THE UPPER AND MIDDLE WENTLOOGE FORMATION AND A ROMANO-BRITISH SETTLEMENT: PLOT 4000, THE WESTERN APPROACH DISTRIBUTION PARK, AVONMOUTH, SOUTH GLOUCESTERSHIRE

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Investigations at the Western Approach Distribution Park, Avonmouth, South Gloucestershire provided an opportunity to examine deposits of late Neolithic/early Bronze Age and late Bronze Age/early Iron Age date from the Wentlooge Formation. The sedimentary sequence of estuarine silts and peats and associated palaeoenvironmental remains were analysed and dated using radiocarbon and provide a body of data on local landscape and responses to wider phenomena in the estuary related to sea-level changes. A Romano-British farmstead of 2nd-4th century AD date was also investigated. It was characterised by roundhouse gullies, pits and other features. A series of ditched enclosures were also found, providing evidence for animal husbandry and agricultural exploitation of the Avon Levels. Animal bones and a variety of environmental remains provide evidence for the economic basis of the farmstead. The use of non-local goods illustrates contacts with wider communities. Little evidence was, however, recovered to suggest that the surrounding wetland resources were extensively exploited.

INTRODUCTION

Development at the Western Approach Distribution Park, Avonmouth, South Gloucestershire led to investigations at the site (NGR 355420 183430) in 2005. The site was subjected to geophysical survey and trench evaluation prior to excavation. The survey did not reveal any significant archaeological features, while the evaluation identified a Romano-British settlement and the potential of the underlying Wentlooge sequence to preserve environmental remains by waterlogging (Figure 1, Area 1).

The site is situated on the Henbury Level, an area of low lying, flat, artificially drained land, forming part of the Avon Levels that lies at *c* 5 m above Ordnance Datum (aOD) (Figure 1). Since post-Roman times, centuries of drainage and sea defence construction have resulted in the formation of a relatively stable terrestrial landscape, dominated by pastoral agriculture. Today, extensive sea defences prevent marine inundation.

The geology of the area is characterised by estuarine alluvium over Triassic Mercia Mudstone (formerly known as Keuper Marl) (British Geological Survey Sheet 264). The overlying postglacial deposits, known as the Wentlooge Formation, generally comprise a series of estuarine alluvial silts/sands and peat up to 15 m deep, formed under estuarine, and marsh conditions (Allen 1990; Allen 1992; Allen and Rae 1987). These deposits have been described recently (Allen and Scaife 2002, 13-14).

The results of the excavation at the Western Approaches Distribution Park can be seen within a wider local context and a number of

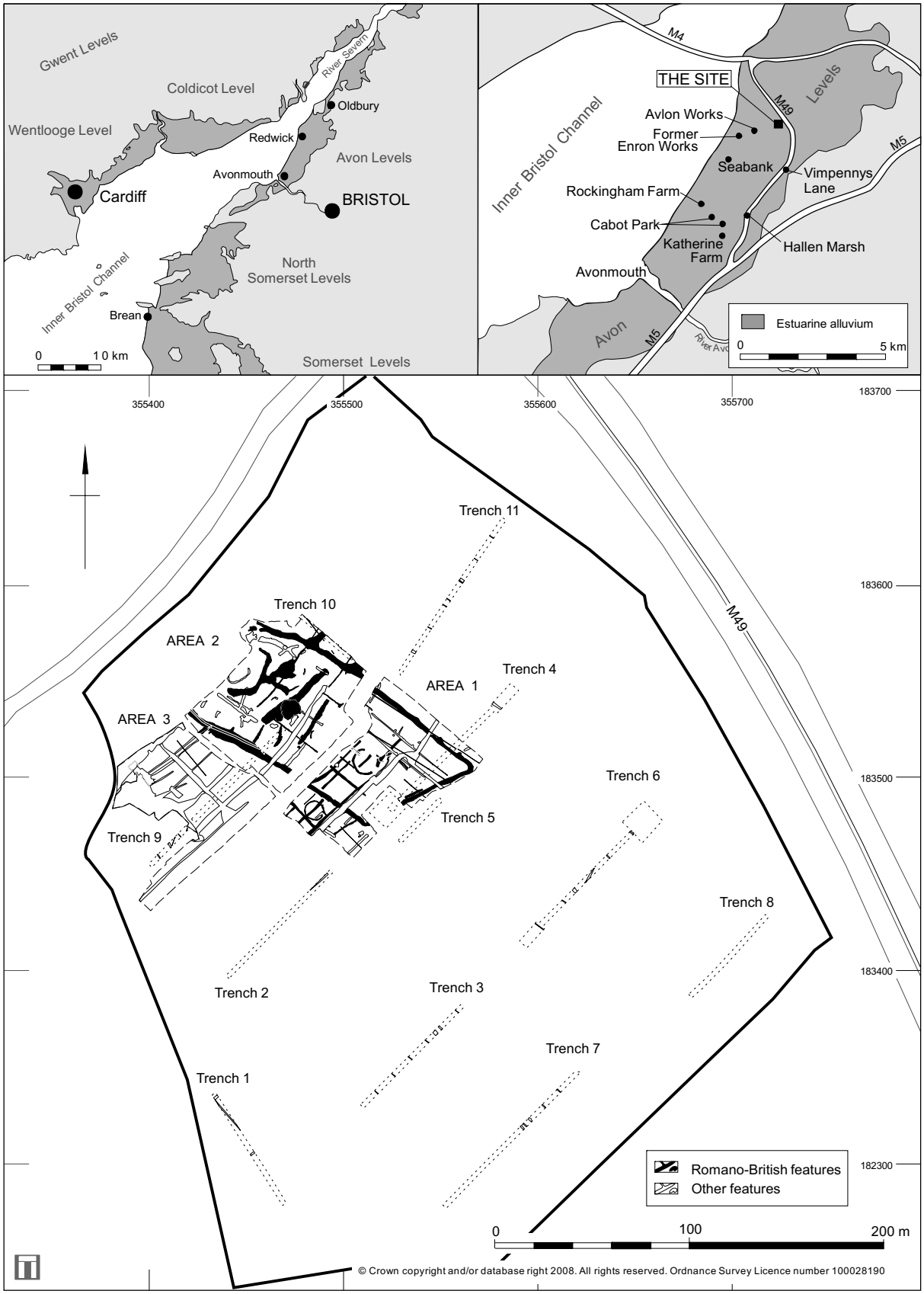

Figure 1. Site location, details of the archaeological investigations and other sites mentioned in the text.

archaeological investigations have been undertaken over the years both locally and across the region (Figure 1, eg Allen *et al* 2002; Carter *et al* 2003; Gardiner *et al* 2002, fig. 8; Masser *et al* 2005; Rippon 1997; Rippon 2000). Further work is currently being carried out at the Western Approaches Distribution Park (eg Wessex Archaeology 2007; Nick Truckle pers. comm. 2008).

EXCAVATION

The evaluation (Figure 1) consisted of eleven trenches, two of which were expanded and excavated to a depth of *c* 2.5 m in order to investigate the Wentlooge sequence. Linear features cut into the underlying alluvial clays were revealed in eight of the trenches, the majority of which were demonstrated to be of modern date. The exceptions were a large ditch excavated in trench 4 that contained quantities of unabraded Roman pottery and linear features of Romano-British date in trenches 9-10. Further trenching revealed that the ditches formed part of an enclosure, 60 m wide and at least 80 m long, dating from the late 2nd century AD (Figures 1-2).

The subsequent excavation was designed to target features within the footprint of the proposed building (Area 1) and those likely to be impacted on beyond this area (Figure 2). Area 3 was found to only contain post-medieval drainage ditches (further details in the site archive) (Figure 2).

WENTLOOGE FORMATION

The Severn Approaches has been less well studied than the Somerset Levels in spite of the obvious potential for well-stratified waterlogged remains of this low lying region. The industrial development at Western Approaches Business Park over a number of years, however, has facilitated detailed examination of the middle and upper parts of the Wentlooge sequence and its environmental remains. The Avonmouth region now has pollen data which relate to the middle and later Holocene environment of the Wentlooge Formation (Druce 2000; Walker *et al* 1998a, 1998b, 1999; Allen and Scaife 2002; Scaife 2001; Scaife 2002a-d).

The excavation of two deep test pits (trenches 4 and 6) enabled detailed geoarchaeological recording and environmental sampling of the estuarine alluvial and peat deposits. This revealed two identical stratified sequences. The sequence in trench 4 was sampled for pollen, waterlogged plant material and ostracods with the aim of understanding the sedimentary history, the changing environment and the wider landscape context. A programme of radiocarbon dating provides a chronological framework for the broad sequence and allows comparison with other sites within the Avon Levels.

Sediments (CB)

Full descriptions can be found in the project archive. To summarise, a thick body of massive gleyed greasy silty clay (422, colour Gley 1 5 5/N grey) occurred at the base of the sequence at 2.38-3.83 m+ depth (2.89-1.95 m aOD) (Figure 3). Regular division into 1-2 mm laminae (flood couplets) was noted below 3 m, demonstrating the estuarine, tidal nature of the alluvial deposition. Numerous vertical and horizontal reed (*Phragmites australis*) remains in the upper 0.3 m of this unit indicated partial stabilisation by emergent wetland vegetation. Further stabilisation occurred, as indicated by the accumulation of soft, black, silty herbaceous fen peat (the lower peat, context 421) at 2.28-2.38 m (2.99-2.89 m aOD).

