably have been fairly quickly incorporated into the deposits, whilst other material was, perhaps, reworked from older deposits or had been left exposed for some time before being dumped. Some bones were affected by dog gnawing, again suggesting that a component of some of the assemblages was not quickly buried and was accessible to scavenging.

The hand-collected vertebrate assemblages submitted for assessment amounted to 1994 fragments. Approximately 37% of the assemblage remained completely unidentified with a further 34% only able to be categorised by size. Species identified were principally the main domestic animals (cattle, caprovid and pig), with the assessment suggesting that cattle remains were predominant throughout regardless of the date of the deposits or the area from which they were recovered. Initial results from an estimation of the relative frequencies of the main domesticates suggested that cattle remains provided over 60% of the fragments from most of the chronological periods, with caprovids providing approximately 22% to 37%; the highest percentage representing the assemblage from the Iron Age deposits in Trench 8. Where caprovid frequencies were low in the Roman and late Roman deposits from Trench 9, pig remains were slightly more numerous. These results are preliminary based on the somewhat broad dating categories currently available, however.

Most of the cattle and caprovid remains represented waste from initial carcass preparation, with some secondary butchery refuse also apparent. Evidence of butchery was quite frequently observed, particularly on cattle remains from Roman deposits. Horse remains do not appear to have been treated in the same manner, but were few in number, with the exception of a part skeleton from Trench 8. This individual appears to have been dumped into the ditch relatively intact. The presence of remains of young animals, one bone was definitely from a foal whilst four others (representing one animal) were possibly from a foal or calf, suggests that animals were being bred at the site or, at least, in the surrounding area.

Although the diversity of species was low, a small number of bird remains were recovered from Late Bronze Age and undated deposits in Field 63, including part of a goose skeleton, fragments of corvids and some chicken legs. Occasional cervid fragments were present from both prehistoric and medieval/post-medieval (Field 63) and Roman deposits (Trench 9), although these were rather scant.

The maxilla and tooth from Context 86 (Bronze Age/pre-Bronze Age) possibly provide evidence for the hunting of deer but the antler fragments may derive from naturally shed antlers that had been collected perhaps for the manufacture of tools or other artefacts.

One unusual find was that of a cetacean rib from Roman levels (918); such remains have only rarely been recovered from sites of Roman date in England. Other known examples are two whale vertebrae found in a Roman pit during excavations at Island Road, Hersden, Kent (Harrison and Holmes 2003) and a whale vertebra recovered from the former Starting Gate Public House site, Tadcaster Road, York, which had probably been used as a chopping block (Jaques 2005).

Of the fragments that could only be grouped by size, the majority of those categorised as 'large mammal' (which included abundant vertebrae, ribs and long bone fragments) were most likely cattle. Likewise, the bulk of the 'medium-sized mammal 1' bone probably derived from sheep and pig, in broadly similar proportions to the positively identified fragments recorded.

Species		Iron Age	Iron Age/ Roman	Roman	Med/Post- med	NI	Total
<i>Canis f. domestic</i>	dog	-	1	3	-	-	4
<i>Equus f. domestic</i>	horse	42	4	9	-	-	55
cf. <i>Equus f. domestic</i>	?horse	-	-	1	-	-	1
<i>Sus f. domestic</i>	pig	2	-	5	-	-	7
<i>Bos f. domestic</i>	cow	56	15	50	-	1	122
Caprovid	shg	34	8	24	-	1	67
<i>Ovis f. domestic</i>	sheep	1	1	-	-	-	2
<i>Homo sapiens</i>	human	-	-	2	-	-	2
Large mammal		91	15	65	-	-	171

Species		Iron Age	Iron Age/ Roman	Roman	Med/Post- med	NI	Total
Medium-sized mammal 1		44	13	34	1	4	96
Medium-sized mammal 2		1	-	2	-	-	3
Unidentified		138	41	208	2	5	394
Total		409	98	403	3	11	924
<i>No. of Contexts</i>		<i>19</i>	<i>15</i>	<i>8</i>	<i>1</i>	<i>2</i>	<i>45</i>

Table 41: Hand-collected vertebrate remains recovered from Trench 8. Key: Med/Post-med = medieval/post-medieval; NI = no dating information.

Species		Roman	Late Roman	Med/Post- med	NI	Total
Cetacean		1	-	-	-	1
<i>Canis f. domestic</i>	dog	2	2	-	-	4
<i>Equus f. domestic</i>	horse	13	8	-	-	21
cf. <i>Equus f. domestic</i>	?horse	1	-	-	-	1
<i>Sus f. domestic</i>	pig	15	6	-	1	22
Cervidae	deer	2	-	-	-	2
<i>Bos f. domestic</i>	cattle	54	49	-	-	103
cf. <i>Bos f. domestic</i>	?cattle	1	-	-	-	1
Caprovid	sheep/goat	21	14	-	-	35
cf. <i>Gallus f. domestic</i>	?chicken	-	1	-	-	1
Large mammal		137	93	3	-	233
Medium-sized mammal 1		50	11	1	1	63
Unidentified bird		1	-	-	-	1
Unidentified		96	46	1	-	143
Total		394	230	5	2	631
<i>No. of Contexts</i>		<i>13</i>	<i>15</i>	<i>1</i>	<i>1</i>	<i>30</i>

Table 42: Hand-collected vertebrate remains recovered from Trench 9. Key: Med/Post-med = medieval/post-medieval; NI = no dating information.

Species		Prehistoric	?LBA	Roman	Late Roman	Med/ Post-med	NI	Total
Microtine	vole	-	-	1	-	-	-	1
cf. <i>Canis f. domestic</i>	?dog	-	-	-	-	-	1	1
<i>Equus f. domestic</i>	horse	2	5	5	-	3	-	15
cf. <i>Equus f. domestic</i>	?horse	-	-	1	-	-	-	1

Species		Prehistoric	?LBA	Roman	Late Roman	Med/Post-med	NI	Total
<i>Sus f. domestic</i>	pig	1	4	1	-	1	-	7
Cervidae	deer	-	-	-	-	1	-	1
cf. Cervidae	?deer	1	-	-	-	-	-	1
<i>Cervus elaphus</i> L.	red deer	1	-	-	-	-	-	1
<i>Bos f. domestic</i>	cattle	6	71	16	1	2	3	99
cf. <i>Bos f. domestic</i>	?cattle	-	20	-	-	-	-	20
Caprovid	sheep/ goat	1	48	7	-	3	36	95
cf. Caprovid	?sheep/ goat	-	-	-	-	-	2	2
<i>Ovis f. domestic</i>	sheep	-	2	1	-	-	-	3
<i>Homo sapiens</i>	human	-	1	-	-	-	-	1
<i>Anser</i> sp.	goose	-	11	-	-	-	-	11
<i>Gallus f. domestic</i>	chicken	-	-	-	-	-	11	11
cf. <i>Gallus f. domestic</i>	?chicken	-	-	-	-	-	1	1
<i>Corvus corone</i> L./ <i>Corvus frugilegus</i> L.	crow/rook	-	1	-	-	-	-	1
<i>Corvus corax</i> L.	raven	-	2	-	-	-	-	2
Large mammal		6	61	14	1	2	-	84
Medium-sized mammal 1		1	17	3	-	2	-	23
Medium-sized mammal 2		-	-	1	1	-	-	2
Unidentified bird		-	4	1	-	-	3	8
Unidentified		1	22	3	-	-	20	46
Total		20	269	54	3	14	77	437
<i>No. of Contexts</i>		5	2	12	2	4	2	27

Table 43: Hand-collected vertebrate remains recovered from Field 63. Key: ?LBA = ?Late Bronze Age; Med/Post-med = medieval/post-medieval; NI = no dating information.

Appendix 10: Coin

RA no.	Context no.	Denomination	Ruler/type	Date	clean?
42	926	Dupondius or As	Faustina II / PVDICITIA - SC	145-61	x
43	926	AE1	Constantine I / PRINCIPI IVVENTVTIS - London	307-18	x
39	926	Barbarous radiate	illegible	260-300	x
11	918	Barbarous radiate	illegible	260-300	x
35	923	AE3	GLORIA EXERCITVS - 1 std	335-40	x
22	912	AE3	2 victories?	347-8?	y
21	912	AE3	GLORIA ROMANORVM?	364-78?	y
12	918	AE3	illegible	late 3 rd -4 th c	x
13	918	AE3	illegible	late 3 rd -4 th c	y

Appendix 11: Stone

The Assessment of Stone from Banwell (BWB12) by Dr Kevin Hayward
January 2013

11.1 Introduction and Aims

Examples of worked and un-worked stone were retained at excavation from the site at Banwell, Somerset. An assemblage of 394 examples 31.6kg was assessed in order to:

- Identify (under binocular microscope) the fabric of the stone to determine its geological character and source (summarised below).
- Make comment on the form of the quernstone and other worked stone.
- Made recommendations for further study.

11.2 Methodology

The stone was examined using the specialist's own reference collection of geological samples from southern and western England. The application of a 1kg masons hammer and sharp chisel to each example ensured that a small fresh fabric surface was exposed. Treatment of dilute Hydrochloric acid determined whether or not the rock had a calcareous composition. The fabric was examined at x 20 magnification using a long arm stereomicroscope or hand lens (Gowland x 10). . Consultation of local geological memoirs (Whitaker & Green 1983) and articles on quern manufacture, form and source (esp. Shaffrey 2006; Curwen 1937) provided an additional source of reference material.

11.3 Local Geology

The site lies on reclaimed marshland just to the north of an area of complex geology, characterised by the large Mendip anticline (the Blackdown Pericline). This large fold brings together young Late Triassic/ Lower Jurassic sediments along its rim with progressively older Carboniferous (limestone) and Devonian sediments at its core. Banwell forms the north-western tip of the Mendip Hills. Further afield, a wide range of building material types have been identified in Somerset (Prudden 2003).

In addition, the site lies within 20km of the Bristol (north) and Somerset (east) Coalfield basins each characterised by a diverse group of hard Devonian sandstones and conglomerates and Carboniferous fine sandstones, gritstones and coal that are suitable for paving, whetstones, quernstones and coal. Finally, the site's accessibility to the rich and diverse geological resources of the Forest of Dean, via the River Severn and the Fosse Way/Ermine Street, should also be taken into account.

11.4 Petrology

Given the site's accessibility to such a rich and diverse geology it is not surprising that sixteen different lithotypes were identified in the worked and unworked stone assemblage from Banwell. Here, brief comment will be made on their form and use with the exception of the quernstone which will be covered in a separate section below.

11.5 The Quernstone

All the quernstone was recovered reused in a Roman late 3rd C courtyard wall in Trench 9 (921). Three material types were identified.

Quartz Conglomerate type 1 *Basal Upper Devonian source possibly Forest of Dean* (40km to north).

One complete lower quernstone SF56 had a distinctive texture. This consisted of fractured quartz pebbles up to 33mm across; numerous fractured quartz fragments; together with exotic inclusions including prominent brown old red sandstone fragments; rare black lithics 5mm across; very rare pale cream acid volcanoclastic debris 10mm but no mica all set within a hard fawn brown gritty matrix. No reaction with dilute Hydrochloric acid was observed. The presence of fractured quartz and Old Red Sandstone fragments are indicative of quartz conglomerates from the basal Upper Old Red Sandstone of the Forest of Dean, South-east Wales, Bristol, Thornbury and Somerset (Source Areas 1-5 of Shaffrey 2006; 5). Defining a more precise source is fraught with difficulties due to similarities between outcrops and lateral variability within a single outcrop. Nevertheless, on the basis of clast variability (20-30% exotics) some comparison can be made with the Area 1 Conglomerates from the Forest of Dean, 40km to the north. Querns made from this rock type are found over a wide part of western and southern England including Somerset, Wiltshire and Berkshire (Shaffrey 2006; Figure 3.2) but not from the nearby Star Villa (Shaffrey 2006).

Quartz Conglomerate type 2 *Basal Upper Devonian local source either Woodhill Bay Conglomerate, Portishead, Avon* (20km to north) or comparable conglomerates (20-25km to the east) from the Mendips.

A solitary upper quernstone SF50 also had fractured quartz and occasional rock fragments which suggested it came from a quartz conglomerate from the basal Upper Devonian of western England. However unlike SF56 this consisted of a finer, more condensed quartz matrix and much smaller fractured quartz fragments (15mm across maximum), with occasional mica suggesting a different source. Although not definite, the characteristics of the conglomerate used in this quern was more comparable with the finer grit stones of the Woodhill Bay Conglomerate near Portishead Bristol (Area 3 of Shaffrey 2006) or possibly comparable examples from the same geological horizon from the Mendips (Area 5 of Shaffrey; 25km to the west). Two further points of interest. First, rocks from both Area 3 and 5 were identified in quern from nearby Star Villa (Shaffrey 2006). Second, it is comparable somewhat in its lithology with the large quern from Durdham Down (Hayward 2013) which has been provisionally sourced to Area 3. It is possible that this example could have come from a coastal exposure near Black Nore and transported south along the Bristol Channel and possibly the River Banwell to the site.

Millstone Grit *Upper Carboniferous Namurian a number of possibilities including southern part of Bristol* (20km to the north) *Somerset Coalfield* (25km to the east) *or even South Wales* (50km+)

The third example a much narrower quern SF 57 had a finer, more open coarse equigranular texture consisting almost entirely of angular quartz fragments. No reaction with dilute hydrochloric acid was identified. These characteristics are typical of quartz arenites from the Millstone Grit of the younger Upper Carboniferous (Namurian). Defining a more precise geological source is again, fraught with problems because of the homogeneity of the stone. These Namurian sandstones outcrop not only in the Bristol (Kellaway & Welch 1993) and Somerset coalfields but also in South Wales. Until a detailed provenance study of these material types has been conducted it is at this stage not possible to define a more precise source. What can be said, however, is that the quartz in this rock type is sufficiently angular and homogeneous to manufacture the quern to a much narrower thickness (45mm) when compared to the Quartz Conglomerates (60mm +) making it lighter and easier to transport.

11.6 Paving, Part-dressed Slabs

A major feature of the assemblage is the large quantity of worked (paving?) slabs identified in many different parts of the site. Four rock types can be identified.

Blue Lias – bituminous *Penarth Group - Upper Triassic (Rhaetic) /Lower Jurassic (Lower Lias)* – outcrops lie very close just to the east of Banwell

By far the most common material type (36 examples 5.6kg) from Banwell this hard dark grey calcareous mudstone from local Lower Jurassic (Sinemurian) beds has two characteristics that set it apart from Blue Lias *sensu-stricto*. First it leaves a distinctive bituminous smell when split and it also contains no definable fossils in hand specimen. These rocks also have fine micro-laminae of dark and light grey layer that interdigitate on a mm scale and have a ripple markings (often polygonal) on the surface. Outcrops of Blue Lias and bituminous shales have been identified in the Mendip anticline (Whittaker & Green, 1983, 42, 121). As it is an easy rock to split, it not only forms the ideal paving/consolidation material as examples from the Roman buried soil horizon (019) and road (030) of Field 63 and debris from a burnt Late Roman building (918) in Trench 9 show but it has also been identified in LBA/EIA horizons in Field 63 (065) (066). It has also been used in roofing associated with the Roman structure (918) (941) and whetstone (see below).

It is possible that the paving material (not seen) from the Roman flagstone floor (941) (942) of the building may also be made of this material and could have been reused in later structures.

One example (65mm x 40mm x 27mm) from the road surface (030) seems to have been deliberately fashioned into an *opus spicatum* (small, narrow rectangular brick) shape

Blue Lias – *sensu-stricto Lower Jurassic (Lower Lias)* – outcrops lie very close just to the east of Banwell

A very large partly worked flaggy slab of this dark-grey finely crystalline micritic limestone containing a complete mollusc *modiolus* up to 27mm long, and a rhynchonellid brachiopod just 3mm across was recovered from a LBA/EIA puddled or trodden surface in Field 63 (065) (072). The block fashioned on its edge using an awl, was probably used as a locally available paving material.

Pennant sandstone *Upper Carboniferous (Westphalian) Outcrops within the Bristol Coalfield or even around Mendip Coalfield* (Prudden 2003)

Another common paving material (4 examples), this very hard mottled dark grey-green micaceous fine feldspathic sandstone with white flecks is used along with the blue lias not only as road paving in field 63 (030) but also originally as paving from the burnt building (918) from trench 9. The pavers, like the Blue Lias are fashioned from slabs 25-30mm thick. This rock type comes from much further afield either from the Upper Carboniferous sandstone outcrops of Bristol or the Mendips (Prudden 2003).

It has been identified in some quantity at other sites as paving material (e.g. Groundwell Ridge Villa) and as whetstones in London, at for example, Drapers Gardens (Hayward in prep.). It is only associated with Roman features.

Brownstone type material Devonian source – *either Lower Devonian (Forest of Dean) 40km away or more probably from local Upper Devonian Portishead Beds*

Examples of this hard fine purple-red micaceous sandstone were restricted to two thin (15mm) paving slabs from the demolition debris of building (918) and also in whetstones (see below). On first inspection there was similarity with examples of Brownstone from the Lower Devonian of the Forest of Dean but it is possible that they come from a much closer Devonian source. Comparable dull purplish-red feldspathic sandstones and micaceous sandstones are recorded from the Devonian core of the Mendip anticline to the east of Banwell (Whittaker & Green 1983, 4). Given that many of the whetstones have been part fashioned out of river pebbles, it is possible that they come from eroded blocks of these local sandstones. However, no definite source can be determined in hand specimen.

11.7 Fuel

Fuel *Upper Carboniferous; Coal Measures Most likely Somerset Coalfields (Nettelbridge Valley) 30km east from any one of a number of seams*

One distinctive feature of the assemblage is the large accumulation by number (313 examples 426g) of vitreous low density black carbonaceous materials or coal. These small 2-3 cm lumps with distinctive plant impressions or twigs either come from a Late Bronze Age/Early Iron Age puddled or trodden surface (065) and an overlying Late Bronze Age/Early Iron Age river lain layer (066) both from Field 63.

The use of coal during the Roman period, is well documented particularly in this part of Britannia described in an article by Smith (1997) who used petrographic methods to source coal to separate production sites. The coal identified from sites in Somerset including nearby Star Villa (Barton 1964) was sourced to the Somerset coalfields of Nettlebridge Valley some 30km away. This coal was probably used in metallurgical processes at industrial sites such as Chew Valley (Smith 1997) in furnaces from the first century or in fireplaces as at Star Villa.

But the identification of coal probably from a similar source in association with Late Bronze Age/Early Iron Age activity at Banwell (065) (066) is an exceptionally early use of this material. It is possible of course that it was associated with prehistoric artisan production of metal items (as fuel) as shown by the presence of mould and crucible fragments from these contexts, backed up by examples of burnt limestone (lime) and ironstone (or other metalliferous material). It would not have made practical or economic sense to transport coal 30km away just to consolidate paths.

Spindle Whorl, Ring and Bracelet

Kimmeridge Shale Upper Jurassic (Kimmeridgian) outcrops along the Dorset coast around the Kimmeridge Bay area

The production of objects made from the bituminous shale from the Kimmeridge Clay Formation “coal” (Kimmeridge shale) exposed between Brandy Bay to Chapman’s Pool in Dorset (Mills 2002) is another offshoot of the Roman Purbeck-Poole complex-agglomerated geomaterials industry (Allen et al. 2007). The oil content of this soft fine grained laminated rock enables it to be worked like wood, it can be chiselled, sawn or turned on a lathe (Mills 2002). At Banwell worked objects are associated with prehistoric activity including a bracelet (diameter 60mm) and thin (1mm thick) ring from a Late Bronze Age/Early Iron Age river lain layer from Field 63 (066) but also a spindlewhorl associated with debris from a burnt Late Roman period building (918) from Trench 9. If they are LBA/EIA in date this is exceptional early for Kimmeridge Shale production.

Examples of these were not only prepared for use close to their place of manufacture (Woodward 1986a; Woodward 1986b; Mills 2002) but also in major towns especially Silchester (Lawson 1975) and much further afield as with these examples from Banwell. No example of Kimmeridge shale waste was identified from Banwell, suggesting that these examples were brought in from Dorset (120km to the south) ready-made.

11.8 Rubble/Natural/Pot Boiler

As well as lumps of the ubiquitous bituminous Blue Lias (see above) a whole plethora of other locally available unworked stone materials from the Carboniferous, Triassic and Lower Jurassic were identified from Banwell. These could either have been brought into the area as pebbles via river transport or from local outcrop. Some may have been used as walling rubble (for the Roman period) or as pot boilers/industrial waste (prehistoric).

Hard limestone – *local Lower Carboniferous Limestone (e.g. Black Rock Limestone) or another unit from the Lower Carboniferous outcrop of the NW Mendips. 2 examples 104g*

A hard, light-grey sparitic limestone without any obvious fossils. Reacts viciously with dilute Hydrochloric acid from a Late Bronze Age/Early Iron Age river lain layer from Field 63 [66] and debris associated with a possible Roman burnt building [918] from Trench 9.

Hard dolomite - *local Lower Carboniferous Limestone (e.g. Black Rock Dolomite) from the Lower Carboniferous outcrop of the NW Mendips. 2 examples 121g.*

Two lumps of a burnt hard grey/brown fine carbonate rock – do not react with dilute Hydrochloric acid, which indicates that it must be a dolomite. These were probably used as pot boilers from an Late Bronze Age/Early Iron Age river lain layer in Field 63 [66]

Green Marlstone – *Local Tea Green Marls (Mercia Mudstone Group) Lower Triassic outcrop within 1km. 3 examples 133g*

Examples of burnt pale cream soft micritic marlstone from the local Triassic with banded rims of reddened (oxidised) layers were identified from Field 63 including an Late Bronze Age/Early Iron Age river lain layer (066) and a Roman ditch fill (028). It was also identified in Trench 9 used in a Roman wall boundary (932)

Quartzite – *local vein quartz from Permo-Triassic veining within the Lower Carboniferous limestone of the NW Mendips and brought into the area by river action 1 example 56g*

A hard white fractured quartz pebble from a Late Neolithic/Early Bronze Age buried soil horizon from Field 63 (089) SF85 is too small to be a hammer stone. Instead, it is likely to represent a water worn river pebble because of the presence of shatter marks.

Triassic sandstone – *Local from Permo-Triassic veining or deposition probably brought into area by river action. 1 example 80g*

A small fragment of a fine, reddened iron-rich (equigranular quartz) sandstone was recovered from Trench 9 Late Roman collapsed wall (917)

Mineral rich Geode Nodules – *Local from Permo-Triassic veining within the Lower Carboniferous limestone of the NW Mendips 8 examples 563 g*

A group of heavy, small naturally circular ball-like mineral geodes consisting of fractured quartz, dark brown ironstone or another mineral and Carboniferous limestone bedrock all came from Field 63 including a LBA/EIA trodden surface (065) and an overlying LBA/EIA river lain layer (066) and Early Roman post hole fill layer (051). They may either represent weathered out Permo-Triassic mineralization from within the Lower Carboniferous of the nearby Mendips, or given other evidence for artisan production of metal production here (crucibles) industrial metalliferous waste.

Quartz crystals Probably local from *Permo-Triassic veining within the Lower Carboniferous limestone of the NW Mendips and brought into the area by river action* 3 examples 14g

Large, hard complete perfect trigonal quartz crystals (dog-tooth) were identified from a LBA/EIA river lain layer (066) SF10 and an earlier EBA river terrace (088) SF 86 from Field 63. It is possible that these were selected and kept from a prehistoric river bed because of their striking appearance. Finally there is an example of amorphous quartz from a deposit (994) beneath a Roman building in Trench 9.

Whetstones 11 examples 1.7kg

Hard, durable fine materials used as paving slabs (see above) were also suitable for the manufacture of whetstones for sharpening tools or weapons. They are:

Brownstone type material Devonian source – *either Lower Devonian (Forest of Dean) 40km away or more probably from local Upper Devonian Portishead Beds* 5 examples 0.6kg

Examples of this hard fine purple-red micaceous sandstone are similar with examples of Brownstone from the Lower Devonian of the Forest of Dean but it is possible that they come from a much closer Devonian source. Comparable dull purplish-red feldspathic sandstones and micaceous sandstones are recorded from the Devonian core of the Mendip anticline to the east of Banwell (Whittaker & Green 1983, 4).

Many have a smooth elongate ovoid shape and are river pebbles that have been simply reworked for rubbing or sharpening objects such as was found in the Roman buried soil horizon from Field 63 [19] and in Roman re-deposited material from Trench 9 (919). Another example was recovered from a LBA/EIA Trodden surface (065). Others such as the burnt example from LBA/EIA river lain layer (066) of Field 63; SF 20 and SF 23 have undergone more extensive use and have a more defined profile.

A further example also from (066) SF 17 was much larger (91mm x 45mm x 40mm - 403g) fist sized flat round rub stone, with one side extensively worn.

Given that at least some of the whetstones have been part fashioned out of river pebbles, it is possible that they come from eroded blocks of these local sandstones. However, no definite source can be determined in hand specimen.

Blue Lias – local bituminous *Penarth Group - Upper Triassic (Rhaetic) /Lower Jurassic (Lower Lias)* – *outcrops lie very close just to the east of Banwell* 6 examples 1.1kg

These very hard condensed micritic limestones were also robust enough to be used as rubstones as the two conjoined examples from the LBA/EIA river lain layer (066) SF 22; SF 32 and possibly SF 21 of Field 63 show. These small fragments each have two bevelled 15 degree edges which meet at a point.

Rubstones with the most distinct profile include one with a bevelled edge 60mm long x 30mm wide x 25mm thick from a Roman road foundation in Field 63 (030) SF 9 and one with a very flat profile 72mm long x 36mm wide x 9mm thick from the debris of a burnt Roman building in Trench 9 (918) SF 41.

To conclude the rubstones made from pebbled Devonian sandstones appear to have been only be used intermittently. By contrast, more due care and attention has been put towards the preparation of the bevelled rubstones made from Blue Lias. Whether this was a chronological difference or simply the use of different materials for different purposes has not been determined.

11.9 The Quern – Form

With reference to Shaffrey (2006) brief comment is made on the form of the three quernstones reused in a Roman courtyard wall in Trench 9 (921).

SF 50 Convex upper rotary quernstone 74mm thick and 308mm in diameter. Weight 8.6kg

This example has a very large rotary hole 64mm wide. It has a complete handle slot on convex side 74mm long and 50mm on edge narrowing to 25mm. The form corresponds to Type 8a (Shaffrey 2006; 37 Figure 4.15) - Curwen's flat "beehive" (Curwen 1937) or Roman legionary type which he thought was early Roman. Shaffrey mentions that this type is reminiscent of the beehive quern, but has a flat grinding surface and a handle slot inserted on the side (Shaffrey, 2006, 37).

SF 56 Thinner burnt upper rotary quernstone 61mm thick on rim narrowing down to 45mm in centre with a smaller rotary hole (40mm thick) than SF 50. 335mm diameter. Weight 4.5kg

This example has distinct circular rotary marks 8-9mm apart and a flat smooth lower surface with a handle slot inserted at edge 80mm long x 37mm wide and narrows and curves to 15mm. It has straight edges. It corresponds to flat-topped Type 1b profile of Shaffrey (2006, 34, Figure 4.13) which Curwen describes as early Roman (Curwen 1937). It is the most common type of upper stone profile of Old Red Sandstone quern: accounting for over 50% of Shaffrey's survey of sites from southern and western Britannia (Shaffrey, 2006, 34).

SF 57 Thin upper rotary quernstone just 48mm thick on rim narrowing to 42mm in the centre. Large rotary hole (75mm and 125mm with lip). 365mm diameter. Weight 4.2kg

This final example is much shallower than SF 50 and SF 57 with a distinct gently curved profile edge. Rotary marks on underside. This thin disc form compares somewhat to Shaffrey's angled parallel disc quern 3a; 3b or 3d (Shaffrey, 2006; 37; Figure 4.15) which Curwen described as Later Roman (Curwen 1937; Shaffrey, 2006, 37)

11.10 Summary

11.10.1 Material types

Hand specimen petrological analysis of 393 fragments of worked quernstones, whetstones, paving, roofing, a spindle whorl, ring, and bracelet as well as unworked/burnt rubble or natural stone from the multi-period site of Banwell (BWB12) has been able to identify the geological character and source of 16 material types.

Three reasons should be given for this diversity. First there is the complex local geology where folding has brought together a wide range of older Palaeozoic Devonian sandstones and Carboniferous limestones of the Mendips against younger Permo-Triassic sandstones over a small geographical area. Second, the site was multi period with evidence for not only Late Neolithic/Early Bronze Age activity/occupation but also later LBA/EIA; LIA/ERB and Later Roman phases. Third, the site's position next to a locally constructed Roman road; its proximity to a Roman Villa and thence the road wider network extending north to the Forest of Dean and eastwards to the Mendip coalfield.

All of the rubblestone (Carboniferous limestone; dolomite; Tea Green Marl; Triassic sandstone; quartzite) came from the immediate area, with a substantial quantity (36 examples 5-6kg) of the worked stone (paving and whetstone) from the locally available Blue Lias. Reliance on local resources probably extended to the utilisation of Brownstone pebbles acquired from the river bed/terraces for whetstone production. These probably came from the Devonian core of the Mendip anticline to the east of Banwell (Whittaker & Green 1983, 4). Even the quartz crystals and metallic veined material have a local source.

The site at Banwell is however also characterised by more exotic stone types. These include Pennant sandstone paving and coal; probably from the East Mendip Palaeozoic coalfield; Quartz conglomerate quern from as far north as the Forest of Dean and also the Bristol or Mendip region. Finally, the very small and light portable Kimmeridge Shale spindlewhorl, bracelet and ring which came from the Dorset coast 110km to the south.

11.10.2 Chronological review of worked and unworked stone

Nearly all the material came from either the Roman Trench 9 (33 examples 21.2kg) or from the prehistoric/Roman deposits in Field 63 (359 examples 10.3kg). Trench 8, which consisted of Iron Age and Roman ditches consisted of a single slab of Blue Lias (860).

11.10.3 Late Neolithic – Early Bronze Age

Only a local river lain quartzite pebble probably from the Permo-Trias veining within the Carboniferous Limestone and a small quartz crystal from the same geological formation were identified from this period in a buried soil horizon (089) and river terrace deposit (088) small find (SF) 85 from Field 63. The pebble from (089) is too small to have been utilised as a hammerstone and it has waterworn pitted “chatter marks”. It is possible that the complete trigonal quartz crystal from (088) had some sort of decorative value but it could just as easily represent eroded out material from outcrop.

11.10.4 Late Bronze Age – Early Iron Age

The variety of stone types (10); quantity (344 examples 6.5kg) and types of use (bracelet; ring; partly worked stone; rubstones; fuel; crystals; metalliferous waste) are a feature of the puddled or trodden surface (065) and overlying river lain silt deposit (066) from this period.

Many of the stone types represents locally acquired materials (Carboniferous limestone; dolomite; Tea Green Marl; Blue Lias (two types); Triassic sandstone; metalliferous geodes; river worn brownstone used as rubstones) and as consolidation material in a waterlogged area and simply as metalliferous waste.

Perhaps of greater interest are the material types acquired further afield. First, large quantities of broken up Upper Carboniferous coal (313 examples 0.5kg) probably from the East Mendip coalfield at distances exceeding 30km. The use of coal at this time is not particularly well documented but in light of evidence for the production of metal items (crucibles; moulds; metalliferous geodes; lime) from (065) and (066) the site at Banwell seems to have been used early of coal at a prehistoric metal production site.

The ring and bracelet made of Kimmeridge shale (110km south) from the Dorset coast does seem an exceptionally early use of this material. It is possible that deposit (066) could in fact represent reworked material from later prehistoric (LIA) levels.

The large quantity of whetstone fragments both in Brownstone and Blue Lias would indicate that a lot of metal sharpening was occurring then.

11.10.5 LIA/Early Roman

Evidence for mid-late first century worked stone at Banwell is restricted to reused quernstone from the later Roman boundary wall (921) and a Kimmeridge shale spindlewhorl (918). The form of two lower quernstones is characteristic of Early Roman production (Shaffrey 2006). The flat beehive form SF 50 is early Roman (Shaffrey 2006) and has been called a military quern form of Curwen (1937). The form represented by SF 56 (flat topped 1b) is also Early Roman. One material types comes from as far as the Forest of Dean (SF 50); the other probably from the Mendip or Bristol coalfield (SF 56). Only the Mendip type was identified in the nearby Roman Villa (Shaffrey 2006).

The opening up of the wider provincial network in stone during the mid-late first century military occupation may also account for the presence of a Kimmeridge Shale Spindle Whorl from a burnt Roman building (918). It is possible that these objects relate to early military occupation at Banwell as shown elsewhere by possible Punic style ditches and ramparts in Field 63.

11.10.6 Later Roman

The building of the road (030) (068) (985) used locally acquired crushed limestone fragments (probably Carboniferous limestone and Blue Lias) from (985) in Trench 9 together with larger slabs of Blue Lias and Pennant Sandstone as shown by examples (030) (068) in Field 63. The latter, probably acquired from Upper Carboniferous outcrops of the Mendips or Bristol (25-40km) had not been identified in prehistoric levels at Banwell and represents another example of the widening up of the provincial network in stone during the Roman period. One example of Blue Lias (65mm x 40mm x 27mm) from the road surface [30] seems to have been deliberately fashioned into an *opus spicatum* (small, narrow rectangular brick) shape

The contemporary boundary wall (921) and its collapse (917) (918) used similar part worked/paving materials (Blue Lias; Pennant sandstone) as the road with the addition of Brownstone. One quern reused SF 57 in the boundary wall (921) made from Millstone Grit possibly from the Mendip/South Wales area is comparable to Shaffreys angled parallel disc quern 3a; 3b or 3d (Shaffrey, 2006; 37; Figure 4.15) which Curwen described as Later Roman (Curwen 1937; Shaffrey, 2006, 37). Finally, there is evidence of roofing material (nail holes) made from Blue Lias from the flagstone floor (941) from the Roman building.

Appendix 12: Flint

Analysis of a lithic assemblage by Robert Harman and Dr Randolph Donahue
Lithic Microwear Research Laboratory, University of Bradford

12.1 Summary

Initial inspection: of the assemblage from Banwell comprises 40 flint and two chert pieces, five of which are potentially diagnostic tool types relating to the late Neolithic/Early Bronze Age period.

Technology: the assemblage consists mainly of hard-hammer percussion blade and flake technology.

Raw material: varied quality of the raw material is suggestive of lesser care concerning material procurement; this is not uncommon during the late Neolithic/Early Bronze Age transition (Butler, 2005).

NOTE: For the purpose of analysis extra numbers (LMRL no's 1-40) have been added by the Lithic Microwear Research Laboratory to the original artefact find bags so identification can be made in relation to this report.

12.2 Method

Analysis of the assemblage has been conducted using a combination of morphological and macroscopic assessment methods.

Morphological assessment was carried out by recording the length: breadth ratio of each individual piece using a common definition used to classify flint technology (Odell, 2005; Ballin, 2000; Butler, 2005). To qualify a blade has to have a length at least twice its width. The recorded measurements were then used to categorise artefacts into either blade or flake technologies and subsequently further categorise them into tool-type, following examples given in Butler (2005) and Martingell (2001).

All measurements were taken using a standard dial calliper and recorded in millimetres to the nearest fraction. In conjunction with a naked eye assessment the use of a 10 x hand lens was used to establish what type of edge modification had been employed to create the working edge where retouch was present.

12.3 Results

The assemblage comprises of 40 flint and two chert pieces from nine different contexts one of which is unstratified and is dominated by flake and blade technologies, the bulk of which are found in context number (088) a lower river terrace deposit (see Table 44). When sorted further into a tool type the assemblage consists largely of indeterminate pieces, debitage and waste flakes which could be interpreted as evidence of knapping on site.

