
NORTH PENNINES ARCHAEOLOGY LTD

Project Designs and Client Reports No. CP/705/08



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EXECUTIVE SUMMARY

During June 2008, North Pennines Archaeology Ltd undertook an archaeological field evaluation on land at The Village Hall, Burgh-By-Sands, Cumbria (NGR NY 3261 590.) The work was commissioned by Malcolm Bell on behalf of the Village Hall Committee, in order to fulfil an archaeological evaluation brief issued by English Heritage. This followed a planning application to Carlisle City Council for an extension to the existing building at the site. The Village Hall lies in an archaeologically sensitive area and is located within the Visual Envelope of Hadrian's Wall and Vallum.

As a result, English Heritage and Cumbria County Council Historic Environment Service (CCCHES) recommended an archaeological evaluation be undertaken, in accordance with an English Heritage brief, and a Written Scheme of Investigation submitted to, and approved by, English Heritage and CCCHES. The focus of the evaluation was to determine the presence or absence of archaeology and to produce a predictive model of any surviving archaeological remains. Within this focus was the consideration that the land also lies to the south of the line of Hadrian's Wall Vallum, a short distance from the south of the Wall itself, as well as being located close to the site of the Roman Fort at Burgh- By-Sands.

The village of Burgh-by-Sands, situated on the line of Hadrian's Wall and Vallum, has a diverse archaeological history. The Roman remains within the village have been the focus of many studies since the mid 19th century. Until recently, these gave the Roman fort and its associated extramural settlement an enigmatic quality as no modern open area excavations had been undertaken. The precise line of the Vallum has been confirmed at both ends of the village during excavations carried out by the Central Excavation Unit (CEU) between 1978 and 1989 (Austen 1994). However the exact line of the Vallum inside the village has hitherto not been confirmed.

Two evaluation trenches were excavated, to the south of the Village Hall (Trench 1 and 2). The results of the evaluation failed to locate the Vallum or any of its associated features (South and North Mounds, etc) within the evaluation trenches. However, the evaluation did reveal substantial and well-preserved deposits of archaeological significance dating from both the Roman period and the post-medieval period.

In Trench 1 the archaeological evidence for the Roman period comprised two occupational layers which contained significant amounts of well preserved organic remains, suitable for environmental analysis. Specific archaeological features consisted of two linear features, [103] and [107], from which Roman pottery dating from the mid 2nd century AD was recovered, as well as a small pit [105]. The post-medieval period was largely characterised by the presence of a field drain which show that the land had suffered from drainage problems. No dating was obtained from the field drain.

In Trench 2 the archaeological evidence from the Roman period comprised again, two occupational layers. No specific features were encountered. However, Roman pottery dating from the mid 2nd century AD was found within both the occupational layers. More interestingly, within the upper rubble layers of Trench 2, three Roman masonry blocks were observed and recorded. These blocks seemed to have been deposited within the rubble and suggest that they were used as a hardcore for the car park during its construction, in the late 1980's. The origin of these blocks is unknown, but the design and intricate detailing of them suggests that they may be associated with substantial stone buildings from either the nearby Roman Fort in Burgh or the *vicus*.

EXECUTIVE SUMMARY

The analysis of this data will inevitably provide new and important information for the Roman occupation of Burgh-By-Sands, which may be amalgamated with the body of evidence that has already been compiled, to produce a much-enhanced picture of the land surrounding the fort and associated civilian vicus.

ACKNOWLEDGEMENTS

North Pennines Archaeology Ltd would like to thank The Village Hall Committee for commissioning the project, and for their assistance throughout the fieldwork. Ken Birkett is thanked for his patient and diligent machining of the trenches.

North Pennines Archaeology Ltd would also like to extend their thanks to Mike Collins, Hadrian's Wall Archaeologist for English Heritage, for his help during this project and to Jeremy Parsons, Assistant Archaeologist, Cumbria County Council.

Sean Johnson undertook the evaluation under the supervision of Helen Noakes. Metal detecting was kindly undertaken by Alan James. The report was written by Helen Noakes, who also produced the drawings. The initial specialist finds work was undertaken in house. The project was managed by Frank Giocco, Technical Director, who also edited the report.

1. INTRODUCTION

1.1 CIRCUMSTANCES OF THE PROJECT

- 1.1.1 During June 2008 North Pennines Archaeology Ltd undertook an archaeological field evaluation on land at The Village Hall, Burgh-By-Sands, Cumbria. The Village Hall lies immediately to the south of the projected line of the Vallum (NGR NY 3261 5909; see Figure 2).
- 1.1.2 The work was commissioned by The Village Hall Committee in order to fulfil an archaeological evaluation brief issued by English Heritage. This followed a planning application to Carlisle City Council for an extension to a residential development at the site. The Village Hall lies in an archaeologically sensitive area and is located within the visual envelope of Hadrian's Wall and Vallum. As a result, English Heritage and Cumbria County Council Historic Environment Service (CCCHES) recommended an archaeological evaluation be undertaken, in accordance with an English Heritage brief, and a written scheme of investigation submitted to, and approved by, English Heritage and CCCHES. The focus of the evaluation was to determine the presence or absence of archaeological remains within the proposed development area and to produce a predictive model of surviving archaeological remains. It also served to assess the projected location of the Vallum, which has been depicted by the Ordnance Survey as running through the proposed development site on an east-west alignment.
- 1.1.3 The field evaluation comprised the excavation of two linear trial trenches in order to provide a predictive model of surviving archaeological remains detailing zones of relevant importance against known development proposals. The principal objective of this evaluation was to establish the presence/absence, nature, extent and state of preservation of any archaeological remains and to record these where they were observed.
- 1.1.4 This report sets out the results of the work in the form of a short document outlining the findings, followed by a statement of the archaeological potential of the area, an assessment of the impact of the proposed development, and recommendations for further work.