The sharp, erosional nature of the boundary to a band of overlying alluvium (420, colour 2.5Y 5/1 grey) indicates truncation of the top of the lower peat surface (421) by estuarine flooding. This phase or episode was followed by a gradual reversion to semi-terrestrial stable conditions indicated by the occurrence of a second band of herbaceous fen peat, with occasional wood, at 2.03-2.18 m depth (upper peat, 419, 3.24-3.09 m aOD). Occasional worm burrows/root voids filled with overlying alluvium in the top of the layer provide evidence that this was a biologically active land surface before inundation of estuarine waters occurred once more. The resulting massive gleyed body of smooth grey blue silty clay (418, colour Gley 1 5/N grey) contained pockets and lenses of humic silty peat at its base, indicating some localised incorporation of peat from the underlying layer (419) during the flooding/water rise and the clear boundary supports an interpretation of (minor) erosion/truncation of the upper peat surface. It is

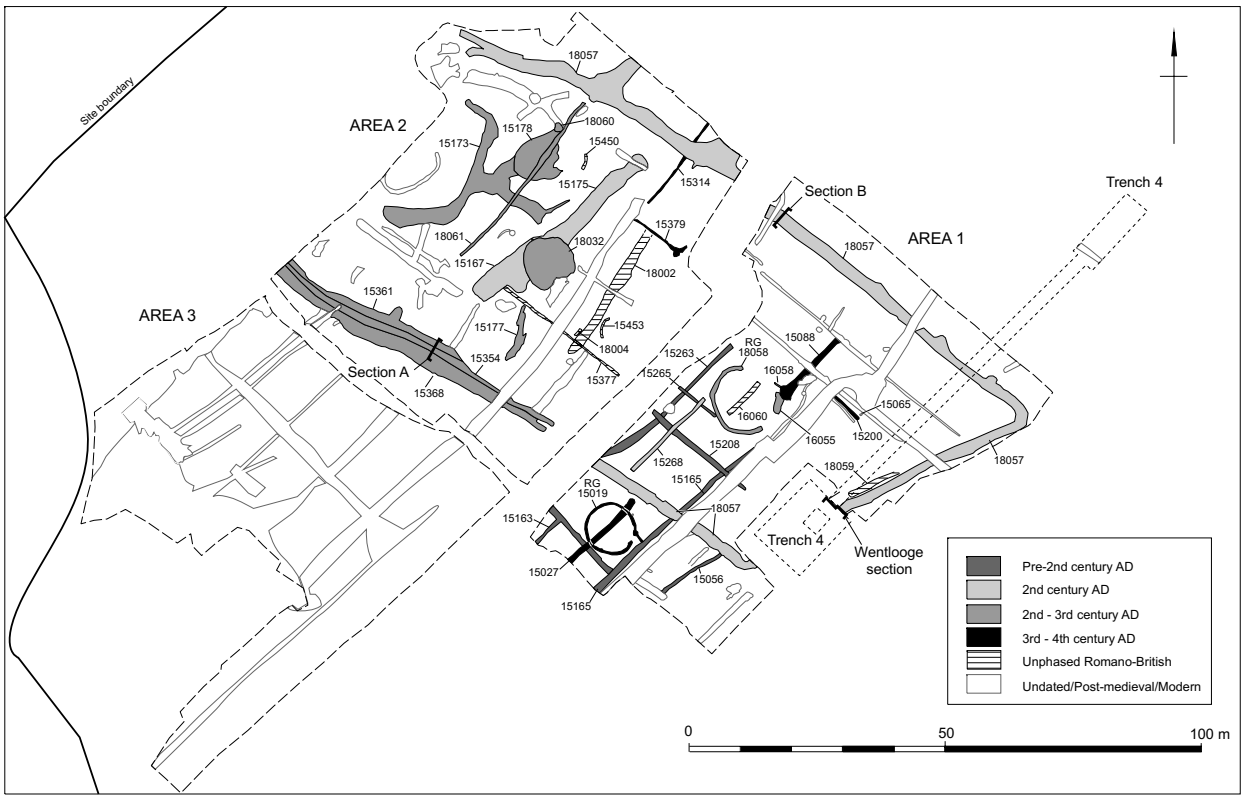

Figure 2. Plot 4000, site phasing.

suggested that the transition from middle to upper Wentlooge Formation occurs at the top of this alluvial unit (418), at 1.76 m depth (3.51 m aOD).

The overlying upper Wentlooge deposits (Figure 3: 401-3) are characterised by massive bodies of silty clay alluvium with common deep-red iron mottling throughout (mottles generally 10 YR 4/6 dark yellowish brown) and the occurrence of blocky peds, becoming well developed to the top, and with pale grey clay coating the interped spaces, indicating oxidation and deep soil formation since deposition. In places, the occurrence of regular fine sedimentary banding (flood couplets) can be taken to indicate the continuing tidal and estuarine nature of this wetland environment. A modern pelo-alluvial soil profile (Figure 3: context 400) formed in the top of this upper Wentlooge alluvium.

The sequence described is of post-glacial age, and directly comparable to the middle-upper Wentlooge Formation (Allen 1987, 1990a; Allen and Rae 1987; and Carter *et al* 2003), which comprises a series of estuarine alluvium and peat up to 15 m deep, formed by a long history of Holocene inundation. The sequence at Plot 4000 is very similar to that described at the Western Approach Business Park (Moore *et al* 2002) and Avlon Works, Severnside (Wessex Archaeology 2002), and compares well with the published sequences at, for example, Katherine Farm (Allen *et al* 2002). The peat can not be directly traced or correlated to those in other sequences, since the peat horizons across the middle Wentlooge Formation are discontinuous and not necessarily contemporaneous. However, the radiocarbon dates show they are all of middle Wentlooge age and chronologically similar to other deposits within the local area (see below).

Dating the Sequence (AB, CB)

A sequence of five AMS radiocarbon dates were obtained on samples of *Phragmites australis* (common reed) stem that were extracted from the upper and lower peat sequence within trench 4 (see Table 1 and Figures 3-4). These well-stratified remains were chosen since they are believed to be *in situ*, forming part of the on-site vegetation community.

The results obtained suggest that the lower peat formed during the late Neolithic to early

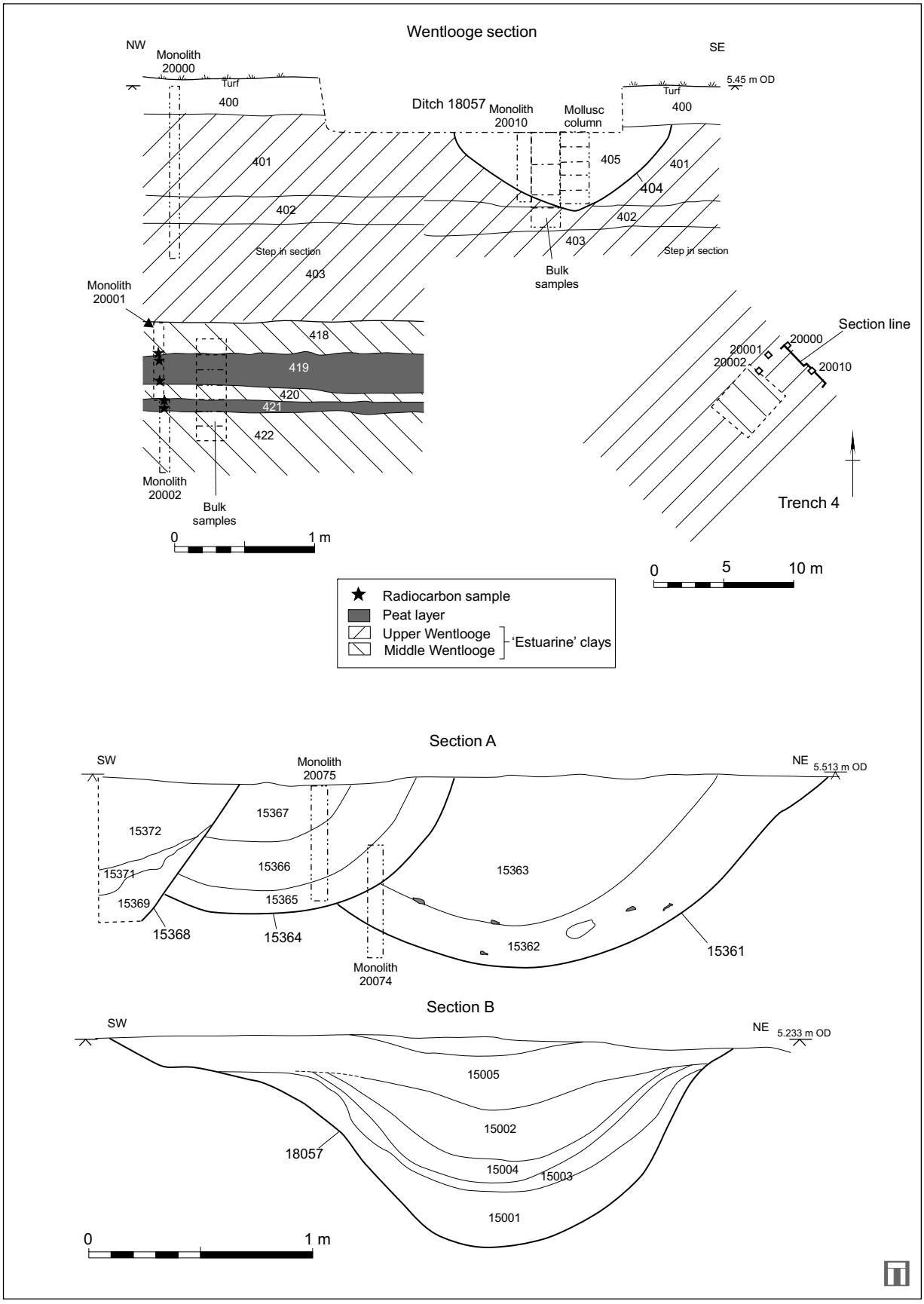

Figure 3. Wentlooge section (trench 4) and ditch sections (A-B).

Table 1. Details of the radiocarbon samples (reported to 2σ, calibrated with Oxcal v.3.10).

Stratigraphy	Context	Depth m/ m aOD	Material	Lab. Code	δC13‰	$^{14}C^{years}$ BP	Cal BC (95.4%)	Phase
Organic lenses in alluvium	418	2.01-2.02/ 3.26-3.25	*Phragmites*	NZA-23638	-26.5	2717± 35	930-800	late Bronze Age/early Iron Age
Top of upper peat	419	2.03-2.04/ 3.24-3.23	*Phragmites*	NZA-29071	-27.1	2357± 35	720-690 (1.8%) 540-370 (93.6%)	Iron Age
Base of upper peat	419	2.17-2.18/ 3.10-3.3.09	*Phragmites*	NZA-29001	-26.5	3733±35	2280-2250 (3.7%) 2210-2020 (91.7%)	early Bronze Age
Top of lower peat	421	2.28-2.29/ 2.99-2.98	*Phragmites*	NZA-23639	-25.9	3489±30	1900-1730	early Bronze Age
Base of lower peat	421	2.37-2.38/ 2.90-2.89	*Phragmites*	NZA-29002	-24	3895±30	2470-2290	late Neo-lithic/early Bronze Age

Bronze Age (2500-1700 Cal BC). The date of the upper peat accumulated is more problematic. However, it ceased to accumulate in the Iron Age (950-350 Cal BC) or was truncated down to that level at a later date. Organic lenses in the base of the overlying alluvium have proved to be older, confirming these consist of reworked material rather than being short-lived stasis horizons.

Pollen analysis (RS)

Full analysis of 20 levels through the Wentlooge sequence (Figure 3) is reported here. Pollen was extracted using standard procedures on samples of 2 ml volume (Moore and Webb 1978). A pollen sum of 400 to 600 grains of dry land taxa was counted for each level plus pollen of marsh taxa (largely Cyperaceae), spores, miscellaneous microfossils and pre-Quaternary palynomorphs. Data are presented in a pollen diagram (Figure 4) for the main part of the profile and in Table 2 for two upper samples. Four local pollen assemblage zones (l.p.a.z, 1-4.) have been recognised.

1. 2.48-2.34 m. *Quercus-Corylus avellana type*. Trees and shrubs are dominant (70%) but decreasing in importance. *Quercus* (oak, to 48%) and *Corylus avellana* type (hazel, 25%) are dominant. There are small but consistent records of *Tilia* (lime/ linden) and *Fraxinus* (ash). *Alnus* (alder) attains its maximum values (9%). *Pinus* (pine) is more important in the mineral sediments of the basal level. Herbs are dominated by Poaceae (grasses, increasing to 34%) and Chenopodiaceae (6%). Marsh taxa include Cyperaceae (sedges, 15%) and small numbers of *Potamogeton* type (pondweed) and *Typha angustifolia* type (lesser bulrush). Ferns spores include *Polypodium vulgare* (7%) with *Pteridium aquilinum* and *Dryopteris* type (declining from 17%). Dinoflaggellates and pre-Quaternary palynomorphs are present.