Context	052	994	027	040	086	083	879	088	Unstratified	Grand Total
Blade		1			1			5		7
Broken blade	1							4		5
Flake		1	1	1		1		15		19
Irregular flake								1		1
Broken flake		1					1	7	1	10
Grand Total	1	3	1	1	1	1	1	32	1	42

Table 44: Technology types by context.

Of the total 42 artefacts only two (LMRL numbers, 10 and 39) show obvious signs of thermal alteration due to the presence of surface crazing and heat fracturing visible on the surface.

2a - Flint Sidescraper ((994) redeposited natural below Roman wall)

Artefact 2a is a complete sidescraper with striking platform manufactured on a secondary flint flake that still retains a small amount of cortex on the dorsal surface. The tool is sub-ovate in shape and the right lateral working edge has semi-abrupt, irregular retouch which steepens into abrupt retouch towards the distal end. The dorsal surface indicates previous flake removals and consequently has numerous facets and negative flake scars along with a single large step. The ventral surface exhibits a shallow bulb of percussion and an accompanying double bulbar scar, as well as a large singular concentric ring.

13 - Flint Awl/Piercer (context 088)

Artefact 13 is a flint awl or piercer formed from a thick flake that is square in plan with a pointed end. Both dorsal and ventral surfaces have undergone invasive all round retouch. One side (presumably the dorsal surface) shows removal of large and small flakes whilst the other has numerous small flake scars. It is impossible to establish which is the dorsal or ventral surface.

22 - Notched chert flake (context 088)

Artefact number 22 is a broken notched flake manufactured on a proximal portion of brown chert. The proximal end retains a small striking platform and the ventral surface has a shallow bulb of percussion and a single large concentric ring. The notch has been created on the right margin at the distal end and has very fine semi-abrupt retouch around a concave area that measures 6 mm wide and 1 mm in depth.

34 - Flint Hollow scraper (context 088)

Artefact number 34 is a Flint Hollow scraper formed on a large secondary flake with two very small areas of retained cortex at both proximal and distal ends. The ventral side has concentric rings with no bulb of percussion or bulbar scar present; it would appear to be the medial portion of a larger flake. Dorsal surface expresses numerous flake scars from multiple directions across the surface, possibly to improve handling during use. The right lateral edge has a large concave area that measures 31mm wide at a depth of 6mm with steep semi-abrupt retouch producing the scraping edge.

37 - Flint combination tool - Sidescraper with burin (context 088)

Artefact number 37 is a flint combination tool combining a sidescraper and a burin. The tool is formed on a large secondary flake of good quality dark flint with a small area of cortex on the dorsal surface. The right lateral edge show steep abrupt retouch to form a scraping edge 24mm long. The left proximal end has been worked into a burin by two small removals along the edge of the left lateral side and one removal on the dorsal. The entire dorsal surface has numerous flake scars comparable with hard-hammer percussion removals; it appears to be an attempt to shape the tool for more comfortable handling during use.

12.4 Conclusion

The majority of tools have been struck on secondary and tertiary pieces and display characteristics of hard hammer production that are consistent with Late Neolithic/Early Bronze Age techniques. Pieces struck using the hard hammer technique usually leave a large or prominent bulb of percussion, large and highly visible ripples, and produce premature terminations such as hinge and step fractures (Butler, 2005). A small number of artefacts however, show features analogous of soft hammer. Soft hammers typically produce a flake or blade with a diffuse bulb of percussion and because the blow is generally less the ripples on the ventral surface are more discreet or not visible at all (Butler, 2005).

Within the assemblage there are five potentially diagnostic tool types present (see list below), all of which are highly characteristic of the late Neolithic/ Early Bronze Age period (Butler, 2005).

- 2a – Flint Sidescraper
- 13 – Flint Piercer/Awl
- 22 – Notched chert flake
- 34 – Flint Hollow scraper
- 37 – Flint Sidescraper with burin (combination tool)

Later Neolithic period sidescrapers were manufactured on broad hard hammer-struck flakes and tend to retain cortex on the opposite lateral edge to aid handling. Awls and piercers continued to be made on hard hammer flakes during the Late Neolithic and the size of the points can vary considerably. Notched pieces are generally found in greater number on late Neolithic/early Bronze Age sites and are found in smaller numbers during the early Neolithic period. Hollow scrapers, although less frequently found than sidescrapers, do appear in greater number during the Late Neolithic/ Early Bronze Age. They are typically manufactured on flakes with a broad concave area of retouch along one lateral edge. Combination tools, characterised by two tool types created on different parts of a single piece (Butler, 2005), appear during the Neolithic period and continued to be used into the early Bronze Age.

Although not found in great numbers they are more common in the late Neolithic and were used alongside other scrapers and notched pieces. As a whole the assemblage consists of a diverse range of raw material differing in both quality and colour, a trend that is commonplace in assemblages associated with the Late Neolithic to early Bronze Age. The selection of raw material, the flaking technology and the tool types are all characteristic of this late Neolithic to early Bronze Age period.

Appendix 13: Metalworking Debris

The Assessment of Metalworking Debris from Banwell Somerset (BWB12)

David Starley Archaeometallurgy

Report 03/13

13.1 Summary

A small quantity of metallurgical debris, from Banwell, Somerset, totalling less than half a kilogramme was examined. This provided some evidence for lead smelting in an area of the excavation containing Iron Age and Roman features.

All but one piece of debris examined in this report came from Trench 8 where late Iron Age and early Roman features were identified.

13.2 Methodology for Assessment Metalworking Debris

Where necessary the debris, totalling 637g, was washed to enable identification. Residues were visually examined then classified into categories Visual observation of the exterior was backed up, by the use of a geological streak plate. Table 45 presents a summary of these findings, based on the categories used. A full listing, by context, can be found in Table46.

Industrial Debris summary from Banwell				
Activity	Classification	Total weight (g)	Context	Total contexts
Lead smelting	Metallic lead run	39	860	1
	Smelting hearth lining	152	863	1
Lead smelting/melting	Metallic lead waste	133		1
Lead ore	Galena	81	065	1
High temp burning	Iron Age Grey	177		2

Industrial Debris summary from Banwell				
Activity	Classification	Total weight (g)	Context	Total contexts
Natural	Rhizoconcretions	55		7
Total		637		9

Table 45: Classification of Debris

13.2.1 Lead smelting

Although other lead waste on site had not been regarded as conclusively deriving from lead smelting this small **run** of metal which had solidified in contact with lumps of wood or charcoal did appear to be so. Perhaps more convincing still was an apparently unexceptional piece of fired clay, but which was noted to have an unusually high density, leading to it being classified as smelting hearth lining this would fit well with the use, in the Roman period, of shallow, clay bowl-shaped depressions for the smelting of ore.

13.2.2 Lead smelting/melting

Two fragments of **metallic lead waste**, one a small lens-shaped disc and the other a narrow crescent-shaped rim may well derive from lead smelting, but the melting and casting of lead cannot be ruled out.

13.2.3 Lead ore

A fragment of **galena** (lead sulphide, PbS) corresponds exactly to the ore that Mendip is famous for and could have provided a viable source of lead for smelting.

13.2.4 High temperature burning

Iron Age Grey is a slag-like material of hard light-weight porous nature, similar to fuel ash slag, but which suggests a process other than metalwork, possibly conflagration of daub-built structures. Such material has been recognised elsewhere and does seem to be particularly associated with Iron Age/ early Roman structures (Cowgill forthcoming).

13.2.5 Natural

The hollow mineralised tubes a few millimetres in diameter appear to be root casts or **rhizoconcretions** which are formed when calcium carbonate or the hydroxides of iron or manganese precipitate out of the groundwater as a plant takes up moisture. When the plant dies and the organic root decays, but the mineralised concretion around it survives. The large numbers found on this site presumably occur due to particularly suitable levels of moisture, redox conditions and mineral composition of the local geology.

13.3 Discussion

The small assemblage from Banwell, totalling 637g provided hints, at least, of one of the major industries of the Mendip region: lead smelting. Two fragments at least, a lead run and a piece of what is believed to be lead smelting hearth lining support this. A fragment of the lead ore, galena was also identified, but as this was recovered from an earlier context, within a different field without other metallurgical features, and therefore may not be associated with the debris from Trench 8. Two further pieces of waste lead might also derive from lead smelting, but might equally originate in a lead melting/casting operation. The positive identification of lead smelting is also severely weakened by the lack of lead smelting slag. It may be that such material was either recycled in the more recent past, or that the on-site collection methodology favoured metallic finds.

The assemblage also contained fragments of a material known as Iron Age Grey, an apparently slag-like material, but which seems to derive from the burning of daub structures rather than any metallurgical activity. Similarly, the small tube like formations, originally identified as slag, are natural concretions; 'rhizoconcretions' formed around roots. The high concentrations of iron minerals within then may give the appearance of metalworking debris, but they are in fact entirely natural.

The evidence of lead smelting is hardly surprising, given the site's proximity to the Mendip Hills from which there is clear evidence of lead extraction in the early Roman period, such as the lead pigs of AD49 and AD75 date are of relevance to the Banwell finds

Context	Sample No.	Slag type	Weight (g)	Dimensions and comments	Date	Context description (Border Archaeology)
065		galena	81	Lead ore	IBA/eIA	trodden surface
832	61	rhizoconcretion	5		IIA/eR	occupation horizon
832	289	rhizoconcretion	4		IIA/eR	occupation horizon
838	145	iron age grey	38		IIA/eR	occupation horizon
860	183	rhizoconcretion	9			
860	288	metallic lead	39	run with charcoal impressions		
860		iron age grey	139	wood/charcoal impressions		
863	187	smelting hearth lining	152	fired clay with unusually high density		
863	290	rhizoconcretion	1			
864		lead waste	54	crescent-shaped rim	above IIA/eR	poss. Industrial waste deposit

Context	Sample No.	Slag type	Weight (g)	Dimensions and comments	Date	Context description (Border Archaeology)
864	291	rhizoconcretion	21	10 individual examples	above IIA/eR	poss. Industrial waste deposit
864		lead waste	79	thin 55mm diameter disc. Convex below, concave upper	above IIA/eR	poss. Industrial waste deposit
871	271	rhizoconcretion	10			
876	286	rhizoconcretion	1	disintegrated in transport	IIA/eR	occupation horizon
879	287	rhizoconcretion	4	disintegrated in transport		

Table 46: Full Listing of Metalworking Debris by Context

Trench	Sample No	Context	Slag type	Wt (g)	Comments	Process	Context description	Dating
63		65	galena	81	Lead ore	potential lead smelting	trodden surface	IBA/eIA
8	61	832	rhizoconcretion	5		natural	occupation horizon	IIA/eR
8	289	832	rhizoconcretion	4		natural	occupation horizon	IIA/eR
8	145	838	iron age grey	38		non-metallurgical	occupation horizon	IIA/eR
8	183	860	rhizoconcretion	9		natural		
8	288	860	metallic lead	39	run with charcoal impressions	lead smelting		
8		860	iron age grey	139	wood/charcoal impressions	non-metallurgical		
8	187	863	smelting hearth lining	152	smelting hearth lining	lead smelting		
8	290	863	rhizoconcretion	1		natural		
8		864	lead waste	54	crescent-shaped rim	lead smelting/ melting	poss. Industrial wast deposit	above IIA/eR
8	291	864	rhizoconcretion	21	10 individual exaamples	natural	poss. Industrial wast deposit	above IIA/eR
8		864	lead waste	79	thin 55mm diameter disc. Convex below, concave upper		poss. Industrial wast deposit	above IIA/eR
8	271	871	rhizoconcretion	10		natural		
8	286	876	rhizoconcretion	1	dissintegrated in transport	natural	occupation horizon	IIA/eR
8	287	879	rhizoconcretion	4	dissintegrated in transport	natural		
				637				
8	288	860	metallic lead	39	run with charcoal impressions	lead smelting		
8	187	863	smelting hearth lining	152	fired clay with unusually high density	lead smelting		
8		864	lead waster	54	crescent-shaped rim	lead smelting/ melting		above IIA/eR
8		864	lead waster	79	thin 55mm diameter disc. Convex below, concave upper	lead smelting/ melting		above IIA/eR
				133				
8	61	832	rhizoconcretion	5		natural	occupation horizon	IIA/eR
8	289	832	rhizoconcretion	4		natural	occupation horizon	IIA/eR
8	183	860	rhizoconcretion	9		natural		
8	290	863	rhizoconcretion	1		natural		

Trench	Sample No	Context	Slag type	Wt (g)	Comments	Process	Context description	Dating
8	291	864	rhizoconcretion	21	10 individual exaamples	natural		above IIA/eR
8	271	871	rhizoconcretion	10		natural		
8	286	876	rhizoconcretion	1	dissintegrated in transport	natural	occupation horizon	IIA/eR
8	287	879	rhizoconcretion	4	dissintegrated in transport	natural		
				55				
8	145	838	iron age grey	38		non-metallurgical	occupation horizon	IIA/eR
8		860	iron age grey	139	wood/charcoal impressions	non-metallurgical		
				177				
		65	galena	81	Lead ore	potential lead smelting	trodden surface	IBA/eIA

Table 47: Metalworking Debris Recording Form D.Starley Job DS037, Site: Banewell Somerset BWB 12

Appendix 14: Bronze Casting Debris

GeoArch Report 2013/17

Assessment of bronze casting debris from Banwell, North Somerset

Dr T.P. Young

27 Nov 2013

14.1 Abstract

The submitted sample from context 065 and 066 (LBA/EIA) in the lowest river terrace levels of the trench in Field 63 comprised approximately 180 fragments of casting debris (mainly technical ceramics including mould fragments, possible crucible material and also some spilt metal) weighing 856g. The material came from the base of the trench and was in a highly fragmented condition and very few joins could be made between pieces, making interpretation of the assemblage rather problematic.

Four groupings of mould fragments could be identified, in two main classes of fabric. Fabric (a) was dominated by quartz-rich silt, with no coarse temper, although some examples showed coarser rounded quartz grains towards the external surface; Fabric (b) was rich in rounded quartz grains throughout and also had voids suggestive of a coarse organic temper. This second group sometimes showed evidence for a fine organic temper, possibly hair, particularly visible on the fine inner surface.

The moulds were accompanied by fragments similar to Fabric (b), sometimes with evidence for a higher degree of organic temper, which are interpreted as outer wraps for the piece moulds. Several pieces, including one substantial example, are interpreted as belong to external casting gates. A few fragments are believed to be from cores, including some suggestive of a core formed from claywrapped straw.

The fragmentation and abrasion makes identification of the matrix uncertain in many cases. Some of the moulds in Fabric (a) were clearly for pins and some of the moulds in Fabric (b) may also have been (though an object with raised surface ridges would be an alternative interpretation for these). One of the moulds in Fabric (a) had a matrix for an ornamented ring. Some of the thicker moulds in Fabric (b) show a matrix with evidence for a thinning and slightly flaring blade. Coupled with the presence of a substantial core, this tentatively suggested either a socketed axe or chisel. Two mould fragments had a matrix indicating an object with an arcuate margin, possibly with a co-marginal groove, of uncertain nature.

One sherd is apparently from the rim of a small crucible, but other heavily slagged oxidised-fired materials are apparently more planar wedge-shaped in cross-section. The interpretation of these is uncertain, and they may be from a heating trays rather than crucibles.

Limited portable XRF analysis of the residues suggested they had been employed for casting in a slightly leaded tin bronze, a composition compatible with a Late Bronze Age date.

14.2 Methods

All materials were examined visually with a lowpowered binocular microscope where required. To assist with the assessment, a small number of qualitative analyses were taken by portable (handheld) XRF on a representative suite of materials from context 066 sample 19. No invasive or destructive analysis was undertaken.

The specimens were analysed on a purely qualitative basis using a Bruker Tracer III-SD portable X-Ray fluorescence spectrometer. The instrument was operated with the Bruker 'yellow' filter (300µm Al + 25µm Ti), at 40kV and 9.60 µA, with a filament current of 189 µA, for 100s.

The instrument was controlled by a PC running Bruker's S1PXRF with spectra stored as pdz files and csv files. The images presented in Figure 72 are produced from the csv output.

14.3 Results

14.3.1 Description of material

Overview The assemblage comprised a large number of fragments (approximately 180) of technical ceramic, but most were highly abraded, with extremely few detectable joins. Some of the material had apparently been washed or sieved post-excavation, leading to further extensive abrasion and damage.

The lack of joining fragments has hindered interpretation. Identification of many of the fragments was not possible with any certainty, although the dominant friable material was mainly from moulds. Where the inner faces of moulds were identified, they were planar. Taken together with the presence of a small number of fragments of rather crude concavoconvex clay pieces, interpreted as wraps, these suggest the use of part-moulds, contained within an outer clay wrap. Some fragments interpreted as being from external casting gates and cores were also present.

Alongside the mould material, were problematic wedge-shaped fragments, moderately heavily slagged on one surface and typically with an oxidised fabric, tentatively interpreted as sherds from large crucibles, but alternatively which might be from a 'heating-tray'. A single piece of well-formed rim is interpreted to be from the lip of a crucible, but is unlike published examples of Bronze Age crucibles.

Moulds There are four categories of mould materials described here, but these are essentially variations on just two main fabric types. Fabric (a) is a fine friable material, dominated by quartz silt and very finely micaceous; Fabric (b) contains abundant rounded quartz sand (mostly 100-200µm, but commonly up to 500µm) and most examples also have organic temper, including fine plant debris in some instances, but also very fine fibres, possibly hair, in many examples (particularly visible on the smooth inner surfaces). Fabric (b) is also that seen in all the non-mould technical ceramic present.

Type (i): (#40/#83, #41/ #42/#163, #84 & #85). This includes all certain examples of pin moulds. The material is in Fabric (a), with no sand inclusions except close to outer surface, sparsely and finely micaceous, buff/grey mottled, typically with a buff external (with a hint of orange yellow down the narrow outer side of the mould) and grey interior zone. The matrix surface typically has a pale adhering secondary deposit.

The largest fragment is formed by pieces #83 and #40. The overall surviving fragment is 77mm long, with a cross section of 35mm by 11mm (approximately 1mm thicker near the edges than the centre). One side #40 carries a small area of surviving outer wrap in a porous sandy fabric. This was one valve of a mould for casting two pins.

In this combined fragment the two pin heads are apparently flat topped (except for the connection to the sprue), 6mm in diameter, with a short parallel-sided section before converging to the 3.5mm diameter shaft, giving an overall height of c. 4mm. The sprues are c.4mm diameter, pinched near the heads, and convergent away from pins. The two shafts have their centres 15mm apart. One shaft is 3.5 – 4 mm wide and up to 2mm deep; the other is 2.5-3mm wide, with a marked ridge appearing within it as it widens. The grooves are approximately 11mm apart. The slab has a rectangular margin, 12mm thick, with one groove (the wider) 8mm from one edge. Approximately 43mm of the shaft matrices are preserved.

Fragment #84 is somewhat similar, with matrices for two pin heads. They are not as well-preserved as in #40/#83; the better-preserved example is 6mm in diameter and 4mm tall with 4mm diameter shaft. The matrices of the shafts have centres 10mm apart, and are impressed to different depths. The sprue arrangement is uncertain, but there is suggestion of a horizontal sprue passing above both heads. The pin matrices are closer together than in #40/#83, so they cannot be counterparts.

One small piece in this fabric shows part of the matrix for a ring, with an annular ornament (#85), of 2.5mm maximum diameter and c. 13mm radius of curvature.

Fragment #41/#42/#163 is in a rather similar fabric. It bears impressions in the form of two grooves, one not fully preserved, and the other of semi-circular section 8-10mm in diameter. This diameter appears rather large for this to be a pin mould. The fabric passes from buff to grey along the length of the fragment, as does the region of the sprues in #83, so it is possible that this piece represents paired sprues rather than large pins.

Fragment #129 is a very similar size and style of mould to the pin moulds, but is a featureless corner of a mould with no matrix.

Possible locating stud #159 is also in this fabric. It is not known if this is truly a locating stud, for it is isolated and there are no other examples, but it is the appropriate size (9mm in diameter and 2mm high).

Type (ii): (#87, #88, #166 & #167) These show a darker grey, harder, fine clay forming the fine, smooth matrix surface, than type (i), but the bulk of the moulds are also in Fabric (a) and similarly sand free. The smooth inner face is probably the result of the method of clay application (as a very finely washed dilute slurry) rather than the use of a different clay. Several examples show the preservation of a distinct outer sandy layer to the mould, possibly the merged interior of an external wrap.

The matrix of three fragments appears to be an elongate cone shape (#87, #88) with lateral areas may either be simply the smooth faces of the part moulds, or thin blades. These lateral areas have a slightly concave or convex profile, reminiscent of the cross section of the moulds at Dainton (Needham 1980). The mould margins taper towards the central cone. Fragment #167 may be similar but might be more tubular. These fragments may be moulds for spearheads, but the lateral areas lack the complexity of the cross-section of the Late Bronze Age spearhead moulds from Dainton, but rather resemble the concavo-convex valve junction seen on the ferrule moulds there. Unfortunately, there is insufficient continuity of the mould fragments to determine this with any certainty.

One piece (#166) in this fabric is difficult to interpret, but appears to be a fragment of a matrix with a curved (possibly flatly conical) form, with a curved groove. The object type is unknown, but it is similar to a fragment in Mould type (iv) (see #131 below).

Type (iii): (#89, #90, #173/ #174 & #175) this type comprises darker, more highly altered and friable moulds in Fabric (b) with abundant quartz sand and abundant small voids. The fabric therefore has an appearance similar to that of the wraps observed on Type (i) and (ii) moulds, but is differentiated by being very strongly reduced (almost black) on the inner face.

They bear matrices in the form of curvilinear grooves possibly, but not certainly, also for pins. The grooves in the mould appear less rounded than the certain pin moulds, some examples are curved and the grooves are closer together, with a very smooth mould surface towards the margins of the mould face. The grooves themselves have faint surface striations, suggesting that the grooves may have been formed by straw or rushes. These characteristics raise the possibility, that, if moulds at all, these are not pin moulds but fragments from the mould of a larger object with a raised ridge ornament. It is also possible that, given the similarity of the fabric to pieces otherwise identified as wrap, that these might be wrap and that the impressions are of a mould binding as seen at Dainton (Needham 1980).

Piece #89 is a dark coloured fragment of sheet up to 9mm thick and uniformly reduced. It shows three parallel smooth zones – two are hollowed and might be matrices for pin shafts, the third zone is flatter and wider. All might be the matrix for a single ribbed object. The two possible pin shaft matrices are c.2mm in diameter and have 5mm between their centres. There is a 3mm wide raised zone to one side before a wide flat zone.

Fragments #173 and #174 are joining. They show a similar pattern of matrix to the item #89 above, with a width of 8mm planar surface on one side, then 4mm raised, a 2mm wide groove, another 4mm raised, a second 2mm groove, and then planar for 4mm (surviving width). The grooves are very slightly curved. There is some hint of longitudinal striation in grooves which looks like texture of a straw stem.

Item #90 is strongly and abruptly divided between reduced zone close to the inner face of the mould and an outer buff zone. The matrix is poorly preserved but there are parallel grooves of c.2mm diameter and 5mm between centres.

Fragment #175 is a small piece of mould with a slightly curving, deep, asymmetrical groove, approximately 1mm wide, that is more similar to the Type (i) pin moulds in form, than to the other pieces in this group.

Type (iv): (#86, #131?, #134, #160, #161/#30, #163, #165, 168, #169, #170, #171)

These materials are all formed of sandy Fabric (b). Most of the fragments are buff coloured, grey parts being rather restricted, with a smooth, pale grey (lightly vitrified?) matrix surface. A few of the larger fragments show a slight orange tint to external surfaces. The fragments include examples which are quite thick (up to 20mm). These properties mean there is difficulty in certain discrimination of these fragments from pieces of external wrap. Where internal impressions are present they are more suggest of mould matrices than of the impression of the impression of the external surfaces of the mould valves. The following descriptions employ the interpretation of the material as moulds.

Most fragments show a significant porosity, with several showing good impressions of vegetable matter. Most pieces show evidence for finer organic temper (hair?) on the smooth surfaces.

One group of fragments includes #134, #160, #161/#30 and #162. These are all thick (up to 20mm), show external oxidation to an orange colour and show a darker matrix surface. The matrix surface is steeply inclined with the mould. The margin of the matrix shows a slight outward curve, before an almost rightangled corner. The whole is therefore suggestive of the slightly flared blade of an axe, chisel or similar. Fragment #161 is large and together with the joining small fragment #30 shows the corner of the blade. Pieces #160, #162 and #134 are broadly similar, but do not join. These fragments show evidence for a well formed rectangular overall shape to the mould (as in Mould Type (i)), which is good supporting evidence for these being mould fragments and not wrap.

Piece #165 is fragment of a smoothly curving surface in a similar sandy fabric and so may be from the centre of a blade. Piece #86 may possibly be a blade margin, and showing a possible differentiation into two layers.

Piece #131 is in a very pale fabric and shows a rather different matrix, either showing an artefact with a curved groove parallel to its margin – or the edge of the artefact and a smooth outer field beyond a concentric ridge. It is texturally related to this group, but the form of the matrix is most closely matched by fragment #166 (which is in Type ii).

There are numerous other fragments in this group, but without clear form to the internal surface, their identification as mould rather than wrap becomes more tentative.

Wraps (#46, #91?, #121/122?, #135, #156) material interpreted as deriving from external wraps to the piece moulds is dominantly, but not exclusively, slightly oxidised fired and buff in colour. The thickness of the sheets is variable, but up to approximately 10mm. Typically the material is in a rather sandy fabric with abundant, and occasionally moderately large voids.

A few pieces (e.g. #46, #156) are strongly concavoconvex, with a rather irregular inner surface, but a neatly smoothed outer face. The nature of the inner face demonstrates that they are not moulds, but can be interpreted as external wrap fragments.

Conjoining pieces #121/#122 are regularly curved, as if part of a tubular object, with a smooth inner face and a dark, slagged outer face similar to some of the possible 'heating tray' material. The most likely interpretation is that they are external wrap contaminated by a spill during pouring.

Gates (#47, #50, #120) Fragment #120 forms a substantial section of an external gate. The piece is oval in section, 30mm tall and approximately 15mm thick. It appears to be inclined outwards, so that the external diameter at the rim would have been about 70mm, but the shape is very irregular. The internal diameter at the base, where the gate is assumed to have joined to the mould is about 28mm and the external diameter about 60mm. The lower face, where the gate would have joined the mould is smoothly and gently convex. The fabric is moderately sandy (like mould Fabric B) and appears to have a low proportion of organic temper.

Two small fragments (#47 & #50) are sherds showing a rounded rim of similar profile to that of #120. Fragment #47 shows a small oxidised metal droplet and #50 bears a slag coating, partially spalling off, a largely unaltered rim below.

A tiny fragment (#51) appears to show a clay divider pinched between two holes and it just possibly represents the external openings for twin sprues, as seen on the pin moulds.

Cores (#48, #52/#164) Three small fragments, all strongly oxidised and all related to organic materials, are interpreted as fragments of core.

Fragment #48 appears to be part of a crudely faceted cone-shaped piece, rich in moulds of organic materials (straw?). The surviving piece is irregular in shape, broken both ends, c. 20mm tall and approximately 17mm x 14mm in maximum section, thinning to approximately 10mm x 8mm. The fabric is strongly oxidised externally, but has a reduced-fired centre.

Joining fragments #52/#164 form part of a tubular structure, externally c35x45mm, internally 13x18mm (if symmetrical) apparently formed of a clay coat applied to a bundle of grass, straw or reeds, which are visible as a fluted impression on the inner surface. The neat outline is slightly obscured by secondary clay at one end. The fabric is strongly oxidised, moderately sandy and bears thin inclusions that were probably grass.

14.3.2 Crucibles

A single sherd (#45) is suggestive of a crucible. The profile shows the 10mm thick lower wall inclined outwards at about 45 degrees, before rising vertically for the last 10mm to a broad, rounded rim. The fabric has a fine cream-coloured matrix bearing very fine quartz sand. There are larger spherical voids that might just indicate lost temper, but are probably vesicles formed as a product of the heating. The surface of the sherd is mid-grey, in a thin layer on the base, but a brown-grey layer extends down from the upper surface almost to mid-thickness. A thin dark deposit adheres to the inner surface.

In plan, the midline of the rim has a radius of curvature of approximately 20mm. If the curve was representative of the whole, it would make this a very small crucible, with a shape similar to that of a later cupel, but it may simply derive from the corner of a larger, slightly angular or irregular crucible.

Crucible/tray/hearth (#49, #53-#54, #94, #115-#119, #123-#128, #130, #137-#141, #144, #146-#152) A large number of fragments were formed of an oxidised-fired sandy ceramic, typically fired to an orange, sometimes with a dark red surface colour on one face. The pieces typically have a wedge shape, between 10mm and 25mm in thickness, with planar upper and lower faces. Only #141 and #146 have been found to join, therefore the overall form of these materials is unknown.

Many of the pieces show a build-up of copper-bearing minerals on the (presumed) upper face. Much of this material is either granular and black, or appears as small irregular or botryoidal brassy growths. This latter material at least appears to be a result of secondary sulphidisation. Somewhat similar brown coloured mineral masses up to 1.5mm diameter occur rarely within the fabric due to penetration of the melt into the porous ceramic (and have also been observed inside the fabric of material interpreted as casting gate).

The interpretation of this material is uncertain. The planar nature of the surface, the scattered copper contamination and the lack of corners or bends, suggests that the material may be from a form of heating tray, rather than a crucible or hearth wall.

Along with the fired and/or slagged ceramic, there are numerous pieces of the slagged or drossed surface layer, ranging up in thickness to about 5mm, which have become detached from their substrate. Although most of these are planar and belong with this group of material, there are a few that show a higher degree of curvature and might have formed either inside a crucible or casting gate.

14.3.3 Dross/Spills (#39, #142)

These two small greenish fragments appear to be discrete blebs of corroded metal or dross. Neither has been cleaned and the composition of the metal is unknown, although they appear heavily altered.

14.3.4 Distribution of material

The material is distributed between two contexts, 065 and 066, both apparently from (an occupation horizon at the base of the trench). Apparently some of the material spilled from its bags during the initial transit to the pottery specialist and not all may now be correctly assigned (though none was lost). Most of the joining fragments (#30/#161, #40/#83, #41/#42/#163, #52/#164) actually involve sherds from both contexts. This would that the two contexts were closely linked and belong, perhaps, to a single disposal episode.

14.3.5 Chemical analysis of the material

The pXRF traces are illustrated in Figures 74 to 76 In these, the locations of the main spectral peaks for the elements present in copper alloys are indicated. Peak heights are listed in Table 48.

(i) 066 inside surface of gate. #120. The contamination of the ceramic is largely by copper, with very low levels of tin and lead.

(ii) 066 fragment of a drossy surface #119 The contamination of the ceramic was by copper with a lower proportion of tin and very low concentrations of lead.

(iii) 066mould surface #134 This sample shows very low levels of zinc, probably slightly less copper and a trace of tin.

(iv) 066 inside elongate curved possible 'wrap' #121 This piece shows low levels of copper and very low levels of zinc and lead.

(v) 066 thick vitrified heating tray (?) surface #128 This sample showed contamination with a high level of copper and a very small amount of tin.

Where the counts were very high ((ii) 157000; (v): 156000), the analyses were similar in having copper as the main contaminant to the ceramic, with low levels of tin and lead, but just trace levels of zinc. Specimen (ii) has higher levels of tin and lead than specimen (v).

Specimen (i) has a lower overall total but higher relative levels of lead and lower levels of tin.

Of the two specimens with very low overall counts for these elements (Sample (iii), a mould, and sample (iv) a possible wrap), lead and zinc are relatively elevated compared to copper (although at low absolute levels).

14.4 Interpretation

The assemblage forms a coherent suite of residues from the casting of copper alloy artefacts. The residues are diverse, with several distinct types of moulds, wraps, gates and cores, but with very few examples/fragments of each. This leaves considerable doubt about the details of the technology and of the artefacts being cast.

The limited amount of chemical analysis undertaken, suggests the metal being cast was a lightly leaded tin bronze, with trace levels of zinc. The zinc is relatively enriched in the mould/wrap material because the zinc vapour can penetrate the porous ceramic; lead is locally enriched because it reacts with the ceramic to form a slag (Kearns et al. 2010). Although it is not possible to quantify the metal composition, the proportion of zinc would appear to be very low, probably less than 0.2%, and its presence in the analysis of the moulds/wrap should not be taken as indicating a significant level in the casting metal. Levels of lead are also low, but are sufficient to suggest a deliberate additive. Leaded tin bronzes are characteristic of the Late Bronze Age, but not of the Iron Age (Dungworth 1997). Tin is present in rather low quantities in the analysed samples, but it is uncertain to what extent this reflects its actual abundance in the casting metal, rather reflect the different modes of accumulation of the metal contaminants (Kearns et al. 2010).

The ceramics include moulds in a fine silty fabric, Fabric (a), some of which had been used to cast pins in pairs and a ring. A particularly fine, dark, variant of this fabric was employed in moulds that show a matrix with a central elongate conical component, possibly a spearhead or ferrule. A fragment of a mould of an unknown

There is evidence for a different fabric (Fabric (b)) being employed for external wraps for the moulds. This fabric bears abundant coarse, rounded, quartz sand grains, as well as voids indicative of the former presence of a significant component of organic temper.

Some of the very fine-grained silty moulds (Types (i) and (ii)) show the presence of quartz sand grains in their outer layers, rather than merely appearing abruptly across the mould-wrap boundary. Together with the particularly fine, smooth surfaces on the possible spearhead matrices of Type (ii), this does raise a question about the identification of the moulding technology employed. These features might suggest the progressive build-up of an investment mould, rather than the use of piece moulds for the finely-surfaced matrix of the possible ferrule/spearhead/ at least. The rather rectangular blocks, with a planar, apparently original, inner face employed for the pin moulds more closely resemble piece moulds. In the presence of so few fragments of the possible ferrule/spearhead moulds, this question may remain open.

The sandy Fabric (b) also appears to have been used for some moulds. The Type (iv) fragments are reasonably confidently identified as moulds, with several fragments suggesting the casting of an artefact with a short, thick, slightly flaring blade, possibly an axe or chisel. In a somewhat similar fabric, the Type (iii) fragments are somewhat less certainly from moulds. The grooved inner faces could be interpreted as either the matrices for narrow, slightly curving, pins, or for a planar surface bearing narrow slightly curving ribs. Alternatively, these pieces could be interpreted as external wraps overlying a binding keeping the inner moulds correctly aligned.

Further evidence for the casting technology comes from the fragments of casting gate and possible core. The gate appears to be an external addition to the mould in a similar fabric to that of the wraps. There is no evidence for the nature of the mould to which the gate fragments would have been attached.

A small number of pieces in a partially strongly oxidised variant of the same fabric are interpreted as core fragments. One of these forms a fragment of a crude, faceted cone, approximately 20mm tall and approximately 17mm x 14mm in maximum section, thinning to approximately 10mm x 8mm. The irregularity of this core would be appropriate for the innermost section of a socket.

A second piece, formed of two joining fragments (#52/#164) formed part of a tubular structure, externally measuring perhaps as much as c.35x45mm (but with only <50% of the section preserved, this is uncertain), is also tentatively interpreted as a core fragment. The extrapolated section of this tube appears slightly angularly sub-circular, which together with its size would make this piece appropriate, if a little larger than typical, for a core for a socketed axe. Interestingly, this piece was apparently constructed as a layer of clay applied to the outside of a bundle of straw or reeds (now forming a cusped impression on the interior surface). If indeed this was a core, then this unusual mode of construction might facilitate its removal from the artefact after casting. Alternatively, the tubular form may have been for another purpose, such as a tuyère, which would have had an internal section of approximately 13x18mm.

If the moulding materials present considerable problems in interpretation, the mode of handling the molten metal is even less clear.

A large number of ceramic fragments, in an oxidised fabric similar to Fabric (b), have a high level of metal contamination on their surface. Although these resemble the materials employed in Bronze Age crucibles, they are mainly too planar to have formed part of a typical open, bowl-like or boat-shaped form typical of the period. A tentative alternative interpretation is that they derive from some form of 'heating tray', upon which the casting may have been conducted.