2. METHODOLOGY

2.1 PROJECT DESIGN

A project design was submitted by North Pennines Archaeology Ltd in response to a request by The Village Committee (Giecco, 2008.) This design was in accordance with a brief prepared by Mike Collins, Hadrian's Wall Archaeologist for English Heritage (Collins 2008).

Following acceptance of the project design, North Pennines Archaeology Ltd was commissioned by the client to undertake the work. The project design was adhered to in full, and the work was consistent with the relevant standards and procedures of the Institute of Field Archaeologists (IFA), and generally accepted best practice.

2.2 ARCHAEOLOGICAL EVALUATION

2.2.1 The field evaluation consisted of the excavation of two trial trenches both 3m in length by 1.5m in width in order to produce a predictive model of surviving archaeological remains detailing zones of relevant importance against known development proposals. The location and size of the trial trenches were agreed with Mike Collins, Hadrian's Wall Archaeologist (Figure 2). In summary, the main objectives of the evaluation were:

- to establish the presence/absence, nature, extent and state of preservation of archaeological remains and to record these where they are observed;
- to establish the character of those features in terms of cuts, soil matrices and interfaces;
- to recover artefactual material, especially where useful for dating purposes;
- to recover palaeoenvironmental material where it survives in order to understand site and landscape formation processes;
- to assess how the presence/absence, of archaeological remains will impact on the proposed development works.

2.3 SITE SPECIFIC AIMS

2.3.1 The main site-specific aim of the evaluation was defined as follows:

- to define the location, character, extent and state of preservation of any significant archaeological remains, or the Vallum should this specific feature be encountered in the defined study area.

2.3.2 A total of two trenches were excavated to record the presence or absence of archaeological features and characterise the nature and significance of any recorded features. The trenches were mechanically excavated by a JCB 3CX equipped with a toothless ditching bucket, under archaeological supervision, to the natural substrate or the top of archaeological deposits, whichever was encountered first. Each trench

was then manually cleaned and any putative archaeological features investigated and recorded according to the North Pennines Archaeology Ltd standard procedure as set out in the NPAL Excavation Manual (Giecco 2005).

- 2.3.3 Photography was undertaken using Canon EOS 500V Single Lens Reflex (SLR) cameras. A photographic record was made using digital photography, 400 ISO Black and White Print and 200 ISO Colour Slide film.
- 2.3.4 All work was undertaken in accordance with the Institute of Field Archaeologists Standards and Guidance for Archaeological Field Evaluations (IFA 1994).

2.4 ARCHIVE

- 2.4.1 A full professional archive has been compiled in accordance with the project design, and in accordance with current English Heritage guidelines (1991). The archive will be deposited within an appropriate repository, and a copy of the report given to the Cumbria Historic Environment, where viewing will be available on request. The archive can be accessed under the unique project identifier NPA 08 VHB-A.
- 2.4.2 North Pennines Archaeology supports the Online Access to the Index of Archaeological Investigations (OASIS) project. This project aims to provide an online index and access to the extensive and expanding body of grey literature created as a result of developer-funded archaeological fieldwork. As a result, details of the results of this evaluation will be made available by North Pennines Archaeology, as a part of this national project. The site has been given the unique identification number, northpen3- 45147 as part of the OASIS Project.

3. BACKGROUND

3.1 LOCATION AND TOPOGRAPHY

- 3.1.1 Burgh-By Sands is located 5.9 miles (9.5km) west of Carlisle, Cumbria on the Solway Estuary (see Figure 1). The Solway Basin is a broad, lowland plain landscape fringed by the low, rugged, relatively remote coastline of the Solway Firth and the Irish Sea. It is framed by the Cumbria High Fells to the south, the hills of the Scottish borders to the north and the Border Moors and Forests to the north-east. To the north, the foreshore of the Solway Firth is dominated by large expanses of intertidal mudflats etched by a shifting maze of minor channels (BGS 2001).
- 3.1.2 Burgh by Sands lies at the point where the River Eden joins the Solway, and was used historically as a fording point up the Solway. The land is relatively low lying and undulating; cattle and sheep are the predominate form of agriculture. A large expanse of mudflats lies to the north of the village called Burgh Marsh, which is used for winter grazing of sheep and during the summer for cattle (Countryside Commission 1998).

