

## RAVENGLASS ROMAN FORT AND VICUS



### 'ROMANS IN RAVENGLASS' COMMUNITY ARCHAEOLOGY PROJECT SEASON1: 2013

### INTERIM REPORT

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## NON-TECHNICAL SUMMARY

During September 2013 York Archaeological Trust undertook a programme of excavation, fieldwalking and geophysical survey as part of the first of two seasons of investigations for the ‘Romans in Ravenglass’ community archaeology project at Ravenglass Roman fort and *vicus*. This is an Interim Report on the results of the 2013 investigations.

The excavations revealed evidence for an extensive *vicus* to the east of the fort, mostly in the form of timber buildings and industrial activity, including iron working. The geophysical survey provided further details on the *vicus* that were identified during a previous geophysical survey; details of the interior of the fort were also obtained. Fieldwalking, including the beach below the fort, produced little additional evidence of Roman activity.

After fieldwork in summer 2014, the results from both seasons will be drawn together in a single report.

## KEY PROJECT INFORMATION

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## 1 INTRODUCTION

This interim report provides the results of archaeological work undertaken in 2013 as part of a two-year community archaeology project at Ravenglass Roman fort and *vicus*. The project was commissioned by Lake District National Park Authority (LDNPA) and funded by the Heritage Lottery Fund, Copeland District and LDNPA. The project was managed by ArcHeritage, and involved staff from York Archaeological Trust (YAT), ArcHeritage and Northlight Heritage. The work was carried out in reference to a Capability Statement and Proposal compiled by the four regional offices of YAT (YAT 2012) and in accordance with a Brief supplied by LDNPA (Beavitt-Pike 2012).

## 2 SITE LOCATION AND SETTING

The site is located immediately south-east of the village of Ravenglass at NGR SD087959, and lies within the Lake District National Park. It is situated above the estuary of the River Esk (low cliffs mark the west edge of the site), and at the foot of the slope up to Muncaster Fell to the east. The area investigated included the Roman fort (SAM 13570) and adjacent bath house (SAM 13569).

## 3 METHODOLOGY

The archaeological excavations involved the excavation of three trenches by community volunteers, under the supervision of YAT staff. After the removal of topsoil by a small 360 degree excavator, archaeological deposits and features were recorded and excavated by hand using the YAT single context recording system.

Geophysical survey was undertaken by staff from Geophysical Surveys of Bradford (GSB); approximately 35ha were subject to magnetometry, with 5ha of this area also subject to resistance survey (Adcock 2013).

Fieldwalking was carried out by community volunteers under the supervision of a member of staff from ArcHeritage. This work involved a walkover of an area of beach below the fort 200m long (north-south) by a maximum of 20m wide. The area was subdivided into squares measuring a maximum of 20m square in order to locate any finds recovered. Several possible Roman features in the vicinity were also investigated.

## 4 ARCHAEOLOGICAL AND HISTORICAL BACKGROUND

The Roman fort and bath house were first explored during the 19<sup>th</sup> century, but the only excavation using modern recording techniques was undertaken along the western edge of the fort during the 1970s (Potter 1979). The eastern side of the fort (east of the Barrow to Carlisle railway line that bisects the fort) is visible as earthworks, and the western part of the bath house still stands to a height of about 2m.

Attention to activity in the *vicus* was raised by Mary Fair's examination of the area north of the fort during the first half of the 20<sup>th</sup> century. The current investigation of the possible *vicus* east of the fort was preceded by a geophysical survey carried out by a student at the University of Birmingham (Kaspar 2011). This survey identified probable strip buildings alongside a road

north-east of the fort, and other possible stone structures and various less identifiable features east of the fort.

## 5 RESULTS

### 5.1 Excavations

Three trenches, each 25m long by 4m wide, were excavated in order to evaluate the character and degree of preservation of the features identified in the possible *vicus* area east of the fort by the 2011 geophysical survey (Figure 1). In all three trenches post-medieval ploughsoil was found to directly overlie the archaeological deposits.