If these materials are not the remains of crucibles, the evidence for crucibles is reduced to one single sherd of rim. This piece is suggestive of small shallow vessel, perhaps more similar in form to a later cupel, than to typical published crucibles of the period. Published late Bronze Age crucibles are large, open vessels (e.g. examples from The Breiddin, Tylecote & Biek 1984), sometimes with tripod legs (e.g. the crucible from Dainton, Needham 1980). In contrast, with the casting of mainly small items in the Iron Age, the earlier Iron Age crucibles from Danebury (Cunliffe 1984), Old Oswestry (Savory 1976) and Llwyn Bryn-dinas (Musson et al. 1982) were small, thick-walled handled forms. For much of the Iron Age the dominant crucible form is the 'D'-shaped or triangular crucible (e.g. examples from Glastonbury, Bulleid & Grey 1911). However, none of the described Bronze Age casting assemblages seems to have specialised in small artefacts, as may be the case at Banwell.

The present example does bear some resemblance in profile, however, to small crucibles of the later Iron Age and the 'native tradition' of the Roman period (e.g. crucible 1 from Porth-y-rhaw, Young 2010).

The fabric of this crucible appears somewhat similar to Fabric (b) of the moulds. Bronze Age crucibles are typically formed of less-refractory materials than Iron Age or later examples (Bayley & Rehren 2007). This crucible would appear, therefore, to lack close parallels, but the late Bronze Age to early Iron Age has notoriously few published examples.

In summary, the development of crucibles during the late Bronze Age and early Iron Age is poorly known, which means that the morphological resemblance of the single sherd from Banwell to later Iron Age and Roman forms is of unknown significance, but hints that those forms may have had an earlier ancestry than currently recognised. The possible Iron Age affinities of the crucible are countered by both the leaded alloy and the artefact types being cast, which are both Bronze Age in character. The significance of the assemblage as a whole is that it represents an insight into casting in the region at a period with few other equivalent assemblages. The Dainton residue assemblage (Needham 1980) is closest in age (c. 10th century BC), but is dominated by martial equipment (spearheads, swords, ferrules...). In contrast, many Iron Age assemblages (e.g. Gussage All Saints, Wainwright 1979) are dominated by horse equipment. Needham (1980) discussed the possibility of specialism within the metalworkers and the possibility that the Banwell residues represent materials from a workshop which specialised in more domestic items should be considered.

14.5 Glossary

Bronze: an alloy of copper and tin. Typical Bronze Age alloys for casting might have 10-16% tin, but rather lower tin contents are recorded from metals intended to be worked by hammering. Small quantities of lead may be added to bronze to improve its casting properties.

Core: material forming the mould for a re-entrant section or internal void within a casting. An example would be the section of the mould forming the interior of the socket of a socketed tool or weapon. Since the casting of socketed items was usually via the socket end of the mould, the core to form the socket was frequently formed as part of the casting gate (e.g. Tylecote 1986, Figure 46)

Crucible: a vessel used to contain metal or glass as it is melted, or to handle such molten material. Bronze Age and early Iron Age crucibles were typically only moderately refractory and were often rather open vessels heated mainly from above. Later Iron Age crucibles were typically smaller vessels, of an increasingly refractory material and increasingly heated from below rather than above.

Gate (Casting Gate): a section of a mould forming a reservoir to contain the liquid metal as it is poured. The gate may be connected to the mould itself via sprues. Casting gates may be separate ceramic components or integral to the mould.

Investment Mould: a mould formed by coating a pattern (typically of wax) with a fine clay slurry. The slurry is dried and then further coats added as required, often with later coats being of coarser clay than the first (which produces the artefact surface texture), to control strength and 'breathability' of the mould as required. The mould can then be hardened by drying and low-temperature firing, which also permits the melting and removal of the wax, to leave the mould open for pouring. Wax-based investment casting is often known as the 'lost-wax' process or *cire perdue*.

Lost-wax technique: see investment mould.

Matrix: the impression of the artefact to be cast in a mould.

Mould: a container (ceramic, stone or metal) with an inner surface forming the matrix to an object to be cast. In Bronze Age metallurgy there are three main mould types – the open mould (typically of stone and employed for single-faced or simple objects, such as flat-axes), the investment mould (of ceramic and employing the lost wax technique) and piece moulds (of ceramic, stone or metal).

Pattern: an object used to form the matrix for a casting in a mould. The pattern for an investment mould is typically formed of wax (formed either by working wax into the required shape, or casting it). The pattern for a piece mould may either be a previously formed artefact of the kind desired, or a copy of the artefact in another medium (e.g. wood). In the case of an investment casting, the pattern will also need to include any necessary sprues. In a piece mould the sprues may be formed by separate carving/impression of the mould.

Piece Mould: moulds formed of separate impressions of different faces of the pattern, which can then be assembled into a complete mould (after addition of any necessary sprues). Also sometimes known as part moulds. The most common use of piece moulds in the Bronze Age would have been as two part (bivalve) moulds, with or without a core as appropriate.

Sand: classification of the Wentworth Scale (and associated schemes) for sedimentary particles of 0.0625 mm to 2 mm.

Silt: classification of the Wentworth Scale (and associated schemes) for sedimentary particles of between 0.002 mm and 0.063 mm. Silt typically comprises more-or-less equant particles of (mainly) quartz and feldspar (as in the coarser sand grade), as opposed the finer-grained material classified as clay, which includes the markedly tabular form of many clay particles.

Sprue: the tubes in a mould to allow passage of the molten metal from the gate to the mould itself.

Valve: a term used to describe one part of a two-part piece mould. For simple artefacts (e.g. the pins described here), a simple two-part, or bivalved, mould would be required.

Wrap: an outer layer of clay used to join and seal the separate parts of a piece mould and external gate (if present).

14.6 Catalogue

14.6.1 Context 065 sample 40

#1 - #29: 32g, 29 pieces of indeterminate mould material

#30: 2g, 1 piece, oxidised end of mould, joins #161

#31 - #38: 4g, 7 fragments of granular highly altered ceramic, grey, porous with slag penetrating into fabric

#39: 1g, 1 piece of botryoidally-structured copper residue, possibly on grey ceramic, but covers all sides so may be oxidised spill?

#40: 20g, 1 piece, large planar mould fragment with two grooves on one face. All grey apart from one side which is buff. One groove 3.5 – 4 mm wide and up to 2mm deep; the other is 2.5-3mm wide – with a marked ridge appearing within it as it widens. Grooves are approximately 11mm apart. The slab has a rectangular margin, 12mm thick, with one groove (the wider) 8mm from one edge. Wide groove seen for 35mm, smaller for 29mm. Broken long side of mould face may possibly show a third pin mould, but this is not certain. Fine micaceous fabric. (this piece joins #83)

#41: 4g, 1 piece, 8mm thick mould fragment with edges of similar grooves to those of #40, preserved approximately 10mm apart. Fine micaceous fabric. (joins #42 and #162)

#42: 2g, mould fragment. Fine micaceous fabric. (joins #41 and #162)

#43: 2g, mould fragment with an 8mm wide flat surface (probably mould interior surface) preserved.

#44: 2g, fragment with tiny concave mould area preserved

#45: 6g fragment of rim. Strong curved profile – more like the rim of a cupel. Some adhering deposit on inside. Dark inner ace becoming pale towards base, where it has khaki paste/buff paste with moderate rounded sand

#46: 10g, somewhat concavo-convex piece – buff mostly, slightly grey on one external surface. Fabric shows moderate sand in buff paste, and probably also some organics. Unclear what this is – mould wrapping, base of side of crude crucible? Fabric similar to #47, with which it shares its concavo-convex shape.

#47: 4g, concavo convex piece in buff fabric with moderate sand. Some missing large clasts (organic?) and also an included sulphidised (?) bleb. Some mica in fabric too. Outer surface is smoothly curved – outside of mould/gate?

Fabric similar to #46.

#48: 2g, fired clay more orange than typical buff and has grey core. One end shows multiple crude external facets as if part of a hand formed 'spike? Plenty of organic inclusions. Fabric like #49, #52.

#49: 4g, nub of buff moderately sand-rich fabric, one face has slightly concave, red altered (vitrified?) surface with thin grey layer just below – looks wrong for crucible – could be fragment from mould gate? Fabric like #48, #52

#50: 2g, Fragment with rounded termination like crucible rim or mould gate margin. Dark adhering residue layer on curve with some greying below, but otherwise oxidised fired

#51: 6g, fragment in sherd-like slightly curved sheet, buff fairly sand rich with some organics. Outer surface shows two curved slightly depressed zones, inner face slightly concave and slightly darker. If surfaces the other way round, the two curved surfaces would match the convergent sprues above the pin heads?

#52: 6g, more oxidised-fired piece. One face shows a corrugated and striated surface (formed by parallel stems of straw?) Opposite face is convex, rounded and possibly with outer applied layer. Moderately sandy – probably a mould fragment, but unclear if striated face is strengthening or part of forming of mould. Fabric like #48, #49. Joins #164. External c35x45mm, internal 13x18mm if symmetrical. Neat out line is obscured by secondary clay at one end.

#53 - #54: 2g, 2 pieces of buff/orange sandy clay with organics and large rounded brown inclusions, with slagged and sulphidised planar surface. Brown large inclusions match those seen in the 2g possible crucible/gate rim (#50). One piece is large, the other tiny

14.6.2 Context 066 sample 15

#55 - #82: 25 pieces 50g, worn mould fragments

#83: 14g 1 piece, important piece. 2 pin heads with sprues above, heads have otherwise flat top, 6mm in diameter, short straight side then converge to 3.5mm diameter shaft. Total head height c. 4mm. Sprue c.4mm diameter, pinched near head, convergent away from pins, slab c. 15mm thick. Mottled grey buff, outside locally almost white with smeared (fingerprint?) texture. Fabric fine silty, some voids for possible organic temper, micaceous, very little coarse quartz. Shaft centres 15mm apart. (joins #40)

#84: 6g, 1 piece, another important piece, 2 pin head impressions, better one 6mm in diameter and 4mm tall with 4mm diameter shaft. Shaft centres 10mm apart, one higher than the other. Similar fine silty material to example above. Sprue situation not clear – possibly a wider zone above/between both heads.

#85: 2g, 1 piece of thin sheet of fine silty mould. Possibly has one angled margin present. Impression in side is of arc of 2.5mm diameter with annular ornament and c. 13mm radius of curvature. Surface of mould is very smooth outside the curve – unclear if this a mould face join (probably) or a part of artefact (less likely).

#86: 2g 1 piece, possible two layer fragment. Inner is denser, with well-formed angular end. Inside is L shaped smooth area. Unclear if this is actual artefact mould – or just well finished surface of inner piece mould. Both inner and outer layers are in a relatively sand rich fabric. Outer surface is very markedly convex indicating proximity to mould margin.

#87: 10g 1 piece, fine micaceous fabric with very hard smooth surfaced (slightly vitrified?) elongate concave impression (c. 7mm radius). Outer field is very slightly convex. Could be spear head with central rib or similar.

#88: 6g, 1 piece, fragment very similar to that above, outer field is slightly convex – so might even be a counterpart – which would define a blade fragment. Fragment has oxidised outer surface.

#89: 4g, 1 piece, dark coloured fragment of sheet up to 9mm thick and uniformly reduced. Shows 3 parallel smooth zones – 2 are hollowed and might be pin shafts, third is flatter. All might be a single ribbed object. 2 pin shafts c2mm in diameter and 5mm between centres, then 3mm gap to one side before similarly altered flat zone

#90: 6, 1 piece. Strongly divided between reduced zone around artefact mould and outer buff zone. Mould is poorly preserved but might be two pin shafts. c.2mm diameter and 5mm between centres

#91: c.0.5g, small convex ceramic fragment

#92: 4g 1 piece, fragment of relatively sand rich material, with well-formed pale outer face and rather altered looking grey fabric.

#93: 6g 1 piece, fragment from what appears to be the margin of a truncated cone – perhaps 40mm diameter at the base with a slightly hollowed base. This could be a fragment of an inner part from around the pouring cup, or it could potentially be a core fragment.

#94: 2g, 1 piece, double layer fragment in rather altered-appearing pale material. Moderately sandy. Similar textures seen in wedge-sectioned slagged material.

#95: 12g 1 piece, slab buff one side and grey the other. Various superficial markings, but two on grey side might be moulds. One is a poorly preserved straight groove, the other is curved. If pin moulds then is bent!

#80-#82: 6g, 3 pieces worn silty mould fragments

14.6.3 C66 sample 19 (industrial/mould)

#96 - #113: 18 mould fragments, 102g, 2 pieces showed smooth, curved external surfaces, but none with internal detail.

#114: 4g 1 buff orange/buff moderately sandy, with some organics and large brownish lumps in fabric.

#115 - #116: 38g, 2 pieces, buff, slightly orange in outer parts, grey on inner face, wedge shaped clay fragments, outer face shows strong heat alteration, inner buff/grey face planar, shows little alteration.

#117 - #119: 42g, 3 pieces, similar to above wedge shaped pieces but inner face not preserved. On most heat altered example outer faces is a slaggy layer around 8mm thick. #117 and #118 join.

#120: 20g, 1 piece – appears like irregular crucible rim with coating of botryoidal material on both inner and outer faces – but lower face is neatly rounded, not broken (unlike ends) – possibly a casting gate (cf. Tylecote 1986, Figure 46) formed separately from mould to which it was attached.

#121 - #122: 12g 2 conjoining pieces – rather pot like but in same fine silty material as other mould fragments, heat affected and grey outer part of section, inner part more buff – opposite way round to most mould fragments. Possible crucible/wrap.

#123 - #128: 42g 6 pieces, botryoidal and locally green, drossy material in sheet on mostly oxidised ceramic, drossy face is mostly planar

#129: 10g, 1 piece of mould, very fine micaceous silt, buff exterior to orthogonal corner and greyish interior

#130: 4g sherd-like fragment of over fired, porous ceramic containing large brassy botryoidal masses within fabric. Inner face is smoothly concave, no residue

#131: 20g 2 pieces fine pale grey somewhat sandy material with concentric smooth areas at slightly different levels – unclear if mould for circular? object or if these are mould faces.

#133: 4g 1 piece of dark grey very mould-rich fabric with some sand. Possible pin mould fragment.

#134: 30g of pale grey/buff moderately sandy mould material, one piece has curved embayed area, probably the object

#135 - #136: 20g 2 pieces in buff sandy fabric with rather coarse appearance to clay – outer mould layer?

#176: 1g, 1 piece of highly bloated ceramic with planar, but slightly wrinkled surface.

#132: 6g, 1 elongate grey silty mould fragment

14.6.4 C66 sample 19 (pottery)

#137 - #141: 34g 5 pieces (1 tiny) of slagged (and secondarily sulphidised) oxidised fired ceramic – possibly pieces from base of planar based crucible. Some appear slightly wedge-shaped, but unclear if crucible wall is preserved. #141 joins #146

#142: 2g 1 piece, uncleaned corroded irregular shape, probably casting waste corroded into surrounding sediment

#143 - #144: 8g 2 pieces silty grey mould material

#145: 4g 7 tiny piece (1 fragmented piece?), over-fired porous dark material – but no Cu residues in this group

#146 - #152: 28g 7 pieces, planar drossy, botryoidal surfaces, here substrate seen it is mainly strongly oxidised and quite coarse. . #141 joins #146

#153: 1g 1 piece, green sheet of clay with lots of organic impressions in fine material – just possibly not an artificial ceramic

#154 - #155: 1g 2pieces of dark fine sheets with abundant organics including structures on one piece – they may be clay pressed onto organic substrate, probably burnt organic material

#156: 15g 1 large piece of buff coarse mould like material with concavo-convex shape – possibly an outer clay wrapper from a mould pair?? An odd shape

#157 - #158: 14g, 2 pieces, buff fired clay with external grey surface, terminating in angular edge like rim of handmade pot with flared rim – but appears too thick to actually be pottery, although this remains a possibility, and may from the end of a flared mould.

#159: 1g, 1 piece, pale grey silty fabric, micaceous, has raised boss 9mm in diameter and 2mm high. Possibly a locating study from two-piece mould.

#160: 16g 1 piece pale grey silty fabric with large rounded quartz grains, outer face planar with margin of mould, slightly oxidised, inner face shows margin of sheet like object, smooth, reduced just over object face. Very similar to #161

#161: 16g. 1 piece, pale grey silty fabric with rounded sand grains, becoming more orange on outer margin, 1 face is planar and dark, probably lightly vitrified concave mould surface. Very similar to #160. Joins #30.

#162: 12g 1 piece, buff silt/sand usual fabric, outer face has right angled corner, 'inner' face shows rounded dark surfaced embayment – could be mould fragment of largish object?

#163: 2g, fabric similar to 12g piece above, buff dark mottled, inner face is rounded – adjoins #41/#42 to form , outer face right angled

#164: 1g 1 piece, oxidised fragment with inner complex curved shape (multiple straws?) and outward convex curved face. Joins #52

#165: 4g 1 piece, grey piece with planar outer face and fine curved inner surface.

#166: 6g 1 piece, fragment somewhat similar to preceding items, if a mould, this is a slight convex item with a c40mm radius groove c3mm wide and less then 1mm high. Alternatively this might be some sort of keying?

#167: 4g, 1 piece, grey fragment with linear concave mould detail, poorly preserved. c. 8mm diameter?

#168 - #171: 26g, 4 pieces, typical pale grey silty mould fragment with abundant sand, typically two planar surfaces not quite parallel, with one darker surface and one smooth surface with fine, possibly hair, temper showing.

#172: Piece 1 6 g, mould fragment, irregular linear groove on blackened surface- but groove ends irregularly – so possibly external mould surface not object impression

#173 - #174: 8g, 2 joining pieces, shows planar surface with supposed pin moulds defined by raised ridges: 8mm planar, 4 raised, 2 groove, 4 raised, 2 groove, then planar 4mm. Supposed pin grooves are very slightly curved. If this is for pins then it must be a two part mould. Some hint of longitudinal striation in grooves – looks like texture of a straw stem.

#175: 4g 1 piece. Small fragment with curving pin groove, 1mm wide and rather less deep with angular, asymmetrical base.

#176: 1g, 1 piece. Small grey clay fragment with two parallel embayments leading in from the end – possibly the divider between two casting jets, but too small for certainty.

Sample	CuK α 8.04 keV	ZnK α 8.64keV	ZnK β 9.57keV	PbL α 10.55keV	SnK α 25.23keV	
i	76260	<	22	2112	698	(i) c66 inside surface of casting gate, #120
ii	156524	<	32	2724	6087	(ii) c66 drossy surface (from 'heating tray'?), #123
iii	257	572	120	310	44	(iii) c66 mould surface, #134
iv	1373	404	50	291	59	(iv) c66 inner face of wrap(?), #121
v	155298	<	78	215	2206	(v) c66 thick vitrified surface of 'heating tray', #119

Table 48: Peak heights for selected energies, corrected for background.

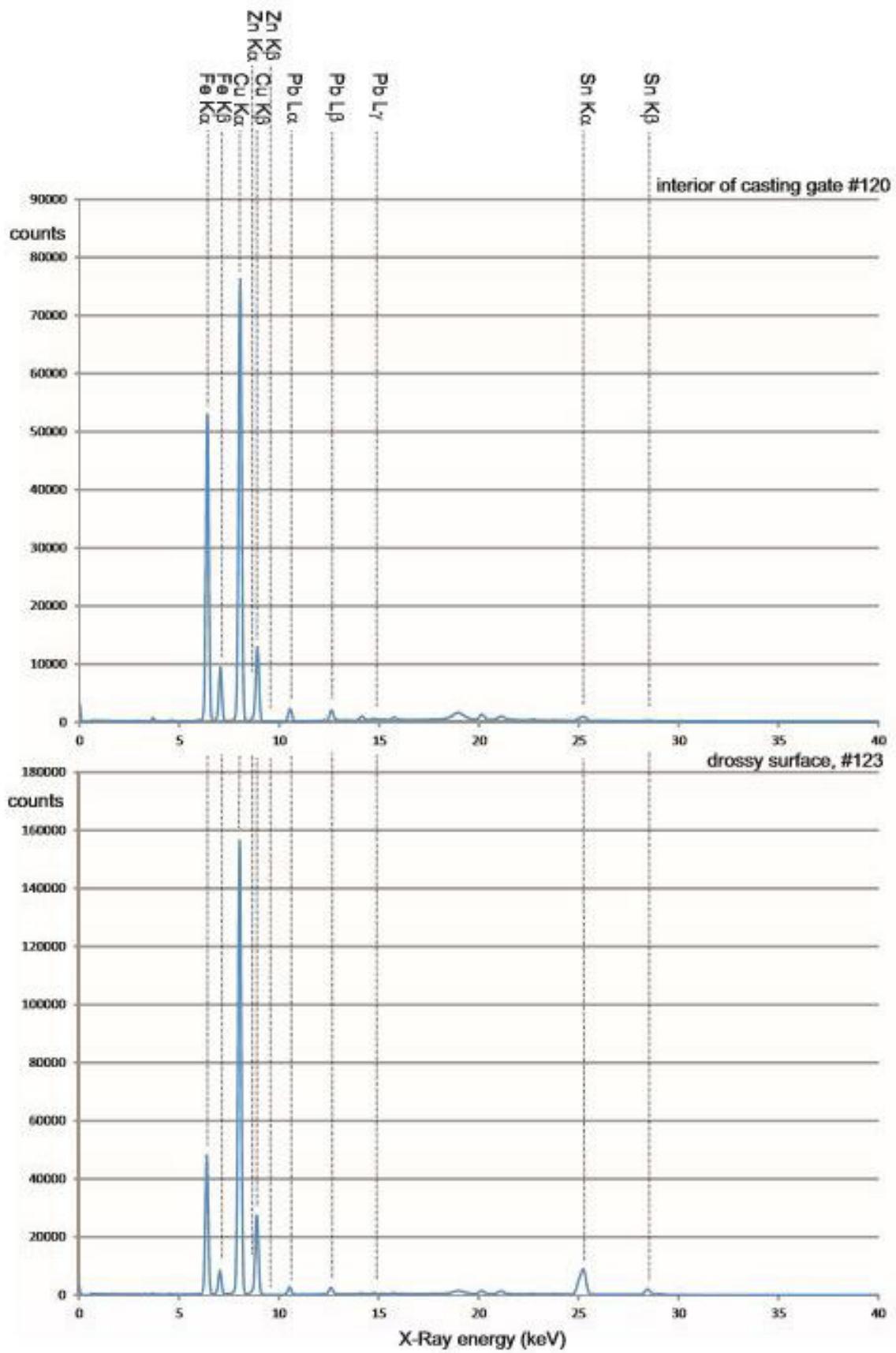


Fig 55: X Ray page 1

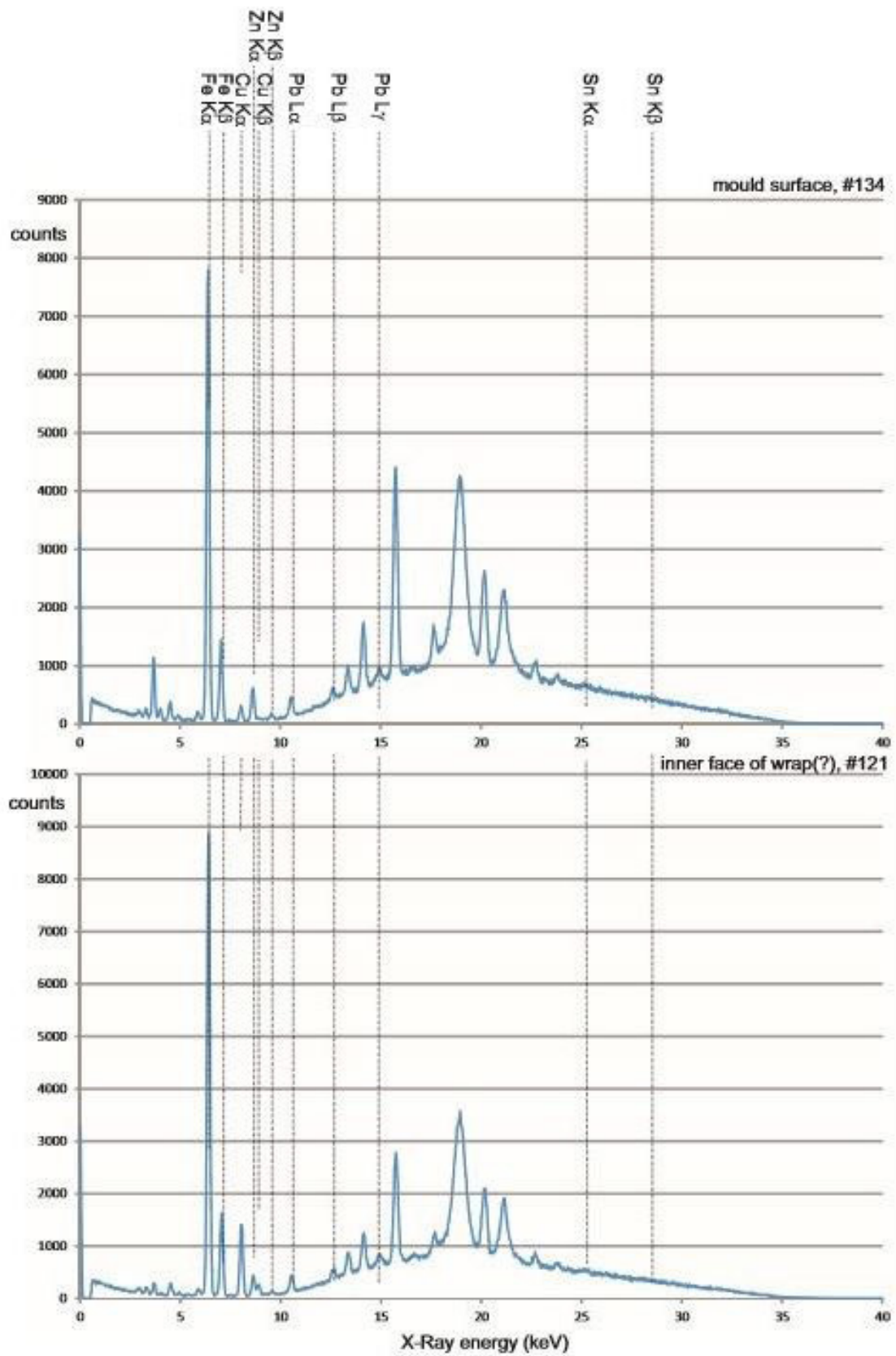


Fig 56: X Ray Page 2

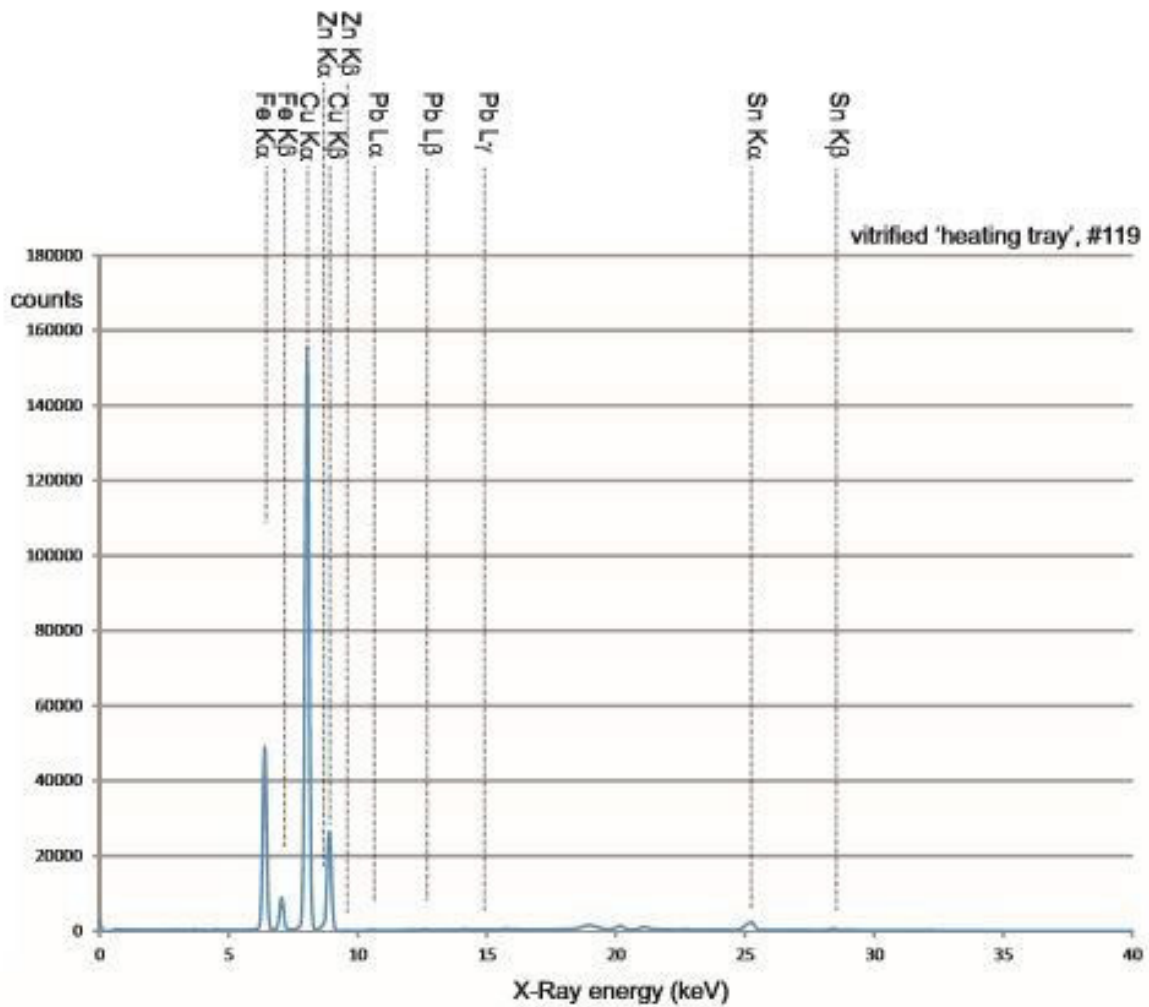


Fig 57: X Ray Page 3

Appendix 15: Objects, bone, shale, copper alloy waste

Banwell, Somerset (BWB12)
Objects and Waste of Copper Alloy, Bone and Shale
Ian Riddler
May 2013

15.1 Copper Alloy Waste

A curved fragment of copper alloy waste has an irregular shape with a taper to either end. It is similar to a Late Bronze Age casting droplet from Bishop Cannings Down in Wiltshire (Gingell 1992, 106 and fig 76.5). It represents a small droplet or run from the spillage of metal and provides an indication of the casting of copper alloy in the vicinity of the site.

62 (065) Iron Age

A copper alloy casting droplet of an irregular, curved form, largely rectangular in section.

Length: 33.1mm

Width: 15.2mm

Context 065

15.2 Shale Bracelet and Ring

A fragmentary, undecorated shale bracelet (11) has a near-rectangular section and is lightly rounded on the outer face. The external diameter can be estimated at 66mm, placing it well within the ranges established for shale bracelets from the Early-Middle Bronze Age production site at Rope Lake Hole, Dorset, the Late Bronze Age assemblage from Potterne, Wiltshire and Iron Age material from Meare Village East (Cox and Woodward 1987, 165; Wyles 2000, 209; Coles 1987, 130). The internal diameter of the bracelet is 58mm, sufficient to allow it to fit over a juvenile or adult hand. Roman shale bracelets with diameters of 40–50mm have been associated with children and diameters of 65–70mm with adults (Riddler 1999, 109). A fragment of a small, delicate, undecorated shale ring of circular section (16) is a less common form of dress accessory. It has an internal diameter of 11mm and may have been worn either as a finger ring or earring. Several shale rings came from Glastonbury Lake Village and the Meare Villages (Bulleid and Gray 1911, 260–1; Gray and Bulleid 1953, 265; Coles 1987, 130). These are larger, stouter rings, 35–45mm in diameter, which may have been used with horse harness (Bulleid and Gray 1911, 260), although some have narrow apertures and could have been finger rings for adults. Smaller fragments like the Banwell ring are difficult to retrieve from hand excavation, which may in part explain their rarity, although a slightly thicker example came from Meare Village West. It has an off-centre perforation and is probably an earring (Gray and Bulleid 1953, 260 and pl LIII.K30).

The shale for both items is likely to have come from Kimmeridge in Dorset and it was widely distributed across southern England from the Bronze Age onwards. Sites close to the source of the shale in Wiltshire tend to include roughouts in their assemblages whilst those further away, as here, consist entirely of finished objects (Wyles 2000, 211). Equally, however, the size of the assemblage may dictate the quantity of unfinished material. Roughouts were found at Glastonbury and the Meare Villages, albeit in small quantities (Bulleid and Gray 1911, 261–2; Coles 1987, 130; Coles and Minnitt 1995, 160).

11 (066) Iron Age

Fragment of a shale bracelet, near-rectangular section with lightly curved outer edge, undecorated.

External Diameter: 66mm

Internal Diameter: 58mm

Thickness: 5.7mm

Context 066

16 (066) Iron Age

Fragment of a small shale ring of near-circular section, slightly faceted on the inner face. Undecorated.

External Diameter: 15mm

Internal Diameter: 11mm

Thickness: 1.9mm

Context 066

15.3 Bone Implement Handles

Two implement handles were recovered from the same context (066) Iron Age. One of the handles (75) has been cut from the lower part of the midshaft of a cattle metatarsus, whilst the other (24) comes from the upper part of a horse metatarsus. Both were intended for whittle tangs and retain parts of those tangs within their naturally hollow interiors.

The remnants of the tangs deliberately protrude slightly through the cortile tissue that forms the lower end of each handle. In each case the bone has been cut so that the lower part of the handle is close to an articulation and therefore includes a quantity of cortile tissue and solid bone. The upper end of each handle has been tapered by removing slivers of bone. One of the handles (24) has not been further finished, whilst the other handle (75) has been smoothed and is now highly polished.

Whittle tang handles of both bone and antler occur within Late Bronze Age contexts and are common also across the Iron Age. Antler was undoubtedly the preferred material for the object type. Thus six of the twenty-two handles from Potterne are made of bone and the remainder are made of antler, and all of the eighteen handles from All Cannings Cross are made of antler (Seager Smith 2000, 228, 234 and fig 94.75 and 81; Cunnington 1923, 106 and pl 15). Apertures for the tangs tend to be circular in shape, allowing them to retain implements with square tangs, like chisels. A tanged chisel from Danebury had been provided with a simple antler handle of similar dimensions to the bone examples seen here (Sellwood 1984, 351 and fig 7.11.2.47).

24 (066) Iron Age (Fig 60)

Complete bone implement handle, produced from the midshaft of a horse metatarsus, the lower part of the handle tapered and rounded and cut just below the proximal articulation of the bone. Upper part of the handle is roughly tapered, with slivers of bone removed around the circumference and a deep longitudinal incision on the lateral side of the bone. Part of a whittle tang survives, extending though the tissue of the lower part of the handle.

Length: 90.9mm

Width: 30.1mm

Perforation Diameter: 11.1mm

Context 066

75 (066) Iron Age (Fig 63)

Complete implement handle, cut from the midshaft of a cattle metatarsus, towards the distal end with part of the foramina surviving. Lower part of the distal end removed and lightly trimmed, upper part of the handled tapered lightly. Numerous scratches, both longitudinal and diagonal; highly polished.

Length: 86.3mm

Width: 26.9mm

Perforation Diameter: 8.0mm x 9.8mm

Context 066

15.4 Pointed Bone Implement

A small sliver of bone (25) has been roughly shaped at one end to form a broad point. Its size allows it to be equated with the series of small pointed tools from Potterne (Seager Smith 2000, 224). It is likely to have functioned as a small awl, comparable for its size and shape to examples from Billingborough and Danebury, which have been cut from sections of bone midshafts (Bacon 2001, fig 39.44–7; Sellwood 1984, 387 and fig 7.36.3.152–3). Small bone implements of this type fit well between the thumb and finger and are likely to have been used for delicate and precise work, in perforating soft materials.