3.2 HISTORICAL BACKGROUND

- 3.2.1 Hadrian's Wall was designated as a World Heritage Site in 1987 and forms the most complex and best preserved of the frontiers of the Roman Empire. (English Heritage, 2002). The World Heritage Site (WHS) comprises a visual envelope between 1km and 6km from the site in order to serve as a buffer zone to protect the site and its immediate landscape from development detrimental to the visual amenity of the site (*ibid*).
- 3.2.2 The WHS is centred on the military installations constructed from AD 122 on the orders of the Emperor Hadrian. The WHS also includes other Roman sites and structures which predate Hadrian's Wall, such as the arrangement of forts along the Cumbrian Coast between Bowness-on-Solway and Ravenglass, and incorporates a wealth of pre-Roman and post-Roman sites and landscapes (*ibid*). Hadrian's Wall was constructed in the early 2nd century on a line connecting the Tyne and the Solway and represented at various times the northern frontier of Roman Britain.
- 3.2.3 The Wall was a composite military barrier, which in its final form comprised several separate elements; a stone wall fronted by a V-shaped ditch, and a number of purpose-built stone garrison fortifications such as forts, milecastles and turrets. A large earthwork and ditch, built parallel with and to the south of the Wall, known as the Vallum, and a metalled supply road linking the garrison forts, which is known as the 'Roman Military Way'. The Wall begins in the east at Wallsend in Tyneside and continues to the west terminating at Bowness-on-Solway in Cumbria, a distance of 80 Roman miles (73.5 English miles or 117 kilometres). The Wall, conceived by Hadrian was to be ten feet wide and about fifteen feet high. The front face of the wall most likely sported a crenulated parapet, behind which the soldiers patrolled along a paved rampart-walk (Bedoyere 1998).

3.2.4 The more detailed history of Hadrian's Wall is well documented and is summarised in numerous publications (Breeze and Dobson 2000; Daniels 1978 and Birley 1961).

3.3 SITE SPECIFIC BACKGROUND

- 3.3.1 ***Burgh-by-Sands I:*** to the south of the later fort on Hadrian's Wall, a large fort has been found at Hill Farm, Longborough, which is seemingly aligned with a Roman road which runs along the humpback ridge of Fingland Rigg, to the auxiliary fort at Kirkbride (Jones and Wolliscroft 2001). This road passes directly in front of the fort, and probably represents a westward extension of the Stanegate frontier system sometime during the Trajanic period. Although unexcavated, the Burgh-by-Sands I fort, judging from its alignment with this late-Stanegate extension quite possibly dates to the Trajanic period, although it is possible that the fort may have been founded during the campaigns of Agricola around AD79/80 (*ibid*).
- 3.3.2 ***Burgh-by-Sands II:*** aerial photographs taken by Barri Jones in 1977 revealed the outline of a large Roman fort on top of the commanding hill to the south of Burgh village. The construction date of this timber-built auxiliary fort has been established around the late-Trajanic, early-Hadrianic period (Jones and Wolliscroft 2001). Also shown on aerial photography is a 19m wide circular cropmark lying within the defences of the fort close to its southeast gate (*ibid*). This feature has been identified as a Roman four-post watchtower with a circular ditch. This timber tower has been dated by the finding of black-burnished ware pottery shards in one of the main postholes to about AD120, when this type of pottery began to appear. This timber-built tower was not in service long before being demolished and replaced by the Burgh-by-Sands II fort. It is generally accepted that this fort was built as part of the initial scheme for Hadrian's Wall (Daniels 1978; Breeze 2007).
- 3.3.3 ***The Wall Fort:*** the Wall fort was evidently an addition to the original Hadrianic plans, because turret 71B, which originally occupied the site, had to be demolished before the fort could be built astride the line of the Wall (Breeze 2007). It would appear from pottery recovered at Fort II that the transfer of the garrison to the stone-built fort on the line of the Wall occurred well into the Hadrianic period (*ibid*). The site of the Hadrianic Wall fort at Burgh-by-Sands now lies beneath the modern village.

4 EVALUATION RESULTS

4.1 INTRODUCTION

- 4.1.1 The machine stripping of the trenches, which were subsequently excavated by hand down to the natural subsoil, permitted an examination of the archaeological remains within the site. All trench locations are depicted in Figure 2; detailed plans and sections for Trenches 1 and 2 are depicted in Figures 3-6.

4.2 TRENCH 1

- 4.2.1 Trench 1 was aligned north to south and is located 3.10m from the existing extension at the back of The Village Hall, within a current tarmac car park. Trench 1 measured 3m in length and 1.5m in width (See Figure 2; Plates 1-3). In total, 4 archaeological features of interest were excavated and recorded.
- 4.2.2 The natural substrate (**110**) was encountered at a depth of approximately 0.90m at 14.59m OD. It consisted of light, yellowish-white sand which contained lenses of gravel.
- 4.2.3 Cutting into the natural substrate, ditch [**107**] was recorded as measuring 0.3m in width and 0.14m in depth (Figure 4 & 5). This feature was aligned east to west and was observed at the southern end of Trench 1 where it disappeared under the baulk. Due to this positioning, the true extent was not known, but the feature appeared to have a broad, U-shaped profile with a flat base. It is likely the function of the ditch was as either a boundary or a drainage ditch, as the *Vicus* which existed at Burgh-By-Sands is located only a short distance away. Its primary deposit was loosely compacted, dark blackish-brown humic soil (**108**) which contained pieces of both Samian and Black Burnished Ware (BBW) pottery dating from the 2nd century AD.
- 4.2.4 Linear [**103**] was also observed cutting into the natural substrate, aligned east to west and measuring 0.45m in width by 0.15m in depth. This feature appeared to have a concave base, u-shaped in profile. It was filled by a loosely compacted, dark greyish-brown humic soil (**104**) which contained animal bone and traces of wood as well as a fragmented piece of Roman tile.
- 4.2.5 A small circular feature, [**105**] was recorded to the west of [**103**], which was half sectioned by its position at the edge of the trench. The pit measured 0.60m in radius and 0.06m in depth. It had a flat base and was orientated northwest to southeast, and appeared prior to excavation, to be cutting into [**103**]. However, after investigation, this appeared to be a separate feature unrelated to [**103**]. Filling [**105**] was a loosely compacted, dark greyish-brown humic soil (**106**) which contained mostly organic remains, including a wooden twig which retained its bark (retained for sampling).
- 4.2.6 Overlying all the above features was a loosely compacted, brown humic soil (**114**) which had a maximum depth of 0.30m, and was observed in all sections of the trench.