Trench 1 was intended to investigate the possible road running north-east from the Roman coastal road to Maryport and Hadrian's Wall, and part of the roadside settlement thought to lie along the north-west side of the road. The gravel and cobble remains of the road were identified at the south-east end of the trench, and towards the centre of the trench an L-shaped arrangement of large stone blocks was thought to represent the footings part of the sill wall forming the south-western half of the rear part of a timber-framed building (the north-eastern half lies beyond the limit of excavation). Within and around these walls were thick layers of cobbles, small stone fragments and slate, which appeared to have formed a bedding for the floors and external surfaces of the building. The front half of the building has still to be fully identified, but it appears to have been less substantial, resting on the subsoil, and there are no signs of stone bedding deposits. It is suspected that the rear part of the structure overlies a large pit or ditch, and the stone foundations and bedding deposits were laid down in order to form a solid base for the building. There appear to be no external deposits to the north-west of the building. The original ground surface slopes down to the north-west, and it seems that the lower-lying ground was too damp for occupation.

Trench 2 was located over some geophysical anomalies that were thought to indicate stone buildings, perhaps associated with the bath house to the west. However, the southern half of the trench was found to contain extensive sandy clay occupation deposits containing much charcoal and slag. There are indications that these deposits continue to a depth in excess of 200mm and would appear to be the result of prolonged, intense industrial activity. Post pads, postholes and several charred timber planks indicate the former presence of timber structures. A cobble spread to the north may have acted as a surface, as beneath it appears to be a finer cobble surface along with a line of stone blocks thought to be the foundations for a wall. It is not clear whether the wall and cobble surface are part of a building (perhaps the north end of a building associated with the occupation deposits), or a boundary wall and adjacent path. To the north of the wall and cobble spread, the deposits are wetter and more organic and merge into possible alluvial deposits, which suggest that this was a low-lying area, or perhaps a palaeochannel, and occupation there may have been limited.



**Plate : Trench 1: building foundations and external cobble surface, looking west**



**Plate : Trench 2: occupation deposits and post-holes, looking south-east**



**Plate : Trench 2: cobble surfaces and possible wall foundation, looking north-east**

Charcoal-rich clay deposits similar to those in Trench 2 were encountered in Trench 3. A circular clay feature is thought to have been the base of a clay oven. An L-shaped arrangement of clay-and-cobble walls, along with a similar wall but of limestone fragments, are provisionally interpreted as the sill walls of two timber buildings standing side-by-side, with their long axis north-south. Behind these buildings was a possible external cobble surface. These findings were at variance with the evidence for more scattered features indicated on the 2011 geophysical survey.



**Plate : Trench 3: wall foundations, looking north-north-west**

## 5.2 Geophysical survey

The magnetometer survey produced a number of significant results (Adcock 2013). Contrary to the variable anomalies identified in the 2011 survey, the features in the *vicus* east of the fort appear more consistently as rectangular stone buildings, with at least one internal street; this part of the *vicus* extends up to 150m to the east of the fort. A possible main road has been identified exiting the east gate of the fort and continuing eastwards beyond the *vicus* before turning south-east. The buildings north-east of the fort are aligned on a main road running east-north-east, confirming the findings of the 2011 survey; the resistance survey shows the road clearly, as well as several probable side roads. This roadside settlement extends up to 200m from the presumed junction with the main north road. In addition, the main east-north-east road was seen to be continuing beyond the *vicus* zone on to the higher ground and presumably forms the road to Hardknott fort. Magnetic anomalies immediately north of the fort support the view that the *vicus* extended north of the fort along a road heading north towards Hadrian's Wall.