2. 2.34-2.10 m. *Quercus-Corylus avellana type-Poaceae.* Tree pollen continues to decline (to 20%) whilst herbs become more important. *Quercus* (30% declining to 15%) and *Corylus avellana* type (peak to 35% at 2.24 m) remain the dominant types with continued presence of *Tilia, Fraxinus* and *Alnus*. Herbs become more important with Poaceae dominant (to 65%). Chenopodiaceae are reduced from zone 1 but with a single peak at 2.12 m. Freshwater marsh taxa remain as in the preceding zone with the addition of occasional *Alisma* type (water-plantain), *Lythrum salicaria* (purple-loosestrife) and *Typha latifolia* (bulrush).

3. 2.10-1.94 m. *Poaceae-Dryopteris type-Sphagnum.* This zone is characterised by an increase of acid loving taxa which include *Erica* (heather), *Calluna* (ling) and *Sphagnum* moss

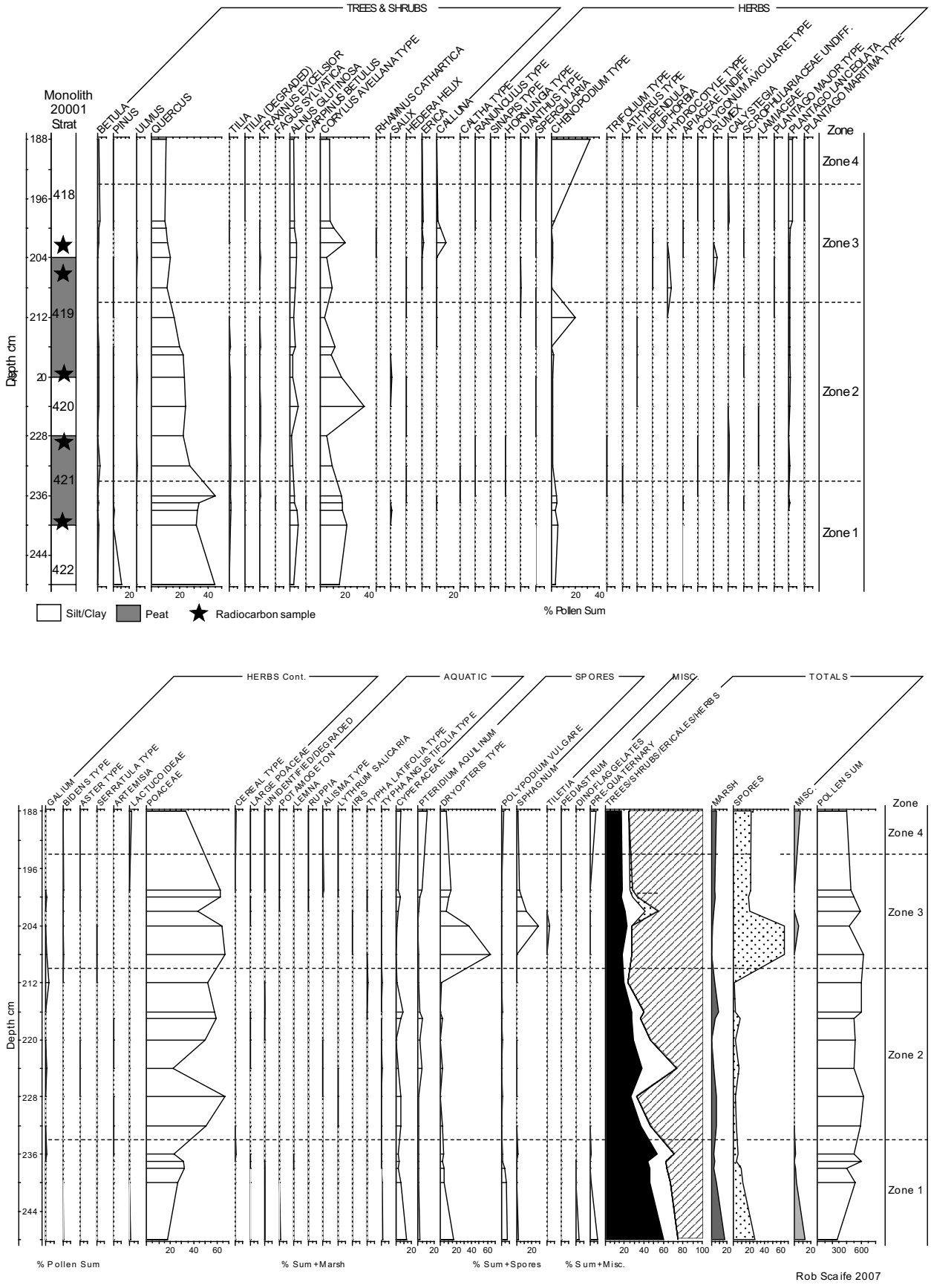

Figure 4. Pollen diagram for the Wentlooge Formation trench.

peaking 30% at 2.04 m). The latter is associated with the fungal spore *Tiletia*. The zone also shows a significant expansion of *Dryopteris* type fern (60%). Trees and shrubs decline further with *Tilia* only occurring sporadically. *Fraxinus* dies out in this zone. Poaceae (65-70%) remains the dominant herb with incoming *Plantago lanceolata* (ribwort plantain, 4%) and occasional occurrences of other herb taxa.

4. 1.92-1.06 m. *Chenopodiaceae-Poaceae-Potamogeton type.* The uppermost pollen levels of this zone are not shown in the pollen diagram (Figure 4) because of the wider sampling interval used for these potentially rapidly deposited upper Wentlooge alluvial sediments. These data are given instead in Table 2. In this upper zone there is a change to pollen spectra containing halophytic types and freshwater marsh associated with the change to mineral sediments. The former includes occurrences of *Plantago maritima* (sea plantain), Plumbaginaceae (*Armeria* 'A' line, thrift), Chenopodiaceae, *Spergularia* type (sea-spurrey) and *Ruppia* (tasselweed). Trees and shrubs are at low levels. Poaceae remains the dominant herb taxon. Also associated with the change to mineral sediments is an increase in pre-Quaternary palynomorphs and dinoflaggellates.

Interpretation

Within the lower part of this sediment sequence, there are two peat horizons (419 and 421) (Figure 3) intercalated within alluvial silty clay (422 and 420). The base of the lower peat (421) is dated to the late Neolithic (NZA-29002, 2470-2290 Cal BC). These stratigraphical changes are clearly a response to changing sea level as evidenced by the changing frequencies of halophytic (salt tolerant) plants. In addition, the pollen provides a record of the vegetation of the region which appears to be largely independent of changes in the pollen taphonomy caused by eustatic fluctuations.

Overall, there is strong evidence of woodland. The highest values of trees and shrubs occur in l.p.a.z. 1, during the late Neolithic where oak probably with hazel appears to be important. Small numbers of lime / linden and occasional ash and beech are present and given their poor representation in pollen assemblages generally, it is likely that these were also constituents of the local woodland. This compares well with other data for the middle Holocene (Druce 2000). This woodland became progressively diminished and was accompanied by an expansion of open, grass dominated, herb communities. Only in the upper estuarine alluvium (418, 403, 402) do the numbers of arboreal and shrubs drop to low levels. The sedimentary change from silty clay (probably estuarine; 422) to peat (421) shows no marked pollen change which might indicate a significant change in the pollen catchment and as such, it is probable that the woodland was growing within the region of the site. The higher values of pine in the basal level are, however, attributed to its typical over- representation in fluvial sediments.

The lower, late Neolithic/early Bronze Age peat (421) contained *Phragmites* and other herbaceous plant macrofossil material. This is reflected in the pollen record by a dominance of grass pollen with some sedges suggesting an open fen habitat. With the change to silty clay alluvium (420), as might be expected, there is a reduction of these pollen types. This alluvial incursion was, however, short lived and there was a return to grass-sedge fen (419). At no time does alder, floodplain woodland become important, perhaps indicating that local conditions remained changeable, preventing such a stable and dry habitat from forming. From 2.08 m (the upper peat of 419) (l.p.a.z. 3), there is a substantial increase in the numbers of fern spores. This indicates a change to drier conditions in the upper peat, probably with growth of marsh ferns. Unfortunately, preservation did not allow more detailed identification. This succession was followed by an increase in plants of acid habitat. At 2.04 m, there is an increase of *Sphagnum* moss, *Tiletia*, heather and ling. This expansion is sharp and is associated with the lithological change from peat to alluvial silty clay suggesting a change in taphonomy. It is, therefore, probable that these acidophilous elements may have been fluvially transported from elsewhere in the catchment.

The abrupt change from peat (419) to alluvial silty clay (418) at 2.04 m indicates that there may have been some erosion of the upper peat surface during what appears to have been the final marine and estuarine transgression occurring after the late Bronze Age (*c* 800 BC) and possibly as late as 400 Cal BC (see Table 1). The pollen spectra (data for levels above 1.83 m are given in Table 2) show a change to mature salt marsh

Table 2. Pollen data 1.06 m and 1.38 m of the Wentlooge Formation.

Depth m	**1.06**	**1.38**	**Depth m**	**1.06**	**1.38**
Trees and Shrubs			**Herbs cont...**		
Betula	<1	2	Lactucoideae	2.6	5.5
Pinus	1	1.5	Poaceae	48.2	36.7
Picea	0	<1	Cereal type	0	<1
Ulmus	0.6	<1	Poaceae (>45u)	0	<1
Quercus	11.8	25	Unidentified-degraded	0	<1
Tilia	1	<1	**Freshwater Marsh and Aquatic**		
Fraxinus excelsior	0	<1	*Potamogeton type*	22.4	5.8
Ilex aquifolium	0	<1	*Ruppia maritima*	0	<1
Alnus glutinosa	1.3	4.7	*Typha latifolia*	<1	0
Corylus avellana type	5.8	6.7	*Typha angustifolia type*	<1	0.6
Calluna	0	1	Cyperaceae	6.1	16.3
Herbs			**Spores**		
Sinapis type	0	<1	*Pteridium aquilinum*	13.4	10.6
Spergularia	<1	1.2	*Dryopteris type*	7.5	3
Chenopodiaceae	4.5	5	*Polypodium vulgare*	3.8	4.2
Rosaceae undiff.	0	<1	*Sphagnum*	1.9	1.8
Potentilla type	0	<1	**Miscellaneous**		
Epilobium type	0	<1	*Pediastrum*	0.6	1.5
Polygonum aviculare type	0	<1	Dinoflaggellates	0.9	3.6
Rumex	0	<1	Pre-Quaternary	1.5	10.5
Rumex obtusifolius type	0	<1	**Totals**		
Plumbaginaceae	0	<1	Trees	16	34.7
Plantago major type	3.5	0	Shrubs	5.8	6.7
Plantago lanceolata	7.7	2.7	Ericales	0	1
Plantago maritima	9.9	2.5	Herbs	78.3	57.6
Succisa	0	<1	Marsh/aquatic	29	22.9
Bidens type	1	<1	Spores	26.5	19.6
Cirsium type	<1	<1	Misc.	3.1	15.6
Centaurea nigra type	<1	<1	**Pollen sum**	313	401

vegetation communities. This is shown by expansion of Chenopodiaceae (goosefoots, oraches) and less well represented, but diagnostic taxa, including thrift or sea lavender, sea plantain, daisy type, beaked tasselweed and possibly sea arrow grass (*Triglochin* within *Potamogeton* type).