25 (066) Iron Age

Complete bone small pointed implement, cut from a sliver of ovicaprid long bone midshaft and roughly shaped at one end to a broad point. The tip is now missing. Polished throughout.

Length: 44.9mm

Width: 9.5mm

Context 066

15.5 Modified Rib Bone

A complete bone implement (80) (087) (Fig 64) Bronze Age or Early Iron Age, has been cut from a segment of large ungulate rib bone and its long edges are serrated. The ends have been roughly finished and two closely spaced, splayed perforations lie at the centre. Objects of this specific form and size have a distribution centred on the western part of East Anglia and its surroundings. They have been found at a number of sites in Hertfordshire, Bedfordshire, Cambridgeshire and Lincolnshire, including Barley, Duxford, Earith, Fen Ditton, Haddenham, Stagsden and Billingborough (Duncan and Riddler 2011, 67; Riddler forthcoming; Evans and Hodder 2006, 210 and fig 5.94.10; Cra'ster 1961, pl IX.p–q; Gentil 2000, 103 and fig 60.138; Bacon 2001, 70 and fig 38.26). Within southern and south–western England they have come from Danebury and Meare Lake Village West, as well as Banwell (Sellwood 1984, 395 and fig 7.39.3.210; Gray and Cotton 1966, 315 and pl LV.B41). The majority of examples have been retrieved from Iron Age contexts. They are defined by the use of rib bone as the raw material and they are roughly trimmed to shape and invariably pierced by two perforations, set in a line. They can be separated into two groups on the basis of their size. The smaller group includes objects of 49–70mm in length and includes this example. The larger group extend from 75mm to 87mm in length. The serrated edges of this example are unparalleled, although one edge of the Billingborough implement includes a number of incisions, which were compared with the teeth of a prehistoric antler comb (Bacon 2001, 68).

The precise function of these implements has yet to be determined. It is possible that they were utilised as a relatively crude, later prehistoric form of wrist guard, given that their sizes conform with the lower range of values for earlier stone examples (Duncan and Riddler 2011, 67; Woodward and Hunter 2011, fig 4.6). Equally, a key element of their design lies with the two central perforations, invariably set along the central axis of the object. The spacing of these perforations varies and with the Banwell example their centres are just 10.5mm apart. Elsewhere they are spaced largely at intervals of 20–45mm, with an outlier from Duxford with 60mm spacing between the perforations (Figure 01). The perforations may have been threaded, thereby allowing the objects to serve as spacers intended to keep cords a set distance apart.

The other important component of the Banwell example lies with the two serrated edges. These are redolent of a rib bone implement from Dean Bottom, Wiltshire, which was used in the decorative combing of Beaker ceramics (Cleal 1992). The serrated teeth of the Banwell implement do not show any obvious indications of use wear but it is noticeable that some of them are damaged and that one set, cut into solid bone, has survived better than the other set, where trabecular tissue is much more prevalent. It is possible that the long edges of this object were used to decorate soft surfaces, probably for ceramics but conceivably for other materials as well. Sellwood (1984, 395) suggested that the Danebury example may have been used either as a modelling tool or a burnisher, and this functional interpretation accords with the Banwell example, which may well have been a ceramic modelling tool.

80 (086) Estaurine layer 1

Complete modified rib bone, cut from a section of cattle-sized rib bone and perforated towards the centre with two closely spaced, splayed perforations, cut with the aid of a blade. The two long edges have both been neatly serrated, providing 2–2.5 teeth per centimetre. Numerous longitudinal and lateral finishing lines on both sides, as well as a possible marking out line for the initial cutting of the rib, and a mark for a preliminary attempt at a perforation.

Length: 66.8mm

Width: 38.5mm

Context 086

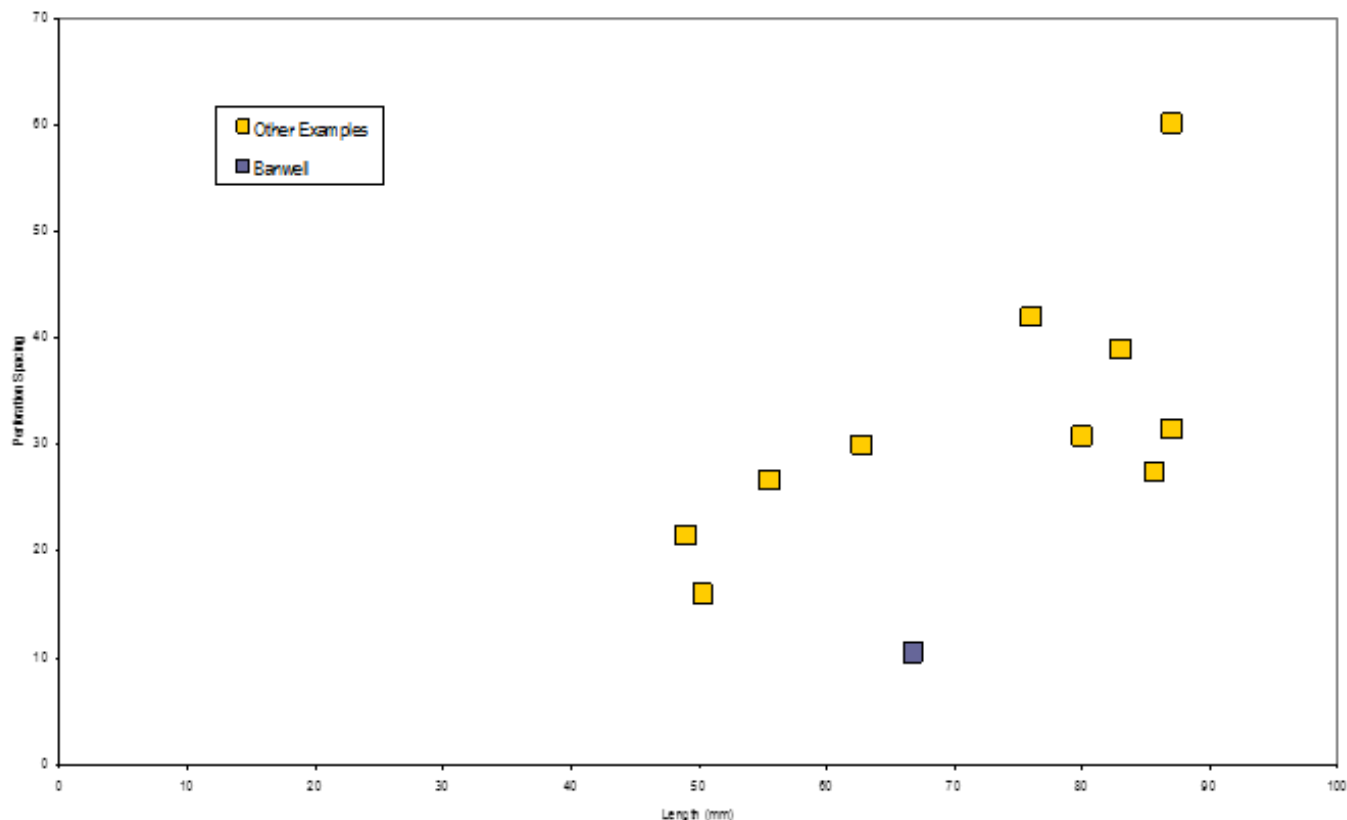


Fig 58: Lengths and Perforation Spacing of Modified Rib Bones

15.6 Bone Waste

A fragment of the rear part of an ovicaprid mandible (context 003) has been cut at both ends and trimmed on its inner edge to leave a flat segment with curved edges. The bone has been smoothed on both sides close to the inner, curved edge and it is likely to represent waste material discarded at an early stage of working. During this process the bone was smoothed across its surfaces before it was roughly trimmed to shape, and this fragment of the outer edge of the bone was removed with the aid of a blade. A similar segment of bone from Meare Village West was regarded as a modelling tool, but in that case one end of the bone had been shaped to a recurved point (Gray and Cotton 1966, 303 and PI LV.B126).

Part of a mandible from an ovicaprid-sized animal, cut by knife at both ends to separate it from the remainder of the bone, the inner surface also cut away, to leave a relatively flat, curved section of bone.

Length: 93.1mm

Width: 25.4mm

Context 003

Appendix 16: Ceramic Building Material

Trench 8/9

A single fragment of ceramic building material in smooth red fabric and weighing 98.2g was recovered from a ditch in Trench 8/9 but was otherwise unstratified. It was interpreted as tegula (roofing tile). Tegulae decreased in thickness in the later Roman period and it is therefore possible that at 32mm thick it dated to earlier activity on the site.

No further CBM was found on the site; this suggests that the ditch in which the material was found lay at some distance from the villa.

Appendix 17: Roman Glass

Roman glass from Banwell by H.E.M. Cool, March 2013

This small assemblage belongs broadly to the first to third centuries. The rim fragment might either come from one of the long-necked jug forms of the later first to second centuries (Price and Cottam 1998, 150-6) or to the very common blue/green prismatic bottle family of the later first into the third century (Price and Cottam 1998, 194-200). The body fragment nos. 3-4 belong to prismatic bottles and the distinctive bubbly nature of the glass suggests they all came from the same vessel. The colour of the chip no. 4 indicates a first to third century date.

There is also one fragment of cast window glass (no. 5) which would have been used in glazing sometime within the first to third century period.

It should be noted that both fragments from (831) are modern and so must be intrusive in the context.

- Vessel
- 1 Jug or bottle, rim fragment. Blue/green. Rim bent out, up and in. Upper face is worn. Rim diameter 40mm. Weight 2.65g. SF55 : (965) 3rd C wall
- 2 Prismatic bottle; body fragment. Blue/green, bubbly. Weight 9.96g. Tr. 9 (918) 4th C building
- 3 Prismatic bottle; body fragment (2). Blue/green, bubbly. Weight 12.78g. Tr. 9 (918).
- 4 Body fragment; chip. Blue/green; bubbly. sf55 : (965). Weight 0.38g

17.1 Window glass (Modern)

- 5 Fragment; light green. Cast matt/glossy. Area 12cm²; weight 10.49g. (831), Bag 89 Field 58a

Appendix 18: Conservation Reports Metal Objects

by H Marston,
York Archaeological Trust
March 3013

A balance arm, Roman copper alloy brooch, knife blade, pilium and spoon were sent for conservation and description to the York Archaeological Trust Conservation Laboratories. They are described below.

18.1 Balance Arm

SITE CODE: BWB12	CONTEXT: 918 TR9	SF NUMBER: 37	
SIMPLE NAME: Balance arm		MATERIAL: Copper Alloy	
X-RAY NUMBER: X8140			
CARE GUIDE	RH: <35%	LIGHT: 300 Lux	TEMP: Stable

18.1.1 Description/Condition:

The balance arm came into the lab in poor to fair condition, with a thin layer of soil overlying corrosion products and a very thin patina. Both ends of the arm are broken, and the pivot missing. A separate piece was also treated, which may have been attached to either end of the arm; this piece ends in a broken loop. A series of 6 indentations were noted along the underside of the shorter side.

18.1.2 Treatment:

The object was X-rayed (X8140), and shows a series of indentations along the underside of the broken arm, and a residual metal core along the length of the object, except the pivot area. A crack can also be seen along the more intact arm.

The soil and corrosion products were removed using hand tools to reveal a pitted patinated surface layer. This was very thin and friable and overlies a thick layer of light green powdery corrosion products. Areas in which these powdery corrosion products could be seen were cleaned further to reveal a more solid surface, using hand tools.

The balance arm was finally coated with a layer of 25% Inralac™ v/v in toluene with fumed silica, which acts as a consolidant and a corrosion inhibitor. Excess consolidant was removed from the surface with swabs of ethanol. The balance arm was packaged in a grip-top finds bag with a Jiffy™ foam insert.

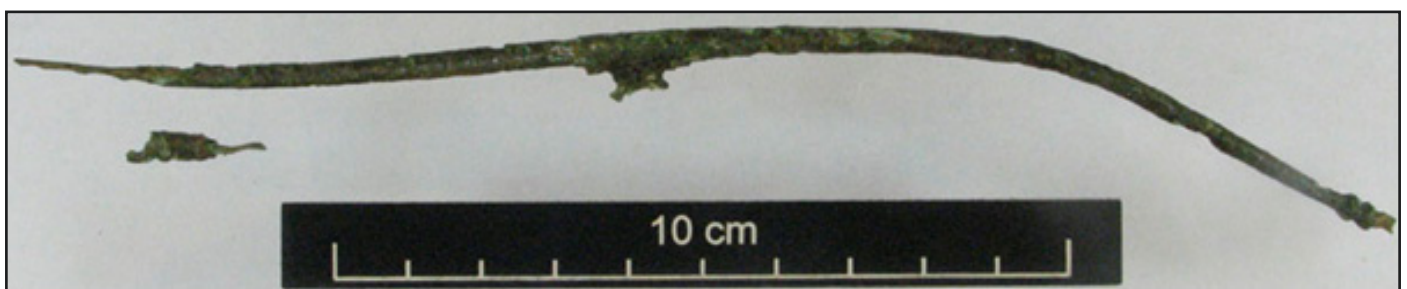


Plate 21: Balance Arm After Treatment

18.2 Copper Alloy Brooch

SITE CODE: BWB12	CONTEXT: 879 TR8	SF NUMBER: 24	
SIMPLE NAME: Roman Copper Alloy Brooch		MATERIAL: Copper Alloy, Enamel	
X-RAY NUMBER: X8138			
CARE GUIDE	RH: <35%	LIGHT: 300 Lux	TEMP: Stable

18.2.1 Description/Condition:

The brooch came into the lab in a good, stable condition, with a thin layer of soil and corrosion products overlying a dark grey/brown surface and further corrosion products. The pin of the brooch is missing, but there are no other areas of loss on the object. The enamelled area on the front of the brooch is cracked and friable where present, and there are two locations from which the enamel has been previously lost.

18.2.2 Treatment:

The object was X-rayed, showing that the object has a large amount of residual metal, but the enamelling cannot be seen on the resulting image.

The enamel on the brooch was immediately consolidated with 5% Paraloid B72 methyl methacrylate co-polymer w/v in acetone, applied with a pipette. The metalwork was gently cleaned using hand tools and a localised application of swabs of ethanol. It became clear that the surface of the object was quite corroded and pitted, which lead to an uneven finished surface. Incised surface details were picked out and the area surrounding the enamel work was cleaned by softening the consolidant with acetone and removing the underlying soil and corrosion products with hand tools.

The brooch was finally coated with a layer of 25% Inralac™ v/v in toluene with fumed silica, which acts as a consolidant and a corrosion inhibitor. Excess consolidant was removed from the surface with ethanol.

The brooch was packaged in a grip-top finds bag with a Jiffy™ foam insert.



Plate 22: Copper Alloy brooch after treatment

18.3 Knife Blade

SITE CODE: BWB12	CONTEXT: 809 810 TR8	SF NUMBER: 2	
SIMPLE NAME: Knife blade		MATERIAL: Iron	
X-RAY NUMBER: X8139			
CONSERVATOR: H Marston		DATE: 11/03/13	
CARE GUIDE	RH: <15%	LIGHT: 300 Lux	TEMP: Stable

18.3.1 Description/Condition:

The object came into the lab in good condition, with a layer of soil and orange corrosion products overlying the surface. The object is bent in approximately the centre, and is broken at one end.

18.3.2 Treatment:

The object was X-rayed, and the resulting image shows that the surface of the metal is severely pitted, with no residual metal remaining.

Three areas of soil and corrosion were removed on the object using an air abrasive with aluminium oxide powder. These areas included a section from both ends of the object, and a section across the middle of the object, with the intent to show whether the bend in the object was deliberate or accidental.

The surface of the object is very thin and pitted, as seen in the photographs below.

Whether the bend in the centre of the object is deliberate is inconclusive. The bend features a blister caused by the corrosion of the object.

The cleaned areas were treated with 10% tannic acid w/v in 50:50 ethanol and reverse osmosis water, which is a corrosion inhibitor and evens out the colour of the surface slightly.

The object was packaged in a grip-top finds bag with a Jiffy™ foam insert.



Plate 23: Knife blade after treatment

18.4 Pilium

SITE CODE: BWB12	CONTEXT: 953 TR9/10	SF NUMBER: 49	
SIMPLE NAME: Pilium		MATERIAL: Iron	
X-RAY NUMBER: X8139			
CARE GUIDE	RH: <15%	LIGHT: 300 Lux	TEMP: Stable

18.4.1 Description/Condition:

The object came into the lab in fair condition, with thick layers of orange corrosion products with some soil inclusions overlying the surface of the object. The object is quite heavy. The object has been bent at one end, and the other end appears to have been flattened at some point.

18.4.2 Treatment:

The object was X-rayed (X8139), which shows that the object still has a substantial residual metal core, and that the flatter end of the object is pitted and appears to have a rivet hole.

Three areas of corrosion were removed, one from either end of the object and one from the middle of the object. The corrosion was removed using an air abrasive with aluminium oxide powder. The flattened top of the object featured several bubbled areas caused by corrosion, which were removed. The surface underneath these bubbles was pitted and very thin. A rivet hole was located towards the top of this section of the object. The corrosion layers underlying the orange layers featured deep cracks, and although great care was taken, the object was cleaned to the metal surface in some areas.

The cleaned areas were then treated with a 10% solution of tannic acid w/v in 50:50 ethanol and reverse osmosis water, which is a corrosion inhibitor that creates a more even, black surface. This will help to prevent any further active corrosion occurring on the metal surface of the object.

The object was packaged in a grip-top finds bag with a Jiffy™ foam insert.



Plate 24: Pilium after treatment

18.5 Spoon

SITE CODE: BWB12	CONTEXT: 918 TR9	SF NUMBER: 33	
SIMPLE NAME: Spoon		MATERIAL: Copper Alloy	
X-RAY NUMBER: X8140			
CONSERVATOR: H Marston		DATE: 11/03/13	
CARE GUIDE	RH: <35%	LIGHT: 300 Lux	TEMP: Stable

18.5.1 Description/Condition:

The spoon came into the lab in stable\ condition, except for a small detached fragment from one side of the bowl, alongside a hole. The spoon had some dirt accretions, as well as dark grey tarnish on the surface of the bowl. The tarnish appears to a lesser extent on the handle of the spoon, where small areas of green copper corrosion are also visible. The object features many thin scratches, and there is an area on the handle which has become detached, showing green and red copper corrosion layers beneath.

18.5.2 Analysis:

The object was x-rayed (X8140), and the resulting image shows that the handle has a much more dense result than the bowl. The x-ray shows that the object is in a stable condition, with no underlying pitting.

The object was taken for EDXRF (energy dispersive x-ray fluorescence) analysis at the Archaeology Department at Durham University, using an Oxford Analytical ED2000 device. The results of the analysis can be seen below in graph form.

The EDXRF data shows that the object is made from a tin plated copper alloy, as shown in the peaks of copper, tin and lead. As the object was not cleaned prior to EDXRF analysis, background readings from the burial dirt have also been expressed in the data, as shown in the peaks of iron and strontium. The silver peaks may be from interference from the EDXRF device, as it contains a silver target.

The spoon was packaged in a grip-top finds bag with a Jiffy™ foam insert.



Plate 25: Spoon after treatment

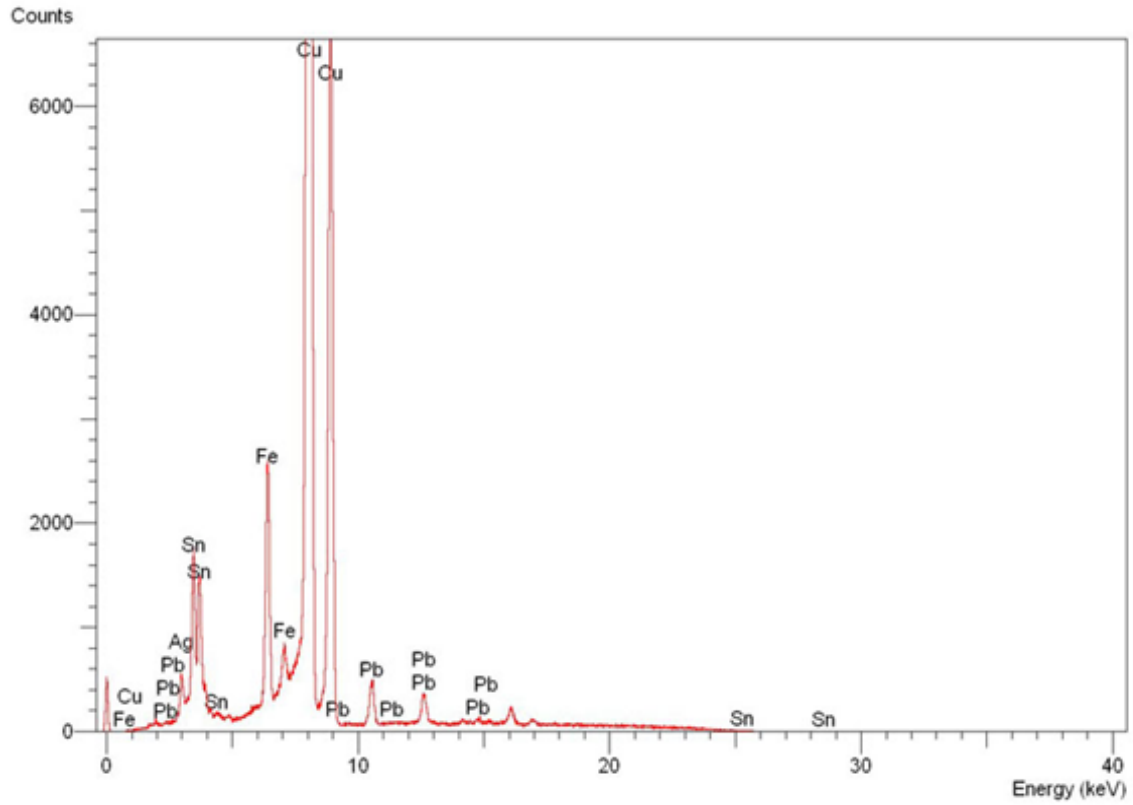


Fig 59: EDXRF Result for Spoon Handle

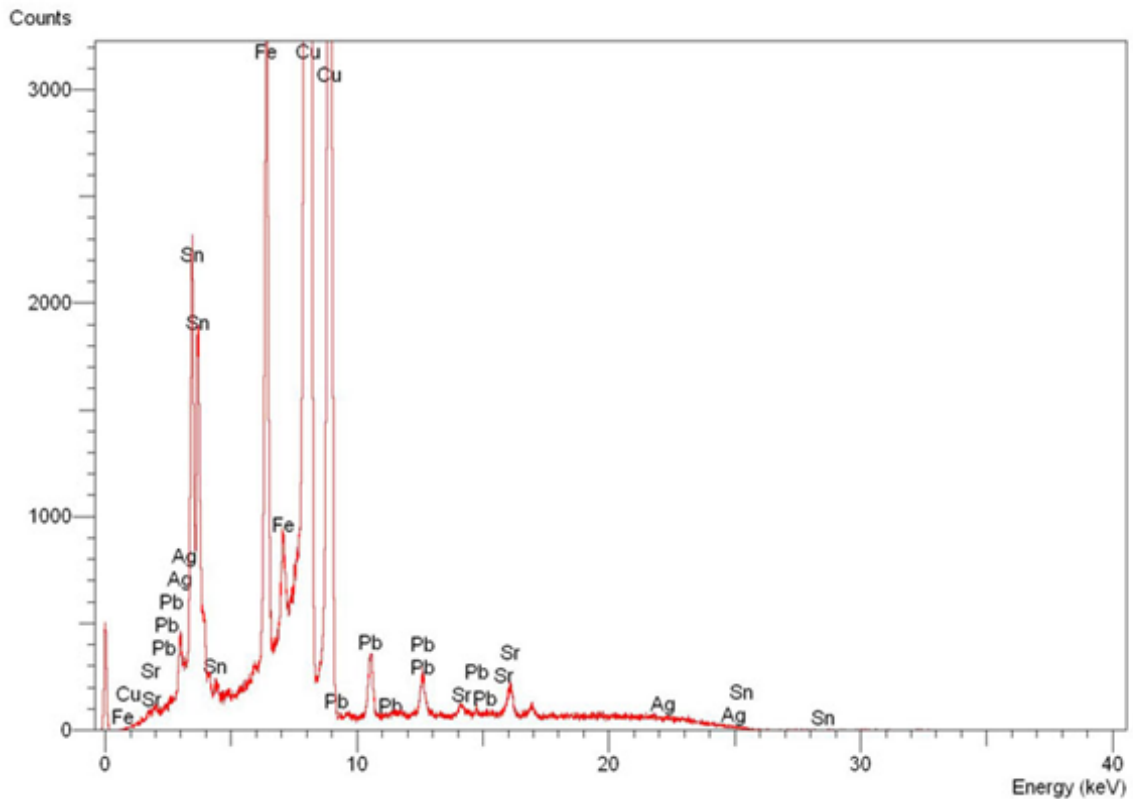


Fig 60: EDXRF Result for spoon bowl

Appendix 19: Conservation Report

Conservation Assessment of Finds by M Felter
York Archaeological Trust, Conservation Laboratories
December 2012

19.1 Introduction

67 artefacts were delivered to the York Archaeological Trust Conservation Laboratory in November, 2012 for assessment. The artefacts consist of 16 iron objects, 34 copper alloy objects, 5 lead alloy objects and 12 items labelled as slag. The condition of the various classes of material is summarised and indicators of unusual preservation noted. The potential of the assemblage for further analysis and research is discussed, and recommendations made for further investigative conservation and long term storage.

19.2 Aims and objectives

This report aims to meet the requirements of MoRPHE (English Heritage, 2006) to produce a stable site archive. This has involved X-radiography and an assessment of the condition, stability and packaging of the finds.

19.3 Procedures

The iron objects were X-rayed using standard Y.A.T. procedures and equipment. One sheet of film was used, and each plate was given a reference number in the YAT conservation laboratory series. The X-ray number was written on each recorded find bag. Each image on the radiograph was labelled with its recorded finds number. The plates were packaged in archival paper pockets.

67 metallic recorded finds were assessed and (with the exception of Lead alloy) X-rayed on 5 plates (X8138-8142). An assessment of each find is presented in the Table 49.

All finds were examined under a binocular microscope at X20 magnification. The material identifications were checked and observations made about the condition and stability of the finds, and recorded below.

19.4 Condition assessment summary

19.4.1 Iron

The collection of iron objects, of which there was a total of 34, was generally in fair to poor condition, with all but two objects being classed as fair or poor. 11 out of the total number of iron objects showed some degree of active corrosion in the form of weeping droplets, cracking, flaking or spalling, in some cases severely so. The objects which are most stable are those with the highest degree of mineralisation of the cores, where the majority of the metal has already reacted.

Due to the high levels of active corrosion within the collection, dry storage is essential in order to prevent further deterioration of the iron.

19.4.2 Copper alloy

There were 34 objects of copper alloy within the collection. These objects were generally in fair to poor condition as well, with only 10 objects being classed as good and retaining smooth stable patinas. Quite a few of the objects showed signs of physical damage with fragile edges and some spalling of the surfaces. 11 objects had ongoing active corrosion and, again, dry storage is essential to avoid further deterioration.

19.4.3 Lead

The four lead/lead alloy objects were generally in good, stable condition. One item SF39, was confirmed as a piece of the lead sulphide mineral ore, galena. All the lead objects need to be stored away from sources of organic acids such as paper, card, leather etc.

Several metal objects were wet upon arrival at the lab (SFs 6, 36, 37 and 38). These were checked for organic materials and then air dried in a warm environment and transferred to a dry storage box.

19.5 Statement of potential

Indicators of preservation

The corrosion products on the majority of the metal objects indicate well aerated deposits, however, SF2 shows evidence of an anoxic and phosphate rich burial environments. SF62, and iron nails from contexts 932 Tr9 and 926 Tr9 show evidence of being heated in the form of cherry red haematite corrosion products.

19.5.1 Evidence of technology, craft or industry or anything else of note

Slag/metal working waste

The collection of material labelled as slag were examined by Rachel Cubitt, York Archaeological Trust's metal-working specialist and she confirmed that the following items were iron pan concretions/worm casts: 832 Tr8 Bag 289, 860 Tr8 Bag 183, 863 Tr8 Bag 290, 864 Tr8 Bag 291, 871 Tr8 Bag 271, 876 Tr8 Bag 286 and 879 Tr8 Bag 287.

SF19 is a group of ceramic fragments with adhering metal working waste, possibly fragments of crucible.

863 Tr8 Bag 187 is a lump of heated clay possibly from a furnace bottom.

850 Tr8 Bag 129 is an un-worked fragment of animal bone.

SF16 and 838 Tr8 Bag 145 are two lumps of sintering/metal working waste

X-ray	SF	Context	Assessment
8139	2	809 [810] Tr8	Labelled as blade. Iron object, possibly part of a hinge-fitting or knife blade. The object is in fair condition. The object is covered with a relatively thin layer of orange brown corrosion mixed with dark brown/black areas and patches of dark blue vivianite indicating an anoxic burial environment rich in phosphates. There are spots of active corrosion and areas of incoherent mineral preserved organic material. <u>X-ray</u> shows the metal core to be almost completely mineralised. Recommendations: cross-section can be investigated to clarify identification if required (est 2 hours).
8139	4	024 Field 63	Labelled as ox shoe. Heel and quarter of an iron horse shoe (ox shoe?) in fair to poor condition. The surface is covered with a medium thick layer of orange brown corrosion products and encrusted soil but this has spalled away in large areas due to active corrosion and there are spots of weeping droplets on the surface. <u>X-ray</u> shows the metal core to be present but becoming mineralised and with small cracks on the inner edge. Two nails survive. Recommendations: no further action.

X-ray	SF	Context	Assessment
8139	38	918 Tr9	<p>Labelled as iron object. Complete iron eyed bar in fair to poor condition. The surface is covered with an uneven layer of red/orange corrosion products which are severely cracked. There is encrusted soil within the cracks indicating that there has been ongoing active corrosion. Slight loss to the tip and the edges of the loop. <u>X-ray</u> shows the metal core to be thin and with a high degree of mineralisation, at the edges and at the loop.</p> <p>Recommendations: no further action.</p>
8139	40	918 Tr9	<p>Labelled as iron object. Complete iron eyed bar in fair condition. The surface has a thin and uneven layer of orange corrosion products and this layer shows signs of active corrosion in the form of cracking and spots of weeping droplets on the surface. There has been some surface loss. <u>X-ray</u> shows the metal core to be present and solid but with a some mineralisation of the edges.</p> <p>Recommendations: no further action.</p>
8139	49	953 Tr9/10	<p>Labelled as pilum? Iron object consisting of a square cross-sectioned shank, broken at one end and flattening out at the other, again broken right at the end. It is possible that this could be a pilum but further investigation would be needed to clarify this. The object is in fair to poor condition, with the surface covered in an uneven layer of orange brown corrosion mixed with incoherent mineral preserved organic material and encrusted soil, as well as spots of active corrosion. <u>X-ray</u> shows the metal core to be present but heavily mineralised at the edges and at the flattened end.</p> <p>Recommendations: investigation to aid identification (est 3 hours).</p>
8140	71	024	<p>Labelled as horse shoe. Complete iron horse shoe in fair to poor condition. The surface is covered with a relatively thin layer of orange brown corrosion products and encrusted soil which have spalled away in some areas due to active corrosion. Also some cracking to the surviving nails. <u>X-ray</u> shows the metal core to be present and quite even, though with some mineralisation at the edges of the heels.</p> <p>Recommendations: no further action.</p>
8139	154	809 Tr8	<p>Labelled as Fe nail. Complete small iron nail in good to fair condition. The surface is covered with crusty mix of corrosion products, soil and inclusions and there one or two spots of potentially unstable corrosion. <u>X-ray</u> shows the metal core to be almost completely mineralised.</p> <p>Recommendations: no further action.</p>

X-ray	SF	Context	Assessment
8142		024 Bag 8	<p>Labelled as horse shoe. Complete iron horse shoe in fair to poor condition. The object is covered with a relatively thin layer of orange brown corrosion products and encrusted soil. This layer has spalled away in some areas, especially along the side of one branch, and this has been caused by active corrosion. <u>X-ray</u> shows the metal core to be present and fairly even, though with some mineralisation along stringer lines. Four out of the original eight nails survive.</p> <p>Recommendations: no further action.</p>
8139		918 Tr9 (a)	<p>Labelled as Fe. Small fragment of iron, probably from a nail shank. The object is in fair condition, stable at present but with cracks and surfaces losses indicating past active corrosion. The surface is covered with an uneven mix of orange and brown corrosion products. <u>X-ray</u> shows the metal core to be almost completely mineralised.</p> <p>Recommendations: no further action.</p>
8139		918 Tr9 (b)	<p>Labelled as Fe. Probable nail shank of iron, bent into a shallow 'C'-shape and in fair to poor condition. The object is stable at present but with cracks and surfaces losses indicating past active corrosion. The surface is covered with an uneven mix of orange and brown corrosion products. <u>X-ray</u> shows the metal core to be almost completely mineralised.</p> <p>Recommendations: no further action.</p>
8139		926 Tr9	<p>Labelled as iron. Small iron nail in poor condition. The object is covered in a thin layer of orange brown corrosion products with areas of cherry red haematite corrosion indicative of heating. There is also areas of weeping droplets, spalling and cracking due to active corrosion, the tip being especially damaged, with just the thin metal core visible. <u>X-ray</u> shows the metal core to be present but thin.</p> <p>Recommendations: no further action.</p>
8139		931 Tr9	<p>Labelled as Fe x2. Two iron objects, probably both nail shank fragments. Both are in fair condition, currently stable but with cracking and surfaces losses which indicate past active corrosion. Both are covered with fairly thin orange brown corrosion products and encrusted soil. <u>X-ray</u> shows the metal cores of both objects to be limited to thin central strips down the middle of the object.</p> <p>Recommendations: no further action.</p>

X-ray	SF	Context	Assessment
8142		003 Field 63	<p>Labelled as horse shoe. Complete iron horse shoe in poor condition. The object is covered with medium thick orange corrosion products and encrusted soil but these have spalled off in large areas due to active corrosion. There is also cracking in evidence. <u>X-ray</u> shows the metal core to be present and fairly solid though with some mineralisation at the edges and widespread stress-cracking along the leading edge . One out of the original eight nails survive, with the square nail holes set into a fuller.</p> <p>Recommendations: no further action.</p>
8139		932 Tr9	<p>Labelled as iron. Complete iron nail in fair condition. The surface is covered with a mix of orange corrosion products and incoherent mineral preserved organic material. There are also some small patches of cherry red haematite corrosion indicating heating of the object. There is minor cracking and some small losses to the side of the head. <u>X-ray</u> shows the metal core to be completely mineralised.</p> <p>Recommendations: no further action.</p>
8139		965 Tr9	<p>Labelled as iron. Complete iron nail in poor condition. The surface is covered with an uneven layer of red/orange corrosion products which are severely cracked. There is encrusted soil within the cracks indicating that there has been ongoing active corrosion. Surface losses and a large piece missing from the side of the head. <u>X-ray</u> shows the metal core to be limited to a thin sliver at the centre of the object.</p> <p>Recommendations: no further action.</p>
8139		966 Tr9	<p>Labelled as iron. Four iron nails in good to fair condition. All are currently stable but with minor cracking and areas of loss indicating past active corrosion. They are all covered with a medium thick layer of orange brown corrosion and encrusted soil. The 'J'-shaped nail has areas of cherry red haematite corrosion indicative of heating. The largest object has a fresh break to the shank. <u>X-ray</u> shows the metal cores to be present but with heavy mineralisation.</p> <p>Recommendations: no further action.</p>