An interesting feature on the slopes east of the *vicus* is represented by strong magnetic anomalies and the faint signal of a rectangular building in the resistance data. Also of note in this area is a linear anomaly immediately south of the modern boundary separating the two fields that form the major part of the fieldwork; there is anecdotal evidence that a lead pipe was unearthed in this vicinity, and it is speculated that it piped water from a spring on the higher ground down to the bath house.

North of the fort, there is some evidence that roadside settlement extended along the presumed main north road for at least 200m

Within the fort, two pairs of barrack blocks aligned north-north-west/south-south-east have been identified on the eastern side. Between the barracks and the railway line, the principia and another structure in the central administrative range are visible. The negative magnetic anomalies are interpreted as stone wall foundations. The central building appears to be on a slightly different alignment to the rest of the fort, suggesting that if it is the principia there had been some sort of re-organisation of the fort at some point; alternatively it could denote a feature not associated with the fort, perhaps the Hadrianic fortlet instead. A strong linear response adjacent to the ramparts in the resistance survey is interpreted as the intervallum road.

## 5.3 Fieldwalking

The fieldwalking comprised two elements: a walkover of the study area and a study of artefacts on the foreshore below the fort.

The walkover was intended to assess the character of the landscape and to identify any earthworks and monuments that might be relevant to the project. Some earthworks were identified in the area of the *vicus*. Some probably represent modern field boundaries, but others may relate to the Roman *vicus* and associated roads. Several possible Roman features were investigated.

The aim of the foreshore survey was to determine whether this method could be used to identify erosion of archaeological material from the cliffs. The beach below the fort was divided into ten 20m squares and systematically fieldwalked to recover artefacts. Some

squares walked were only 10m wide where tide levels reduced the effective working area. Material, mostly pottery and ceramic building material, of a wide date range was recovered, sufficient to suggest that this method could be used to identify archaeological sites along the coast (in addition to the fort) in the study area.

#### 5.4 LiDAR

An area of approximately 12 square kilometres of LiDAR data centred on Ravenglass has been obtained for research purposes. A cursory examination of the site suggests that topographical features, including the small valleys running down to the sea that dissect the coastal landscape, are visible and will assist with the interpretation of the Roman land use. Archaeological features, while subtle, may still be able to be detected once the data has been examined in greater detail; however the south edge of the fort platform is clearly visible in this data.

## 6 FINDS DISCUSSION

### 6.1 Pottery summary by P Bidwell

#### 6.1.1. Introduction

This is a general assessment of pottery from the 2013 excavations in the area of the military *vicus*. It includes spot-dating of pottery from the stratified Roman contexts and a general dating of the assemblage as a whole, looking at the date of the pottery from post-Roman contexts as well. There are also comments on a few vessels of particular interest. Finally, there are observations on the research potential of the pottery.

The condition of the pottery is variable. As might be expected, many of the sherds from the topsoil are heavily abraded; much of the samian is soft and weathered.

Context	Spot-date AD (tpq)	Comments
1008	225	Nene Valley colour coat. Grey wares
1012	125	BB1 (this context not on list sent to me)
2002	190	BB1, Mancetter-Hartshill mortarium (more than one?) with reeded rim (190-250)
2003	125	BB1, burnt samian Dr 37 (Hadrianic-Antonine?)
2007	?	Not closely datable
2013	220	Sherds from a BB1 cooking pot with obtuse-angled lattice, not before c. 220
3002	125	BB1, samian Dr 18/31, CG (Hadrianic-early Antonine?)
3004	2nd cent	'Cut-glass' technique samian (Hadrianic-Antonine)
3005	190?	Sherd of Mancetter-Hartshill mortarium, from same vessel as in 2002? (if not, can only be dated 130+)
3007	125	BB1
3008	120	Dr 37, decoration well-preserved, Hadrianic-early Antonine
3009	?	Not closely datable