The expansion of the pollen catchment, with the addition of the fluvially transported component, is likely to have resulted in some of the woodland types recorded. These include oak at 1.38 m and holly (*Ilex*). Interestingly, spruce (*Picea*) at 1.38 m may be from long distance marine transport or from planting in parks/gardens in the historic period (it is not native in this interglacial). Being mineral sediment, there is the likelihood of microfossils being transported by rivers from their catchment and from erosion of earlier sediments. This is the case from *c* 1.96 m upward to 1.06 m (402) where derived, pre-Quaternary palynomorphs and dinoflaggellates, pollen of freshwater fen/marsh taxa and *Pediastrum* occur. It is into the upper level that the Romano-British ditches described below were cut.

These data show a close correspondence with previous pollen studies showing an expansion of the area of salt marsh in response to positive eustatic change. Woodland became progressively diminished through the late prehistoric period through anthropogenic clearance for agriculture. Small numbers of cereal pollen grains and associated weeds attest to arable activity although pasture appeared to predominate.

Waterlogged Plant Remains (CS)

Five waterlogged samples each of 1 litre were processed and examined for macroscopic waterlogged plant remains. Material was sieved down to 250 mm, scanned and plant remains where possible identified, following the nomenclature of Stace (1997), and the abundance of individual species quantified.

As shown in Table 3, only samples from the upper peat (419) yielded substantial material. The lower peat deposit (421), contemporary with dominance of pine and hazel in the pollen record, provided evidence only for wetland species: meadow-rue (*Thalictrum minus*/*T. flavum*), gypsywort (*Lycopus europaeus*) and sedge (*Carex* sp.). These are all common components of wet-grasslands and fens. Duckweed (*Lemna* sp.) and water-crowfoot (*Ranunculus* subg. Batrachium) are indicative of still and slow flowing waters, including brackish.

Seeds of gypsywort (*Lycopus europaeus*) were also recovered from the overlying alluvium (420), along with elder (*Sambucus nigra*), which can be seen as indicative of at least some scrub in the local area. Both species continue to be represented within the upper peat deposits. The richer samples from the late Bronze Age/early Iron Age, upper peat deposits (419), contained many seeds of beaked tasselweed (*Ruppia maritima*), indicative of brackish water, especially pools and back-water creeks within coastal salt-marshes. In this light seeds of orache (*Atriplex* sp.) probably derive from species associated with saltmarsh.

Three further species present here are also commonly recorded in coastal situations; celery-leaved buttercup (*Ranunculus sceleratus*) grows around the muddy edges of water-bodies, and disturbed wet soils, marsh pennywort (*Hydrocotyle vulgaris*) in soligenous mire in association with mildly acidic peats, and henbane (*Hyoscyamus niger*) on sandbanks and shingle. However, inland henbane will colonise areas of disturbed, nitrogen rich, rough ground often associated with cattle, while marsh pennywort is often also encouraged by occasional cattle grazing (Grime *et al* 1988). Both *Atriplex* sp. and *Ruppia maritima* are still present in the uppermost deposit from the estuarine alluvium along with seeds of probable common/grey club rush (*Schoenoplectrus lacustris/tabernaemontani*), indicating the continued presence of saltmarsh edge.

Given the low numbers of plant macrofossils in all but the upper peat deposits, there is little indication of the decline in woodland seen within the pollen record, although species of wet wooded fens, such as alder, are poorly represented within the pollen as well, and it is possible that the estuary area was already quite open by the early Bronze Age. Certainly by the late Bronze Age the plant macrofossils indicate an open marshland, in close proximity to saltmarsh, with brackish water inlets and possibly some indication of grazing. As with the pollen there is also some indication of slightly more acidic conditions.

Charcoal (CB)

Small quantities of charcoal, both charred woody and herbaceous stems, were recovered from the

Table 3. Waterlogged plant remains from the Wentlooge Formation, trench 4.

Sediment		**estuarine alluvium**	**upper peat**	**upper peat**	**estuarine alluvium**	**lower peat**	**estuarine alluvium**	**estuarine alluvium**
Depth (m)		1.76-2.03	2.03-2.10	2.10-2.18	2.18-2.28	2.28-2.38	2.38-2.83	2.38-2.83
Sample		20003	20004	20005	20006	20007	20008	20009
Volume (litres)								
Flot		250	1000	1000	750	1000	600	400
Abundance		++	++++	++	+	+	+	+
Species	**Common Name**							
Thalictrum flavum/ *minus* L.	common/ lesser meadow-rue	-	-	-	-	+	-	+
Ranunculus cf. *sceleratus* L.	celery-leaved buttercup	-	1	+	-	-	-	+
Ranunculus subg. Batrachium (DC.) A. Gray	water-crowfoot	-	-	-	-	+	-	+
Ceratophyllum sp. L.	rigid hornwort	-	cf.1	-	-	-	-	+
Chenopodiaceae	goosefoots	-	-	-	-	-	1	-
Atriplex sp. L.	orache	+	++	+	-	-	-	+
Rubus sp. L.	bramble	-	1	-	-	-	-	+
Hydrocotyle vulgaris L.	marsh pennywort	-	+++	+	-	-	-	+
Hyoscyamus niger L.	henbane	-	-	+	-	-	-	+
Lycopus europaeus L.	gypsywort	-	1	+	1	1	-	+
Sambucus nigra L.	elder	-	2	-	1	-	-	+
Artemesia sp. L.	mugwort	1	-	-	-	-	-	+
Potamogeton sp. L.	pondweed	-	++	-	-	-	-	+
Ruppia cf. *maritima* L.	beaked tasselweed	+	++++	+	-	-	-	+
Lemna gibba /minor L.	duckweed	-	-	-	-	+	-	+
Eleocharis sp.	rush	-	-	1	-	-	-	+
Schoenoplectrus sp. (Rchb.) Palla	common/grey club rush	+	-	-	-	-	-	+
Carex sp. L.	sedge	-	-	-	-	+	-	+
Poaceae/Monocot stems and roots		-	+	+	++	++	+	+

Table 4. Wood charcoal identifications.

Taxon	Number of fragments	Comments
Upper peat context 419		
Corylus avellana	3	-
Salix/ Populus sp.	8	-
1 year (unid) twigwood)	1	-
Parenchyma (pith?)	1	-
Bark	1	-
Total number of fragments	**14**	**-**
Ditch 15067 context 15070 =15088		
Quercus sp.	51	Mature, rarely vitrified
Pomoideae	1	Large roundwood
Euonymus europeus	1	-
Corylus avellana	10	-
Alnus glutinosa	2	-
Unidentified vitrified	2	-
Total number of fragments	**67**	**-**

flots of samples from the upper (419) and lower peat (421). These layers are dated to the late Neolithic/early Bronze Age and late Bronze Age/early Iron Age periods respectively, which are not well-represented archaeologically in the area. Identification of even the smallest (<2 mm) charcoal pieces was attempted due to the possibility that this was the result of landscape burning involving herbaceous types.

The fragments were prepared for identification according to the standard methodology of Leney and Casteel (1975, see also Gale and Cutler 2000). Each was fractured with a razor blade to expose transverse, radial longitudinal and tangential longitudinal sections (TL) and examined using bi-focal epi-illuminated microscopy. Identification was undertaken according to the anatomical characteristics described by Schweingruber (1990) and Butterfield and Meylan (1980). Identification was to the highest taxonomic level possible, usually that of genus, and nomenclature is according to Stace (1997).

Three small fragments of charred herbaceous stem were found in *c* 2 litre of flot from 421 (the lower peat). A greater number of pieces were recovered from the same volume of flot from 419 (the upper peat), which included 11 pieces of large Poaceae (grass) stem including large swollen culm nodes which may be from cereal types, *Arrhenatherum elatius* (false oat grass) or *Phragmites australis* (common reed) (Stevens pers comm. 2006). Fourteen small fragments of wood charcoal were also identified (Table 4), *Corylus avellana* (hazel) was present but the occurrence of *Salix/Populus* sp (willow/aspen) indicates a wetland edge source for at least some of this charred material, while the herbaceous stems came from either wet reedbed or drier grassland on raised areas. Given the stable (wet) terrestrial context for this material with little alluvial contribution, and the good preservation even of delicate herbaceous stems, very localised fire is indicated. The types identified and environment represented by the peat suggests this was fire in the landscape as opposed to fuel use. While natural ignition by lightening strike cannot be ruled out, given the timing of this fire, coincident with more widespread vegetation clearance indicated by the

pollen record and given the wet and therefore difficult to burn nature of the environment for most of the year, it is most likely this is attributable to accidental or deliberate ignition related to human activity, potentially land clearance by burning during the late Bronze Age/early Iron Age.

This evidence provides useful corroboration for the pollen results, which indicate human activity, and more specifically, pastoral/arable land-use. It is of note that an extensive and laterally continuous horizontal layer of eroded soil and comminuted charcoal in-wash was found at the top of the middle Wentlooge sequence at 2.2 m depth during test-pitting and coring at the former Enron Works 1.5 km to the southwest (see Barnett and Armour Chelu, this volume). This layer, which also included herbaceous stems and the basal culms of large grasses, was also dated to the late Neolithic (2570-2340 Cal BC, KIA-24862, 3952±29 BP). Since the Enron Works layer was in-washed, and in an alluvial context and clearly included some eroded material, it is unclear whether the date relates directly to a local burning event that had been washed in, or whether the charcoal was first incorporated into a soil that was later eroded.

Microfauna (Foraminfera and Ostracods) (JR)

One mollusc sample processed to 500 µm from the Wentlooge Formation in Area 1 (Ditch 18057, monolith 20077; 0.92 to 1.02 m) produced some adult ostracod carapaces, including the brackish tolerant taxon *Cyprideis torosa*. Foraminiferal tests including *Ammonia* sp. and *Elphidium* sp. were also recovered, suggesting a depositional environment that included brackish creeks and mudflats (Haslett *et al* 1997).

A microfaunal sample processed to 63 µm from trench 4 (Figure 3: 401; monolith 20010, 0.53-0.55 m) contained a predominance of the foraminifer *Elphidium williamsoni* with some *Trochammina inflata*, *Jadammina macrescens* and *Ammonia limnites.* No ostracods were recovered. The assemblage, dominated by *Elphidium williamsoni*, suggests deposition in a near horizontal middle salt marsh environment with restricted drainage and possible salt pan development (Haslett *et al* 1997).