Table 49: Description of Objects (iron)

X-ray	SF	Context	Assessment
8138	1	809 [810]	<p>Labelled as pin. Copper alloy pin, probably from a brooch. One end is flat and broken, the other tapers to a point. The object is in fair condition, stable at present but with an extremely pitted and uneven surface covered with encrusted soil. <u>X-ray</u> shows the metal core to be present but pitted and damaged at the tapered end.</p> <p>Recommendations: no further action.</p>
8138	1	030	<p>Labelled as brooch. Complete copper alloy penannular brooch with coiled terminals and intact pin. The object is in fair condition, chemically stable, with a layer of encrusted soil and dark green corrosion which has spalled away in large areas revealing a corroded surface which is gold coloured with reddish cuprite showing through in some areas. There are some areas of damage to the frame but these are not fresh. The pin is slightly bent. <u>X-ray</u> shows the metal core to be present and quite even at the frame, the core of the pin is pitted.</p> <p>Recommendations: no further action.</p>
8138	6	811	<p>Labelled as brooch and pin. Complete copper alloy brooch in two joining fragments (frame and pin), possibly of Aucissa derivative type with incised zig-zag decoration running along both edges of the outer surface of the frame. The object was brought to the lab on a small soil pedestal sitting in a plastic box. The object was gently removed from the soil, the pin and frame being separate, and the soil discarded. The object is in good stable condition, the majority of the surface covered in a light blue-green patina, though with areas of severe pitting, with yellowish soft corrosion within the pits. The pin has a perforation where it attaches to the frame, and there is a crack running through this. <u>X-ray</u> shows the metal core to be thin and pitted.</p> <p>Recommendations: no further action.</p>
8138	7	Not given	<p>Labelled as brooch. Probable T-shaped brooch of copper alloy with pin and part of the catch plate missing. The object is in fair to poor condition, with the damaged and cracked catch plate showing signs of active corrosion in the form of powdery light green corrosion products surrounding the cracks. The rest of the surface has stable mid-green corrosion products which are soft and fragile in some areas, especially to the outer edges of the wings. <u>X-ray</u> shows the metal core to be present and even for the majority of the object but thin and mineralised at the catch plate.</p> <p>Recommendations: no further action.</p>

X-ray	SF	Context	Assessment
8138	8	811 Tr8	<p>Labelled as pin? Probable pin fragment of copper alloy. Part of the shank and head is missing, with the other end tapering to a point. The object is in fair to poor condition, with a pitted and cracked surface covered in a severely pitted grey/green corrosion layer. <u>X-ray</u> shows the metal core to be present but pitted.</p> <p>Recommendations: no further action.</p>
8138	9	843	<p>Fragment of copper alloy brooch frame in fair to poor condition. The spring end is broken with associated cracking and active corrosion and the rest of the surface also has soft corrosion products which remain potentially unstable. The surface is also covered with encrusted soil. <u>X-ray</u> shows the metal core to be thin, mineralised and pitted.</p> <p>Recommendations: no further action.</p>
8138	10	852 Tr8	<p>Copper alloy brooch frame fragment, possibly of the Hod Hill 'fiddle' type. The object is in fair condition, chemically stable but with severely pitted surfaces and edges and bent 90° in the central area. The spring end is broken and only a very small portion of the catch plate is retained. The object has incised linear decoration on the front surface. <u>X-ray</u> shows the metal core to be mineralised and severely pitted.</p> <p>Recommendations: no further action.</p>
8138	11	918 Tr9	<p>Labelled as Barb.... radiate? Copper alloy coin in fair condition. The object is currently stable but is very worn and is covered in a layer of soft mid-green corrosion products over a reddish cuprite layer. <u>X-ray</u> shows the metal core to be thin and mineralised.</p> <p>Recommendations: refer to numismatist</p>
8138	12	918 Tr9	<p>Copper alloy coin in poor condition. The surface is worn and covered with a layer of soft and powdery light green potentially unstable corrosion products with encrusted soil over. <u>X-ray</u> shows the metal core to be almost completely mineralised.</p> <p>Recommendations: refer to numismatist.</p>
8138	13	918 Tr9	<p>Labelled as coin? Copper alloy coin in poor to fair condition. The surface is covered with a layer of soft and powdery light green potentially unstable corrosion products with an overlying layer of brown accretion and encrusted soil. <u>X-ray</u> shows the metal core to be present but uneven and very worn.</p> <p>Recommendations: refer to numismatist.</p>

X-ray	SF	Context	Assessment
8138	20	832 Tr8	<p>Labelled as pin. Copper alloy pin, probably from a brooch. The object is broken at one end and tapers to a point at the other. The object is in good to fair condition, chemically stable but with heavy wear to the other dark green patinated surface, revealing parts of the re-corroded metal core. <u>X-ray</u> shows the metal core to be present and even.</p> <p>Recommendations: no further action.</p>
8138	21	912 Tr9	<p>Copper alloy coin in fair to poor condition. The object is worn and the dark green/brown patinated surface has spalled off in many areas due to active corrosion, leaving a layer of powdery light green unstable corrosion beneath. Also, losses to the edges. <u>X-ray</u> shows the metal core to be present but patchy.</p> <p>Recommendations: refer to numismatist.</p>
8138	22	912 Tr9	<p>Labelled as coin. Copper alloy coin in fair condition. The object has a dark green/brown patinated surface with parts of the motifs visible on both sides. There are areas of active corrosion, in the form of light green powdery corrosion products, especially at the edges. <u>X-ray</u> shows the metal core to be present but patchy.</p> <p>Recommendations: refer to numismatist.</p>
8138	24	879 Tr8	<p>Copper alloy probable T-shaped brooch with decorated and enamelled frame. The pin is broken away. The object is in good to fair condition, with a chemically stable surface. This surface is pitted and there is some loss to the glass within the interstices of the decoration. <u>X-ray</u> shows the metal core to be present and even.</p> <p>Recommendations: decoration could be investigated if required for identification by finds researcher, illustration or publication (est 3 hours).</p>
8138	29	918 Tr9	<p>Labelled as metal bangle. Complete copper alloy bracelet with decorative outer surfaces and terminals which have a corresponding protrusion and dimple forming a clasp. The object is in fair condition, bent slightly out of shape and with spalling of the outer brown corrosion layer in some areas, revealing a softer mid-green corrosion crust. <u>X-ray</u> shows the metal core to be quite solid and even.</p> <p>Recommendations: no further work required</p>
8138	31	918 Tr9	<p>Copper alloy bracelet fragment, with incised linear decoration on the outer surface. The object is in good stable condition, the majority of the surface retaining a dark green smooth patina. This patinated layer is somewhat pitted and scratched and there some areas of surface accretions. <u>X-ray</u> shows the metal core to be present and even.</p> <p>Recommendations: no further action.</p>

X-ray	SF	Context	Assessment
8138	33	918	<p>Labelled as Roman spoon. Almost complete copper alloy spoon in fair to poor condition. There is very little corrosion on the surface which is dark grey with some areas of white metal showing through indicating silvering or tinning. The bowl of the spoon has some losses to the edges including a large worn hole. The handle has a square cross-section which is bent to the side and the surfaces are severely scratched and cracked revealing the metal core in some areas. There are spots of active corrosion. <u>X-ray</u> shows the metal core to be fairly solid at the handle but thin and pitted at the bowl.</p> <p>Recommendations: XRF analysis of the white metal on the surface to determine material if required.</p>
8138	35	923 Tr9	<p>Labelled as coin. Copper alloy coin in fair condition. The object has a green/brown corroded surface which retains the motifs. The edges are fragile and there has been a few spots of surface spalling due to active corrosion. <u>X-ray</u> shows the metal core to be thin and patchy.</p> <p>Recommendations: refer to numismatist.</p>
8138	36	918 Tr9	<p>Labelled as copper? Tweezers? Copper alloy folded strip in two joining fragments, plus two other fragments which do not join but which may be from the same object. The fragments are in fair condition, worn, cracked and fragile, but chemically stable. The surfaces are unevenly covered in crusty green corrosion products, over orange cuprite. <u>X-ray</u> shows the metal core to be almost completely mineralised.</p> <p>Recommendations: no further action.</p>
8138	37	918 Tr9	<p>Labelled as bronze object. Copper alloy object in two pieces consisting of a long shank with a flat protrusion at the centre point with a round perforation through. The small broken piece has the remains of a loop and decorative incised circles and it is possible that this fits at the end which has been corroded and worn to a point. The other terminal is broken but still retains decorative incised circles around the end. The object may be a possible balance arm. The object is generally in fair condition, the majority of the surface being covered in a stable but soft dark green/brown corrosion layer. The ends are worn and corroded leaving a soft mid-green corrosion layer exposed. <u>X-ray</u> shows the metal core to be present but heavily pitted on the surface. Note: the small piece was placed on the X-ray plate at the opposite end to where it probably belongs.</p> <p>Recommendations: investigation to aid identification if required by finds researcher (est 3 hours).</p>

X-ray	SF	Context	Assessment
8138	39	926 Tr9	<p>Labelled as coin. Copper alloy coin in fair condition. The surface is stable but worn and covered with light blue/green slightly crusty corrosion with yellow white accretions in the interstices. <u>X-ray</u> shows the metal core to be present and fairly even.</p> <p>Recommendations: refer to numismatist.</p>
8138	42	926 Tr9	<p>Labelled as coin. Large copper alloy coin in fair condition. The surfaces are worn and covered in a reddish brown corrosion layer with spots of green, more crusty corrosion, especially at the edges. The motifs are visible, with reddish cuprite showing through around the edges of the motifs. <u>X-ray</u> shows the metal core to be very solid and even.</p> <p>Recommendations: refer to numismatist.</p>
8138	43	926 Tr9	<p>Labelled as coin. Copper alloy coin in good stable condition. The surface has a green/brown patinated layer and the motifs are clearly visible, though with some encrusted soil and areas of more crusty corrosion. Wear to the edges. <u>X-ray</u> shows the metal core to be present and quite even, if quite thin.</p> <p>Recommendations: refer to numismatist.</p>
8138	44	926 Tr9	<p>Labelled as bronze object. Copper alloy bar/possible ingot of rectangular cross-section and tapering to a slight point. The other end is broken. The object is in fair condition, quite solid and heavy but the surface is pitted and covered with a mix of original brown patinated surface layer, green corrosion products and orange/red cuprite. It is currently stable. <u>X-ray</u> shows the metal core to be present but somewhat patchy.</p> <p>Recommendations: no further action.</p>
8138	45	926 Tr9	<p>Labelled as bronze/copper cosmetic tool. Possible cosmetic spoon fragment of copper alloy. One end is rounded the other is broken and the shank in between has slightly raised edges forming a lip. The object is in fair to poor condition, the surface being covered with a thin layer of powdery light green corrosion products mixed with surface accretions, over a pitted core with reddish cuprite showing. <u>X-ray</u> shows the metal core to be present, but cracked.</p> <p>Recommendations: no further action.</p>
8138	46	926 Tr9	<p>Labelled as metal pin. Two copper alloy probable pin/needle shanks. The smaller fragment is in poor condition, covered with a layer of soft and powdery corrosion directly over the metal core. The larger object is in good stable condition with a brown/grey, slightly worn and pitted corrosion layer. <u>X-ray</u> shows the metal core of the smaller fragment to be very thin, while the core of the larger object is more solid and even.</p> <p>Recommendations: no further action.</p>

X-ray	SF	Context	Assessment
8138	48	941 Tr9/10 'floor of house'	Labelled as brooch. Copper alloy bow brooch frame fragment in good stable condition. The surface is covered with a layer of encrusted soil over a worn mid-green patinated surface. The spring end is broken and the frame has been bent backwards into a 'c-shape'. <u>X-ray</u> shows the metal core to be thin and pitted. Recommendations: no further action.
8138	51	945 Tr9	Labelled as iron object. Copper alloy possible cosmetic spoon/pin. The object is complete with one tapered end and the other flat. The object is in poor condition, the majority of the outer corrosion layers having spalled away leaving a reddish purple cuprite layer. There is currently no active corrosion. <u>X-ray</u> shows the metal core to be present and quite solid though with some mineralisation to the flat end. Recommendations: no further action.
8138	52	931	Labelled as copper ring. Copper alloy penannular brooch frame with folded over terminals. Pin is missing. The object is in fair condition the majority of the surface being covered with a dark brown/green patinated surface. However, there are areas where this has spalled away, probably due to physical rather than chemical damage, the corrosion products beneath being dark green and quite solid. <u>X-ray</u> shows the metal core to be present but patchy. Recommendations: no further action.
8138	53	966 Tr9	Labelled as fibula brooch. Complete copper alloy T-shaped brooch in good to fair condition. There is very little corrosion and encrusted soil, the surface being covered in a stable but slightly pitted brown patina. The pin is in slightly worse condition, with an uneven layer of softer green corrosion which has spalled/worn off in places. <u>X-ray</u> shows the metal core to be solid and even. Recommendations: no further action.
8138	54	965 Tr9	Labelled as brooch. Copper alloy T-shaped brooch frame with pin missing. The object is in fair condition, stable but with a slightly uneven and crusty corroded surface which is heavily worn in places. There is a layer of encrusted soil over this. <u>X-ray</u> shows the metal core to be present and quite even, though with some slight pitting. Recommendations: no further action.
8138	62	065	Amorphous shaped object of copper alloy, probably heated/melted or spillage from metal working. No active corrosion, the object is in good stable condition, with a thick layer of soil over a surface which shows signs of heating with bubbles and melted areas. <u>X-ray</u> shows the metal core to be slaggy and bubbly. Recommendations: no further action.

X-ray	SF	Context	Assessment
8138		929 Tr9	Labelled as 2x Cu. Probable brooch pin of copper alloy, in two joining fragments. The surface is in fair to good condition, covered in a crusty but stable mix of green corrosion products, white accretions and encrusted soil. The break edges are not fresh. <u>X-ray</u> shows the metal core to be present but uneven and patchy. Recommendations: no further action.
8138		965 Tr9	Labelled as bronze x2. Two copper alloy objects, one a strip with curved edges, broken at both ends and the other, smaller with an oval cross-section possibly a pin from a brooch. Both objects are stable and in good to fair condition, the larger has a worn and slightly pitted surface, the smaller shows signs of a spalling outer corrosion layer. <u>X-ray</u> shows the metal core of both objects to be fairly even with some pitting. Recommendations: no further action.

Table 50: Description of Objects (copper alloy)

X-ray	SF	Context	Assessment
N/A	14	864 Tr8	Labelled as lead slag. Probably a piece of lead spillage or sheet fragment. The rough, dimpled surface is covered with encrusted soil over an uneven carbonate corrosion layer. Overall the object is in fair condition, with no active corrosion at present. Recommendations: no further action.
N/A	15	864 Tr8	Labelled as lead slag. Probably a piece of lead spillage or off-cut. The object is in fair condition with some stress cracking. The surface is covered with a white/grey layer of stable carbonate corrosion. Recommendations: no further action.
N/A	39	065 Field 63	Labelled as lead ore. A lump of galena (lead sulphide), lead ore mineral. Recommendations: no further action.
N/A		860 Tr8 Bag 288	Labelled as slag x1. Probably a piece of lead off-cut. The object appears to be from a rod with an amorphous cross-section. It has been squashed and bent and there appears to be a cut edge at one end. The surface is covered with a stable layer of grey/white carbonate corrosion. Overall the object is in fair to good condition. Recommendations: no further action.

X-ray	SF	Context	Assessment
N/A		864 Tr8 Bag 258	Labelled as slag. Probably a piece of lead off-cut from piece of lead with a scalloped cross-section. The object is in fair to good condition, covered with a stable white/grey carbonate corrosion layer and encrusted soil. Recommendations: no further action.

Table 51: Description of Objects (lead alloy)

Appendix 20: Context tables

20.1 Field 63

Context	Description
(001)	Friable very dark brown silty loam with high organic content; occasional small-medium <5cm round stones + fragments stone.; rare charcoal flecks; extends >5m × >3.2m × 0.21-0.25m. Overlies (002) & (005)
<i>INTERPRETATION:</i>	<i>Topsoil</i>
(002)	Firm very dark grey sandy-silt with occasional medium (<10cm) angular/sub-angular stone fragments; extends 0.68m × 0.18m × 3.00m. Underlies (101) Overlies (001), Fills [104]
<i>INTERPRETATION:</i>	<i>Fill of Post-medieval ditch</i>
(003)	Compacted dark reddish brown silty-clay; occasional fragments of limestone, rare shell flecks, occasional charcoal flecks; extends >15m × 3m × >0.20m. Underlies [018], [023], [012], (077), [073], [070], [006] & [092]
<i>INTERPRETATION:</i>	<i>Medieval – post-medieval buried soil horizon</i>
[004]	Linear cut; extends 0.68m × 0.18m × >3.00m; break of slope (top) sharp, straight sides inclined at 45°, break of slope (base) round, base concave; orientated WSW-ENE. Filled by (002)
<i>INTERPRETATION:</i>	<i>Cut for post-medieval field drain</i>

Context	Description
(005)	Friable very dark grey silty-sand, no inclusions; extends 0.50m × 0.09m. Underlies (001) Overlies/Fills [006]
<i>INTERPRETATION:</i>	<i>c.20th century fill of shallow pit</i>
[006]	Circular cut; extends 0.50m × 0.09m; break of slope (top) sharp, slightly concave sides, break of slope (base) gradual, base flat. Filled by (005)
<i>INTERPRETATION:</i>	<i>Cut for c.20th century shallow pit</i>
(007)	Firm-compact very dark grey sandy-silt; rare angular fragments of limestone; frequent flecks of charcoal. Extends 1.70m × 0.24m × 3.00m. Underlies [004] Overlies (008)
<i>INTERPRETATION:</i>	<i>Secondary fill of late Medieval/Post-medieval ditch</i>
(008)	Compact bluish-grey clayey-silt; no inclusions. Extends 0.40m × 0.06m × 3.00m. Underlies (007) Overlies [009]
<i>INTERPRETATION:</i>	<i>Primary fill of late Medieval/Post-medieval ditch</i>
[009]	Linear cut; extends 1.70m × 0.30m × 3.00m; break of slope (top) gradual, straight sides, break of slope (base) gradual, base concave; orientated SSE-NNW. Filled by (007) (008) Underlies (008) Overlies (013)
<i>INTERPRETATION:</i>	<i>Cut for late Medieval/Post-medieval field drainage ditch</i>
(010)	Firm very dark grey sandy-silt, occasional small fragments angular limestone (<10cm), rare flecks charcoal. Extends 1.26m × 0.20m × 3.00m. Fills [012] Underlies (001)

Context	Description
<i>INTERPRETATION:</i>	<i>Secondary fill of late Medieval/Post-medieval field drain</i>
(011)	Compact bluish-grey clayey-silt; no inclusions. Extends 0.16m × 0.05m × 3.00m. Fills [012] Underlies (010) Overlies [012]
<i>INTERPRETATION:</i>	<i>Primary fill of Medieval/Post-medieval field drain</i>
[012]	Linear cut; extends 1.26m × 0.26m × >3.00m, break of slope (top) gradual, straight sides inclined at 30°, break of slope (base) sharp, base concave; orientated SSE-NNW. Filled by (010) & (011) Underlies (011) Overlies (003)
<i>INTERPRETATION:</i>	<i>Cut of Late Medieval/Post-medieval field drainage ditch</i>
(013)	Firm very dark grey sandy-silt, occasional charcoal flecks, rare small angular stone fragments (<5cm). Extends 0.92m × 0.20m × >3.00m. Underlies & cut by [009] Fills & Overlies [014]
<i>INTERPRETATION:</i>	<i>Fill of late Medieval/Post-medieval field drainage ditch</i>
[014]	Linear cut; extends 0.92m × 0.20m × >3.00m, break of slope (top) gradual, straight sides inclined @ 30°, break of slope (base) very gradual; orientated SSE-NNW, truncated by [009]. Filled by & Underlies (013) Overlies (020)
<i>INTERPRETATION:</i>	<i>Cut of late Medieval/Post-medieval field drainage ditch</i>
(015)	Very compact-firm very dark grey sandy-silt, occasional flecks charcoal, rare fragments of medium sized (<10cm) sub-angular limestone. Extends 2.50m × 0.32m × >3.00m. Underlies (001) Overlies (016) Fill of [018]
<i>INTERPRETATION:</i>	<i>Tertiary fill of late Medieval/Post-medieval field drainage ditch</i>

Context	Description
(016)	Compact very dark bluish-grey clayey-silt containing thin bands of black organic material. Extends 1.06m × 0.06m × >3.00m. Underlies (015) Overlies (017) Fill of [018]
<i>INTERPRETATION:</i>	<i>Secondary fill of late Medieval/Post-medieval field drainage ditch</i>
(017)	Compact mid-brownish grey clayey-silt, no inclusions. Extends 0.92m × 0.12m × >3.00m. Underlies (016) Overlies [018] Fills [018]
<i>INTERPRETATION:</i>	<i>Primary fill of late Medieval/Post-medieval field drainage ditch</i>
[018]	Linear cut, extends 2.50m × 0.50m × >3.00m, break of slope (top) gradual, WSW side undulating, ENE side slightly concave, break of slope (base) gradual, uneven base; orientated SSE-NNW. Underlies (017) Overlies (003) Filled by (015) (016) (017)
<i>INTERPRETATION:</i>	<i>Cut for late Medieval/Post-medieval field drainage ditch</i>
(019)	Compact light brown silty-clay, frequent very pale root filaments, occasional charcoal flecks. Extends 0.19m × >15.00m × >3.00m. Underlies (024) Overlies (080) (046) (048)
<i>INTERPRETATION:</i>	<i>Buried late Roman soil horizon</i>
(020)	Very compact very dark grey sandy-silt, occasional flecks of charcoal, rare small (<5cm) angular fragments limestone. Extends 0.54m × 0.18m × >3.00m. Underlies [014] Overlies (021) Fill of [023]
<i>INTERPRETATION:</i>	<i>Tertiary fill of late Medieval/Post-medieval field drainage ditch</i>
(021)	Very compact very dark bluish-grey clayey-silt mottled with black, no inclusions. Extends 0.90m × 0.06m × >3.00m. Underlies (020) Overlies (022) Fill of [023]

Context	Description
<i>INTERPRETATION:</i>	<i>Secondary fill of late Medieval/Post-medieval field drainage ditch</i>
(022)	Compact mid-brown grey clayey-silt, no inclusions. Extends 0.50m × 0.06m × >3.00m. Underlies (021) Overlies [023] Fill of [023]
<i>INTERPRETATION:</i>	<i>Primary fill of late Medieval/Post-medieval field drainage ditch</i>
[023]	Linear cut, extends 1.16m × 0.28m × >3.00m, break of slope (top) gradual, straight sides inclined @ 30°, break of slope (base) gradual, concave base; orientated SSE-NNW, truncated by [009]. Underlies (022) Overlies (003) Filled by (020) (021) & (022)
<i>INTERPRETATION:</i>	<i>Cut for Medieval/Post-medieval field drainage ditch</i>
(024)	Very compacted/plastic bluish-grey clay, no inclusions. Extends 0.10-0.16m × trench wide. Underlies (032) Overlies (090) (079) (019)
<i>INTERPRETATION:</i>	<i>Very early medieval estuarine clay flood incursion deposit</i>
(025)	Compact light brown silty-clay, frequent very fine root filaments. Extends 0.12m × >15.00m × >3.00m. Underlies [081] [045] [047] Overlies (068) (036)/(026) (067) (059)
<i>INTERPRETATION:</i>	<i>3rd/4th century Romano-British buried soil horizon</i>
(026)	Friable-soft dark brown sandy-silt; frequent small white shells & root filaments, occasional charcoal, rare very small (<2mm) gravel. Extending 0.12-0.25m × >3.00m × >3.00m Underlies (025) Overlies (037) Same as (036)
<i>INTERPRETATION:</i>	<i>Romano-British river silt deposit</i>

Context	Description
(027)	Friable/loose yellow brown sandy-silt; occasional lens of silty-clay, rare bone. Extends 0.05-0.20m × >3.00m × >3.00m Underlies (058) (026) Overlies (038) Same as (037)
<i>INTERPRETATION:</i>	<i>Silty estuarine deposit containing sand. Romano-British</i>
(028)	Compact-plastic dark blue-grey mottled brown clayey-silt; rare flecks of charcoal, one large stone (0.20m × 0.15m × 0.04m). Extending 0.20m × 0.80m × >15m Overlies [035] Underlies (041) Same as (042)
<i>INTERPRETATION:</i>	<i>Primary fill of early Romano-British defensive ditch</i>
(029)	Void
<i>INTERPRETATION</i>	<i>Nil</i>
(030)	Compact mid-yellow brown silty-sand; occasional lens of blue silty-clay and pea grit. Extending 0.10m × >3.00m × >10.00m Underlies (068) Overlies (069)
<i>INTERPRETATION</i>	<i>Foundation for Romano-British estate road</i>
(031)	Void
<i>INTERPRETATION</i>	<i>Nil</i>
(032)	Loose/Friable dark brown-black clayey-silt containing >80% charcoal, occasional small stones. Extending 0.02m × 0.35m × 7.95m Underlies (003) Overlies (024)

Context	Description
<i>INTERPRETATION:</i>	<i>Spread of burnt material. Medieval</i>
[033]	Linear cut, extends 0.05m × 1.75m × >15.00m, break of slope (top) gradual, straight sides @ 45°, break of slope (base) gradual, base concave; orientation SE-NW. Underlies (039) Overlies (043) (040) Filled by (038) (039) Cuts (040) (043)
<i>INTERPRETATION:</i>	<i>Cut of Romano-British ditch c.1st/2nd century</i>
[034]	Linear cut, extends 0.02m × 1.50m × >10.00m, break of slope(top) sharp, near vertical stepped sides, Break of slope (base) sharp, slightly concave irregular base, orientated N-S. Underlies (044) Overlies (069) Filled by (043) & (044)
<i>INTERPRETATION:</i>	<i>Cut for early Romano-British c.1st century Punic style defensive ditch</i>
[035]	Linear cut, 0.60m × 1.10m × >10.00m, break of slope (top) sharp, straight sides @ 75°, break of slope (base) sharp, flat base, orientated SE-NW. Underlies (042) Overlies (069) Filled by (040)(041) & (042)
<i>INTERPRETATION:</i>	<i>Cut for early Romano-British, c.1st century Punic style defensive ditch</i>
(036)	Soft brown sandy-silt (10% clay, 30% clay, 60%), moderate small shells. Extends 0.08m × 1.10m × >10.00m Underlies (025) Overlies (037) Fill of [033] Same as (026)
<i>INTERPRETATION:</i>	<i>Upper deposit of Romano-British ditch c.1st/2nd century</i>
(037)	Loose brown to grey-brown silty-sand, moderate small shells, occasional small (<5cm) stones fragments. Extends 0.24m × 1.80m × >10.00m Underlies (058) (036) Overlies (038) Fill of [033] Same as (027)
<i>INTERPRETATION:</i>	<i>Tertiary Silty estuarine deposit which has accumulated in ditch</i>

Context	Description
(038)	Loose light red-brown silty-sand (20% clay, 30% silt, 50% sand), occasional small (<10cm) angular stone fragments. Extends 0.20m × 1.60m × >10.00m Underlies (037) Overlies (039) Fill of [033]
<i>INTERPRETATION:</i>	<i>Secondary fill of Romano-British ditch [033]</i>
(039)	Firm light blue-grey silty-clay; no inclusions. Extending 0.04m × 1.80m × >10.00m Underlies (038) Overlies [033] Fill of [033]
<i>INTERPRETATION:</i>	<i>Primary fill of Romano-British ditch [033]</i>
(040)	Firm greenish grey-brown silty-clay (10% sand, 40% silt, 50% clay), occasional small shells. Extends 0.10m × 1.00m × >10.00m Underlies [033] Overlies (050) fill of cut [035]
<i>INTERPRETATION</i>	<i>Tertiary fill of Romano-British defensive ditch [035]</i>
(041)	Soft red-brown sandy-silt (20% clay, 30% sand, 50% silt), moderate small shells. Extends 0.30m × 0.90m × >10.00m Underlies (051) Overlies (042)
<i>INTERPRETATION</i>	<i>Secondary fill of Romano-British defensive ditch. Deposited during a period when the ditch [035] was open and slowly silting up.</i>
(042)	Firm grey-brown with blue mottling silty-clay (10% sand, 40% silt, 50% clay), occasional small shells, frequent shell fragments. Extending 0.20m × 0.80m × >10m Underlies (041) Overlies [035] Fill of [035] Same as (028)
<i>INTERPRETATION</i>	<i>Primary fill of Roman defensive ditch [035]. Colluvium build up in base of ditch</i>
(043)	Friable mid-greyish brown sandy-clay, frequent small shells, rare flecks of CBM. Extending 0.10m × 1.10m × >10m Underlies [033] Overlies (044) Cut by [033] Fill of [034]

Context	Description
INTERPRETATION	<i>Secondary fill of Roman defensive ditch [034].</i>
(044)	Semi-compacted grey-blue with brown patches clayey-silt, no inclusions. Extending 0.10m × 0.80m × >10.00m Underlies (043) Overlies [034] Fill of [034]
INTERPRETATION	<i>Primary fill of Romano-British defensive ditch. Colluvium build up in base of ditch [034].</i>
[045]	Sub-circular cut, extends 0.52m × 0.32m, break of slope (top) sharp, vertical sides, break of slope (base) gradual, flat base. Underlies (046) Overlies (025) Contemporary with [047]
INTERPRETATION	<i>Pit cut containing remains of c. 3rd/4th century Romano-British pot</i>
(046)	Compact dark grey fine sandy-silt containing remains of upper 2/3 rd broken Black Burnished ware pot intermixed with bone. Extending 0.32m × 0.52m × 0.42m Underlies (019) Overlies [045] Fills [045] Contemporary with (048)
INTERPRETATION	<i>Content of pit containing upper 2/3rd of a deliberately buried c. 3rd/4th century broken pot containing bones</i>
[047]	Sub-circular cut, extends 0.31m × 0.16m, break of slope (top) sharp, vertical sides, break of slope (base) gradual, base slightly concave Underlies (048) Overlies (025) Filled by 048) Contemporary with [045]
INTERPRETATION	<i>Shallow pit cut for burial of pot</i>
(048)	Compact dark grey sandy-silt (10% sand) containing remains of lower <1/3 rd of a broken Black Burnished ware pot. Extending 0.16m × 0.31m × 0.21m Underlies (019) Overlies [047] Fills [047] Contemporary with (046)
INTERPRETATION	<i>Content of pit containing lower 1/3rd of a deliberately buried c. 3rd/4th century pot. The upper 2/3rd was buried in pit [045]</i>

Context	Description
[049]	Sub-circular cut, extending 0.30m × 0.26m; break of slope (top) irregular, irregular sides @ 45°, break of slope (base) sharp, base uneven. Underlies (050) Overlies (051) Filled by (050)
<i>INTERPRETATION</i>	<i>Cut for post-hole</i>
(050)	Soft mid-brown sandy-silt (20% clay, 20% sand, 60% silt), occasional small shells concentrated near hollows & post-holes. Extends 0.35m × 1.00m × >10.00m Underlies (040) (062) Overlies [053] [049] [055] Fills [053] [049] [055]
<i>INTERPRETATION</i>	<i>Fill of Romano-British defensive ditch and associated post-holes. Single fill of all features indicates the posts were removed in a single phase allowing uniform and contemporary infilling.</i>
(051)	Firm 'dirty' blue-grey mottled grey-brown silty-clay, no inclusions. Extends 0.02m × 1.00m × 3.00m Underlies (050)=(057)(044) Overlies (055)(053)(049)
<i>INTERPRETATION</i>	<i>Sealing deposit deliberately laid down around post-holes/posts c.1st/2nd century</i>
(052)	Same as (050)
<i>INTERPRETATION</i>	<i>Nil</i>
[053]	Sub-circular extends 0.15m × 0.18m, break of slope (top) sharp, near vertical sides, break of slope (base) gradual, concave base. Underlies (050) Overlies (051) Filled by (050)
<i>INTERPRETATION</i>	<i>Post-hole relating to structure in base of c.1st/2nd century ditch</i>
(054)	Same as (050)

Context	Description
<i>INTERPRETATION</i>	<i>Nil</i>
[055]	Sub-circular, extends 0.25m × 0.18m, break of slope (top) moderate, near vertical sides @ 75°, break of slope (base) moderate, concave base. Underlies (051) Overlies (041)
<i>INTERPRETATION</i>	<i>Post-hole</i>
(056)	Same as (050)
<i>INTERPRETATION</i>	<i>Nil</i>
(057)	Friable to semi-compact light reddish-brown sandy-silt, no inclusions. Extends 0.15m × 1.10m × >3.00m Underlies (040 (062) Overlies (041) Same as (050) Fill of [035]
<i>INTERPRETATION</i>	<i>Sealing deposit of ditch [035]</i>
(058)	Friable to compact dark brown silty-clay with lens of blue clay, no inclusions. Extends 0.12m × 1.30m × (seen only in section) Underlies (067) Overlies (037)
<i>INTERPRETATION</i>	<i>Levelling deposit</i>
(059)	Friable dark brown sandy-loam, no inclusions. Extends 0.52 × 0.12m × >3.00m Underlies (025) Overlies (060)
<i>INTERPRETATION</i>	<i>Deposit forming part of early Romano-British defensive embankment or rampart</i>

Context	Description
(060)	Semi-compact light yellowish brown-greenish-grey silty-sand, occasional bands silt, occasional shell fragments. Extends 0.70m × 0.20m × >3.00m Underlies (059) Overlies (061)
<i>INTERPRETATION</i>	<i>Deposit forming part of early Roman defensive embankment or rampart</i>
(061)	Compact mid-greenish to grey-brown silt, no inclusions. Extends 1.20m × 0.14m × >10m Underlies (060) Overlies (062)
<i>INTERPRETATION</i>	<i>Deposit forming part of early Romano-British defensive embankment or rampart. Essentially (066) re-deposited as part of the build process</i>
(062)	Compact light blue with frequent mottles of mid to dark brown silty-clay (40%, 60%), no inclusions. Extends 1.60m × 0.24m × >10m Underlies (061)) Overlies (063)
<i>INTERPRETATION</i>	<i>Up-cast and Re-deposited silts as result of digging of defensive ditch to form primary embankment or rampart deposit. Early Roman.</i>
(063)	Compact light blue clay, occasional shell fragments. Extends 0.80m × 3.40m × >15.00m Underlies (098) Overlies (099) (096) (087) (085)
<i>INTERPRETATION</i>	<i>Uppermost of the two estuarine tidal deposit horizons identified</i>
(064)	Semi-compact mid to dark brown organic (peat) deposit – Extent unknown/not excavated Underlies (086)
<i>INTERPRETATION</i>	<i>Unexcavated Peat horizon</i>
(065)	Compact light blue silty-clay with frequent mottles of mid to dark brown silt, no inclusions. Extends 0.08m × 0.62m × >15m Underlies (066) Overlies (098)

Context	Description
INTERPRETATION	<i>A deposited created in a wet environment due to mechanical action i.e. trampling causing a mixing of river silts with underlying estuarine clays</i>
(066)	Compacted into laminated layers of dark greenish-grey silt, frequent and evenly distributed small shells and shell fragments, occasional fragments of driftwood. Extends 0.10m × >15m × >15m Underlies (100) Overlies (065)
INTERPRETATION	<i>River silt deposits accumulated over a long period</i>
(067)	Compact mid-yellowish brown silty-sand with occasional lens of blue silty clay and pea-grit. Extends 0.18m × 4.60m × 1.5m Underlies (025) Overlies (058)
INTERPRETATION	<i>Infilling slumped/sunken area on top of Roman ditch</i>
(068)	Compact dark yellow coarse sand, occasional flecks of CBM, rare small to medium (>5cm) angular fragments of limestone. Extends 0.05 – 0.08m × >3.00m × >15.00m Underlies (025) Overlies (030)
INTERPRETATION	<i>Compacted surface of Romano-British estate track way or road</i>
(069)	Semi-compact light brown silt, rare small freshwater shells. Extends 0.20m × >15.00 × >15.00m Underlies (030)(034)(035)(078) Overlies (100)
INTERPRETATION	<i>Late prehistoric freshwater mud-flats deposit</i>
[070]	Linear cut; extends 0.14m × 0.49m × 1.50m, break of slope (top) sharp, concave sides, break of slope (base) gradual, base concave, filled by (071). Underlies (071) Overlies (003) Same as [073]
INTERPRETATION	<i>Shallow cut of post-medieval field drainage gully</i>