3013	?	Sherds from Dressel 20 amphora (1st-3rd cent.)
3014	?	Not closely datable
3015	140	BB1 plain-rimmed dish
3030	125	BB1
3039	190	Mancetter-Hartshill mortarium, same vessel as from 2002 and 3005?
4007	?	Not closely datable
4018	270	BB1 flanged bowl, in N England this type is not found in contexts earlier than c. 270

**Table : Spot-dating of pottery from stratified Roman contexts**

### 6.1.2. *The date and character of the overall assemblage*

Much of the pottery was from contexts also containing medieval and post-medieval pottery. Its general character is similar to that of the pottery from Roman contexts listed above: most is datable to the 2<sup>nd</sup> and 3<sup>rd</sup> centuries AD and represents a similar range of sources. All the amphora sherds were from Dressel 20s, from southern Spain; there were many fragments of Mancetter-Hartshill mortaria and a few sherds from mortaria made in the North-West; fine wares consisted of samian ware (often in poor condition) and a single sherd of a Moselle beaker of 3<sup>rd</sup>-century date. The other coarse pottery was mainly BB1 and grey wares, the latter local, or at least north-western products; there were some oxidised-ware sherds, which generally represented flagons or storage jars. The post-Roman deposits contained a few sherds which were later than the pottery from Roman contexts, as follows:

BB1 flanged bowls from contexts 2001 (2 examples) and context 3001; all are in the standard BB1 fabric from south-east Dorset. There was a stratified example from context 4018. In northern England the type first appears in c. AD270, but the presence of four examples in a fairly small assemblage suggests that occupation of the site continued until well into the last quarter of the 3<sup>rd</sup> century AD.

Possible Lower Nene Valley colour-coated ware dish: the sherd (from context 4004) is abraded and its identification is not certain. If it was one of these dishes, it would probably date to the last quarter of the 4<sup>th</sup> century AD.

Entirely absent is the usual range of 4<sup>th</sup>-century pottery which has previously been retrieved in large quantities from the fort: calcite-gritted ware, Crambeck grey ware, and, though less commonly, Crambeck parchment ware. This suggests that occupation had ended by about the beginning of the 4<sup>th</sup> century; the possible colour-coated dish would be associated with transient activity connected with the fort, which remained in occupation until the end of the Roman period. On the basis of the small assemblage examined here, the military *vicus* at Ravenglass conforms to the usual pattern of abandonment in the later 3rd century seen at many (but not all) of these settlements in northern England.

### 6.1.3. *Vessels of particular interest*

A Dressel 20 amphora from context 2001 has a graffito cut on its rim, probably a number. There were a surprisingly large number of sherds from Mancetter-Hartshill mortaria of the same 3<sup>rd</sup>-century type (contexts 1000, 1001, 2001, 2002, 3005 and 3039); future work on the

site might show whether their occurrence is related to activities in this area. The only recognisable oxidised-ware vessel, apart from flagons and storage jars, was a campanulate bowl from context 2001.

#### 6.1.4. *The research potential of the Ravenglass pottery*

Very little pottery has been published to modern standards from military sites in Cumbria to the south of Hadrian's Wall. There are no large quantified groups and there has been no systematic examination of fabrics. The work at Ravenglass will be an opportunity to begin to fill this gap in knowledge.

Two aspects of Ravenglass which are of particular interest from the point of view of ceramics are:

- the presence nearby of the Muncaster (Park House) kilns (Welsby 1985) which served Hardknott (Bidwell *et al.* 1999, 93-6) and Ravenglass (Lockwood and Turner 1979, 118-200). A sherd which was probably from the Muncaster kilns was recognised in context 1001
- the maritime position of Ravenglass with sheltered landing places in its nearby river estuaries. Larger quantities of imports than on inland sites should be expected. A sherd of African Red Slip ware has been recorded from the beach below the fort.

## 6.2 **Ceramic building material summary** by JM McComish

Abundant ceramic building material (CBM) sherds were recovered from the site, which were rapidly examined to determine the overall character of the material.