- 4.2.7 Context **(114)** was sealed beneath a loosely compacted black humic soil **(112)** which contained occasional charcoal fragments and occasional small sub-angular pebbles. This layer was observed in all sections of the trench and was a maximum depth of 0.60m at the northern end of Trench 1. Contained within this layer finds of Nene Valley ware pottery and grey slip-ware.
- 4.2.8 Cutting into **(112)** and orientated north-south, **[100]** was the cut of a field drain (see figure 3). This was recorded at a depth of 0.30m and a width of 0.20m, with an extent of over 3m, and was at 14.90m OD. It was V-shaped in profile and contained **(101)** which consisted of white sandstone, roughly 0.2m in length by a maximum of 0.10m width pebbles. No finds were obtained from the feature; however, the form and its location suggest that it represents a Victorian field drain, and of an 18th century generic date.
- 4.2.9 Directly above this, **(111)** was 0.3m in depth and was visible in all sections (Figure 5.) This consisted of brick and building rubble and hardcore in the lower strata and bedding cement in the upper strata. Within this horizon, glass and porcelain were found, suggesting that this layer is consistent with a construction date of the late 1980's.
- 4.2.10 Above this, and overlying all the listed deposits above, was tarmac **(109)** which varied in thickness from 0.05m to 0.1m and was at 15.53m OD at the southern end of Trench 1.



PLATE 1: FEATURE CUTTING INTO (112) WITHIN UPPER STRATA OF TRENCH 1



PLATE 2: FEATURES CUTTING IN TO THE NATURAL IN TRENCH 1 (PRE-EX)



PLATE 3: FEATURES CUTTING IN TO THE NATURAL WITHIN TRENCH 1 (POST-EX)

4.3 TRENCH 2

- 4.3.1 Trench 2 was aligned north-south and was located 1.5m from the current meeting room within the Village Hall, within the tarmac car park. Measuring 3m in length by 1.5m in width, the natural geology **(110)** consisted of loosely compacted white-yellow sand and was encountered 0.90m below ground level at 14.696m OD (see Plate 5).
- 4.3.2 No features were found cutting into the natural, and the features in Trench 1 therefore were not observed in Trench 2, which given the alignment of the two trenches would be expected, suggesting either the termination or alteration of course of these features. However two layers containing archaeologically significant remains were recorded within Trench 2 (see Figure 6) as well as the surprising find of Roman masonry mixed within the modern rubble (See Plate 4).
- 4.3.3 The earliest archaeological deposit comprised a loosely compacted, dark greyish brown humic soil, 0.3m in depth and at 14.82m OD, **(113)**. It contained Roman Black Burnished Ware pottery dated to the 2nd century AD. This is roughly comparable to **(112)** (observed within Trench 1).
- 4.3.4 Context **(113)** was sealed by loosely compacted, light greyish-brown silty sand **(115)** which contained charcoal flecks and pieces of Roman grey-ware pottery. Pottery within the upper strata seemed to have some adhesion to the sides of the vessel. This is possibly the result of the interaction between these sherds and cement products during the construction of the car park in the 1980's.
- 4.3.5 Above **(115)** was observed **(102)** which contained modern glass, brick fragments and modern porcelain and represents the layer of rubble and hardcore laid down during the construction of the car park. Within the lower strata, roughly 0.35m below ground surface and at 15.705m OD was observed three large, dressed sandstone blocks, showing signs of Roman masonry techniques (see Plates 4 and 5.) The largest of these blocks was roughly 0.90m in length by 0.20m in width, had champhered edges and a hollowed out 'gully' roughly 0.15m wide. One edge seemed to be the corniced, suggesting its function may have served within that of a large stone building. The provenance of these blocks are yet unknown, but they could have some relationship to the Roman Fort and *Vicus* in Burgh. Alternatively, they could be the result of finds during construction in another area of the village and were brought to the site during the construction of the car park for use as hardcore, their antiquity being unknown or going unnoticed to the constructor.



PLATE 4: TRENCH 2 UPPER STRATA, SHOWING ROMAN MASONRY WITHIN RUBBLE LAYER.



PLATE 5: SECTION WITHIN TRENCH 2. (ROMAN MASONRY VISIBLE IN UPPER STRATA)

5 FINDS

5.1 INTRODUCTION

- 5.1.1 The finds were cleaned and packaged according to standard guidelines, and recorded under the supervision of F.Giecco (NPA Ltd Technical Director). The metalwork was placed in a stable environment and was monitored for corrosion.