Context	Description
(071)	Compact dark bluish-grey clayey-silt, no inclusions. Extends 0.14m × 0.49m × 1.50m Underlies (001) Overlies [070]
<i>INTERPRETATION</i>	<i>Fill of post-medieval field drainage gully</i>
(072)	Very compact bright blue sandy clay (20% sand), frequent small white shells. Extends 0.20m × 4.00m × 3.00m Underlies (065) Overlies (098)
<i>INTERPRETATION</i>	<i>Freshwater deposit seen in only a small area and differentiated from deposit (063) due to its high shelly content</i>
[073]	Linear cut with short 'branch' giving appearance of a 'Y' shape; extends 0.15m × 0.40m × 1.90m with 'branch' 0.15m × 0.40m × 0.90m, break of slope (top) sharp, near vertical irregular sides, break of slope (base) sharp, flat base; orientation N-S with 'branch' E-W, Filled by (074). Underlies (074) Overlies (003)
<i>INTERPRETATION</i>	<i>Shallow cut of post-medieval field drainage gully</i>
(074)	Friable greyish-brown silty-loam, single fragment of CBM. Extends 0.15m × 0.04m × >1.90m Underlies (001) Overlies [073]
<i>INTERPRETATION</i>	<i>Fill of shallow post-medieval field drainage gully</i>
(075)	Moderate mid-brown deposit made up of high organic content (>95%) (T4 peat stage), no inclusions. Extends 0.48m × >3.00m × >15.00m Underlies (079) Overlies (090) (068)
<i>INTERPRETATION</i>	<i>Formed in a freshwater environment where thick vegetation flourished in fen or wetland</i>
(076)	Compact dark greyish brown clayey-silt, occasional roots, rare small (<5cm) rounded stones. Extends 0.10m × 1.62m × 6.00m Underlies (001) Overlies (077)

Context	Description
INTERPRETATION	<i>Spread of 'dumped' material dating to post-medieval</i>
(077)	Compact mid-reddish brown clayey-silt, occasional medium sized (<10cm) stones. Extends 0.24m × 1.66m × 6.00m Underlies (076) Overlies (033)
INTERPRETATION	<i>Post-medieval west-east aligned bank dividing two agricultural field areas with evidence of ploughing activity to north of bank and marshy or pond to south</i>
(078)	Moderate to soft plastic greyish-green mottled to white-brownish green very fine clayey-silt, occasional small (<5cm) semi-rounded stones, frequent root filaments. Extends 0.48m × 4.5m × >15.00m Underlies (090) Overlies (068) Contemporary with (025)
INTERPRETATION	<i>Buried late Romano-British soil horizon affected by long-term saturation</i>
(079)	Loose blackish-brown with grey mottling clayey-silt, uncommon small (<5cm) rounded stones. Extends 0.05-0.08m × >3.00m × >15.00m Underlies (024) Overlies (075)
INTERPRETATION	<i>Late Romano-British - early post-Romano-British deposit of high organic deposit formed in a wetland environment. Deposition associated with (075)</i>
(080)	Compact mid-brown silty-clay, rare charcoal fleck containing complete inverted buried c.3 rd /4 th century pot. Extends 0.20m × 0.20m × 0.15m Underlies (019) Overlies [081]
INTERPRETATION	<i>Fill of a small pit containing a single inverted c.3rd/4th century Black-Burnished ware pot - ritual</i>
[081]	Ovoid cut; extends 0.20m × 0.20m × 0.15m, break of slope (top) sharp, slightly concave sides @ av.60°, break of slope (base) gentle, flat base, filled by (080). Underlies (080) Overlies (025)
INTERPRETATION	<i>Cut for small late Romano-British pit</i>

Context	Description
(082)	Structure: Natural Limestone, varies from small <5cm to 0.25m × 0.20m × 0.15m, unshaped, random pile rising toward centre, circular form, no bonding, >1.25m × >1.30m (representing approximately 25% of structure Underlies (099) Overlies (083)
INTERPRETATION	<i>Cairn built in wetland environment as part of a 'way marker' route to indicate safe passage through marsh.</i>
(083)	Compact-plastic light blue very fine clay, no inclusions. Extends unexcavated depth × Trench-wide Underlies (082) (087) (085) Overlies (064)
INTERPRETATION	<i>Lower/1st of two prehistoric estuarine clay deposits identified</i>
(084)	Moderate light bluish-grey mottled mid-brown clayey-silt, frequent very small white shells and driftwood. Extends 0.15m × 4.00m × 3.2m Underlies (065) Overlies (098)
INTERPRETATION	<i>Prehistoric W-E aligned channel overlying 1st estuarine clay deposit containing detritus</i>
(085)	Loose mid reddish-brown coarse sandy-fine grit (80%, 20%), occasional small (<5cm) angular/sub-angular fragments of limestone pushed into the surface of underlying deposit (086). Extends >0.05m × >3.20m × trench-wide Underlies (063) Overlies (086)
INTERPRETATION	<i>Prehistoric colluvium deposit washed into water margins and originating from nearby river foreshore (088)</i>
(086)	Same as (083)
INTERPRETATION	<i>See (083)</i>
(087)	Structure: 6 × wooden stakes, 0.03-0.04m × 0.30m(max), set in 8.00m diameter open semi-circle, stakes driven into estuarine clay (086), orientation generally NW-SE, inclination of axis of stakes – vertical. Underlies (063) Overlies (086)

Context	Description
INTERPRETATION	<i>A prehistoric structure comprising a series of 6 vertical stakes driven into 1st estuarine clay horizon which may form either part of a 'fish trap' or 'way markers'.</i>
(088)	Compact-very compact reddish-brown mottled with lens of light bluish-grey coarse sandy-silt, frequent angular/sub-angular small to medium (<5-10cm) fragments stone and shale, occasional flecks of charcoal and worked flint. Extends 0.15m x >3.00m x trench wide. Underlies (097) [095] Overlies (096)
INTERPRETATION	<i>Prehistoric river terrace/foreshore containing worked flint</i>
(089)	Compact dark reddish-brown sandy silty clay, occasional angular/sub-angular small to medium (>5-10cm) stones, rare charcoal flecks. Extends 0.10-0.15m x 3.00m x 7.20m Underlies (093) Overlies (097)(094)
INTERPRETATION	<i>Prehistoric buried soil horizon overlying south extent of river terrace</i>
[090]	Linear cut, extends 0.48m x 0.4.5m x >10.00m, break of slope (top) rounded, straight sides @ 45°, break of slope (base) gradual, flat base, orientation N-S, filled by (075). Underlies (075) Overlies (078)
INTERPRETATION	<i>Late Roman/early Medieval cut forming embankment for pond</i>
(091)	Compact dark reddish brown silty-clay, frequent fragments of glass wine bottles (>80%), rare pottery. Extends 0.42m x 0.38m x unknown Underlies 001 Overlies [092]
INTERPRETATION	<i>Small post-Medieval rubbish pit containing large quantity of broken c.18th/19th century 'Mallet' wine bottles</i>
[092]	Circular(?) cut; extends 0.42m x 0.38m, break of slope (top) sharp, near vertical sides, break of slope (base) rounded, concave base, filled by (091) Underlies (091) Overlies (003)
INTERPRETATION	<i>Cut for Post-medieval rubbish pit</i>

Context	Description
(093)	Compact grey blue mottled very dark grey clayey-silt, frequent pockets of highly organic river silts. Extends 0.10m × 4.30m × 0.95m Underlies (078) Overlies (089)
<i>INTERPRETATION</i>	<i>Re-deposited river silts - Prehistoric</i>
(094)	Very compact reddish brown clay, no inclusions. Extends 0.30m × 0.50m Underlies (089) Overlies [095]
<i>INTERPRETATION</i>	<i>Clay fill of small pit</i>
[095]	Ovoid cut, extends 0.30m × 0.35m, break of slope (top) gradual, irregular near vertical sides, break of slope (base) rounded, flat base, filled by (094). Underlies (094) Overlies (088)
<i>INTERPRETATION</i>	<i>Prehistoric animal burrow</i>
(096)	Mercian Mudstone Group – geology Underlies (088) (063)
<i>INTERPRETATION</i>	<i>Natural geology</i>
(097)	Compact very dark grey to near black organic silty-clay (15% clay), no inclusions. Extends 0.10m × 0.35m × 0.75m Underlies (089) Overlies (088)
<i>INTERPRETATION</i>	<i>Prehistoric organic deposit filling natural hollow</i>
(098)	Structure: 9 × wooden staves/posts, dimensions of posts vary from 0.10-2.20m × 0.03-0.04m(av.), most shows signs of tooling, erected in a linear form, orientated NW-SE, driven directing into (063), no cuts, includes SF64,57,54,65,55,52,46,56 & 91 Underlies (072)(084) Overlies (063)

Context	Description
INTERPRETATION	<i>Prehistoric wooden staves or posts erected as way markers to indicate safe route across fenland</i>
(099)	Same as (085)
INTERPRETATION	<i>Same as (085)</i>
(100)	Compact dark greenish-grey silt, frequent small white shells and shell fragments, rare small-medium very rounded stones (<5-8cm), occasional driftwood (<5-10cm). Extends 0.20m × trench wide Underlies (069) Overlies (066)
INTERPRETATION	<i>Prehistoric freshwater river silts.</i>

Table 52: Context table for field 63

20.2 Trenches 1-7

20.2.1 Trench 1

Context	Type	Interpretation	Discussion	Finds	Date
(101)	Deposit	Topsoil	Firm mid brown silt and root matter, extends >7.95m × >4m by 0.2m. Overlies (105)	None	Modern
(102)	Deposit	Subsoil	Cohesive mid brown clayey silt, very frequent snail shells, occasional large stones, extends >4.45m × >4m by 0.28m. Cut by [104]. Overlies (107). Same as (103)	Pottery, C.B.M.	Post Medieval

Context	Type	Interpretation	Discussion	Finds	Date
(103)	Deposit	Subsoil	Cohesive mid brown clayey silt, very frequent snail shells, occasional large stones, extends >2.95m × >4m by 0.28m. Cut by [104]. Overlies (107). Same as (102)	None	Post Medieval
[104]	Cut	Cut for modern water pipe	Linear cut, extends >4m × 0.8m by >0.37m. Break of slope (top) sharp. Sides moderately sloping. Break of slope (base) and base not excavated. Oriented E-W. Filled by (105) and (106). Cuts (102) and (103)	N/A	Modern
(105)	Fill	Backfill of [104]	Well compacted mottled predominantly grey/yellow silt clay and limestone, extends >4m × 0.8m by >0.37m. Underlies (101). Overlies (106). Fills [104]	None	Modern
(106)	Fill	Slump of material within [104]	Soft, cohesive dark brown clayey silt, extends >1.5m × 0.08m by 0.34m. Underlies (105). Fills [104]	None	Modern
(107)	Deposit	Gley deposition	Firm, cohesive grey silt clay, extends >7.95m × >4m by 0.55m. Underlies (102) and (103). Overlies (108)	None	
(108)	Deposit	Organic lens	Very soft black degraded wood, extends >2m × >4m by 0.05m. Underlies (107). Overlies (109) (110)	None	

Context	Type	Interpretation	Discussion	Finds	Date
(109)	Layer	Silt clay deposition	Well compacted light orangey brown silt clay, reddish sandstones and degraded limestone, extends >2m x >4m by >0.25m. Underlies (108). Same as (110)	None	Natural
(110)	Layer	Silt clay deposition	Well compacted light orangey brown silt clay, reddish sandstones and degraded limestone, extends >2m x >4m by >0.9m. Underlies (108). Same as (109)	None	Natural

Table 53: Context table for trenches 1-7

20.2.2 Trench 2

Context	Type	Interpretation	Discussion	Finds	Date
(201)	Deposit	Topsoil	Firm mid brown silt and root matter, extends >8m x >4m by 0.18m. Overlies (205)	None	Modern
(202)	Deposit	Subsoil	Firm mid reddish brown clayey silt, extends >2.5m x >4m by 0.26m. Cut by [204]. Overlies (206)(207). Same as (203)	None	Post Medieval
(203)	Deposit	Subsoil	Firm mid reddish brown clayey silt, extends >5.25m x >4m by 0.21m. Cut by [204]. Overlies (206)(207). Same as (202)	None	Post Medieval
[204]	Cut	Cut for modern water pipe	Linear cut, extends >4m x 0.95m by >0.45m. Break of slope (top) sharp. Sides moderately sloping. Break of slope (base) and base not excavated. Oriented E-W. Filled by (205). Cuts (202) and (203)	N/A	Modern

Context	Type	Interpretation	Discussion	Finds	Date
(205)	Fill	Backfill of [204]	Well compacted mottled predominantly grey/yellow silt clay, occasional stones, extends >4m × 0.95m by >0.45m. Underlies (201). Fills [204]	None	Modern
(206)	Deposit	Upper gleying deposition	Well compacted greyish red silt clay, extends >2.5m × >4m by 0.22m. Underlies (202)(203). Overlies (208). Same as (207)	None	
(207)	Deposit	Upper gleying deposition	Well compacted greyish red silt clay, extends >5.35m × >4m by 0.25m. Underlies (202) (203). Overlies (208). Same as (206)	None	
(208)	Deposit	Gley deposition	Firm, cohesive grey silt clay, extends >8m × >4m by 0.35m. Underlies (206)(207). Overlies (209)	None	
(209)	Layer	Silt clay deposition	Well compacted red (orange toward top of deposit) clay silt and degraded limestone, extends >4.55m × >4m by >1.05m. Underlies (208)	None	Natural

Table 54: Context table for trench 2

20.2.3 Trench 3

Context	Type	Interpretation	Discussion	Finds	Date
(301)	Deposit	Topsoil	Firm mid brown silt and root matter, extends >11.8m × >4m by 0.2m. Overlies (313)	None	Modern
(302)	Deposit	Subsoil	Moderately compacted mid brown clay, extends >11.8m × >4m by 0.27m. Cut by [315]. Overlies (303)(306). Same as (305)	Pot N/R Bone N/R	Post Medieval

Context	Type	Interpretation	Discussion	Finds	Date
(303)	Deposit	Silting deposition	Well compacted/plastic light reddish brown silt clay, extends >8.28m x >4m by 0.26m. Underlies (302)(305). Overlies (304)(307). Same as (306)	None	
(304)	Deposit	Buried soil horizon	Firm, slightly cohesive pale grey (blackish at upper interface) clay silt, charcoal flecking, extends >8.3m x >4m by 0.16m. Underlies (303)(306). Overlies (308) (309). Same as (307)	Pot (Roman?)	
(305)	Deposit	Subsoil	Moderately compacted mid brown clay, extends >1.55m x >1.05m by 0.09m. Cut by [315]. Overlies (303)(306). Same as (302)	None	Post Medieval
(306)	Deposit	Silting deposit	Well compacted/plastic light reddish brown silt clay, extends >1.55m x >1.05m by 0.1m. Underlies (302)(305). Overlies (304)(307). Same as (303)	None	
(307)	Deposit	Buried soil horizon	Firm, slightly cohesive pale grey (blackish at upper interface) clay silt, charcoal flecking, extends >1.55m x >1.05m by 0.1m. Underlies (303)(306). Overlies (308) (309). Same as (304)	None	
(308)	Deposit	Gley deposition	Firm grey silt clay, extends >8.25m x >4m by 0.4m. Underlies (304)(307). Overlies (310). Same as (309)	None	

Context	Type	Interpretation	Discussion	Finds	Date
(309)	Deposit	Gley deposition	Firm grey silt clay, extends >1.55m × >1.05m by 0.35m. Underlies (304)(307). Overlies (310). Same as (308)	None	
(310)	Deposit	Buried organic layer	Soft blackish silt/preserved wood, extends >7.25m × >4m by 0.17m. Underlies (308)(309). Overlies (311) (312)	None	
(311)	Deposit	Silt clay deposition	Well compacted light reddish brown clay silt with stony patches, extends >9.5m × >3m by >1m. Underlies (310) Same as (312)	None	Natural
(312)	Deposit	Silt clay deposition	Well compacted light reddish brown clay silt with stony patches, extends >1.55m × >1.05m by >0.23m. Underlies (310) Same as (311)	None	Natural
(313)	Fill	Backfill of service trench	Hard compacted mottled red/yellowish brown silt clay, extends >3.2m × 1.17m by >1.05m. Underlies (301). Fills [314]	None	Modern
[314]	Cut	Cut of service trench	Linear cut, extends >3.2m × 1.17m by >1.05m. Break of slope (top) sharp. Sides vertical, stepped on N side. Break of slope (base) and base not excavated. Oriented NE-SW. Filled by (313). Cuts (316)	N/A	Modern

Context	Type	Interpretation	Discussion	Finds	Date
[315]	Cut	Cut of land drain	Linear cut, extends >6.5m × 0.45m by >0.3m. Break of slope (top) sharp. Sides almost vertical. Break of slope (base) sharp. Base flat. Oriented NNW-SSE. Filled by (316). Cuts (302)(305)	N/A	Late Post Medieval
(316)	Fill	Backfill of land drain	Moderately compacted yellowish brown clayey silt and limestone, extends >6.5m × 0.45m by 0.3m. Cut by [314]. Fills [315]	None	Late Post Medieval

Table 55: Context table for trench 3

20.2.4 Trench 4

Context	Type	Interpretation	Discussion	Finds	Date
(401)	Deposit	Topsoil	Firm mid brown silt and root matter, extends >7.55m × >4m by 0.4m. Overlies (402) and (408)	None	Modern
(402)	Fill	Backfill of land drain [403]	Firm mid brown silt, frequent gravel, extends >7m × 0.75m by 0.4m	None	Modern
[403]	Cut	Cut for land drain	Linear cut, extends >7m × 0.75m by >0.4m. Break of slope (top) sharp. Sides moderately sloping. Break of slope (base) sharp. Base concave. Oriented N-S. Filled by (402). Cuts (404)(406)	N/A	Modern

Context	Type	Interpretation	Discussion	Finds	Date
(404)	Deposit	Subsoil	Moderately compacted mid brown clayey silt, extends 7.55m x >4m by 0.25m. Cut by [403] and [407]. Overlies (405). Same as (406)	None	
(405)	Deposit	Silting deposit	Well compacted light reddish brown silt clay, extends >7.35m x >4m by 0.5m. Underlies (404)(406). Overlies (409)	None	
(406)	Deposit	Subsoil	Moderately compacted mid brown clayey silt, extends 2.3m x >4m by 0.2m. Cut by [403] and [407]. Overlies (405). Same as (404)	None	
[407]	Cut	Cut for land drain	Linear cut, extends >2m x >0.25m by 0.25m. Break of slope (top) sharp. Sides steeply sloping. Break of slope (base) sharp. Base flat. Oriented WNW-ESE. Filled by (408). Cuts (404)(406)	N/A	Modern
(408)	Fill	Backfill of land drain [407]	Moderately compacted mid brown clayey silt, moderate gravel, extends >2m x >0.25m by 0.25m. Underlies (401). Fills [407]	None	Modern
(409)	Deposit	Buried soil horizon	Firm pale grey silty clay, extends >7.55m x >4m by 0.35m. Underlies (405). Overlies (410)	None	

Context	Type	Interpretation	Discussion	Finds	Date
(410)	Deposit	Gley deposition	Firm grey silt clay, extends >7.55m x >4m by 0.3m. Underlies (409). Overlies (411)	None	
(411)	Deposit	Buried organic layer	Soft dark brownish black silt clay and preserved wood, extends >7.55m x >4m by 0.1m. Underlies (410). Overlies (412)	None	
(412)	Layer	Silt clay deposition	Firm, well compacted light reddish orange brown silty clay, moderate stony patches, extends >7.55m x >4m by >1m	None	Natural

Table 56: Context table for trench 4

20.2.5 Trench 5

Context	Type	Interpretation	Discussion	Finds	Date
(501)	Deposit	Topsoil	Firm mid brown silt and root matter, extends >8.1m x >4m by 0.2m. Overlies (502)	None	Modern
(502)	Deposit	Subsoil	Moderately compacted mid brown clayey silt, extends >8.1m x >4m by 0.3m. Underlies (501). Overlies (503)	None	

Context	Type	Interpretation	Discussion	Finds	Date
(503)	Deposit	Soil deposit	Moderately compacted dark grey clayey silt, frequent organic flecking, extends >4m × 3m by 0.2m. Underlies (502). Overlies (504)	Animal bone	
(504)	Deposit	Silting deposition	Well compacted light reddish brown silt clay, extends >8.1m × >4m by 0.2m. Underlies (503). Overlies (505)	None	
(505)	Deposit	Buried soil horizon	Firm pale mid grey silty clay, extends >8.1m × >4m by 0.3m. Underlies (504). Overlies (507)	None	
(506)	Layer	Silt clay deposition	Firm light reddish/orange brown silty clay, occasional stony patches, extends >8.1m × >4m by >1m. Underlies (507)	None	Natural
(507)	Deposit	Gley deposition	Firm grey silt clay, preserved wood, extends >5.1m × >4m by 0.4m. Underlies (505). Overlies (506)	None	

Table 57: Context table for trench 5

20.2.6 Trench 6

Context	Type	Interpretation	Discussion	Finds	Date
(601)	Deposit	Topsoil	Friable mid brown clayey silt, extends >8m × >4m by 0.17m. Overlies (602)	None	Modern

(602)	Deposit	Subsoil	Moderately compacted mid brown clayey silt, extends >8m x >4m by 0.25m. Underlies (601). Overlies (603)	None	
(603)	Deposit	Buried soil horizon	Moderately compacted mid-dark grey (darker towards the upper horizon) silty clay, extends >8m x >4m by 0.2m. Underlies (602). Overlies (604)	None	
(604)	Deposit	Subsoil underlying (603)	Moderately compacted/firm light reddish brown silty clay, extends >8m x >4m by 0.3m. Underlies (603). Overlies (605)	Pot (Roman?)	
(605)	Deposit	Gley deposition	Moderately compacted light grey clay, extends >7.5m x >4m by 0.5m. Underlies (604). Overlies (606)	None	
(606)	Deposit	Buried organic layer	Soft mid/dark brown peat/preserved wood, extends >5.5m x >2m by 0.45m. Underlies (605). Overlies (607)	None	
(607)	Deposit	Silt clay deposition	Well compacted dark reddish brown silt clay, occasional stony patches, extends >5.5m x >2m by >0.07m. Underlies (606)	None	Natural

Table 58: Context table for trench 6

20.2.7 Trench 7

Context	Type	Interpretation	Discussion	Finds	Date
(701)	Deposit	Topsoil	Friable mid brown clayey silt, extends >12m x >6m by 0.2m. Overlies (705)	Pottery and animal bone N/R	Modern

Context	Type	Interpretation	Discussion	Finds	Date
[702]	Cut	Cut for land drain	Linear cut, extends >6m × 0.75m by 0.47m. Break of slope (top) gentle. Sides gently sloping, irregular. Break of slope (base) gentle. Base concave, irregular. Oriented NW-SE. Filled by (703). Cuts (706)	N/A	Modern
(703)	Fill	Primary backfill of land drain [702]	Moderately-well compacted grey-brown clayey silt, extends >6m × 0.6m by 0.45m. Cut by [709]. Fills [702]	Pottery N/R	Modern
(704)	Fill	Secondary made up fill of land drain [702]	Moderately compacted mid reddish mudstone, extends >6m × 0.75m by 0.13m. Underlies (705). Overlies (710). Fills [702]	Pottery N/R	Modern
(705)	Fill	Upper fill of [702]	Loosely compacted dark brown, blackish silt, extends >6m × >0.75m by 0.02m. Underlies (701). Overlies (704). Fills [702]	Pottery, bone and glass N/R	Modern
(706)	Deposit	Subsoil	Moderately compacted light-mid brown clayey silt, extends >12m × >6m by 0.25m. Cut by [702]. Overlies (707)	None	

Context	Type	Interpretation	Discussion	Finds	Date
(707)	Deposit	Buried soil horizon	Moderately compacted mid blue grey silty clay, extends >12m × >6m by 0.1m. Underlies (706). Overlies (708)	None	
(708)	Deposit	Subsoil underlying (707)	Moderately compacted mottled light reddish brown silty clay, extends >12m × >6m by 0.5m. Underlies (707). Overlies (711)	Animal bone	
[709]	Cut	Cut of animal burial	Linear cut, extends 0.5m × 0.3m by 0.2m. Break of slope (top) sharp. Sides steeply sloping. Break of slope (base) sharp. Base flat. Filled by (710). Cuts (703)	N/A	Modern
(710)	Fill	Fill of [709]	Well compacted grey brown clayey silt, extends 0.5m × 0.3m by 0.2m. Underlies (704). Fills [709]	Pot and bone	
(711)	Deposit	Gley deposition	Moderately compacted light grey blue. Extends >9.55m × >2m. Underlies (708). Overlies (712)	None	

Context	Type	Interpretation	Discussion	Finds	Date
(712)	Deposit	Buried organic layer	Soft mid-dark brown peat and preserved wood. Extends >9.55m × >2m by >0.1m. Underlies (711)	None	

Table 59: Context table for trench 7

20.2.8 Trench 8

Context	Description
(801)	Firm mid-brown silt; frequent root material; extends across extent of trench at depth of 0.15m-0.2m. Overlies all other contexts.
<i>INTERPRETATION:</i>	<i>Topsoil</i>
(802)	Moderately compact mid-light brown clayey silt; occasional medium sized stone; extends across extent of trench at depth of 0.14m-0.35m. Underlies (801) Overlies (807)(808) Cut by (806), (816) (8107)
<i>INTERPRETATION:</i>	<i>Subsoil</i>
(803)	Loosely compacted dark brown/black silt; frequent small stone, very frequent modern pottery. Visible only in section, depth varies from 0.03-0.07m. Underlies (801) Overlies (804) Fill of [806]
<i>INTERPRETATION:</i>	<i>Uppermost tertiary fill of modern drain [806]</i>
(804)	Moderately compact mid-red silt; moderate angular stone of various size. Visible only in section, depth varies from 0.05m-0.07m × width c.0.6m. Underlies (803) Overlies (805) Fill of [806]
<i>INTERPRETATION:</i>	<i>Secondary fill of modern drain [806]</i>
(805)	Very firm and compact greyish brown clayey silt; contains moderate stone inclusions and modern ceramic land drain. Visible only in section, depth 0.15m × width c. 0.5m. Underlies (804) Fill of [806]
<i>INTERPRETATION:</i>	<i>Primary fill of modern land drain [806]</i>

Context	Description
[806]	Linear cut; no corners; visible only in section, depth c.0.5m × width c. 0.6m; break of slope (top) gradual, sides gently sloping, break of slope (base) gradual, base concave; oriented NW-SE. Filled by (803) (804) (805) Cuts (802)
<i>INTERPRETATION:</i>	<i>Cut of modern land drain</i>
(807)	Moderately compact blue grey silty clay; no inclusions; extends across most of trench apart from NE corner at depth of c. 0.25m. Underlies (802) Overlies (888) (809) (839) (817) (819) (841) (852) (844) (846). Same as (808)
<i>INTERPRETATION:</i>	<i>Post Romano-British inundation deposit</i>
(808)	Moderately compact dark grey silty clay; no inclusions. extends over the NE corner of trench at depth of c.0.25m. Underlies (802) Overlies ((817) (888) (833) Same as (807)
<i>INTERPRETATION:</i>	<i>Post Romano-British inundation deposit</i>
(809)	Moderately compact mid-grey silty clay mottled with reddish sandy silt; moderate pottery, CBM and animal bone, very occasional slag; extends 24m × 1,2m × 0.2m. Underlies (807) Overlies (833) Fill of [810]
<i>INTERPRETATION:</i>	<i>Uppermost waterlogged fill of [810] possibly associated with period of abandonment in the Romano-British period</i>
[810]	Linear cut; one rounded corner is visible within the trench; extends 24m × 1.2m × 0.55m; break of slope (top) sharp; sides vertical; break of slope (base) sharp; base flat; oriented E-W changing direction to N-S. Filled by (809) (833) (894) Cuts (811) (812) [849] [893]
<i>INTERPRETATION:</i>	<i>Cut of Romano-British boundary ditch associated with enclosure of burial/funerary area. It is a re-cut of earlier ditch [893] the course of which [810] follows.</i>
(811)	Moderately compact light reddish brown silty clay; very occasional small-medium angular stones, very frequent pottery and animal bone/tooth; extends 14m × 0.6m × 0.2m. Underlies (807) Overlies (838) Cut by [810] [842] [818] [820] [845] Contemporary with (812)
<i>INTERPRETATION:</i>	<i>Romano-British occupation horizon, physically separated from (812) by ditch[810]</i>
(812)	Moderately compact light reddish brown silty clay; occasional small-medium sized angular stones, moderate pottery and animal bone; extends 26.8m × 11.2m × 0.2m. Underlies (807) Overlies (831) (832) Cut by [810] [889] Contemporary with (811)
<i>INTERPRETATION:</i>	<i>Romano-British occupation horizon, physically separated from (811) by ditch[810]</i>
(813)	Loosely compacted dark brown/black silt; frequent small stones, very frequent modern pottery; extends NW-SE across width of trench at W: 0.6m × D: 0.06m. Underlies (801) Overlies (814) Fill of [816] Contemporary with (803)
<i>INTERPRETATION:</i>	<i>Upper fill of modern land drain [816]</i>

Context	Description
(814)	Moderately compact mid-red silt; moderate angular stone of various size; extends NW-SE across width of trench at W: 0.55m × D: 0.08m. Underlies (813) Overlies (815) Fill of [816] Contemporary with (804)
<i>INTERPRETATION:</i>	<i>Fill of land modern drain [816]</i>
(815)	Very firm and compact grey brown clayey silt; contains modern ceramic land drain and moderate medium sized stones; extends NW-SE across width of trench at W: 0.5m × D: 0.18m. Underlies (814) Overlies (802) Fill of [816] Contemporary with (805)
<i>INTERPRETATION:</i>	<i>Primary fill of modern land drain [816]</i>
[816]	Linear cut; no visible corners; extends NW-SE across width of trench at W: 0.6m × D: 0.5m; break of slope (top) gradual; sides gently sloping; break of slope (base) gradual; base concave; oriented NW-SE. Cuts (802) Filled by (813) (814) (815))
<i>INTERPRETATION:</i>	<i>Linear cut of modern land drain</i>
(817)	Moderately compact grey brown clayey silt; , contains SK1; very gritty with frequent small stones, occasional Roman pottery; extends approximately 1.8m × 0.5m to unknown depth. Underlies (807) Overlies (812) Fills [818]
SK1	Body supine; head tilted down toward left of body; right radius and ulna across lumbar vertebrae, right hand to left of vertebrae; left arm across lumbar vertebrae, left hand to right of vertebrae; right leg extended, tibia and fibula visible; left leg tilted towards left (east), fibula not visible in situ; right foot pointing upright, left foot pointing left (east); in situ bone in good condition apart from rib cage; after lifting degeneration occurred very quickly.
<i>INTERPRETATION:</i>	<i>Fill of grave cut [818]</i>
[818]	Grave cut; impossible to identify in plan during excavation; estimated dimensions approx. 1.8m × 0.5m, depth unknown; oriented N-S. Cuts (811) Filled by (817) SK1
<i>INTERPRETATION:</i>	<i>Grave cut for SK1</i>
(819)	Moderately compact grey brown clayey silt; contains SK2; moderate Roman pottery, occasional small stones; extends approximately 1.7m × 0.4m to unknown depth. Underlies (807) Fills [820] Contemporary with (817) Similar to (811)
SK2	Body supine; head facing east; right arm straight beside body, right hand close to right femur; left arm crosses body, left hand on pelvic girdle; right leg straight tilting slightly to east, tibia and fibula visible; left leg straight tilted to east; feet facing east; in situ bone very fragmented; after lifting bone in very poor condition
<i>INTERPRETATION:</i>	<i>Fill of grave cut [820]</i>

Context	Description
[820]	Grave cut; not discernible during excavation; estimated dimensions approx. 1.7m × 0.4m, depth unknown; oriented N-S. Cuts (811) Filled by (819) SK2
<i>INTERPRETATION:</i>	<i>Grave cut for SK2</i>
(821)	Moderately compact greyish brown sandy silt; frequent charcoal, occasional bone and pottery; extends 3.45m × 0.35m × max. 0.08m. Underlies (812) Overlies (822) Fill of [824]
<i>INTERPRETATION:</i>	<i>Uppermost fill of possible gulley cut [824]</i>
(822)	Loose dark grey charcoal rich silt; frequent charcoal, moderate pottery, occasional bone; extends 3.45m × c.0.4m × max. 0.09m. Underlies (821) Overlies (823) Fill of [824]
<i>INTERPRETATION:</i>	<i>Secondary fill of possible gulley cut [824]</i>
(823)	Moderately compact light greyish brown silt with charcoal staining; occasional stone, pottery and bone; extends 3.9m × 0.48m × max 0.12m; Underlies (822) Fill of [824]
<i>INTERPRETATION:</i>	<i>Primary fill of possible gulley cut [824]</i>
[824]	Linear cut; no corners; extends 3.9m × max 1m × max 0.26m; break of slope (top) sharp; sides steep; break of slope (base) gradual; base flat; oriented NW-SE. Filled by (821) (822) (823) Cuts (831) (832)
<i>INTERPRETATION:</i>	<i>Linear cut of possible Iron Age/early Romano-British gulley</i>
(825)	Moderately compact light greyish brown sandy silt; frequent CBM, moderate animal bone and charcoal; extends 0.28m × 0.25m × 0.08m. Underlies (812) Fills [826]
<i>INTERPRETATION:</i>	<i>Fill of small pit or possible tree bole</i>
[826]	Sub-circular cut; no corners; extends 0.28m × 0.25m, depth variable from 0.03–0.08m; break of slope (top) gradual on SW, sharper on NW; sides generally sharp but gradual on SE; break of slope (base) generally sharp but gradual on SE; base flat. Underlies (812) Cuts (831) Filled by (825)
<i>INTERPRETATION:</i>	<i>Either cut of a shallow pit or a possible tree bole</i>
(827)	Moderately compact mottled grey brown clayey silt; frequent charcoal staining, occasional bone; extends 1.15m × 0.95m × 0.03m. Underlies (812) Overlies (831) Possibly contemporary with (828)