For the most part these sherds are badly fragmented and highly abraded. The overwhelming bulk of the sherds are of light orange fabrics. Unfortunately, very few of these sherds are large enough to determine the original form, the exceptions being tegulae in contexts 2001 and 2002. Given the highly abraded nature of the light orange fabric sherds it is highly likely that they all are of Roman date. Some stone fragments are also present which probably originated from stone roof tiles. The largest item was a pedalis brick from context 2004 (broken into three sherds) which weighed 2575g and measured 295mm wide and in excess of 290mm in length. This had been broken into a pentagonal shape after manufacture, though whether for a deliberate purpose or accidentally is impossible to determine. In addition, there is a small quantity of modern brick in GS3 and GS8.

Detailed examination and recording of the material should be undertaken at the full assessment stage, to quantify the volume of material present in the various contexts/zones of the site, to identify any variations in fabric, and to determine if there are any other sherds which can be more closely identified by form. It is unlikely, however, that much of this collection would merit long term retention.

## 6.3 **Small finds summary** by N Rogers

The material from all three trenches was generally very similar: Roman personal objects, such as jewellery and gaming counters were found across these trenches, as were post-medieval objects which mainly comprised buttons and tobacco pipe fragments, but also included lead

shot, and a possible writing slate fragment. Quantities of Roman and post-medieval glass similarly were recovered from all the trenches. The other material recovered mainly comprised undatable structural metalwork, with occasional tools. A Roman coin was also found in Trench 2, and a probable Roman steelyard weight in Trench 3. A possible fragment of beehive quern base was also recovered (J Cruse pers. comm.).

Amongst the material from the fieldwalking deposits were three probable Roman coins, and a 10p piece dated 2005, as well as modern nails and screws, and post-medieval glass. Structural ironwork was also recovered, and over 50% of the lead alloy finds from the site came from these deposits, the majority of these being spillages and scraps from lead alloy working. The majority of artefacts from fieldwalking (on the beach) appear to be of recent date.

The occurrence of Roman objects in all three trenches, particularly personal objects, supports the identification of the *vicus* in this location; further excavation is likely to produce a fuller picture of the site in this period. It is also interesting to note that apart from the Roman objects, and the 18<sup>th</sup> – 20<sup>th</sup> century objects, no other datable material was identified.

#### 6.4 Environmental sample summary by C Innes

A total of sixteen 10-litre tubs of deposits (one from Trench 1, four from Trench 2 and eleven from Trench 3) were taken in order to assess the presence of environmental material. Charcoal and animal bone were present in all three trenches, as well as a little shell in Trench 2. It is likely that bone and charred material is preserved despite the acidic conditions and periodic waterlogging. It should also be borne in mind that organic material could be preserved should anoxic conditions prevail in deeper, waterlogged deposits.

Metal was found in most samples, along with pottery and ceramic building material. Sampling will probably be of use in recovering smaller artefacts such as coins, as well as metalworking products including hammerscale.

## 7 CONCLUSIONS

The excavations demonstrated that similar activity occurred in all three trenches during the Roman period, namely industrial and domestic activity within and around probable timber strip buildings alongside various roads and streets. The deposits in Trenches 2 and 3 were of a greater volume and higher complexity than expected. Metalworking, primarily of iron but perhaps also of lead, was the main form of industrial activity. The presence of Roman coins and various types of Roman pottery, including imported fine wares, seems to reflect the relationship with the fort garrison and the adoption of Roman goods. The pottery indicates that these parts of the *vicus* went out of use towards the end of the 3<sup>rd</sup> century.

The excavations were restricted to the uppermost part of the Roman levels in each trench. Consequently little can be said regarding any earlier Roman or pre-Roman activity, including the date of the establishment of these parts of the *vicus*. It will only be possible to achieve Objective A3 of the proposed 2014 fieldwork (see below) by excavating selected parts of Trenches 2 and 3 down to the natural subsoil.