DISCUSSION: WENTLOOGE FORMATION

The sequence described for Plot 4000 above is sedimentologically comparable to the middle-upper Wentlooge Formation described by Allen (1987, 1990); Allen and Rae (1987) and Carter *et al* (2003), and is similar to that described at the Western Approach Business Park (Moore *et al* 2002), Avlon Works, Severnside (Wessex Archaeology 2002), and Katherine Farm (Allen *et al* 2002). Generally in this area, and supported at this site, eustatic change occurred during the late-prehistoric period, resulting in marine transgression, as indicated by the stratigraphy and the changing frequencies of salt tolerant flora (eg Haslett *et al* 1997; Hibbert 1980; Jennings *et al* 1988). This prompted a decline in local woodland and the progressive development of salt marsh and influence of brackish water on the margin of the estuary.

The development of the sedimentary profile has been put in a chronological framework through the use of radiocarbon dating. While broad comparisons have been made with similar sequences and individual sites, no direct correlation of particular layers can be made since the dateable stases/peat horizons are not planar or continuous in the Severn Estuary and, as such, horizons at similar height above sea levels have provided a range of dates. A review and mapping of all dated sequences in the estuary may prove a useful future exercise.

The lower part of the middle Wentlooge Formation is represented at Plot 4000 by estuarine clays (422) of a tidal nature with evidence for partial stabilisation in the upper 0.3 m by emergent wetland vegetation. Further stabilisation occurred during the late Neolithic and early Bronze Age (2470-2290 Cal BC, NZA-29002) with the accumulation of fen peat (421). The pollen and waterlogged plant analyses indicate a demise of local woodland and expansion of open wet grassland and fen at this time. Contemporaneous human activity appears to have been limited, with possible burning of vegetation indicated by the recovery of charred herbaceous stems but with artefactual evidence notably absent from the immediate site. Activity here is broadly comparable in date to other sites close by, including Cabot Park, Seabank and the

former Enron Works (Allen *et al* 2002; Barnett and Armour Chelu, this volume).

The nature of the boundary to a band of overlying alluvium (420) indicates truncation of the upper peat surface by estuarine flooding. This marine inundation resulted in the accumulation of silts (420) at some point during the mid 2nd millennium BC and is reflective of the wider phenomenon of marine transgression at this time. A gradual reversion to semi-terrestrial stable conditions followed, as shown by the occurrence of a second band of herbaceous fen peat (upper peat 419). Although localised changes in fluvial regime may have played a part, the layer was found to be extensive at Plot 4000 and probably reflects the wider effects of marine regression on the Severn Estuary. Here the radiocarbon results are less helpful, as the dated sample from the base of the peat could be on reworked material from the lower peat as the date (NZA-29001: 2210-2020, Cal BC 91.7%) is earlier than the result obtained for the top of the lower peat (NZA-23639: 1900-1730, Cal BC 95.4%). Occasional worm burrows/root voids filled with overlying alluvium in the top of the layer provide evidence that this was a biologically active land surface before inundation of estuarine waters occurred once more. Here the associated waterlogged seeds (beaked tasselweed) are indicative of brackish water pools and back-water creeks within coastal saltmarsh. A flat or gently undulating wet marsh environment with regular tidal influence and perhaps ephemeral channels traversing the site is indicated.

Other recovered species (henbane and marsh pennywort) could provide indirect evidence that the marshland was used for occasional cattle grazing. Other evidence for human activity in the immediate landscape comes from the range of charred plant remains and wood charcoal (see above), interpreted as land clearance by the deliberate burning of vegetation most probably for pastoral farming. Radiocarbon dates with ranges of 930-800 Cal BC (NZA-23638) and 540-370 Cal BC (93.6% - NZA-29071) indicate that this probably occurred during the late Bronze Age and early Iron Age (see Table 1). This evidence neatly complements the identification of a number of short-lived habitation sites of similar date at Katherine Farm and Cabot Park, where spreads of stone, pottery and bone have been recovered (Allen *et al* 2002). Certainly the evidence from Plot 4000 adds to a model of coastal grazing that has been suggested (Locock 2000; Allen *et al* 2002; Gardiner *et al* 2002).

This use of the landscape was, however, brought to an abrupt end in the immediate vicinity by a rise in sea level/ marine transgression causing localised flooding, which resulted in the (minor) erosion/truncation of the land surface (upper peat surface 419). It is suggested that the transition from middle to upper Wentlooge Formation occurs at the top of this alluvial unit (418). A modern pelo-alluvial soil profile formed in the top of this upper Wentlooge alluvium once water levels had declined with the use of sea defences and land reclamation in historic times.

Plot 4000 provides evidence for the progressive reduction in woodland and the establishment of pasture and arable land in prehistory. Although the decline in woodland is perhaps in part attributable to inundation associated with marine transgression, human clearance and exploitation of the Bronze Age and Iron Age landscape is also indicated on the basis of the charcoal and pollen evidence. Whether this clearance and burning was highly localised or more widespread, with patches on raised areas and along floodplain edges affected across Avonmouth, is as yet unclear. However, it is of note that a number of studies have identified landscape-scale clearance in the wider Severn Estuary at this time (eg Jordan 2006; Gilbertson *et al* 1990; Walker *et al* 1998a).

The sequence underlying and cut by the Romano-British enclosure ditch provides a setting and environmental background for this later occupation, described below, and highlights the wet and dynamic nature of this environment, which would have posed significant challenges to settlement and land use.

ROMANO-BRITISH SETTLEMENT AND ITS ENVIRONMENT

The local area was already open and dominated heavily by herbaceous vegetation by the time the site was used in the Romano-British period as a small farmstead. Woodland resources were still locally available on the wetland fringes and interfluves, including oak, alder and hazel.

Geoarchaeological field observations suggest the farmstead targeted the slightly higher and drier land where the underlying Mercia mudstone rises. However, the environmental record clearly indicates the water table remained high over much of this site and it was still subject to periodic tidal estuarine inundation, so certain activities may well have been confined to drier parts of the year. The Romano-British ditches remained wet and were well-vegetated with reeds and sedges in their lifetime.

The influence of salt-marsh and brackish elements continued to be substantial yet agricultural land was successfully established, with local cultivation of cereals and legumes and processing at the site demonstrated. Previous published works have suggested that prehistoric cultivation was on the higher and drier land fringing the Avon levels (Gardiner *et al* 2002; Locock 2001). It is possible that the earliest Romano-British ditches were dug for drainage and therefore were a deliberate attempt at reclamation on a local scale.

All the Romano-British ditches cut into the stable surface (401) of the upper estuarine clays of the Wentlooge Formation (see Figure 3). The site developed from the 2nd century until the early-mid 4th century AD. Phasing the site proved difficult due to adverse ground conditions, the clayey nature of the subsoil, the recutting of ditches, and the paucity and redeposition of finds (in particular pottery). Boundaries between anthropogenic features and natural features were sometimes hard to define and it is possible that some of the excavated features were inadvertently overcut. The phasing outlined below is therefore tentative.

Romano-British (pre-2nd century AD)

Evidence of human activity predating the 2nd century AD was recovered in Area 1 (Figure 2). Seven ditches were assigned on stratigraphic evidence, despite the absence of finds, to a pre-2nd century AD phase. The earliest ditches (15263 and 15165) were aligned NE-SW and were cut by a series of NW-SE aligned ditches (15163, 15208 and 15265). The purpose of these ditches could be for drainage given their regular spacing and co-alignment. Ditch 15056, located in the southern corner of Area 1 was completely cut away by ditch 18057 of 2nd century date. Residual finds of similar date were recovered from elsewhere (*see* Finds, below).

Romano-British 2nd century AD

A large northwest to southeast aligned rectilinear ditched enclosure (18057) (200 m x 95 m) was uncovered in Areas 1 and 2. The ditch was over 1 m deep and 2 m wide and in places had been either recut or replaced earlier ditches of similar character (Figure 3). Charred plant remains were recovered from the lower fill (layer 15253, cut 15254) and from the evaluation (cut 404, single fill 405, see Stevens below). Pottery from its fill indicates use from as early as the 2nd century AD. It was evident that the enclosure and other adjoining ditches extended just beyond Area 2 (Figure 2).

To the west there was evidence that the enclosure ditch was redefined on at least three occasions (represented by ditches 15368, 15361 and 15364, Figure 3). These ditches contained pottery of early 3rd century date (15361), and 3rd to 4th century date (15364). Ditch 15368 produced only a single sherd of 2nd-4th century pottery. Ditch 15361 (the earliest phase) was cut by 15364, which in turn was cut by 15368 (=18057). Within the central and southern enclosed area of 18057 there were three further ditches (15268, 15167 and 15175). The stratigraphic relationship of 15167 and 15175 was removed by a large tree-throw hole (18032). Ditch 15167/15175 subdivided the more northern extent of enclosure 18057. This ditch subdivided 18057 to give potentially wide access routes into the corresponding enclosed areas.

Romano-British 2nd - 3rd century AD

Feature 18058 was probably a drip gully for a roundhouse with a possible southeast facing entrance (Figure 5). What could have been the remnants of the gully on the eastern side was cut away by ditch 15088, which also removed the eastern end of pit 16055 (Figure 5). Given the shallow depth of the ring gully at this point (Figure 5, section A) it is possible that ditch 15088 was broadly contemporaneous. Not surprisingly, occupation refuse was concentrated in this area and included a small quantity of redeposited human bone, pottery and worked