5.2 ROMAN CERAMIC VESSELS

- 5.2.1 In total 15 fragments of Roman ceramic vessels were recovered; of these 7 sherds derived from reduced greywares, 5 sherds were of Black-Burnished Ware Type 2, 1 sherd was of Nene Valley Colour Coat ware, and 1 sherd was of a central Gaulish Samian body sherd. 1 piece of fragmentary tile was also recovered, which had no identifiable aid to dating, although it did have parallel grooves on the underside, perhaps as an aid for adhesive function.
- 5.2.2 The reduced greywares were recovered from 3 separate contexts; context **(115)**, **(112)** and from an unstratified spoilheap find. Both secured contexts are occupation levels within the lower strata of the site. The suggested dating for this assemblage is roughly the 2nd century AD.
- 5.2.3 The Black Burnished (Type 2) Ware was also recovered from 3 separate contexts: Context **(115)**, **(113)** and **(108)**. Both **(115)** and **(113)** were occupation levels, but **(108)** was the fill of a linear gully, **[107]**. The dating range for this Type 2 assemblage is roughly the mid to late 2nd century AD, based on the acute lattice decoration on the pottery. Believed to be developed in the Thames Estuary area around 120AD, Black Burnished Ware type 2, reached its height during 139-193AD and was traded on the Antoine Wall, but became uncommon after 250AD.
- 5.2.4 The Nene Valley colour coated ware was recovered from one context only, **(112)** and is dated to the mid 2nd to 4th century AD. Produced predominantly in Water Newton, this is made famous by the 'hunt cups.'
- 5.2.5 The piece of central Gaulish Samian pottery was found in **(108)** a fill of linear gully **[107]**. The date range for Samian pottery reaches up to the 3rd century AD, at which point it ceased to be manufactured. Samian was produced mainly on the continent, although there were centres of production in England, such as in York, London and Colchester which operated on a smaller scale to the European contemporaries. The dating of Samian is always tenuous, due in part to the fact that Samian appears in later contexts and seems to be an item which had specific social values attached to it and was often handed down for use by the next generation.
- 5.2.6 The pottery assemblage therefore, can be roughly dated to the 2nd century AD, the period of which the fort and extra-mural settlement were thought to have been established. It is not possible to ascertain a production centre for all the Roman

ceramics, however the sherds of Greyware are likely to originate from local production centres most likely at Carlisle or Scaleceugh.

5.3 MEDIEVAL AND LATER CERAMIC VESSELS

- 5.3.1 A total of 5 sherds of post-medieval pottery were recovered from the rubble layer, **(102)** during the evaluation.
- 5.3.2 The post-medieval assemblage was dominated by white stoneware. A sherd of transfer ware was also recovered. The sherds date to around the 20th to 21st century and were used as hardcore materials.

5.4 METAL OBJECTS

- 5.4.1 A total of 7 Fe and objects were recovered from land at the Village Hall, Burgh-By-Sands. The 7 Fe objects were recovered from the topsoil from Trench 1 (see finds table, below), amongst which a possible Roman nail, the other finds however were unfortunately too corroded to identify any further. The size of the objects ranged from small fragments of 50mm to larger heavier fragments of 100mm.

5.5 GLASS

- 5.5.1 A total of 5 sherds of sheet glass were recovered from within context **(102)**. These fragments showed signs of some adhesive or paint on one side, but showed no signs of being of antiquity, and therefore are ascribed a date to the modern period.

Context	Trench	Material	Quantity	Weight (kg)	Period
102	2	Pottery	4		C19th
102	2	Glass			C19th
102	2	Bone	1		C19th
104	1	Tile	1		Roman
108	1	Pottery	2		Roman
112	1	Pottery	2		Roman
113	2	Pottery	2		Roman
115	2	Pottery	11		Roman
115	2	Tile	1		Roman
U/S	1	Metal	7		Roman?
U/S	1	Pottery	1		Roman
U/S	1	Bone	2		Roman?

Table 1: Finds Table of Artefacts Recovered from the Evaluation.

6 ENVIRONMENTAL DATA

6.1 INTRODUCTION

- 6.1.2 A series of two evaluation trenches were excavated in the grounds of The Village Hall, Burgh-by-Sands, Cumbria. The objective of the environmental analysis was to establish the presence/absence, nature, extent and state of preservation of any ecofactual remains and to determine their origins.
- 6.1.3 The site provided conditions of moist loosely compacted soil. Preservation of the organic remains and bone was then expected to be reasonable, depending on the acidity of the soil.
- 6.1.4 Samples were taken from seven separate contexts, (104), (106), (108), (112), (113), (114) and (115). These were all judged to be of archaeological significance and appeared to be suitable for environmental analysis.

6.2 ENVIRONMENTAL REMAINS

- 6.2.1 All the whole earth samples were selected for processing in order to assess the environmental potential of the material recovered. This will help provide further information as to the depositional processes involved in the formation of the material. The methodology employed required that the whole earth sample be broken down and split into the various different components. This was achieved by a combination of water washing and flotation. The recovered remains were then assessed for content.
- 6.2.2 Flotation separates the organic, floating fraction of the sample from the heavier mineral and finds content of sands, silts, clays, stones, artefacts and waterlogged material. Heavy soil and sediment content measuring less than the mesh size falls through the retentive mesh to settle on the bottom of the tank. Flotation produces a 'flot' and a 'residue' for examination, whilst the heavier sediment retained in the tank is discarded. The method relies purely on the variation in density of the recovered material to separate it from the soil matrix, allowing for the recovery of ecofacts and artefacts from the whole earth sample.
- 6.2.3 The retent, like the residue from wet sieving, will contain any larger items of bone, or artefacts. The flot or floating fraction will generally contain organic material such as plant matter, fine bones, cloth, leather and insect remains. A rapid scan at this stage will allow further recommendations to be made as to the potential for further study by entomologists or palaeobotanists, with a view to retrieving vital economic information from the samples. Favourable preservation conditions can lead to the retrieval of organic remains that may produce a valuable suite of information in respect of the depositional environment of the material, which may include anthropogenic activity, seasonality and climate and elements of the economy. Nomenclature follows Stace (1997).