Context	Description
INTERPRETATION:	<i>Charcoal rich deposit possibly related to [830] due to its close proximity and the similarly charcoal-rich nature of [830]'s primary fill (828)</i>
(828)	Moderately compact grey brown mottled silty clay; frequent charcoal and burnt wood; extends 0.27m × 0.24m, depth varies from 0.02m-0.08m. Underlies (829) Fill of [830]
INTERPRETATION:	<i>Charcoal rich primary fill of circular cut [830]</i>
(829)	Moderately compact light reddish brown clay; occasional charcoal flecks; extends 0.16m diameter × 0.05m depth. Underlies (812) Overlies (828) Fill of [830]
INTERPRETATION:	<i>Secondary fill of circular cut [830]</i>
[830]	Roughly circular cut; no corners; extends 0.24m E-W × 0.27m N-S, depth variable 0.05m–0.075m; break of slope (top) sharp on SE edge, gradual on NW; sides steep on SE side, gradual on NW; break of slope sharp on SE, gradual on NW; base flat. Cuts (831) Filled by (828) (829)
INTERPRETATION:	<i>Pit of uncertain function or possible tree bole.</i>
(831)	Moderately compact mid-reddish brown silty clay; occasional pottery, animal bone and charcoal flecks, very occasional glass; extends c. 26.8m × 11.2m × c. 0.5m. Underlies (812) Overlies (854) Cut by [824] [830] [826] Contemporary with (838) (848) Same as (832) (859) (876) (8102)
INTERPRETATION:	<i>Late Iron Age/ early Romano-British occupation layer</i>
(832)	Moderately compact mid-reddish brown silty clay; occasional pottery, animal bone, charcoal flecks and slag; extends c. 26.8m × 11.2m × c. 0.5m. Underlies (812) Overlies (854) Cut by [824] [861] [886] [899] Contemporary with (838) (848) Same as (831) (859) (876) (8102)
INTERPRETATION:	<i>Late Iron Age/ Early Roman occupation horizon</i>
(833)	Moderately compact grey clayey silt; very organic, frequent pottery, moderate animal bone; extends c. 24m × c. 1.2m × c. 0.3m. Underlies (809) Overlies (894) Fill of (810)
INTERPRETATION:	<i>Secondary fill of [810] associated with initial phase of abandonment by Romans</i>
(834)	Moderately compact mid-reddish brown clayey silt; occasional animal bone and pottery; extends c. 24m × 0.3m × 0.4m. Underlies (812) Fill of [893] Same as (835) (892) Cut by [810]

Context	Description
<i>INTERPRETATION:</i>	<i>Primary fill of ditch cut [893]</i>
(835)	Moderately compact mid-reddish brown clayey silt; occasional animal bone and pottery; extends c. 24m × 0.4m × 0.4m. Underlies (811) Fill of [893] Same as (834) (892) Cut by [810]
<i>INTERPRETATION:</i>	<i>Primary fill of ditch cut [893]</i>
836	Void
<i>INTERPRETATION:</i>	-
837	Void
<i>INTERPRETATION:</i>	-
(838)	Moderate to firm mid-orangey brown silty clay; slightly gritty, containing moderate charcoal, frequent pottery and animal bone, occasional CBM; extends c.14m × c.6m × c.0.5m. Underlies (811) Overlies (854) Cut by (851) (870) (884) (858) Contemporary with (879) (8102) (831)(832) (859) Same as (848)
<i>INTERPRETATION:</i>	<i>Late Iron Age/ early Romano-British occupation horizon</i>
(839)/ T1	Possible stake; set in NE corner of [810]; tilting diagonally towards SE; bark visible in some areas; soft but generally good condition; dimensions: avg. 0.05m diameter × 0.23m; one possible large cut mark; no joints/fixings. Underlies (833) Cuts [810] Fills [840]
<i>INTERPRETATION:</i>	<i>Stake set in the NW side of [810]</i>
[840]	Circular cut; c.0.05m diameter × 0.23m depth; break of slope (top) sharp; sides gradual; break of slope (base) sharp; base tapered; inclination of axis near vertical. Cuts [810] Filled by (839)/T1
<i>INTERPRETATION:</i>	<i>Stake hole for stake (839)/T1</i>
(841)	Moderately compact mid blue-grey silty clay; contains SK3 and Coffin 1, very occasional pottery, occasional CBM; extends 2m × 0.5m × 0.15m. Underlies (807) Fills [842]
SK3	Body supine; head 90° to neck, face up, jaw facing east; right arm alongside body, right hand above right femur; left arm alongside body, left hand immediately east of left femur; legs and feet insitu; insitu bone in fair condition, skull damaged; after lifting bone fragmented and fractured.
COFFIN 1	Two timber planks identified at base of grave; no nails or dowels found; no sides found but two pieces of wood visible in section at SK3's left foot and right shoulder; remains of possible lid and remains of struts or braces evident over lower part of SK3; no coffin furniture; oriented N-S; cut marks and possible mortise joints suggest wood has been re-used

Context	Description
<i>INTERPRETATION:</i>	<i>Very visible fill of grave cut [842] for SK3</i>
[842]	Rectilinear cut; 90° corners; extends 2m × 0.5m × 0.15m; break of slope (top) sharp; sides vertical; break of slope (base) sharp; base flat; oriented N-S. Cuts (811) Filled by (841) SK3 and Coffin 1
<i>INTERPRETATION:</i>	<i>Grave cut of SK3</i>
(843)	Moderate mid grey brown clayey silt; moderate pottery, frequent charcoal flecking, occasional animal bone and large stone (limestone); extends 2.5m × 0.7m × avg. 0.12m. Underlies (811) Fills [851].
<i>INTERPRETATION:</i>	<i>Single Fill of ditch [851].</i>
(844)	Moderately compact mid-greyish brown silty clay with red mottling; very frequent Roman pottery, occasional animal bone and charcoal; extends 0.45m × 0.45m × 0.1m. Underlies (807) Fills [845] Contemporary with (846)
<i>INTERPRETATION:</i>	<i>Single fill of rubbish pit [845]. Similar to surrounding (811), (844) is identifiable only by the large amount of pottery</i>
[845]	Ephemeral circular cut, limits defined only by large amounts of pottery within fill; extends c.0.45m × c.0.45m × c.0.1m; break of slope (top) sharp; sides vertical; break of slope (base) sharp; base flat. Cuts (811) Filled by (844) Contemporary with [847]
<i>INTERPRETATION:</i>	<i>Cut of rubbish pit</i>
(846)	Moderately compact brownish grey silty clay with red mottling; very frequent pottery; extends 0.25m × 0.25m × 0.07m. Underlies (807) Fills [847] Contemporary with (844) [845]
<i>INTERPRETATION:</i>	<i>Single fill of rubbish pit [847] Very similar to (844)</i>
[847]	Ephemeral circular cut, limits defined only by large amounts of pottery within fill; extends c.0.25m × c.0.25m × c.0.07m; break of slope (top) sharp; sides vertical; break of slope (base) sharp; base flat. Cuts (811) Filled by (846) Contemporary with [845]
<i>INTERPRETATION:</i>	<i>Cut of rubbish pit</i>
(848)	Same as (838)
<i>INTERPRETATION:</i>	<i>Late Iron Age/ early Romano-British occupation horizon</i>
[849]	Linear cut; no corners; extends c.5.3m into trench section × c.1.45m × c.0.45m; break of slope (top) sharp on SSW edge, more gradual on NNE; sides steep on SSW, moderate on NNE; break of slope (base) gradual; base flat; oriented WNW-ESE; truncated by [897], truncates [851] [870]. Filled by (850) (853) (856) (877) Cuts (838) [851] [870] Cut by [897] [810]

Context	Description
INTERPRETATION:	<i>2nd century linear ditch of uncertain function. It is possible that [849] and [897] form part of a rectangular enclosure, although no return of either ditch was observed. Alternatively [849] may be a single linear boundary or serve an irrigation/drainage function.</i>
(850)	Moderately compact dark brownish grey silty clay with high organic content; moderate CBM, charcoal, unworked wood, animal bone and pottery; extends c. 5.3m into trench section × 1.05m × max. depth 0.2m (avg. 0.135m). Underlies (877) Overlies (856) Fill of [849]
INTERPRETATION:	<i>Secondary fill of ditch [849]</i>
[851]	Linear cut; no corners; extends c.2.5m × 0.69m × 0.14m; break of slope (top) gradual; sides moderate; break of slope (base) gradual; base flat; oriented N/S; truncated by [870]. Cuts (838) Cut by [810] [849] [870] Filled by (843)
INTERPRETATION:	<i>Cut of linear ditch</i>
(852)	Moderately compact grey brown clayey silt; frequent charcoal, animal bone and pottery; visibly extends 1.6m × 0.5m × max. depth 0.04m (avg. 0.025m). Underlies (807) Overlies (811)
INTERPRETATION:	<i>Shallow lens representing a slight spread of waste material. Possibly associated with burial of SK3</i>
(853)	Moderately compact mottled light brownish grey clayey silt; occasional CBM, burnt bone and charcoal, moderate animal bone and pottery; extends c.5.3m into trench section × 1.4m × 0.15m. Underlies (811) Overlies (877) Fill of [849]
INTERPRETATION:	<i>Upper fill of ditch [849]</i>
(854)	Moderately compact grey-blue silty clay; no inclusions; extends trench wide to an avg. depth of c. 0.11m. Underlies (838) Overlies (874) Cut by [898] [899] Same as (855) (869) (881)
INTERPRETATION:	<i>Natural Estuarine clay</i>
(855)	Moderately compact grey blue slightly silty clay; no inclusions; extends trench wide to an avg. depth of c. 0.11m. Underlies (838) Overlies (874) Cut by [898] [899] Same as (854) (881) (869)
INTERPRETATION:	<i>Natural Estuarine clay</i>
(856)	Moderately compact pinkish brown silty clay; no inclusions; extends c. 5.3m into trench section × 0.76m × c.0.08. Underlies (850) Fill of [849]

Context	Description
INTERPRETATION:	<i>Primary fill of [849] resulting from colluvium build up while ditch was open and active</i>
(857)	Moderately compact dark grey, grainy, charcoal-rich deposit; very frequent charcoal, occasional animal bone; visibly extends 1.34m × 0.33m into trench section to a depth of c.0.15m. Underlies (811) Fills [858] Cut by [842]/SK3
INTERPRETATION:	<i>Fill of cut [858]</i>
[858]	Apparently linear cut; no discernible corners; visibly extends 1.34m × 0.33m into trench section to a depth of c.0.15m; break of slope (top) sharp; sides steep; break of slope (base) rounded; base flat; oriented N-S. Cuts (838) Cut by [842]/SK3 Filled by (857). NB. Eastern edge of the cut has been completely removed by cutting of [842]
INTERPRETATION:	<i>Romano-British ditch of unknown function</i>
(859)	Moderately compact mottled light reddish brown silty clay; very occasional charcoal flecks and stone; extends 0.36m × 0.33m × 0.23m. Underlies (812) Overlies (854) Cut by [824] [826] [861] [893] Contemporary with (838) Same as (831) (832) (876) (8102)
INTERPRETATION:	<i>Late Iron Age/ early Romano-British occupation horizon</i>
(860)	Moderately compact dark brown silty clay; frequent pottery, occasional stone, moderate animal bone and charcoal; extends c.3m × 1.28m × 0.15m. Underlies (862) Overlies (863)
INTERPRETATION:	<i>Secondary fill of cut [861]</i>
[861]	Lozenge shaped cut; rounded corners; extends 3m × 1.15m × avg. depth of 0.215m; break of slope (top) sharp at S. moderate at N.; sides steep; break of slope (base) rounded; base slightly concave; oriented N-S; truncated by [866] at North edge. Cuts (831) etc. Cut by [866] Filled by (860) (862) (863)
INTERPRETATION:	<i>2nd century Romano-British feature. A possible industrial function is suggested by the presence of tubular lead slag and charcoal rich fills. However such an interpretation does not fit well with the very organic primary fill (863)</i>
(862)	Moderately compact mid-grey silty clay; moderate pottery, very occasional animal bone, occasional small stones; extends 3m × 1.32m × 0.1 m. Underlies (812) Overlies (860) Fill of [861]
INTERPRETATION:	<i>Upper fill of [861]</i>
(863)	Moderately compact dark brown peaty silt; moderate pottery, occasional animal bone and stone; extends 3m × 0.96m × 0.1m. Underlies (860) Fill of [861]

Context	Description
INTERPRETATION:	<i>Primary fill of [861]. Very organic waterlogged deposit incongruous with postulated industrial function of [861]</i>
(864)	Moderately compact dark brown/black silty clay; frequent charcoal, occasional pottery, occasional lead slag; extends 3.98m × 1.89m × 0.05m. Underlies (812) Overlies (832) (862)
INTERPRETATION:	<i>Possible overspill or dump of industrial waste material associated with [861] which it appears to seal.</i>
(865)	Moderately compact dark grey clay; occasional pottery, frequent charcoal; extends 0.74m × 0.56m × 0.1m. Underlies (860) Fills [866]
INTERPRETATION:	<i>Single fill of [866]</i>
[866]	'Kidney-shaped' cut; no corners; extends 0.74m × 0.56m × 0.1m; break of slope (top) sharp; sides steep; break of slope (base) gradual; base flat. Cuts [861] Filled by (865)
INTERPRETATION:	<i>2nd century feature of uncertain function. Industrial usage suggested by charcoal rich nature of fill (865), possibly a continuation of use of [861] which is cut by [866]</i>
(867)	Moderately compact dark grey/black clayey silt; frequent charcoal occasional animal bone and pottery; extent unknown. Underlies (812) Overlies (872) Fill of [870] Cut by [849]
INTERPRETATION:	<i>Tip fill of ditch [870]</i>
(868)	Moderately compact reddish brown clayey silt; occasional pottery, slag, charcoal and animal bone; extends c.6m (to limit of excavation) × 3m × 0.36m. Underlies (812) Overlies (872) Fill of [870] Cut by [849]
INTERPRETATION:	<i>Upper, deliberate levelling deposit of [870].</i>
(869)	Compact blue clay; no inclusions; extends trench wide at an avg. depth of c. 0.11m. Underlies (832) Overlies (874) Cut by (870) Same as (854) (855) (881)
INTERPRETATION:	<i>Natural estuarine clay</i>
[870]	Linear cut; no corners; extends 6m (to limit of excavation) × 3m × 0.9m; break of slope (top) sharp; sides steep; break of slope (base) sharp; base flat; oriented E-W. Cuts [851] (832) (869) (874) Cut by [849] [810] Filled by (868) (872) (873) (875)
INTERPRETATION:	<i>2nd century Romano-British ditch. Function uncertain, possibly defensive</i>

Context	Description
(871)	Overall moderately compact mid-red silty clay, contains dark grey loosely compacted areas at extremities and occasional pockets of blue clay throughout; occasional CBM and charcoal flecks; extends 3.5m (to limit of excavation) × 0.72m × max depth of 0.31m. Underlies (812) Overlies (832)
INTERPRETATION:	<i>4th century Romano-British hedgerow. Interpretation based upon undulating base and presence of root holes. Dark patches indicative of burning prior to removal</i>
(872)	Moderately compact mid greyish brown silty clay; frequent organic material, occasional pottery and animal bone; extends 6m (to limit of excavation) × avg. 1.23m × avg. 0.28m. Underlies (868) Overlies (873) Fill of [870]
INTERPRETATION:	<i>Secondary fill of [870]</i>
(873)	Moderately compact dark greyish brown silty clay; frequent organic material and animal bone, occasional pottery; extends 6m (to limit of excavation) × avg. 0.93m × avg. 0.33m. Underlies (872) Fill of [870] Same as (887)
INTERPRETATION:	<i>Primary fill of ditch [870]</i>
(874)	Loosely compacted reddish brown sand; no inclusions; extends to a max. depth of 0.2m, other dimensions unknown. Underlies (869) Overlies (8111) Cut by [870]
INTERPRETATION:	<i>Natural sand</i>
(875)	Moderately compact black charcoal; occasional pot; extends 6m (to limit of excavation) × 0.15m × 0.1m. Underlies (868) (872) Fill of [870] Possibly contemporary with (873)
INTERPRETATION:	<i>Tipping deposit of charcoal within ditch [870]</i>
(876)	Moderately compact red brown silty clay; very occasional CBM, moderate pottery and animal bone; extends trenchwide to depth of c. 0.5m. Underlies (812) Cut by [861] [886] 830] [826] Same as (831) (832) (859) (8102)
INTERPRETATION:	<i>Late Iron Age/ early Romano-British occupation horizon</i>
(877)	Moderately compact grey silty clay with red mottling; occasional CBM, charcoal, pottery and bone; extends c. 5.3m × 1.15m × 0.2m. Underlies (853) Overlies (850) Fill of [849]
INTERPRETATION:	<i>Fill of 2nd century Ditch [849]</i>

Context	Description
(878)	Moderately compact red & grey mottled silty clay; very occasional animal bone; extends 6m to extent of excavation × 1.45m × 0.12m. Underlies (811) Overlies (882) Fill of [897]
<i>INTERPRETATION:</i>	<i>Upper fill of 2nd century Ditch [897]</i>
(879)	Moderately compact grey brown granular silty clay; moderate pottery, occasional animal bone; extends c.4.8m × c.1.0m × visible depth of 0.5m. Underlies (8102) Overlies (881)880 Contemporary with 880
<i>INTERPRETATION:</i>	<i>Deposit which, in association with 880, may form a bank or rampart to the north of ditches [898]and [899]. Late Iron Age/ early Romano-British</i>
880	Mixed stone (sandstone etc.) rubble spread; various sizes (max. c.0.5m × c.0.3 × c. 0.25m, avg. c.0.3m × 0.25m × 0.25m); unworked; no bond; oriented E-W; extends c.4.8m (visible) × c.1.0m (visible) × c.0.5m. Underlies (879) Overlies (881) Contemporary with (879)
<i>INTERPRETATION:</i>	<i>Rubble spread which, in association with (879), appears to form a bank/rampart associated with [898] and [899]</i>
(881)	Moderately compact grey blue clay; no inclusions; extends trench wide to an avg. depth of c. 0.11m. Underlies (831) (832) Overlies (874) Cut by [898] [899] Same as (854) (855) (869)
<i>INTERPRETATION:</i>	<i>Natural estuarine clay</i>
(882)	Moderately compact mid grey clay; moderate charcoal; occasional sandstone; extends 6m to extent of excavation × 1.25m × 0.15m. Underlies (878) Overlies (883) Fill of [897]
<i>INTERPRETATION:</i>	<i>Secondary fill of 2nd century ditch [897].</i>
(883)	Moderately compact dark grey organic silty clay; frequent unworked wood, very occasional worked wood (one piece), pottery and bone; extends c. 6m (extent of excavation) × 1.1m × 0.14m. Underlies (882) Fill of [897]
<i>INTERPRETATION:</i>	<i>Organic primary fill of 2nd Century Roman ditch [897]</i>
[884]	Linear cut; no corners; extends 4.7m (extent of excavation) × 0.65m × 0.15m; break of slope (top) unknown; sides gradual; break of slope (base) gradual; base flat; oriented N/S. Cuts (838) Cut by [897] Filled by (896) N.B. truncated by machining, any upper fills lost
<i>INTERPRETATION:</i>	<i>Linear ditch of unknown function. Western edge cut by [897], a later ditch on similar orientation.</i>

Context	Description
(885)	Moderately compact mid-dark brown silty clay; moderate degraded stone, occasional charcoal flecks; extends 0.4m × 0.35m × 0.1m. Underlies (812) Fills (886)
<i>INTERPRETATION:</i>	<i>Fill of possible tree bole feature [886]</i>
[886]	Sub-circular cut; no corners; extends 0.4m × 0.35m × 0.1m; break of slope (top) very sharp; sides near vertical; break of slope (base) very sharp; base very irregular. Cuts (832) Filled by (885)
<i>INTERPRETATION:</i>	<i>Uneven, irregular base suggests an organic feature such as a tree bole.</i>
(887)	Same as (873). Number taken out to keep track of finds due to initial uncertainty of interpretation
<i>INTERPRETATION:</i>	<i>Primary fill of [870]</i>
(888)	Moderately compact orangey brown silty-clay; frequent pottery (apparently lining cut [889]), occasional bone, weathered stone and flecks of CBM; extends 0.48m (diameter) × 0.26m (depth). Underlies (807) Fills [889]
<i>INTERPRETATION:</i>	<i>Fill of pit cut [889]</i>
[889]	Circular cut; no corners; extends 0.48m (diameter) × 0.26m (depth); break of slope (top) very sharp; sides steep; break of slope (base) very sharp; base (flat). Cuts [812] Filled by (888)
<i>INTERPRETATION:</i>	<i>2nd Century Romano-British rubbish pit, lined by broken urn which dictates regular shape</i>
(890)	Moderately compact light grey silty clay; largely sterile other than one piece each of bone and slag; extends 1.82m × avg. 0.38m × c. 0.09m. Underlies (812) Fill of [891]
<i>INTERPRETATION:</i>	<i>Fill of ditch [891]</i>
[891]	Linear cut; no corners; extends c. 1.82m × avg. 0.38m × c. 0.09m; break of slope (top) gradual; sides gradual; break of slope (base) gradual; base flat; oriented SW-NE. Cuts (832) Filled by (890)
<i>INTERPRETATION:</i>	<i>Late Iron Age/ early Romano-British feature of unknown function. Possibly organic in nature e.g. hedge</i>
(892)	Moderately compact mid greyish brown clayey silt; occasional stone and pottery; very occasional animal bone; extends c. 24m × 0.4m × 0.4m. Underlies (811) Fill of [893] Same as (835) (834) Cut by [810]

Context	Description
INTERPRETATION:	<i>Fill of ditch cut [893]</i>
[893]	Linear cut; one rounded corner is apparent in the trench; extends c.24m × 0.4m × 0.4m; break of slope (top) very sharp; sides near vertical; break of slope (base) very sharp; base flat; oriented E-W, becoming N-S. Cuts (831) etc., (838) Cut by (810) Filled by (834) (835) (892)
INTERPRETATION:	<i>3rd century Romano-British ditch, the course of which was later re-cut by [810]</i>
(894)	Moderately compact mid-reddish brown clayey silt; very occasional irregular stones; extends c. 24m × c. 1.0m × c.0.06m. Underlies (833) Fill of [810]
INTERPRETATION:	<i>Primary fill of [810]</i>
(895)	Moderately compact mid greyish brown clayey silt; occasional charcoal flecks; extends c.0.7m × 0.3m × 0.08m. Underlies (812) Overlies (832)etc.
INTERPRETATION:	<i>Indeterminate deposit in an undulation within (832). There is no discernible cut and feature is thought most likely a tree bole.</i>
(896)	Semi-compacted light greyish brown silty clay; occasional pottery, animal bone, stone, CBM and charcoal flecks; extends 4.7m × 0.64m × 0.13m. Underlies (832) Fills (884) Cut by [897]
INTERPRETATION:	<i>Primary fill of ditch cut [884]</i>
[897]	Linear cut; no corners; extends c.6m (extent of excavation) × 1.45m × avg. 0.37m; break of slope (top) gradual; sides gradual on western edge, eastern edge is steeper; break of slope (base) gradual; base concave; oriented N-S. Cuts (838)[849][884] Filled by(878) (882) (883)
INTERPRETATION:	<i>2nd century Romano-British linear ditch of unknown function. It is possible that [849] and [897] form part of a rectangular enclosure. Alternatively [849] may be a single linear boundary or drainage ditch.</i>
[898]	Linear cut; no corners; extends 5.6m (to extent of excavation) × 1.7m × 1.0m; break of slope (top)sharp; sides steep (c.80°); break of slope (base) gradual; base flat; oriented E/W. Underlies 880 Cuts (881)[899] (8111) Filled by (8100)(8101)(8102) Contemporary with (879) 880 [899]
INTERPRETATION:	<i>Late Iron Age ditch, along with [899] part of a defensive double ditch feature which may also have incorporated a banked rampart in the form of (879) and 880</i>

Context	Description
[899]	Linear cut; no corners; extends 5.6m (to extent of excavation) × 0.55m × 0.6m; break of slope (top) gradual; sides steep (c.80°); break of slope (base) rounded; base flat; oriented E/W. Cuts (881) Cut by [8108] Filled by (8101)(8103) Contemporary with (879) 880 [898]
INTERPRETATION:	<i>Late Iron Age ditch, along with [898] part of a defensive double ditch feature which may also have incorporated a banked rampart in the form of (879) and 880</i>
(8100)	Moderately compact light brownish grey clay; high organic content, frequent plant material, occasional bone fragments, occasional large stone (<0.4m); extends c.5.6m (extent of excavation) × 0.7m × 0.35m. Underlies (8101) Fill of [898]
INTERPRETATION:	<i>Primary fill of [898]</i>
(8101)	Moderately compact blue grey clay; moderate organic content; extends c.5.6 m (extent of excavation) × 0.7m × 0.52m. Underlies (8102) Overlies (8100) (8103) Fill of [898] [899]
INTERPRETATION:	<i>Secondary fill of [898]; Primary fill of [899]. That it fills both suggests were in contemporaneous use and can be interpreted as a single 'double ditch' feature</i>
(8102)	Moderately compact reddish brown silty clay; moderate pottery and animal bone, very occasional CBM; extends trenchwide to a depth of c. 0.2m. Underlies (812) Overlies (8101) (879) Cut by (861) (886) (891) Contemporary with (838) Same as (831) (832) (859) (876) (8102)
INTERPRETATION:	<i>Late Iron Age/early Romano-British Occupation Horizon</i>
(8103)	Moderately compact dark bluish grey clay; Moderate organic content, frequent stone < 0.3m; extends c.0.5m × 0.5m × avg. 0.175m. Underlies (8101) Overlies (8109) Fill of [899] [8108]
INTERPRETATION:	<i>Packing material for post hole [8110] which is cut into the base of [899]</i>
(8104)	Loosely compacted dark brown/black silt; frequent small stone, very frequent modern (white ceramic) pottery; extends across width of trench at W: 0.6m × D: 0.05m. Underlies (801) Overlies (8105) Fill of [8107] Contemporary with (803) (813)
INTERPRETATION:	<i>Upper fill of modern drain cut [8107]</i>
(8105)	Moderately compact mid reddish brown silt; very frequent varied angular stone; extends across width of trench at W: 0.55m × D: 0.05m. Underlies (8104) Overlies (8106) Fill of [8107] Contemporary with (804) (814)
INTERPRETATION:	<i>Secondary fill of modern drain cut [8107]</i>

Context	Description
(8106)	Firm greyish brown clayey silt; occasional angular stone; extends across trench width at W: 0.45m × D: 0.2m. Underlies (8105) Fill of [8107] Contemporary with (805) (815)
<i>INTERPRETATION:</i>	<i>Primary fill of modern drain cut [8107]</i>
[8107]	Linear cut; no corners; extends across width of trench at W: 0.6m × D: 0.3m; break of slope (top) gradual; sides regular and tapering; break of slope (base) gradual; base concave; oriented NW-SE. Cuts (802) Filled by (8104) (8105) (8106) Contemporary with [806] [8106]
<i>INTERPRETATION:</i>	<i>Cut of modern land drain</i>
[8108]	'Kidney shaped' cut; rounded corners; extends 0.5m × 0.3m × 0.11m; break of slope (top) sharp at southern edge, more rounded at north; sides steep and well defined; break of slope (base) sharp; base flat; oriented E-W. Cuts [899] Cut by [8110] Filled by (8103)
<i>INTERPRETATION:</i>	<i>Re-cut of [899] associated with erection of a post [8110] and its packing material (8103)</i>
(8109)	Loosely compacted dark grey organic 'peaty' deposit; no inclusions; extends 0.15m in diameter × 0.08m depth. Underlies (8103) Fills [8110]
<i>INTERPRETATION:</i>	<i>Organic fill of post hole [8110] representing the much degraded remains of the bottom of the post.</i>
[8110]	Circular cut; no corners; extends 0.15m in diameter × depth 0.08m; break of slope (top) sharp; sides vertical; break of slope (base) gradual; base flat; inclination of axis vertical. Cuts [8108] Filled by (8109) Contemporary with [8108] (8103)
<i>INTERPRETATION:</i>	<i>Late Iron Age/early Romano-British post hole</i>
(8111)	Moderately compacted light reddish brown silty clay; no inclusions; extends trench wide to a depth of 0.2m. Underlies (854) etc. and (874)
<i>INTERPRETATION:</i>	<i>Natural geology</i>
(8112)	Moderately compact mid-grey clayey silt; moderate pottery and animal bone; extends 5.7m (to extent of excavation) × 2.6m × 0.55m. Underlies (807) Overlies (8113) Fill of [8115]
<i>INTERPRETATION:</i>	<i>Upper fill of Roman ditch cut [8115] relating to a period of flooding post silting up of [8115]</i>
(8113)	Moderately compact dark grey clayey silt; moderate organic content, occasional pottery and bone; extends c.5.7m (to extent of excavation) × c.2.1m × c.0.6m. Underlies (8112) Overlies (8114) Fill of [8115]

Context	Description
<i>INTERPRETATION:</i>	<i>Middle fill of Romano-British ditch cut [8115]</i>
(8114)	Moderately compact dark greyish brown clayey silt; high organic content, occasional irregular stones; extends c.5.7m (extent of excavation) × c.1.5m × c.0.35m. Underlies (8113) Fill of [8115]
<i>INTERPRETATION:</i>	<i>Organic primary fill of Romano-British ditch cut [8115]</i>
[8115]	Linear cut; no corners; extends c.5.7m (extent of excavation) × c.2.6m × c. 1.5m; break of slope (top) sharp; sides irregular, water eroded near base; break of slope (base) sharp; base flat; oriented E/W. Cuts (812) Filled by (8112) (8113) (8114)
<i>INTERPRETATION:</i>	<i>Cut of Romano-British water management/ irrigation ditch</i>
(8116)	Moderately compact mid-grey clayey silt; occasional wood, very rare CBM flecks; extends c. 4.0m (extent of excavation) × 0.5m × 0.35m. Underlies (812) Fills (8117)
<i>INTERPRETATION:</i>	<i>Primary and only fill [8117]</i>
[8117]	Linear cut; no corners; extends 4.0m (extent of excavation) × 0.5m × 0.35m; break of slope (top) sharp; sides regular; break of slope (base) gradual; base concave; oriented E/W. Cuts (831) Filled by (8116)
<i>INTERPRETATION:</i>	<i>1st-2nd century Romano-British ditch of unknown function</i>

Table 60: Context table for trench 8

20.2.9 Trench 9

Context	Description
(901)	Moderately compacted dark brown clayey silt. No inclusions of archaeological significance. 0.2m thick.
<i>INTERPRETATION:</i>	<i>Topsoil</i>
(902)	Moderately compacted grey brown silty clay. Frequent green sandstone pebbles, includes land drain. 0.3m wide, visible length of 4.2m.
<i>INTERPRETATION:</i>	<i>Fill of modern land drain [903]</i>
[903]	NW/SE linear land drain cut. Sides at 45°, base slightly concave with sharp breaks of slope. 0.3m wide, visible length of 4.2m. Filled by (902).
<i>INTERPRETATION:</i>	<i>Cut of modern land drain</i>

Context	Description
(904)	Moderately compacted mid brown sandy silt. Frequent rubble inclusions. 0.4m-0.5m wide, visible length of 5.2m, 0.2m thick.
<i>INTERPRETATION:</i>	<i>Fill of gravel/rubble drain [905]</i>
[905]	NE/SW linear drain cut. Vertical sides, flat base with sharp breaks of slope. 0.4m-0.5m wide, visible length of 5.2m, 0.2m deep. Filled by (904). Cut by modern land drain [903]. Closely associated with culvert [907].
<i>INTERPRETATION:</i>	<i>Cut of gravel/rubble drain</i>
(906)	Two courses of irregular stone with no bonding material.
<i>INTERPRETATION:</i>	<i>Masonry structure of culvert [907]</i>
[907]	NE/SW linear drain cut. Vertical sides, flat base with sharp breaks of slope. 0.7m wide, visible length of 3.9m, 0.1m deep. Filled by (906). Closely associated with drain [905].
<i>INTERPRETATION:</i>	<i>Cut of culvert</i>
(908)	Moderately compacted red brown silty clay. Moderate to frequent stone inclusions, CBM and modern pottery. 1m wide, visible length of 8.6m, 0.35m thick.
<i>INTERPRETATION:</i>	<i>Fill of modern ditch [909]</i>
[909]	NE/SW linear ditch cut. Shallowly sloping sides, concave base with gradual breaks of slope. 1m wide, visible length of 8.6m, 0.35m deep. Filled by (908). Cut by modern land drain [903]. Parallel to culvert [907] and drain [905].
<i>INTERPRETATION:</i>	<i>Cut of modern ditch</i>
(910)	Moderately compacted light to mid brown clayey silt. No inclusions. 0.18m thick. Present below drain [905], culvert [907] and field drain [986].
<i>INTERPRETATION:</i>	<i>Subsoil</i>
(911)	Moderately compacted blue grey silty clay. No inclusions. 0.18m thick. Estuarine clays likely related to post Roman tidal incursions.
<i>INTERPRETATION:</i>	<i>Inundation deposit</i>
(912)	Same as (918).

Context	Description
<i>INTERPRETATION:</i>	<i>Same as (918)</i>
(913)	Moderately compacted dark brown sandy clay. Occasional to moderate inclusions of bone and pottery and occasional inclusions of stone and charcoal flecks.
<i>INTERPRETATION:</i>	<i>Late Romano-British levelling deposit</i>
(914)	Same as (918).
<i>INTERPRETATION:</i>	<i>Same as (918)</i>
(915)	Moderately compacted dark brown silty sand. Moderate inclusions of bone, pottery and charcoal. Dimensions of 6m × 4.7m × 1.4m.
<i>INTERPRETATION:</i>	<i>Late Romano-British levelling deposit</i>
(916)	Voided
<i>INTERPRETATION:</i>	<i>Voided</i>
(917)	Limestone of average 0.02-0.05m size, angular to sub-angular shape. Deposit dimensions of 0.7m × 4.4m × 2.2m. Collapse associated with wall (921).
<i>INTERPRETATION:</i>	<i>Rubble deposit</i>
(918)	Compact to very compact black to very dark grey sandy silt. Frequent (10%) charcoal pieces of 0.01m size, frequent pottery, occasional high status finds and occasional CBM. occasional small sub-angular to angular stones and rare medium to large sub-angular to angular stones. 4.5m in width, 5.2m in length and an average of 0.5m depth lensing out to 0.1m depth. The burnt nature of the deposit and pottery inclusions strongly suggests a building fire and, in particular, a kitchen fire. The material has been collected and dumped here as a levelling deposit.
<i>INTERPRETATION:</i>	<i>Levelling deposit</i>
(919)	Very compact red brown clay. No inclusions. 6m in width, 8m in length and 0.22m in depth. Redeposited Mercian Mudstone associated with wall (921).
<i>INTERPRETATION:</i>	<i>Redeposited natural</i>

Context	Description
(920)	Compact dark grey silty clay. Occasional small angular stones, frequent charcoal flecks, frequent pottery and occasional very small charcoal fragments. 0.7m-1m width, 4.8m length and 0.03m-0.05m depth. Destruction deposit associated with wall (921).
<i>INTERPRETATION:</i>	<i>Interface deposit between (918) & (922)</i>
(921)	W/E random coursed, rubble cored curvi-linear wall. Limestone between 0.4m and 0.1m size, sub-angular shape. Cob/clay bonding material. Wall of 0.9m width, 5.6m length and 0.5m height. W/E aligned with western end curving to north. Southern face of wall cut into redeposited natural (919). Northern face of wall more formalised, although not dressed they have been selected for purpose. Within wall cut [968].
<i>INTERPRETATION:</i>	<i>Wall</i>
(922)	Limestone generally small to medium in size and flattened in shape. Deposit width of 2m, length of 3.2m and depth of 0.05m. Stone spread/surface associated with wall (921).
<i>INTERPRETATION:</i>	<i>Stone spread/surface</i>
(923)	Limestone of widely varying sizes, shapes and angularity. Dimensions of deposit 3.8m x 2.6m with formalised edges although appears to be rubble dump.
<i>INTERPRETATION:</i>	<i>Rubble spread</i>
(924)	Fairly compact dark grey silty sand. Occasional small flat stones. 1.7m in length, 0.1m-0.2m in width and 0.04m in depth. Mostly water deposited and as such has carved own gully around stones (923). Earlier than gully deposit (925).
<i>INTERPRETATION:</i>	<i>Gully deposit</i>
(925)	Fairly compact grey to dark grey silty clay. Frequent small stones. 1.7m in length, 0.2m in width and 0.06m in depth. Mostly water deposited in own gully carved around stones (923) but in a distinct later phase to gully deposit (924).
<i>INTERPRETATION:</i>	<i>Gully deposit</i>
(926)	Loose dark grey coarse gritty silt. Frequent very small angular stones. 4.8m in length, 0.5m in width, 0.03m in depth. Debris accumulated against north face of wall (921).
<i>INTERPRETATION:</i>	<i>Accumulation deposit at N face of wall (921)</i>

Context	Description
(927)	Very compact red brown sandy clay. One large limestone slab deliberately placed upright. Deposit 0.83m in length, 0.45m in width and 0.2m in height. Appears comprised of cob material and bounded by wall (921) to south and limestone slab to north.
<i>INTERPRETATION:</i>	<i>Buttress or collapse of wall (921)</i>
(928)	Very compact red brown to dark grey sandy silt. Frequent large limestone blocks and small stones. Dimensions of deposit 1.8m in length, 1.4m in width and 0.35m in depth.
<i>INTERPRETATION:</i>	<i>Wall (921) collapse deposit</i>
(929)	Very compact red to dark brown clay. No inclusions. At least 1m in length, 2.6m in width and 0.73m in depth. Redeposited natural over ditch [967].
<i>INTERPRETATION:</i>	<i>Redeposited natural</i>
(930)	Fairly compact red brown to grey coarse sandy silt. Includes gritty lenses. Deposit at least 3.4m in length, 2.4m width and 0.2m depth. Distinct part of the general dumping/levelling material.
<i>INTERPRETATION:</i>	<i>Clearance deposit</i>
(931)	Very compact dark grey silty clay. Occasional charcoal flecks, rare CBM fragments. 0.95m in length, 0.9m in width and 0.18m thick. Singular fill of probable hedgerow ditch [935] parallel to ditch [938].
<i>INTERPRETATION:</i>	<i>Fill of hedgerow ditch [935]</i>
(932)	NE/SW orientated limestone ranging from 0.8m to 0.2m in size and randomly placed. 4.9m in length and 0.7m in width.
<i>INTERPRETATION:</i>	<i>Wall collapse</i>
(933)	Voided
<i>INTERPRETATION:</i>	<i>Voided</i>
(934)	Voided
<i>INTERPRETATION:</i>	<i>Voided</i>
[935]	NW/SE linear cut of probable hedgerow. Sides at 45°, horizontal base with undulations attributed to planting/rooting. Generally gradual breaks of slope. 0.95m in length, 0.9m in width and 0.18m in depth. Filled by (931) and (936). Parallel to ditch [938]. Part of irrigation system associated with [939].