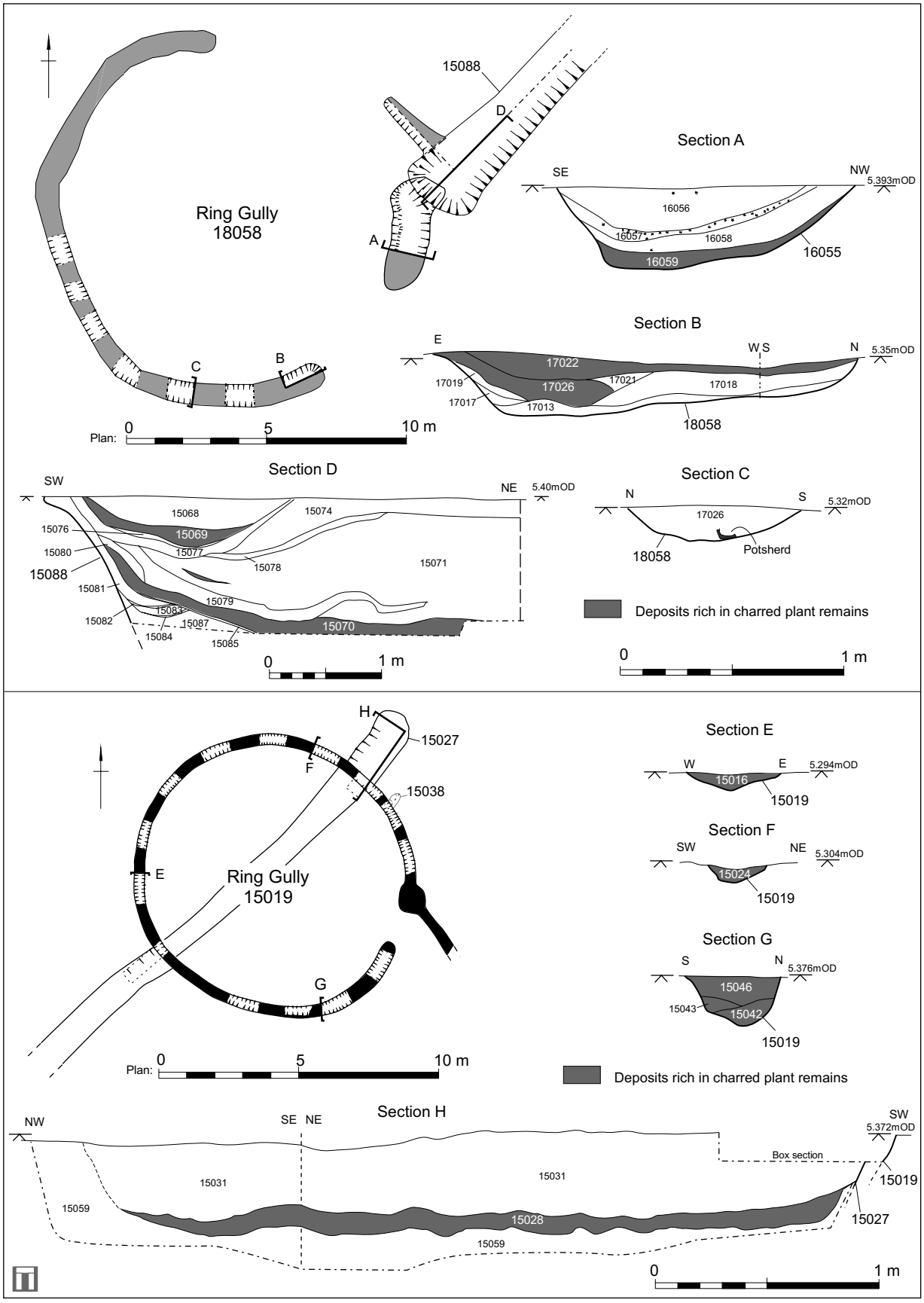

Figure 5. Ring gullies: 15019 and 18058 and ditches: 15088 and 15027.

stone. The human bone from this context could be from the same individual as the bone recovered from 15174 (*see* McKinley, below). It is possible that pit 16055 formed the southeast side of ring gully 18058, although it was slightly deeper and wider, and had a greater number of clay fills. Its basal layer (16059) contained a layer of charred material (charcoal and charred plant remains - *see* Stevens below) as well as pottery.

To the northwest, within Area 2, was an irregular linear feature, 15177; investigation of this feature was limited and its true nature and function were not ascertained.

A series of inter-cutting features were located near the northern corner of Area 2 and comprised pit 18060, gully 18061 and layers/spreads 15178 and 15173 (dated by surface finds). Feature 15173 appears to form the south-eastern end of a small enclosure. It was cut by a shallow circular pit (15307) that was found to contain a small deposit of cremated human bone (*see* McKinley, below).

Romano-British 3rd – 4th century AD

In the southern part of Area 1 ditch 15027 was found to terminate just outside enclosure ditch 15065 and therefore respected the layout of the enclosure (Figure 2). In turn it was cut by the ring gully 15019. The basal fill (15028) of ditch 15027 was found to be rich in charred plant remains (*see* Stevens, below) (Figure 5).

Roundhouse drip gully, 15019, with a southeast facing entrance was exposed near the western corner of Area 1 (Figure 5). Its fill of silty clay contained dumps of charred plant remains (*see* Stevens, below) as well as pottery and a small group of tacks or hobnails (see Seager Smith, below).

Other broadly contemporaneous features within Area 1 were ditch 15088 (15067) and gully 15200 (Figure 2). Ditch 15088 had a surviving terminal end to the southwest, which cut pit 16055, while its northeast terminal had been destroyed by a probable post-medieval drainage ditch. Ditch 15088 (Figure 5: section D) was only excavated to a depth of 1.25 m. It was mostly filled with layers of silty clay, although its upper fill contained a discontinuous band of charcoal-rich occupation deposits (15073 and 15076). It contained three late 3rd-4th century coins plus a *follies* issued during the reign of Constantine I (AD 324-330), fragments from a residual early Roman T-shaped brooch, relatively large quantities of pottery, a whetstone fragment and a tiny piece of blue frit possibly from a melon bead of likely 1st-2nd century date and therefore an heirloom or residual (*see* Finds, below). The terminal end of the ditch appeared to have been recut on at least two occasions. A short distance away, and perpendicular to 15088, was gully 15200.

The only definite feature belonging to this phase in Area 2 was gully 15379 that was truncated at its north-western extent by a later ditch of probable post-Roman date.

Other Romano-British features

These included ditch 18059, located along the south-eastern edge of Area 1 and, shallow ditch 16060 within ring gully 18058 (due to adverse ground conditions its terminals were not defined). A rectilinear pit (18004), a ditch (18002), a gully (15377) and two small curved gullies (15453 and 15377) were also recorded (Figure 2).

Post-medieval, modern and undated

Located close to the centre of Area 1 (Figure 2) was a shallow scoop, 15065, containing an incomplete sheep or goat skeleton (*see* Grimm, below) as well as a few sherds of post-medieval pottery. Post-medieval to recent drainage ditches cut across the Romano-British features in Areas 1 and 2 (Figure 2).

FINDS

Coins (NC)

Of the six Roman copper alloy coins recovered, five were too corroded to be closely dated. The earliest was an *as* of the 1st or 2nd centuries AD found in ditch 15167. Four coins were found in ditch 15088; three belong within the late 3rd or 4th centuries AD while the fourth, a *follies* issued during the reign of Constantine I on behalf of his mother Helena, can be dated to between AD 324 and 330. The sixth coin (Object 3) can also be dated to the late 3rd or 4th centuries AD.

Other metalwork (RSS)

Although residual in this context, pieces from the head and bow of an early Roman copper alloy T-shaped brooch were found in ditch 15088, together with three small unidentifiable scraps. Sadly, the brooch was in such poor condition that none of the detail normally used to make typological distinctions survived. Four lead fragments were off-cuts from sheets of metal (three irregular and one circular in shape); the fifth, from feature 17172, is also circular but with a domed upper surface, possibly molten waste. One small, irregular fragment of white metal probably of recent date was recovered from clearance over pit 16055. The iron objects consist of unidentifiable, corroded lumps, handmade nail fragments and a small group of hobnails or tacks from roundhouse gully 15019.

Pottery (RSS)

The pottery provided the primary dating evidence for the site and in general survived in good, fresh condition with relatively little surface abrasion or edge damage. With the exception of five post-medieval sherds, (109 g), from evaluation trenches 4 and 5 and animal burial 15065, which will not be considered further here, all the pottery is of Romano-British date (Table 5). The fabrics and vessel forms indicate a 2nd to 4th century AD date range, with an emphasis on the late Roman (late 3rd to 4th century AD) period.

Both sherds of Southern Gaulish samian are from form 18 platters and are of 1st century AD date, although residual in the contexts in which they occurred. The Central Gaulish samian comprises sherds from the 18/31 and 18/31R dish/bowl series, form 33 cup and form 37 decorated bowls. One body sherd from roundhouse gully 18058 has been trimmed to form a circular counter. Other imported fine wares consist of two Central Gaulish black slipped ware (*c* AD 150 into the 3rd century AD) beaker sherds from pit 18004 and a Moselkeramik (later 2nd to late 3rd AD) folded beaker sherd from feature 16055. No amphorae were recovered and mortaria are only represented by four sherds, one in a soft, powdery pale orange fabric with angular white quartz trituration grits, probably from Caerleon, south Wales (Boon 1966), from feature 15172 and the others from the late Roman Oxfordshire kilns, found in ditch 15088. Oxfordshire colour-coated bowl (copies of samian forms 36 and 38) and beaker sherds were also

Table 5. Number and weight (g) of the Romano-British sherds by phase.

	Early Roman	**Early Roman**	**Late Roman**	**Late Roman**	**Unphased**	**Unphased**	**Totals**	**Totals**
Wares	No.	Wt.	No.	Wt.	No.	Wt.	No.	Wt.
Southern Gaulish samian	1	2	1	9	-	-	2	11
Central Gaulish samian	6	73	11	80	14	47	31	200
Other import	-	-	2	4	1	2	3	6
South Wales mortaria	-	-	-	-	1	5	1	5
Severn Valley ware	21	505	37	391	5	20	63	916
Oxidised ware	1	9	2	5	-	-	3	14
Oxon colour coat	-	-	10	121	4	28	14	149
Oxon whiteware	-	-	2	15	-	-	2	15
Black Burnished ware	141	1619	201	2684	75	440	417	4743
Micaceous sandy greywares	63	996	45	1088	203	899	311	2983
South-western greyware B	43	430	115	1492	71	773	229	2695
Misc greywares	6	26	103	664	6	51	115	741
Totals:	282	3660	529	6553	380	3170	1191	12469