6.2.4 The contents of the samples are listed below in Tables 1 and 2.

Sample details for		Volumes of material (mls)		
Sample no	Context no	Sample	Retent	Flot (mls)
1	104	50 litres	1050	400
2	106	10 litres	10	100
3	108	30 litres	1000	200
4	114	20 litres	50	300
5	112	20 litres	700	10
6	115	20 litres	1050	5
7	113	20 litres	150	30

Table 2. Details of Environmental Samples.

6.2.5 *Trench 1: Sample 1 (Context 104)* : This context was the fill of linear feature [103] and was a loosely compacted, dark greyish-brown humic soil. Inclusions were animal bone and traces of wood as well as a fragmented piece of Roman tile. The retent was made up of amounts of stones and gravel. Small amounts of inclusions occurred as bone, burnt bone, charcoal, charred twigs, Roman pottery, wood and nutshell. Some seeds were also present with a small amount of charred grain that was unidentifiable due to fragmentation.

6.2.6 The flot contained woody plant parts, bark, wood and charred twigs. There were a few pieces of large mammal bone as well as seeds of pale persicaria, *Rubus* and dock species and common nettle. Sclerotia of the soil fungus *Cenococcum geophilum* were also present in small numbers.

SITE CODE			CONSTITUENT ECOFACTS/ARTEFACTS OF THE RETENTS														CONSTITUENT ECOFACTS/ARTEFACTS OF THE FLOTS																	
SAMPLE NUMBER	CONTEXT NUMBER	CONTEXT TYPE	SOIL CONDITION	Stones	Gravel	Large mammal bone	Burnt bone	Charcoal	Charred twigs	Mortar	Iron concretions	Seeds	Charred grain	Magnetic residue	Pottery	Wood	Nut shell	Charred grain	Chenopodium sp.	Lactuca sp.	Rumex sp.	Rubus sp.	Urtica dioica	Scirpus sp.	Pale persicaria	Nut shell	Woody plant parts	Small charred wood	Wood	Roots	Sclerotia	Bark	Large mammal bone	
1	10	F	M	1	1	1	1	1	1	0	0	1	1	0	1	1	1	1	0	0	1	1	1	0	1	0	1	1	1	1	0	1	2	1
2	10	F	M	2	2	1	0	0	1	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1	0	1	1	2	1	0	2	0	
3	10	F	M	2	3	1	1	1	1	0	0	1	0	0	1	1	1	1	0	1	1	0	1	1	1	1	1	1	2	0	1	0	0	
4	11	D	M	1	2	0	1	1	2	0	0	1	0	0	0	3	1	0	0	0	0	1	0	0	0	0	1	1	2	0	2	0	0	
5	11	D	M	2	3	0	1	1	1	1	1	1	1	1	1	1	0	1	0	0	0	0	1	0	1	0	1	1	3	0	1	0	0	
6	11	D	M	2	3	0	1	1	1	1	3	1	1	1	1	0	0	0	1	0	0	1	1	0	0	0	1	1	3	0	1	0	0	
7	11	D	M	2	3	1	1	1	1	0	0	1	1	1	0	0	0	0	0	0	0	0	1	0	1	0	1	1	3	0	1	0	0	

Key: D = deposit, F = fill, M = moist

Abundance score: 0 = absent, 1 = present, 2 = frequent, 3 = abundant

Table 3. Flot and Retent Constituents.

- 6.2.7 *Sample 2 (Context 106):* Context (106) was the fill of a small circular feature [105]. It was a loosely compacted, dark greyish-brown humic soil that contained mostly organic remains, including a wooden twig that retained its bark. The retent was made up of stones and gravel. Also present were fragments of large mammal bone that, although they did not appear burnt, were very dark. They were too fragmentary to be identified even to species. A few charred twigs were also present.
- 6.2.8 The flot consisted mainly of wood and bark fragments. A small amount of roots, woody plant parts and small charred wood were also present. Seeds present were fat hen and pale persicaria, both of cultivated land rich in nitrogen.
- 6.2.9 *Sample 3 (Context 108):* Context (108) was the fill of a ditch that may have been a boundary ditch or for drainage. This primary fill was a loosely compacted, dark blackish-brown humic soil that contained pieces of both Samian and Black Burnished Ware (BBW) pottery dating from the 2nd century AD. The retent, mainly stones and gravel, also contained small amounts of burnt bone, large mammal bone, wood, charcoal, charred twigs and pottery. Seeds and nutshell were also present.
- 6.2.10 The flot consisted of mainly roots with small charred twigs, wood, bark, and woody plant parts. Seeds present were fat hen, lettuce, common nettle, sedges, pale persicaria and there were also fragments of nutshell. Some of these species prefer damp ground.
- 6.2.11 *Sample 4 (Context 114):* Context (114) overlay the features [103] and [105], fills (104) Sample 1, and (106) Sample 2, respectively. This loosely compacted, brown humic soil was observed in all sections of the trench.
- 6.2.12 The retent of this sample was dominated by wood fragments. Stones and gravel were also present. Charred twigs were also prevalent with small amounts of burnt bone, charcoal, nutshell and seeds. The flot recovered from this sample contained mainly roots and bark. Woody plant parts and wood were also present with only seeds of *Rubus* species present, probably blackberry.
- 6.2.13 *Sample 5 (Context 112):* Context (112) was a loosely compacted black humic soil that sealed context (114), sample 4. It contained occasional charcoal fragments and occasional small sub-angular pebbles. This layer was observed in all sections of the trench. The retent was mainly made up of stones and gravel. Iron concretions, Roman pottery, mortar and magnetic residue were also present. Fragments of burnt bone, charcoal and charred twigs were also present as well as small amounts of seeds and charred grain.
- 6.2.14 The flot consisted mainly of root material with bark, wood and woody plant parts also present. As well as some small charred wood seeds of common nettle and pale persicaria also occurred. There was also a small amount of charred grain, unidentifiable due to its fragmentary appearance.
- 6.2.15 *Trench 2: Sample 6 (Context 115):* Context (115) sealed context (113). This light greyish-brown silty sand contained charcoal flecks and pieces of Roman pottery.