The geophysical survey confirmed the basic picture provided by the 2011 survey regarding the probable extent of the Roman activity in the fields east of the fort. Furthermore, it suggested that, instead of there being areas of different activity indicated by the 2011 survey, primarily

there were buildings fronting onto streets across much of the site; these latter findings are supported by the excavation evidence. A possible enclosure south of Area 1 could pre-date the *vicus* along the main road running east-north-east there, but otherwise it is difficult to identify any phases of activity in the *vicus*. Also of note was a possible rectangular building, possibly associated with metalworking, on the slopes east of the *vicus*.

It does seem likely that the road running east-north-east in Area 1 is the main road to the forts at Hardknott and Ambleside, and also to the Muncaster/Park House tile and pottery works. In addition, it is suspected that the north-south alignment of the buildings observed in Trench 3 is due to the presence of a road immediately to the south that runs eastwards from the east gate of the fort for c.200m before turning south-east. It is possible that this was the main south road, which could not exit directly from the south gate due to presence of a steep ravine about 50m south of the fort.

The evidence of the geophysical survey suggests that more of the interior of the fort survives than had previously been supposed (Potter 1979, 4-5). Certainly the Roman deposits and features in the western part of the fort were largely undisturbed, judging from the results of the 1970s excavations.

It seems that four large barrack blocks (or four pairs of smaller blocks) occupied the east end of the fort, with long axes along the width of the fort. The evidence from the 1970s excavation suggest that there were six barrack blocks in the west end of the fort, with their long axes along the (east-west) length of the fort. The likeliest explanation for this layout is that the large blocks at the east end are for four cavalry *turmae*, each of thirty horses, with the smaller blocks at the west end for an infantry cohort. This is the typical composition of an *equitata* cohort (standard infantry cohort but with additional cavalry). The diploma of 158 also suggests the presence of an *equitata* cohort at the fort (Holder 1997:15).

Apparently without exception, barracks with long axis along the length of the fort are found at the front (*praetentura*) of the fort (Bidwell 2009, 156). If this were the case with Ravenglass, the front of the fort would be to the west, facing the sea. This view is supported by evidence from the 1970s excavation, where it is suggested that the north gate (and by implication the *via principalis*) lies towards the west end of the fort (Potter 1979, 19). However, this interpretation is contradicted by earthwork survey evidence that the north and south gates lay towards the east end of the fort (RCHME 1998, 13-15: Figure 3).

The interpretation of the central range of buildings is difficult as more than one phase of activity may be involved, but it seems that there is a *principia* in the expected position in the centre of the fort. It is possible that the irregular layout of this building reflects some associated with the fortlet phase that preceded the fort, but this would require that feature to have been either a rectangle or a double cell enclosure, both unlikely.

## 8 PROPOSED 2014 FIELDWORK

The following proposals have been made to guide the planning phase of the second season of fieldwork:

**A) Continue excavating Trenches 1-3.** The main objectives are:

- 1) to confirm the layout of the buildings
- 2) to characterise the activity within these buildings
- 3) to investigate any activity preceding these buildings

**B) Excavate an additional trench, measuring up to 20m by 2m maximum, across the possible east road** (see Figure 1, Trench 4). The objectives for this are:

- 1) to determine whether this geophysical feature is a Roman road
- 2) to provide an accessible resource for school groups wishing to undertake excavation

**C) Repeat the on-site environmental sample processing component**

- 1) to provide further training opportunities for volunteers
- 2) to inform the environmental sampling strategy for the 2014 season

**D) Fieldwalking of the beach north and perhaps south of the fort**

- 1) to identify the presence of roadside settlement towards the coast
- 2) to assist with the monitoring of erosion of archaeological features

**E) Record any earthworks and features of note in the fort and vicus area**

- 1) to provide a basic record of such earthworks and features
- 2) to determine their relationship (if any) with the Roman activity in the area

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10 FIGURES



Figure : Trench location and geophysical survey results (Trench 4 is proposed for 2014)

## **APPENDIX 1: CONSERVATION ASSESSMENT** by L Vere-Stevens

### **AIMS AND OBJECTIVES**

This report aims to meet the requirements of MAP2 (English Heritage, 2001) and 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.