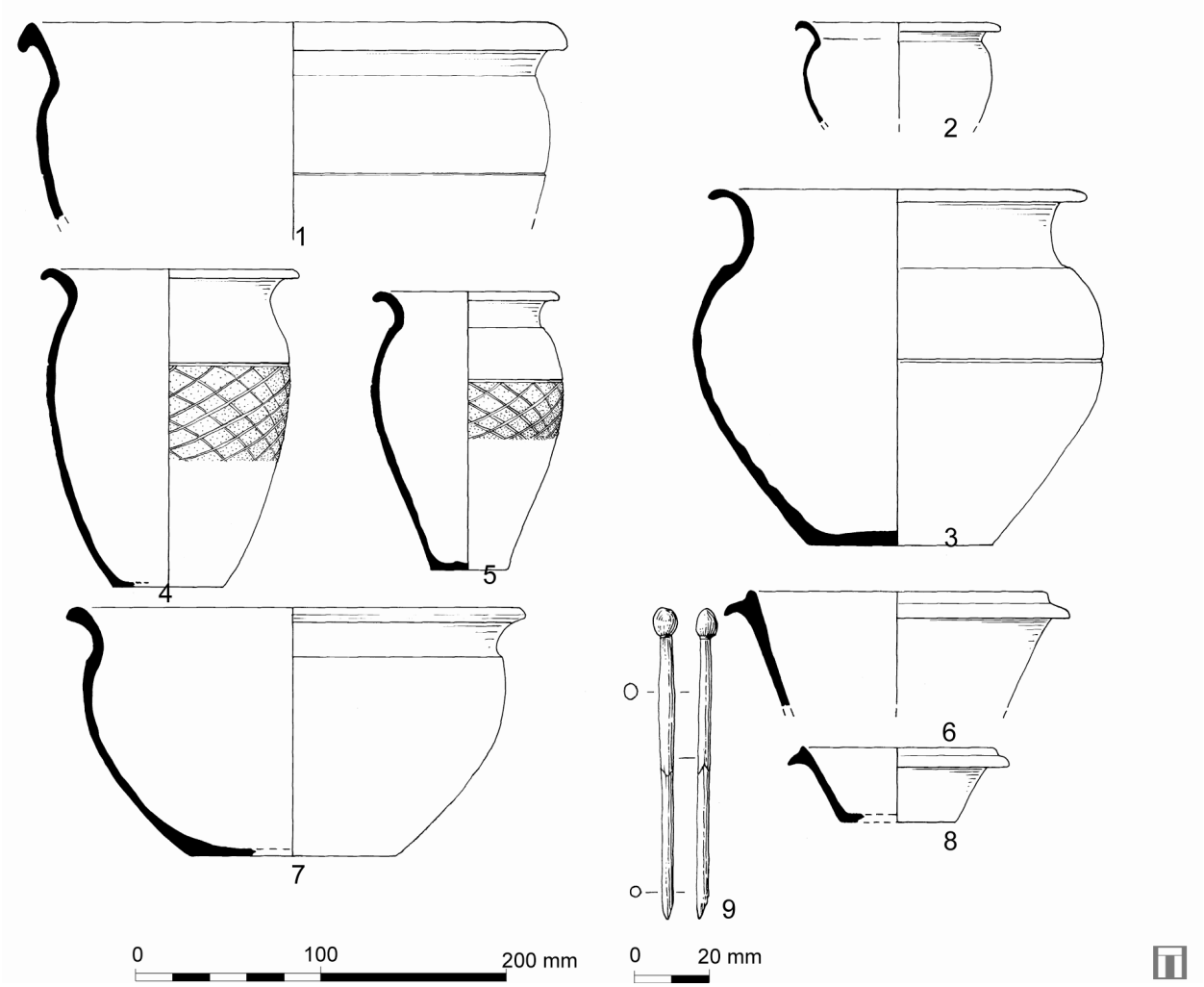

Figure 6. Finds. Pottery: 1) Large, wide-mouthed bowl; Severn Valley ware; context 405, segment 404 of enclosure ditch 18057, 2) Small, wide-mouthed bowl; Severn Valley ware; context 405, segment 404 of enclosure ditch 18057, 3) Wide-mouthed bowl; micaceous greyware; context 15070, segment 15067 of ditch 15088, 4) Everted rim jar; South-east Dorset Black Burnished ware; context 15070, segment 15067 of ditch 15088, 5)Everted rim jar; South-east Dorset Black Burnished ware; contexts 15069 and 15070, segment 15067 of ditch 15088, 6) Dropped flanged bowl; South-east Dorset Black Burnished ware; context 15069, segment 15067 of ditch 15088, 7) Round-shouldered bowl; micaceous greyware; context 16059, feature 16055, 8) Dropped flanged bowl; greyware; context 15028, ditch 15027. Worked bone pin: 9) Pin (Crummy 1983, type 3b); 3rd-4th century AD; context 16059, feature 16055, object no. 11

found in ditches 15088 and 15202.

Over half the assemblage is made up of wheel made greywares which have been divided into three broad fabric groups based on the range of inclusions present:

- Micaceous sandy greywares containing sparse to moderate flakes of silver mica and varying quantities of quartz sand, both up to 0.5 mm across;
- South-western greyware type b - characterized by white mica and large rounded white or translucent quartz (Seager Smith 1999, 310-11, fabric Q122);
- Miscellaneous greywares – a 'catch-all' group

for all other sandy greywares.

No attempts were made to assign these wares to specific production centers; most probably derived from several relatively 'local' Somerset centres, but the group may include Severn Valley greywares as well as products of the South Wales greyware industries (Manning 1993, 232-255). The south-western greywares belong to a series of inter-related industries supplying local markets across Somerset and east Devon between the later 2nd and 4th centuries AD (Holbrook and Bidwell 1991, 19), although no production sites have yet been discovered. The range of vessel forms include narrow-necked cordoned jars, everted rim and wide-mouthed jars, plain-rimmed dishes, flat- and dropped-flanged bowls.

In this assemblage, the southeast Dorset Black Burnished ware spans the period from the 2nd century AD to the 4th century AD and accounts for 35% of the sherds. This figure is comparatively high compared with a more usual 10-20% found at sites on the eastern side of the Severn Estuary (*c* 21% at *Abonae,* now Sea Mills, Bristol, for example), although assemblages from the south coast of Wales can contain in excess of 40% southeast Dorset Black Burnished ware (Allen and Fulford 1996, 245-6, fig. 10).

Overall, the coarsewares are confined to utilitarian 'kitchen' vessels, such as jars, bowls and dishes for food-preparation and storage purposes. One flagon rim was noted among the greywares, and tankards, generally interpreted as drinking vessels, are represented among the oxidised Severn Valley wares. These also include large and small wide-mouthed bowl forms (Figure 6:1-2), all likely to be of 2nd to 3rd century AD date. The assemblage from *Abonae* shows a similar reliance on jars in a variety of grey micaceous sandy fabrics (Bennett 1985, 40) but the general predominance of light-coloured wares seen at this site is not apparent in the Avonmouth assemblage, where the oxidised wares represent only 5% of the sherds. Overall, the proportions of the various fabrics from Avonmouth are broadly paralleled in the much larger collection from Fosse Lane, Shepton Mallet (greywares 42%, BB1 37%, Severn Valley wares 4%) and groups from other sites in north Somerset (Evans 2001, 159). A similar range of fabrics and forms has also been noted from a series of salt production sites in the Burnham/Highbridge area and along the Huntspill cut to the south (Seager Smith 2000, 2002a and b, 2003).

Only five features contained more than 50 pieces. The material (121 sherds, 526 g) from tree-throw hole 18032 is predominantly of 2nd to 3rd century AD date, although the low average sherd weight (4 g) and abraded condition suggest that it was filled (perhaps deliberately) with material that had already been deposited elsewhere.

Ditch 15088 contained 291 sherds (4156 g), although this total is boosted by the inclusion of several almost complete profiles of vessels (Figure 6:3-6) of late 3rd-4th century AD date. Similarly, sherds from an almost complete round-shouldered bowl (Figure 6:7) dated from the early/mid 3rd century AD were found in 16055, and it is possible that these two features contain primary domestic debris associated with the occupation of roundhouse 18058. Significant quantities of large late Romano-British sherds were also found in recuts 15364 and 16361 on the southeast side of the main enclosure ditch 18057 (18 and 141 sherds respectively). The Black Burnished wares recovered from these features indicates that 15361 was filling up before *c* AD 235-45 while 15364 is slightly later, containing sherds of late 3rd or 4th century AD date.

Stone (RSS)

Portable stone objects consist of a rotary quern fragment made from Upper Old Red Sandstone Quartz Conglomerate from the Wentwood-Forest of Dean area (Shaffrey 2006), found in ditch 406, and approximately half a bar-shaped whetstone from ditch 15088. Small, flat fragments probably derived from roof tiles or used in floors, foundations or bonding/lacing courses of walls, were also found in ditches 15088 and 15202, 15167, and gully 15377. One flat fragment originally from a circular object (10 mm thick *c* 288 mm in diameter) was found in ring gully 18058. An irregularly-shaped limestone block with a centrally positioned, oval perforation was found in enclosure ditch 18057.

The other stone items are of moderately coarse-grained sandstones, although chalk, shelly

limestone and Lias fragments are also included. The sandstones are predominantly of the Pennant series, which outcrop within about 2 km of the site, in the area immediately east of Lawrence and Kings Weston as well as across far greater areas to the east of Bristol (British Geological Survey sheet 264). Some of these items, such as those from roundhouse gully 15019, gully 18010 and surface collection 18016 (area enclosed by feature 15173), may have functioned as rubbers or rubstones, but all the others are either not obviously worked or very fragmentary.

Other finds (RSS)

Small, abraded, featureless fragments of fired clay are probably of structural origin, although none preserved the wattle impressions characteristic of daub. One tiny piece of blue frit (ditch 15088) is probably from a melon bead of 1st and 2nd century AD date. Two blue/green glass fragments (ditch 15088) are both burnt and are probably also of Roman date.

Two pieces from a bone hair pin (Figure 6:9) of 3rd-4th century AD date (Crummy 1983 type 3b) were found in feature 16055. An off-cut of antler-working debris was found in ditch 15088. One piece of an oyster shell was noted from evaluation ditch 416 (=18059), associated with Late Roman pottery.

ANIMAL BONE (JG)

Full method statements including a database with detailed recording of each bone can be found in the archive.

Husbandry

The bulk of the bones derive from the usual domesticates (ie cattle, sheep/goat and pig). Red deer is only represented by worked antler, while other wild animal remains (common frog, mole and a song bird) are probably part of the natural site fauna. The mole remains might even be intrusive, as it is a burrowing animal. The absence of edible wild species suggests that the Romano-British people relied mainly on livestock for their protein needs, supplemented by eggs and meat from domestic fowl (Table 6).

The sheep (no definite goats present) remains derive mainly from subadult and adult (but not aged) animals. Skull fragments indicate the presence of horned sheep. Feature 15065 contained an almost complete skeleton, of probable post-medieval date. The animal is older than 48-60 months as all the epiphyses on the surviving vertebrae have fused. Comparison of the pelvis showed that its sex is probably female and its height at the withers would have been *c* 0.63 cm. One of the tibias had several cuts on the medial side of the middle part of the diaphysis possibly due to filleting.

The cattle remains derive mainly from subadult and adult animals. The pig remains represent mainly subadult animals; a pattern normally seen in a species solely raised for meat. The fact that the assemblage was probably dominated by sows indicates on-site breeding activities. Evaluation context 207 (undated) contained the remains of an adult dog with a height at the withers of 0.44 cm.

Taphonomy

The majority of the bones were in fair (73%) to good (15%) condition, with only a small proportion in poor or very poor condition (11%). The bones were especially poorly preserved in shallow features (15019, 15027, 16055, 18032 and 18057). The large ditch 15088 had a low number (5%) of poorly preserved bones. Overall 4% of the material has a root-etched surface, bones from features 15065, 15088, 16055 and 18032 only being affected. It is possible that the bones in these features were in general closer to the surface.

Gnawing by canids had marked only 4% of the bones and this low percentage indicates that scavenging is only a low biasing factor. The bones affected derived mainly from sheep/goat with an overall strong preference for the joints. None of the groups was particularly affected by gnawing.

The proportion (14%) of loose teeth was quite substantial, indicating a high number of jaws (particularly pig). The overall percentage of identified bones was high (91%) and not much fragmented (30% complete bones). This, however, includes an animal burial and small compact bones like carpalia, tarsalia and teeth.