The retent, apart from stones and gravel, was dominated by iron concretions. Even examination under the microscope failed to identify if they were actual artefacts or just metal debris. Both mortar and magnetic residue were also present with fragments of large mammal bone, burnt bone and charcoal. Seeds and charred grain were also present in small amounts; again the grain was too fragmentary to be identified.

6.2.16 The flot was again dominated by root material with some woody plant parts, wood and bark also present. There was some small charred wood and charred grain (unidentifiable) as well as seeds of *Rubus* sp. and common nettle.

6.2.17 *Sample 7 (Context 113)*: Context (113) was the earliest archaeological deposit and comprised a loosely compacted, dark greyish brown humic soil containing Roman pottery. It appeared to be roughly comparable to (112) in Trench 1. Stones and gravel dominated the retent with large mammal bone and magnetic residue also present. As well as charcoal and charred twigs some seeds and charred grain (unidentifiable) were present.

6.2.18 The flot matrix was again dominated by root material. Woody plant parts, bark and small charred wood were also present. There were again seeds of common nettle and pale persicaria.

6.3 DISCUSSION

6.3.1 *Sample 1 (104) Trench 1*

This sample was the fill of a linear feature and had inclusions of animal bone, wood and Roman tile and pottery. This and the presence of the other ecofacts suggests a deposition layer containing waste material. The presence of the sclerotia (resting bodies) of the soil fungus *Cenococcum geophilum*, also suggests the presence of woodland nearby.

6.3.2 *Sample 2 (106) Trench 1*

No finds were recovered from this context but the fact that it again contained fragments of large mammal bone, wood and charred wood suggests waste material.

6.3.3 *Sample 3 (108) Trench 1*

Two pieces of Roman pottery were recovered from this context of a ditch fill. The general assemblage suggests again a source of waste material for the deposit.

6.3.4 *Sample 4 (114) Trench 1*

No finds were again recovered from this context. It overlay the features from which samples 1 and 2 came. A lot of wood was seen in this sample of what appeared to be a single fill. It is hard to analyse the origins of the wood without any definition of structural remains within the area. As the fragments are quite small they are not identifiable.

6.3.5 *Sample 5(112) Trench 2*

Two pieces of Roman pottery, mortar and iron concretions suggest this may be a demolition layer. There is little that can be said of the seed and grain recovered from the sample as there is not enough material to form a meaningful assemblage.

6.3.6 *Sample 6 (115) Trench 2*

Eleven pieces of Roman pottery and a piece of Roman tile were recovered from this context. A large number of iron concretions would benefit from X-ray analysis to determine the type of artefact they originated from. The low number of charred cereals, in combination with the diversity of material in the residue again indicates that this deposit was an accumulation of waste.

6.3.7 *Sample 7 (113) Trench 2*

The two pieces of Roman pottery recovered from this, the earliest archaeological deposit, are different in type from those recovered from context (112). It may be a localised difference or it may be that the two contexts are not the same. This would only be proved by open area excavation.

6.4 CONCLUSION AND RECOMMENDATIONS

6.4.1 The absence of waterlogged seeds suggests these sediments were deposited in well-drained, aerobic conditions. Insects were also not preserved for this reason. However, charring allowed the preservation of a small number of cereal remains but these were of indeterminate species due to the high degree of fragmentation of the material and lack of chaff present. The occurrence of fragments of unburnt bone, pot and charcoal in the residues of samples 1, 3, 5 and 6 does not contradict the interpretation of these contexts as deposition layers.

6.4.2 The lack of chaff fragments associated with the cereals suggests that the crops were processed away from the site as crop processing produces large numbers of chaff fragments (Hillman, 1981). This may indicate that the crop was brought to the site in a part-processed condition and the absence of chaff also confirms that these deposits were not from the disposal of waste from agricultural processes. It may be that the remains are from simple hearths or ovens where the grain became charred during cooking. The absence of arable weed seeds also indicates that processing occurred away from the site. The microscopic charcoal seen in the flots (except sample 4) may derive from small domestic fires or from larger-scale fires such as woodland clearance. It could also be from soil improvement practices of spreading the fire ash on the fields. Charcoal occurred in most of the contexts, which may indicate use of the disposal of some fuel waste.