Context	Description
<i>INTERPRETATION:</i>	<i>Cut of hedgerow ditch</i>
(936)	Fairly compact very dark grey to black silty clay. Frequent (70%) charcoal flecks, occasional charcoal fragments. 1.1m wide and 0.1m thick. Thin charcoal rich deposit within hedgerow ditch [935].
<i>INTERPRETATION:</i>	<i>Fill of hedgerow ditch [935]</i>
(937)	Moderately compacted dark grey gritty silty sand. Moderate pottery inclusions, occasional charcoal flecks, occasional small stones and occasional CBM. 0.45m in length, maximum 0.3m in width but generally 0.2m and 0.1m depth. Accumulated around base of wall (932).
<i>INTERPRETATION:</i>	<i>Accumulation deposit at base of stones (932)</i>
[938]	NE/SW linear cut of field drainage ditch. Near vertical sides, flat base with gradual and rounded breaks of slope. At least 1m in length, 0.8m in width and 0.42m in depth. Northern edge eroded where [938] meets [939]. Filled by (943), (944) and (945). Parallel to hedgerow ditch [935]. Part of irrigation system associated with [939].
<i>INTERPRETATION:</i>	<i>Cut of drainage ditch</i>
[939]	NE/SW curvi-linear irrigation ditch/canal. Near vertical sides with stepping on eastern side and water eroded undercutting on western side, flat base with rounded breaks of slope. 23m in length visible, 1.8m in width that narrows to 1.1m in one place, 0.85m deep. Suggested flow of water towards north. Filled by (946), (947), (948), (949), (950), (951), (952) and (954). Associated with drainage ditch [938] and its associated hedgerow ditch [935].
<i>INTERPRETATION:</i>	<i>Cut of ditch/canal</i>
(940)	NE/SW and NW/SE wall of limestone with at least two random course with no bonding material. Stones range from 0.2m to 0.1m size but are mostly robbed. Wall 0.4m in width and 0.2m in height. While this wall turns 90° it is clearly of one construction phase. Forms external wall to southern room floored with (941).
<i>INTERPRETATION:</i>	<i>Wall</i>
(941)	Limestone flagging with no dressing or bonding identified and of a single stone thickness. 6.4m by 2m wide. Internal paving of southern room defined by wall (940).
<i>INTERPRETATION:</i>	<i>Floor</i>
(942)	Limestone flagging with no dressing or bonding identified and of single stone thickness. 3.1m by 2.3m wide. Internal paving of northern room defined by walls (995), (996) and (997).

Context	Description
<i>INTERPRETATION:</i>	<i>Floor</i>
(943)	Very compact orange brown silty clay. No inclusions. 0.36m wide and 0.12m thick. Primary fill of drainage ditch [938], concentrated to northern edge and likely represents slumping material.
<i>INTERPRETATION:</i>	<i>Fill of drainage ditch [938]</i>
(944)	Very compact very dark grey clayey silt. No inclusions. 0.36m wide and 0.32m thick. Secondary fill of drainage ditch [938], likely a slumped fill.
<i>INTERPRETATION:</i>	<i>Fill of drainage ditch [938]</i>
(945)	Compact dark orange brown clayey silt. No inclusions. 0.55m wide and 0.24m thick. Tertiary fill of drainage ditch [938].
<i>INTERPRETATION:</i>	<i>Fill of drainage ditch [938]</i>
(946)	Fairly compact grey silty clay. No inclusions. 0.4m wide and 0.02m thick. Silted primary fill of ditch/canal [939].
<i>INTERPRETATION:</i>	<i>Fill of ditch/canal [939]</i>
(947)	Compact dark brown grey clayey silt. Occasional small to large limestone fragments. 0.5m wide and 0.25m thick. Western slumping deposit within ditch/canal [939], contemporary to eastern slump (948).
<i>INTERPRETATION:</i>	<i>Fill of ditch/canal [939]</i>
(948)	Compact dark brown to dark grey clayey silt. Occasional small stones. 0.55m wide and 0.2m thick. Contains lens of natural clay. Eastern slumping deposit within ditch/canal [939], contemporary to western slump (947).
<i>INTERPRETATION:</i>	<i>Fill of ditch/canal [939]</i>
(949)	Fairly compact to very compact very dark grey silty clay. Occasional small limestone fragments and occasional charcoal flecks. 1.1m wide and 0.2m thick. Secondary western slumping deposit within ditch/canal [939], contemporary to eastern slump (950).
<i>INTERPRETATION:</i>	<i>Fill of ditch/canal [939]</i>
(950)	Compact very dark grey silty clay. No inclusions. 0.42m wide and 0.2m thick. Secondary eastern slumping deposit within ditch/canal [939], contemporary to western slump (949).

Context	Description
<i>INTERPRETATION:</i>	<i>Fill of ditch/canal [939]</i>
(951)	Compact very dark grey silty clay. Occasional charcoal flecks and waterlogged bramble twig. 0.87m wide and 0.5m thick. Secondary/main fill of ditch/canal [939].
<i>INTERPRETATION:</i>	<i>Fill of ditch/canal [939]</i>
(952)	Compact very dark grey slightly sandy silty clay. Frequent charcoal flecks, occasional small stones. 1.45m wide and 0.32m thick. Final fill of ditch/canal [939].
<i>INTERPRETATION:</i>	<i>Fill of ditch/canal [939]</i>
(953)	Compact very dark grey to black silty clay. Frequent charcoal flecks, rare small charcoal fragments, occasional small to medium stones. 36m in length, 4m in width and 0.18m-0.22m thick. Uniform sealing deposit that probably originated as clearance material.
<i>INTERPRETATION:</i>	<i>Levelling deposit</i>
(954)	Fairly loose very dark grey to black silt. Frequent charcoal fragments. 0.5m in length, 0.25m in width and 0.2m in depth. Represents a small burnt deposit dumped within ditch/canal [939].
<i>INTERPRETATION:</i>	<i>Fill of ditch/canal [939]</i>
[955]	NE/SW linear drainage ditch. Sides at 60°, base unknown, gradual break of slope at top. At least 1m in length, 0.94m in width and 0.63m in depth. Filled by (963). Heavily truncated/re-cut by drainage ditch [956].
<i>INTERPRETATION:</i>	<i>Cut of drainage ditch</i>
[956]	NE/SW linear drainage ditch. Sides at 60°, flat base with gradual break of slope at top and rounded break of slope at base. Filled by (957), (958) and (959). Re-cut of drainage ditch [955] that effectively obliterates [955].
<i>INTERPRETATION:</i>	<i>Cut of drainage ditch</i>
(957)	Moderate to loosely compacted very dark grey silty clay. Frequent decayed plant matter and organic material partly preserved through waterlogging. 9.4m in length, 0.33m in width and 0.09m thick. Primary organic silted fill of drainage ditch [956].
<i>INTERPRETATION:</i>	<i>Fill of drainage ditch [956]</i>

Context	Description
(958)	Moderately compacted dark grey brown silty clay. Frequent plant material, occasional bone and pottery. 9.4m in length, 0.43m in width and 0.1m thick. Secondary organic silted fill of drainage ditch [956] that has also incorporated deposited waste.
<i>INTERPRETATION:</i>	<i>Fill of drainage ditch [956]</i>
(959)	Moderately compact brown grey (with pink mottles) clayey silt. Very occasional charcoal flecks and occasional organic material, occasional pottery. 9.4m in length, 0.66m in width and 0.17m thick. Tertiary fill of drainage ditch [956], likely an inundation deposit.
<i>INTERPRETATION:</i>	<i>Fill of drainage ditch [956]</i>
(960)	Very compact orange brown silt. No inclusions. 9.4m in length, 0.6m in width and 0.18m thick. Primary silting fill of ditch [962].
<i>INTERPRETATION:</i>	<i>Fill of ditch [962]</i>
(961)	Moderately compact pale grey clay. Moderate grit inclusions. 9.4m in length, 1m in width and 0.13m thick. Upper fill of ditch [962].
<i>INTERPRETATION:</i>	<i>Fill of ditch [962]</i>
[962]	NE/SW linear drainage ditch. Sides at 40° on eastern side, 75° on western side, concave base with gradual breaks of slope. 9.4m in length, 1m in width and 0.3m in depth. Filled by (960) and (961). Shallow re-cut of drainage ditch [956].
<i>INTERPRETATION:</i>	<i>Re-cut of drainage ditch [956]</i>
(963)	Moderately compacted grey brown silt. Occasional charcoal and organic plant matter. An average 0.38m in width and 0.18m thick. Primary fill of drainage ditch [955].
<i>INTERPRETATION:</i>	<i>Fill of drainage ditch [955]</i>
(964)	Loosely compacted dark red pure coarse sand. Occasional small stones. Dimensions of deposit 1.5m × 0.3m × 0.15m. Redeposition of (993), foundational material for wall (940), into top of ditch [956] by washing.
<i>INTERPRETATION:</i>	<i>Fill of drainage ditch [956]</i>
(965)	Compact very dark grey to black silty clay. Frequent small to medium limestone fragments, occasional large limestone fragments, frequent charcoal flecks and small charcoal fragments, occasional pottery, bone, glass and iron. At least 35m in length and 0.8m in width with a 0.3m thickness. Formed on northern side of wall (921), possibly during wall collapse/robbing.

Context	Description
<i>INTERPRETATION:</i>	<i>Wall collapse and midden deposit</i>
(966)	Compact grey brown silty clay. Frequent charcoal flecks. Deposit dimensions at least 2.4m wide and 0.34m deep. Between natural (983) and redeposited natural (919).
<i>INTERPRETATION:</i>	<i>Waste deposit</i>
[967]	W/E linear defensive enclosure ditch. Southern sides at 45°, northern sides at 20° at surface becoming 45° then near vertical to base. Base unknown but gradual break of slope at top. At least 3.23m in length, 1.3m in width and 1m depth. Filled by (970). Substantial ditch although could not be excavated fully due to depth.
<i>INTERPRETATION:</i>	<i>Cut of enclosure ditch</i>
[968]	W/E linear cut for wall (921). Near vertical sides, flat base with sharp breaks of slope. 3.2m in length, 0.8m in width and 0.7m deep. Filled by (987), (921) and (972). Truncated by trench cut [969].
<i>INTERPRETATION:</i>	<i>Cut for wall (921)</i>
[969]	W/E linear robber trench. Sides at 45°, undulating base with gradual breaks of slope. 6m in length, 2.2m in width and 0.35m depth. Filled by (971).
<i>INTERPRETATION:</i>	<i>Cut of robber trench</i>
(970)	Fairly compact vary dark grey organic silt. High organic component of 60%. At least 1m in length, 1.78m width and 0.34m thick. Only visible fill of enclosure ditch [967]. Likely laid down in an open water environment.
<i>INTERPRETATION:</i>	<i>Fill of enclosure ditch [967]</i>
(971)	Very compact red grey silty clay. Frequent limestone of varying size. 6m in length, 2.2m in width and 0.35m thick. Backfilling material of robber trench [969].
<i>INTERPRETATION:</i>	<i>Fill of robber trench [969]</i>
(972)	Fairly compact to soft compaction dark grey clayey silt. Occasional charcoal fragments and charcoal flecks, rare small stones. At least 6m in length, 0.44m in width and 0.2m thick. Backfill/packing material of wall foundation trench [968], deposited against wall (921).
<i>INTERPRETATION:</i>	<i>Fill of wall trench [968]</i>

Context	Description
(973)	Same as (911)
<i>INTERPRETATION:</i>	<i>Same as (911)</i>
(974)	Very compact mid brown clay. No inclusions. At least 0.15m in length, 1.36m in width and 0.2m thick. Lens of clay within infilling/clearance/levelling deposit in late Roman period.
<i>INTERPRETATION:</i>	<i>Lens within levelling deposit</i>
(975)	Compact very dark grey to black silty clay. Frequent charcoal fragments and charcoal flecks, occasional small to medium stones. At least 0.2m in length, 0.42m in width and 0.2m thick. Redeposited material for infilling/clearance/levelling in the late Roman period.
<i>INTERPRETATION:</i>	<i>Levelling deposit</i>
(976)	Fairly compact grey sandy silt. Frequent limestone of all sizes, rare pottery. At least 0.2m in length, 0.65m in width and 0.44m thick. Partly an infilling/clearance/levelling deposit and partly backfill of robber trench [969] with remains of wall (921).
<i>INTERPRETATION:</i>	<i>Levelling deposit / fill of robber trench [969]</i>
[977]	N/S linear roadside ditch to (985). Sides at 45°, base concave with sharp break of slope to top and gradual at base. At least 15m in length, 1.5m in width and 0.5m deep. Filled by (988) and (989). Associated with road (985) and eastern roadside ditch [990].
<i>INTERPRETATION:</i>	<i>Cut of western roadside ditch</i>
(978)	Compact grey mottled red brown clay. Frequent small angular clay nodules. Deposit 4.6m in length, at least 2.4m wide and 0.24m deep. Lens of redeposited natural.
<i>INTERPRETATION:</i>	<i>Redeposited natural</i>
(979)	Compact very dark grey to black silty clay. High organic component up to 80%, frequent charcoal flecks and occasional small stones. Deposit 3.8m in length, 1m in width and 0.18m in depth. Originates from a burnt deposit that has been dumped as infilling/clearance/levelling material.
<i>INTERPRETATION:</i>	<i>Levelling deposit</i>
(980)	Compact mid grey silty clay. No inclusions. Deposit 3.2m in length, at least 1m in width and 0.12m deep. Dump of infilling/clearance/levelling material.

Context	Description
<i>INTERPRETATION:</i>	<i>Levelling deposit</i>
(981)	Very compact dark grey silty clay. Occasional gritty patches, no other inclusions. Deposit 9.2m in length, at least 1.5m in width and 0.3m deep. Earliest levelling deposit above road (985).
<i>INTERPRETATION:</i>	<i>Levelling deposit</i>
(982)	Compact red brown grey clayey silt. No inclusions. Deposit 2.1m in length, at least 1.5m in width and 0.5m deep. Infilling/clearance/levelling material.
<i>INTERPRETATION:</i>	<i>Levelling deposit</i>
(983)	Natural geology.
<i>INTERPRETATION:</i>	<i>Natural – Mercian Mudstone Group, same as (998)</i>
(984)	Fairly loosely compacted mid brown silt. Frequent small to medium sub angular stones. 1.23m in length, 0.5m in width and 0.34m thick. Loose fill field drain [986].
<i>INTERPRETATION:</i>	<i>Fill of field drain [986]</i>
(985)	N/S orientated limestone surface of small to medium size with occasional large stones. Undressed but selected for purpose especially by size. 13.1m in length, 2.2m in width and 0.12m in depth. Associated with western roadside ditch [977] and eastern ditch [990].
<i>INTERPRETATION:</i>	<i>N/S road surface</i>
[986]	W/E linear field drain. Southern side at 45°, northern side uneven at 35°, rounded V shaped base with sharp break of slope to top and rounded at base. 1.3m wide and 0.34m deep. Filled by (984).
<i>INTERPRETATION:</i>	<i>Cut of field drain</i>
(987)	Compact grey clay. Occasional small stones. 6m in length, 0.65m in width and 0.2m thick. Primary fill and foundational layer of wall cut [968] prior to deposition of wall (921).
<i>INTERPRETATION:</i>	<i>Fill of wall trench [968]</i>
(988)	Compact dark grey clayey silt. No inclusions. 15m in length, 0.6m in width and 0.5m thick. Primary fill of western roadside ditch [977].

Context	Description
<i>INTERPRETATION:</i>	<i>Fill of roadside ditch [977]</i>
(989)	Fairly compact very dark grey silty clay with high organic content and vegetation. 15m in length, 0.5m in width and 0.5m thick. Secondary fill of western roadside ditch [977].
<i>INTERPRETATION:</i>	<i>Fill of roadside ditch [977]</i>
[990]	N/S linear roadside ditch to (985). Sides shallow with concave base, gradual break of slope to base but sharp at top. At least 15m in length, 1.5m in width and 0.5m deep. Filled by (991) and (992). Associated with road (985) and western roadside ditch [977].
<i>INTERPRETATION:</i>	<i>Cut of eastern roadside ditch</i>
(991)	Compact dark grey clayey silt. No inclusions. 15m in length, 0.6m in width and 0.5m thick. Primary fill of eastern roadside ditch [990].
<i>INTERPRETATION:</i>	<i>Fill of roadside ditch [990]</i>
(992)	Fairly compact very dark grey silty clay with high organic content and vegetation. 15m in length, 0.5m in width and 0.5m thick. Secondary fill of eastern roadside ditch [990].
<i>INTERPRETATION:</i>	<i>Fill of roadside ditch [990]</i>
(993)	Loosely compacted dark red brown coarse sand. No inclusions. 5.5m in length, 1.5m in width and 0.04m thick. Used as a foundational layer for wall (940) and potential path alongside wall.
<i>INTERPRETATION:</i>	<i>Foundational material for wall (940)</i>
(994)	Very compact red brown grey clay. 13.2m wide and 0.2m thick. Very similar to natural Mercian Mudstone and likely redeposited and used as foundational material for walls of building.
<i>INTERPRETATION:</i>	<i>Foundational material for walls (995), (996), (997) & (940) and trackway (999)</i>
(995)	NW/SE dry stone or cob, no dressing on stone. 3m in length and 0.4m in width. Mostly robbed out. Forms internal wall between rooms identified by floors (941) and (942).
<i>INTERPRETATION:</i>	<i>NW/SE wall</i>
(996)	NE/SW dry stone or cob, no dressing on stone. 3.3m in length and 2.3m in width. Mostly robbed out. Forms western external wall to northern room paved by floor (942).

Context	Description
<i>INTERPRETATION:</i>	<i>NE/SW wall</i>
(997)	NW/SE dry stone with no secondary dressing, no bonding material. Extensively robbed out. Forms northern external wall to northern room paved by floor (942).
<i>INTERPRETATION:</i>	<i>NW/SE wall</i>
(998)	Natural geology.
<i>INTERPRETATION:</i>	<i>Natural – Mercian Mudstone Group, same as (983)</i>
(999)	Compact grey silty clay. Frequent (80%) small to medium flattened angular stones, occasional charcoal flecks. 11m in length, 2.5m in width and 0.1m thick. Stones laid on redeposited natural (994) and natural (998) with silt between stones. Laid between and respecting building structure with floors (941) and (942) and ditch/canal [939].
<i>INTERPRETATION:</i>	<i>Trackway</i>

Table 61: Context table for trench 9

Appendix 21: Presentation and public engagement

(eds) *Science and archaeology, Glasgow 1987*. BAR British Series 196, 549-565.

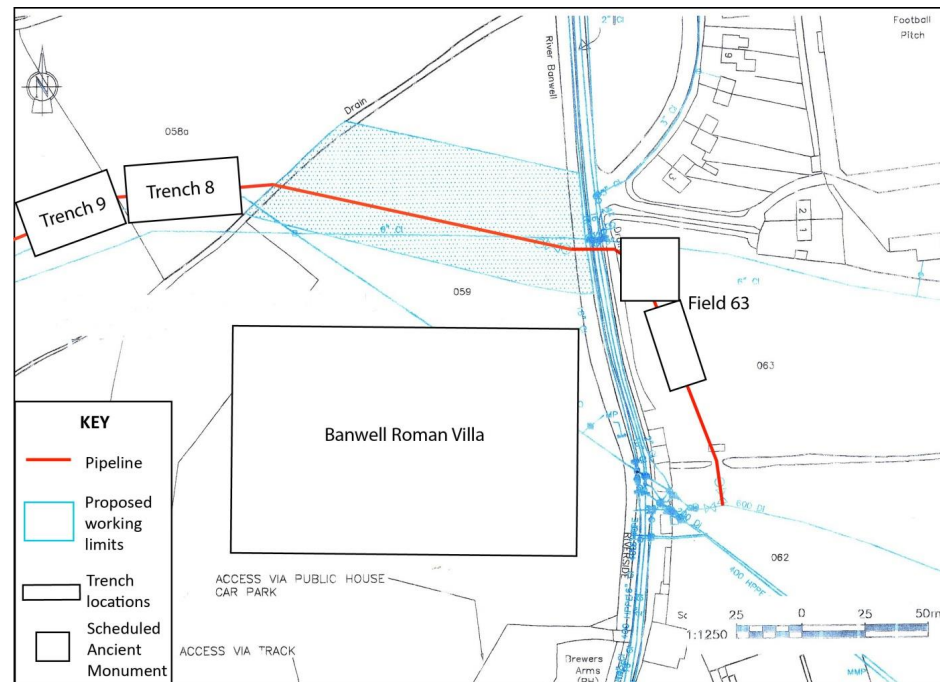
In the winter of 2012 two consecutive presentations were held in Banwell Village Hall to provide the local community with information of the findings of Border Archaeology’s excavation near the Roman Villa.

The slides used during the presentation can be found on the following pages.



Plate 27: Public presentation at Banwell Village Hall

Excavation and post-excavation analysis at Banwell, North Somerset



border
archaeology
unearth the past...resolve the future



Field **63**





Field 63



- Structural upright timbers were revealed in Field 63 in waterlogged deposits.
- Geoarchaeological results tell us these deposits were intertidal flooding episodes originating in the Severn Estuary
- Fen edge environment
- Radiocarbon dating has shown these timbers were erected during the Late Bronze Age – Early Iron Age transition (1000-800 BC)





- The species of wood exploited include:
 - oak
 - ash
 - field maple
 - hazel, birch
 - blackthorn
 - Maloideae (apple etc.)
 - elm
- Long straight stakes point to woodland management and coppicing, although no coppice heels were found.

- Evidence of artisanal activity was confirmed and included:
 - 2 bone (cattle and horse) chisel handles
 - A bone awl
 - A wooden anvil
 - Metalworking debris indicates the production of pins, a possible spearhead or ferrule and an axe or chisel
 - Ceramic modelling tool
 - Whetstones
 - Pottery



From top left clockwise: Wooden anvil, 2 bone chisel handles, ceramic modelling tool, shale bracelet, 3 pottery fragments

- Animal remains and a human humerus was found associated with these timbers



- Early Roman defensive ditch with rampart on east side, suggesting initial military occupation
- Shovel marks (top right) and footprints (bottom) preserved in clay



- Early defensive ditch reworked into a drainage ditch. Site focus shifts from military to domestic and agricultural.
- Parallel to the ditch was a well constructed sand surfaced road. Possibly associated with Banwell villa complex.
- Penannular brooch was found on the road surface and dates from the Late Iron Age to the early-mid Roman period





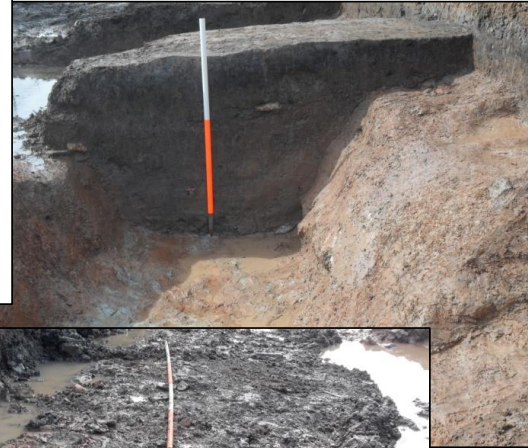
- Later Roman deposition of Black Burnished ware vessels

- Rapid accumulation of Roman agricultural soils



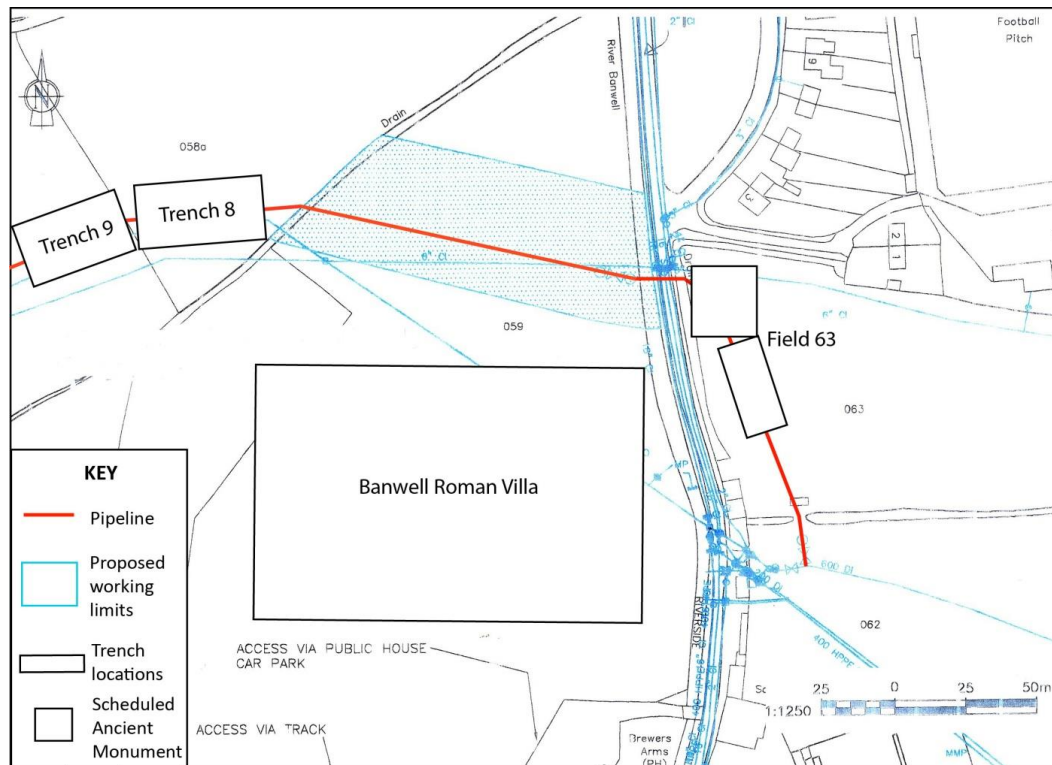


- Roman coastal defences fail in the post-Roman period and all sites show a flood layer.
- Agriculture returns in the medieval period with the presence of medieval horseshoes and plough marks. A probable pond is constructed although no traces were found of the documentary medieval fish ponds.



Trench

9



- Banwell Roman Villa dates to the 3rd & 4th century, as does much of Trench 9.
- Trench 9 revealed a Roman road heading north.
- Projected route of road would bring it alongside the western edge of a cemetery in Trench 8.



- Stone-built Roman road with parallel roadside ditches.
- Limited life span of road suggested by lack of cleaning of ditches; no repair of road surface.
- High-status T-shaped brooch of later 1st or 2nd C date dating broadly to the period during which the road was in use.

Drainage ditches



- Substantial ditch of 1.5m width.
- Water flowed north and has eroded and undercut the sides.
- Predominantly filled by slumping of the sides due to the water action.



- Smaller field drainage ditches feed into substantial ditch.
- Linked to Roman buildings by a trackway



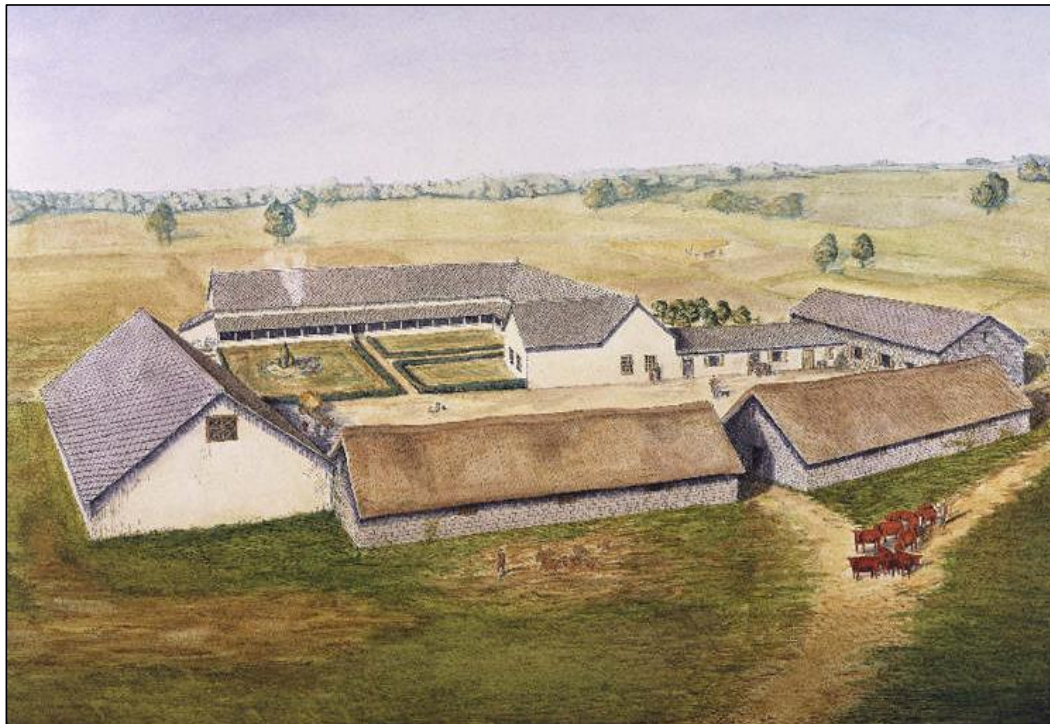
Roman building



- The remains of two rooms of a stone-built structure were revealed
- The walls and floor had been heavily robbed to extract the masonry for reuse elsewhere



What might the buildings have looked like?



- Single-storey structure
- Stone walls
- Flagstone floors
- No evidence for plastering or secondary floor surfaces
- Roof probably thatched

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Roman enclosures



- Substantial early ditch (the grey area at base of the photograph)
- A later wall (remains shown top right of photograph) respects the early boundary, although the ditch has been in-filled by this time



- Wall represents final enclosure feature on this alignment
- Associated stone surface may suggest a yard
- Wall is more a domestic boundary than a defensive structure
- Cob inclusions and repairs may suggest stone wall was actually a plinth for cob
- *Dupondius* or *As* minted during the rule of Faustina II (145-161 AD)

Later site clearance



- Rubble above early road and 'yard' indicated abandonment
- An extensive destruction deposit was identified containing a high frequency of charcoal, suggesting fire may have been a cause

- Finds from this rubble/debris suggest the fire may have broken out in a kitchen or food-preparation area
- These include a predominance of locally-made grey ware pottery, including a colander and *mortarium* (used for pounding or mixing foods and an important indicator of the spread of Romanised food-preparation methods) and a high-status dining spoon (left)



- Other high status items from this deposit include a complete tooth cog-wheel bracelet (centre)

Trench 8



- The earliest evidence in Trench 8 is a defensive double ditch, with a bank to the north. Pottery from these ditches dates to the later 1st C AD





- From the early 2nd C AD, the character of the settlement appears to have shifted from military to civilian
- Once the need to establish a strong military presence had passed, a settled villa-based agricultural community seems to have emerged
- This is indicated by evidence of ditches and hedgerows associated with a field system established to the north and west of the villa
- Evidence of cereal cultivation was recovered from the ditches. Charred remains of wheat, barley, pea/bean and fragments of marine shell provide evidence of a diverse diet.

- Lead-working waste was recovered suggesting small scale lead-working (right)
- A lead casting seems to have been made by the lost-wax method and may have been part of a figurine
- These finds suggest that small scale metalworking was undertaken within the vicinity of Trench 8



Cemetery Enclosure



- Enclosure ditch follows alignment of earlier ditches
- Cemetery area seems to have been in use from the mid 2nd C to the mid 5th C
- Disarticulated human remains found within the grave fills suggests the possibility of an earlier cemetery, subsequently disturbed by later burials

- Three, probably male, skeletons revealed in corner of cemetery enclosure
- Buried north/south, suggesting pre-Christian rites
- Interestingly, the earliest of the burials (right) was prone (face down) possibly symbolising this individual's 'outcast' status
- All were aged between 36 and 45 years



- SK3 was lying on poorly preserved wooden oak planks, possibly the remains of a coffin or, more likely, a bier.



- All three skeletons were C14 dated
 - SK1 – 230-389 AD
 - SK2 – 129-264 AD
 - SK3 – 325-466 AD
- The dental enamel from all three individuals indicated poor nutrition and/or disease in childhood and all showed typical patterns of wear and tear on joints
- SK2 suffered from back pain and had a fractured tooth either from biting something hard or a blow to the face.
- SK3 had 4 fractured ribs possibly from a fall or a blow to the torso



Schmorl's node – indicates the individual would have suffered from back pain

Conclusions

- Late Bronze Age – Early Iron Age transition artisanal activity
- Early Roman military occupation and defences
- An absence of evidence in the 2nd C apart from the ‘outcast’ burial in Trench 8
- Roman settlement commences in the 3rd C corresponding with the establishment of the villa
- A cemetery is situated adjacent to the Roman road
- Destruction of the settlement occurs in the 4th C
- Intertidal floods in the post-Roman period

Appendix 22: Bibliography

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Appendix 23: Archive

The total of the archive has been given in the report Archive Review (Border Archaeology Feb 2013), a summary is given here.

Item	No	Location
Context Records	386	Border Archaeology
Plans	146	Border Archaeology
Photographs	1417	Border Archaeology
Pottery	96kg	Border Archaeology
Small finds	135	Border Archaeology
Human bone	4 x boxes	Durham Archaeology Services
Animal bone	72kgs	Border Archaeology
Objects; wood	36 pieces	Border Archaeology ¹
Objects; bone	10	Border Archaeology
Metal working debris	1.3kg	Border Archaeology
Crucibles, metal working	1.2kg	Border Archaeology
Building Stone		Not retained
Quernstone	4 pieces	Border archaeology
Flint	42 pieces	Border Archaeology
Coin	9	Border Archaeology
Environmental Samples	3 x boxex	Archaeological Environmental Laboratories, Durham University

(Footnotes)

1 Includes coffin/wooden bier stored at Border