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.

### **PROCEDURES**

73 metallic recorded finds (with the exception of Lead alloy) and x1 jet find were X-rayed using standard Y.A.T. procedures and equipment. 14 plates were used, and each plate was given a reference number in the YAT conservation laboratory series (x8279, x8281, x8282, x8283, x8284, x8285, x8286, x8287, x8288, x8289, x8290, x8300, x8301, x8302). The X-ray number was written on each small find bag. Each image on the radiograph was labelled with its small find number. The plates were packaged in archival paper pockets. The X-ray plate number was added to the Online Photo Archive (image to be scanned in at a later date) and linked to each find record on IADB.

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. These are recorded in the Conservation Work Record on IADB, the information can be printed out through SQL Query. Tables can be printed by material type (using ASSESS Query).

A number of finds had their material categories altered after assessment; Sf100 labelled as pyrites is suggested as being a mineralised mass with silica inclusions and is recommended for disposal?, Sf76 and Sf84 are silver coins not copper Alloy and nails Sfs 40 and 90 are copper alloy not iron. Sf 64 was categorised as tin and has now been assessed as copper alloy with a possible tinned surface. Sf 11 is composed of lead and iron, there is also a lead object within the group of finds in Sf26, this has now been bagged separately within the assemblage for ease of removal. Sf70 is iron and not lead as previously thought.

All the finds that were noted as being coins at the time of assessment were weighed, the weight was written on each small find bag and added to the record on IADB.

Number of artefacts: **96**

Material	Quantity
Iron	55
Copper Alloy	15
Silver	3
Lead Alloy	20 (one object bagged with Sf26)
Jet	1
Glass	1
Miscellaneous (originally labelled as Pyrites)	1

### CONDITION ASSESSMENT SUMMARY

**Iron:** The iron was covered in silt/soil with inclusions (charcoal, stones and white minerals) which obscured surface layers. A powdery orange coloured corrosion layer was visible beneath the soil crust at points throughout the majority of finds. The corrosion products may have mineralised and preserved adjacent organic remains (for example possible MPO's were noted on Sfs 1, 6, 10, 12, 32, 47 and 48). But the outer deposits obscure most surfaces and therefore only partial investigative cleaning would expose any remains. The iron shows severely mineralised outer surface areas and in most cases mineralised cores, however most finds are magnetic. As long as the RH is maintained below 15%RH these excavated objects should remain stable for the long term.

**Copper alloy:** The copper alloy was in a generally poor condition and active corrosion and fragile structures were noted on four finds which have been recommended for stabilisation treatment (Sfs 37, 41, 62, and 73). The site is an aggressive environment for copper alloy finds. Store dry at <35%RH.

**Silver:** The silver finds (Sfs 46, 76, 84) were thinly covered in silt and silver halide corrosion products. It is likely that there is intergranular corrosion and embrittlement to structures. The material is fragile but should remain stable if stored at <35%RH.

**Lead alloy:** The lead alloys finds show signs of instability throughout surfaces, with localised white powdery corrosion products and requires dry storage.

**Jet:** The jet bead (Sf 101), displayed silt within interstices, was dry, stable and ready for long term storage.

**Glass:** The glass find (Sf 103) is dry, stable and ready for long-term storage.

**Miscellaneous:** One find Sf100 was labelled as being pyrites, but was assessed to be a piece of mineralisation with silica inclusions and has been recommended for disposal.

### STATEMENT OF POTENTIAL

This report was written without detailed contextual analysis; however the following information may be of use:

*Indicators of preservation*

The corrosion reflects well-aerated deposits; there were no indicators of exceptional preservation, none of the visible corrosion products indicated anaerobic conditions and an active powdery corrosion was noted on many of the iron, copper alloy and lead finds which suggest that the site appears to be quite aggressive to these materials.