6.4.3 The near absence of uncharred seeds in the samples reflects the lack of waterlogged conditions in the deposits. A few species of plant remains, which indicate the presence of nearby grassland and waste ground, also occurred. These include nettles, *Rubus* and *Rumex* species, pale persicaria and fat hen.

6.4.4 The limited number of charred remains provides little further information about the contexts or site in general. The absence of uncharred seeds reflects the well-drained nature of the deposits.

6.4.5 Due to the absence of charred plant remains, the samples have no potential to provide chronological or economic information about the site. In view of the well-drained nature of the features, and the presence of modern roots, the uncharred seeds of fat-hen, pale persicaria, common nettle, *Rumex* and *Rubus* species are likely to be modern. Low, background levels of charcoal are typical of archaeological deposits in this area.

6.5 VERTEBRATE REMAINS

6.5.1 Preservation of bone on this site was extremely poor. It was very fragmentary and although it occurred in four of the samples, the only identifiable element was the distal end of a Cattle Femur from context (104) the fill of a linear feature within trench 1. No further analysis is required from these remains therefore.

6.6 RADIOCARBON DATING AND OTHER SCIENTIFIC DATING METHODS

6.6.1 The finds were easily dateable by typology. Contexts were secure and there did not seem to be any mixing. The need for scientific dating methods is therefore unnecessary, following English Heritage Guidelines. The charred organic material recovered from the samples is not really suitable for carbon dating as it is charcoal from wood of unknown date so the result could potentially add approximately 400 years to the actual date as some of the wood could be as old as 4 or 500 years

7 CONCLUSIONS

7.1 ARCHAEOLOGICAL POTENTIAL

- 7.1.1 The project has provided an opportunity to study the Vallum, and had the potential to confirm its exact location within the central section of the village. Excavations undertaken in the 1985 tentively identified the location of the Vallum at the western extent of Burgh-by-Sands, whilst the Vallum was excavated at the eastern extent during excavations in 1978. Both excavations confirmed that the ditch was on average 6m wide with the sides characteristically steeply sloping. The projected line of the Vallum was mapped by the Ordnance Survey, which indicated that the projected course of the Vallum runs through the South of the Village Hall area.
- 7.1.2 The results of the evaluation failed to locate the Vallum or any associated features within the evaluation trenches. However, the earliest phase on the site is represented by three specific and seemingly contemporaneous features within Trench 1; **[103]** **[105]** and **[107]**, which were located beneath a layer **(112)** which contained sherds of Roman pottery dating between the 2nd and 4th centuries AD.
- 7.1.3 Environmental data from the samples gathered at the site suggests that the area was actually well drained and that the linear features encountered in Trench 1 were probably only open for a short period of time before being backfilled. Further work was not recommended for this specific environmental assemblage; however a larger scale excavation may provide a clearer picture of what was happening at the site.
- 7.1.4 Within the fill of **(108)** was found a fragment of Samian pottery, the presence of which is noteworthy as Samian is often hoarded or passed down and therefore may often give an inaccurate dating range for specific features. However, based on the inclusion of other pottery forms, it was evident that the ditch was in use during the mid 2nd century AD. The U-shape profile and form of ditches **[103]** and **[107]** suggest that it had some connection with either drainage, which appears to have been a problem even in the later periods at Burgh-By-Sands, or a demarcation of the landscape in an area which was in close proximity to the *Vicus*. The homogeneity of the fill within these features suggests that they were left open for only a short time before they were filled in, by one single event.
- 7.1.5 The post-medieval period was largely characterised by the stone drain found in Trench 1, which is given a generic date of the 18th-19th century, but more than likely is a Victorian field drain. However, the scarcity of post-medieval remains only serves to highlight that the Roman archaeology within the area under development is exceptionally well preserved.
- 7.1.6 Archaeological deposits were encountered at a depth of between 0.30m and 0.45m beneath the current ground level. Therefore, the proposed development has the potential to impact upon Roman and later landscape features to the south of the land at the Village Hall through the construction of foundations and provision of services. The existence of archaeological features less than one metre below the current ground surface suggests further that archaeological consultation should be

sought prior to any ground penetrating construction at the site.

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8.1 BIBLIOGRAPHY

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APPENDIX 1: CONTEXT LIST

Context Number	Trench	Category	Interpretation
100	1	Cut	poss. Victorian field drain
101	1	Fill	Fill of field drain
102	2	Deposit	Layer of rubble within Trench 2
103	1	Cut	Linear feature, E-W, Filled with (104)
104	1	Fill	Fill of linear feature, [103]
105	1	Cut	Circular feature, Filled with (106)
106	1	Fill	Fill of circular feature, [105]
107	1	Cut	Linear feature, E-W, Filled with (108)
108	1	Fill	Fill of linear feature, [107]
109	1 and 2	Deposit	Tarmac
110	1 and 2	Deposit	Natural geology of site
111	1	Deposit	Rubble within trench 1
112	1	Deposit	Archaeological occupation layer
113	2	Deposit	Archaeological occupation layer
114	1	Deposit	Archaeological occupation layer
115	2	Deposit	Archaeological occupation layer

APPENDIX 2: FIGURES