*Dating evidence*

There are a number of coins which are recommended to be seen by a numismatist. Initial examination here suggests mixed dates from the site as there were modern (Sf 87 context 4016) and four provisionally dated Roman coins (Sf37 context 2001, Sf 73 context 4018, Sf 76 context 4014 and Sf 84 context 4000). Sfs 38 and 44 require further investigation to confirm if they are in fact coins.

*Evidence of technology, craft or industry or anything else of note*

**Tools:** One find (Sf83) is suggested as being a file fragment but requires further investigation to confirm this.

**Metalworking:** The presence of slag within some of the grouped small finds (Sf 30 context 1008, Sf 36 context 2000 and Sf104 context 2001) has been derived from high temperature processes. The majority of the lead alloy finds viewed within this assessment were pieces of scrap which could indicate metalworking activity.

**RECOMMENDATIONS***Further investigative conservation*

Investigative conservation is proposed only if the contexts merit further work in line with research objectives. These recommendations should therefore be reconsidered following the results of the 2014 fieldwork and assessment. All material will be sufficiently stable until the 2014 fieldwork is complete.

SF	Material	Aim
1	Fe	Cross section to aid identification
3	Fe	Cross section to investigate decorative bands
6	Fe	Cross section to aid identification
9	Fe	Cross section of rove end?
12	Fe	Cross section to investigate form and MPO?
13	Fe	Cross section to aid identification
14	Fe	Cross section to aid identification
28	Fe	Possible knife: cross section to aid identification
30	Fe	X2 cross sections of rod finds to aid identification
32	Fe	Cross section of structural fitting
37	Cu Al	Unstable, requires stabilisation treatment and consolidation.
38	Cu Al	Investigate form to aid identification: noted as being a coin but not confirmed at time of conservation assessment.
41	Cu Al	Stabilise
44	Cu Al	Investigate form to aid identification: noted as being a coin but not confirmed at time of conservation assessment
47	Fe	Investigate cross section to clarify form and aid identification
48	Fe	Investigate MPO
56	Fe	Possible knife: investigate cross section
58	Fe	Cross section of chain, cross section of bar find
62	Cu Al	Clean, stabilise and XRF of gold coloured surface.
68	Fe	Possible knife: investigate cross section
69	Fe	Possible key: investigate cross section
70	Fe	X-ray, originally classes as Pb and not x-rayed at time of assessment.
73	Cu Al	Clean and stabilise
83	Fe	Possible file fragment: investigate cross section

There are a finds that have been recommended for disposal: Sf 100 which appears to be a mineral mass with shiny silica inclusions, and part of other Sfs which include modern material that could be disposed of ie Sf 77 (which incorporates x2 modern nails and a map tack, and part of Sf80, Sf88, Sf99 which includes modern nails and Sf 87 which is a modern 10pence piece.

### *Analysis and specialist support*

The following actions are recommended, to be arranged after the investigative conservation has been completed:

The coins (Sf37, Sf73, Sf76 and Sf 84) should be viewed by a numismatist.

- XRF: X-ray fluorescence analysis could be carried out on one find (Sf62), if required for research.
- Species ID: of possible Mineralised Organic Remains on Sfs 1, 6, 10, 12, 32, 47 and 48

### *Packaging and long term storage*

All metal finds were well-packed in suitable sealed containers to provide the appropriate desiccated environments. The non-metal finds are now stored within a clear plastic crystal box.

All materials used are archive stable and acid-free. The metal finds should be stored in a desiccated environment at less than 15%RH. The desiccated environment will need to be maintained.

### **REFERENCES**

*English Heritage, Management of Archaeological Projects, 1991.*

*English Heritage, Management of Research Projects in the Historic Environment, 2006.*



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