*Table 6. Species list according to NISP, BW and MNI. *skeleton n=58.*

Species	**NISP**	**NISP**	**BW**	**BW**	**MNI**	**MNI**
	n	%	g	%	n	%
Cattle (*Bos Taurus*)	66	20	2254	44	4	19
Horse (*Equus caballus*)	15	4	910	17	1	5
Sheep (*Ovis aries*)	66*	20	1101	21	4	19
Sheep/Goat (*Ovis*/*Capra*)	69	21	268	5	4	19
Pig (*Sus domesticus*)	13	4	484	9	6	27
Dog (*Canis familiaris*)	8	2	43	1	1	5
Mole (*Talpa europaea*)	1	-	-	-	1	5
Red deer (*Cervus elaphus*)	2	1	9	-	1	5
Birds						
Domestic fowl (*Gallus gallus* dom.)	1	-	-	-	1	5
Song bird (*Passeriformes* sp.)	1	-	-	-	1	5
Amphibian						
Anuran	4	1	-	-	-	-
Common frog (*Rana temporaria*)	1	-	-	-	1	5
Classes						
Large mammal	38	11	129	2	-	-
Medium mammal	49	15	46	1	-	-
Small mammal	2	1	-	-	-	-
Total	336	100	5244	100	21	100

The absence of loose but matching epiphyses, articulating bones and high number of loose teeth indicate that some of the assemblages have been re-worked.

Only a low proportion of all the bones show signs of contact with fire (3%). As the burnt fragments were all undiagnostic, most bones were assigned to the large or medium sized mammal categories. Furthermore, burnt fragments of cattle, horse and sheep/goat were found. With a relative proportion of 20%, feature 16055 (rectangular feature, shallow) contained the most burnt fragments. Most bones were calcined, which indicates temperatures of 650-700°C (Wahl 1981, 273). Bone does not discolour when meat is cooked or roasted. This means that the discoloured fragments are the result of throwing bones deliberately in the fire or bone sticking out during roasting and so making direct contact with the embers or flames.

Taphonomic analysis has shown that the assemblage has been extensively re-worked, resulting in a high number of mandibles and loose teeth and no matching epiphyses or articulating bones. The biased nature of the assemblage makes it difficult to compare the results with the animal bone from other Romano-British settlements in the area. Whereas cattle and sheep/goat dominated the Iron Age livestock, Romano-British sites are usually not that straight-forward, with much variation between sites and over time. Generally speaking, sheep/goat became less important with time but tended to be more numerous in southern sites (Yalden 1999, 102). As the site would have been damp due to poor drainage, sheep and cattle would have been

liable to the sheep liver fluke (*Fasciola hepatica*) resulting in low milk productivity and weight loss. The actual site of the settlement would thus be less suitable for sheep/goat and cattle grazing without sufficient drainage.

Generally, wild mammals and birds did not contribute much to the diet. No fish bones were found, which is surprising as the site is close to the river Avon and to the sea, raising the question of whether the people would have exploited these resources as well. The overall taphonomic factors on the site would not have been beneficial to the preservation of the small and fragile fish bones, which may explain their absence.

The age analysis of the material from this site shows that mainly subadult and adult sheep/goat, cattle and pig are represented. Apart from the fact that this points to the use of secondary products like milk and use of animals for traction, it also underlines the results of the taphonomic analysis; ie a biased assemblage where fragile bones of neonates and juveniles did probably not survive.

HUMAN BONE (JM)

Human bone, cremated and unburnt, from three Romano-British contexts was analysed (Table 7). The cremated bone (15306) derived from the shallow remains of what appears to represent an unurned burial. The unburnt bone appears to have been redeposited within late Romano-British contexts (15098 and 15175).

Methods

Recording and analysis of the cremated bone followed McKinley (1994, 5-21; 2004a). The degree of erosion to the unburnt bone was recorded following McKinley (2004b, fig. 6). A minimum number count was made in accordance with McKinley (2004b). Age (cremated and unburnt bone) was assessed from the stage of skeletal development (Scheuer and Black 2000), and the patterns and degree of age-related changes to the bone (Buikstra and Ubelaker 1994). Sex was ascertained from the sexually dimorphic traits of the skeleton (Buikstra and Ubelaker 1994). None of the unburnt bone survived in a sufficiently complete state to enable metric analysis.

Results

The cremated bone (Table 7) was recovered from a shallow feature (0.06 m) that appeared to have been truncated; bone was visible at the surface level, suggesting that other fragments may have been lost. Although in good visual condition, the bone included very few trabecular fragments and it is probable, the trabecular bone being the first to be lost in a soil matrix detrimental to bone survival (McKinley 1997, 245; Nielsen-Marsh *et al* 2000), that some bone will have been destroyed.

The unburnt bone is heavily fragmented (all old breaks), showing slight-moderate erosion. Both contexts (Table 7) contained incomplete skeletal elements which are likely to have been fragmentary at the time of their deposition. The inclusion of what would have been adjacent fragments of lower limb elements in context 15098 suggests they probably derived from a feature in relatively close proximity to roundhouse gully 18058.

At minimum of two individuals are represented; one adult from the remains of the cremation burial and one adult from the small unburnt bone assemblage. There is no duplication of skeletal elements between contexts 15098 and 15175 and, although the features from which they were recovered are *c* 100 m apart, it is feasible that they could represent the remains of the same individual. Although both features are apparently of Romano-British date, the bone could relate to a much earlier phase of activity on the site.

Table 7. Summary of results from analysis of human bone.

Context	Cut	Deposit type	Quantification	Age/Sex	Pyre goods
15098	18058	?redeposited	*c* 5% l.	subadult/adult >15 yr. ?female	
15175	15174	redeposited	*c* 15% s.	adult >35 yr.	
15306	15307	unurned burial	49.1 g	adult >18 yr.	1.6 g animal bone

Most of the cremated bone was white in colour, indicating a high level of oxidation (Holden *et al* 1995a and b); however, a substantial minority (*c* one-quarter) of skull vault and lower limb fragments were coloured blue/black indicative of lower levels of oxidation (*ibid.)*. Numerous intrinsic and extrinsic factors may affect the efficiency of cremation (McKinley, in press); in this case a general shortage of time and/or fuel is likely to have been involved. The very small amount of surviving bone is more illustrative of the effects of disturbance and an acidic burial environment than of the amount of bone originally included in the burial. Similarly, the generally small size of the bone fragments - maximum 36 mm with the majority (47%) recovered from the 5 mm sieve fraction – is probably largely due to the deposit type (unurned burial with no redeposited pyre debris to ameliorate soil acidity) and shallow surviving depth of the grave. The inclusion of cremated animal bone in Romano-British cremation burials, where it represents the remains of pyre goods, is relatively common (McKinley 2004c, 331-2).

ENVIRONMENTAL EVIDENCE FROM THE ROMANO-BRITISH DITCH FILLS

Geoarchaeology (CB)

A shallow ditch cutting the upper alluvium (upper Wentlooge) was exposed in the eastern portion of the SW face of trench 4, cut through context 401 into context 402 (Figure 3). This had a base *c* 0.75 m below ground (0.4 m below stripped area) and displayed no discernible discrete fills, and hence described as cut 404 and single fill 405. This ditch is part of an extensive system of Roman features, and is a portion of the main enclosure ditch.

The underlying estuarine alluvium (402) was similar in character to the main alluvial sequence (Wentlooge Formation) but was somewhat more weathered, indicating at least a brief period of exposure after ditch cutting before (probably rapid) alluviation, which formed the single alluvial fill, which has since transformed into the modern alluvial-gley soil B horizon. Unlike the main alluvial sequence, a few molluscan remains were observed, and sampled in this ditch, along with ostracods, charcoal and charred plant remains.

Monolith samples were collected from two further sections of the enclosure ditch (Figure 3), one of which displayed a re-cut, with ditch 15364 superimposed on 15361. Again the fills of these ditches were wholly alluvial with incorporation of fine charcoal in the primary fills of both, (context 15365 of ditch 15364 and 15362 of ditch 15361). Faint sedimentary laminations indicated the regular tidal nature of in-wash to the features. The sequence cut and overly the estuarine alluvial upper Wentlooge sequence. The deeper cut of ditch 18057 contained a succession of alluvial fills with horizontal layering apparent (flood couplets, as previously described) providing evidence of regular tidal flooding, and probable rapid fill accumulation. This ditch also contained large quantities of layered humified herbaceous stems in the primary fill alluvium indicating that the ditch itself was well-vegetated in its lifetime.

Pollen analysis (RS)

Samples for pollen analysis were taken from the Romano-British enclosure ditch (18057) (cut 404) at the top of the Wentlooge sequence in trench 4 (Figures 2-3) and through contexts 15362-15363 and 15365-15367, the fills of two inter-cut ditch profiles (upper 15631 and lower 15635) (Figure 3) (Table 8). For methods see the pollen report above.

Cut into the estuarine alluvium described for context 402 (Figure 3), this ditch – cut 404 was filled by single context 405 which at 0.32 m shows a change from the importance of *Plantago* spp. (*Plantago maritima*, sea plantain; 28% and *Plantago lanceolata*, ribwort plantain; 18%) and Poaceae in the underlying context 402, to dominant Chenopodiaceae (16%), Poaceae (40%) and Cyperaceae (15%). There are also fen taxa in this level including *Typha latifolia* (greater reed-mace) and *Typha/Sparganium* type (bur reed and lesser reed-mace). There is some expansion of trees and shrubs (*Quercus,* oak, and *Corylus avellana,* hazel).

Ditch 15361, truncated by ditch (15364, below) (Figure 3), yielded a profile from the alluvial fills (15362-15363). The upper levels overlap at the base of the later ditch. Overall, this sequence is dominated by herbaceous pollen with an expansion of tree and shrub pollen in the uppermost 0.04 m. Two pollen assemblage zones

Table 8. Pollen data from the Romano-British ditch fills.

Ditch	15364	15361	15361	404	Underlying 404
Depth	0.48 m	0.32 m	0.48 m	0.36 m	0.52 m
Context	15365	15362	15361	405	402
Trees and Shrubs					
Betula	-	5	-	1	-
Pinus	3	-	2	2	1
Quercus	5	6	4	12	3
Fagus sylvatica	-	-	-	1	-
Alnus glutinosa	-	-	7	3	-
Corylus avellana type	9	2	7	10	4
Erica	-	1	-	-	-
Calluna	-	-	1	-	-
Herbs					
Sinapis type	-	-	-	1	-
Chenopodiaceae	18	6	12	18	9
Trifolium type	-	-	1	1	-
Plumbaginaceae	-	1	-	-	-
Rumex undiff.	-	-	-	-	1
Polygonum aviculare	-	-	1	-	-
Plantago media/major	1	-	1	-	-
Plantago maritima type	-	-		-	27
Plantago lanceolata	17	37	23	-	17
Plantago coronopus type	-	1	1	1	-
Bidens type	-	1	1	2	-
Lactucoideae	6	5	5	4	-
Poaceae	36	45	31	40	-
Cereal type	-	7	1	1	-
Large Poaceae/non cereal	3	1	1	-	-
Marsh					
Cyperaceae	1	-	5	26	-
Potamogeton type	1	-	-	8	-
Sparganium type	-	-	-	3	-
Spores					
Dryopteris type	7	4	10	6	11
Pteridium aquilinum	16	17	31	31	15

Table 8 continued.

Ditch	15364	15361	15361	404	Underlying 404
Depth	0.48 m	0.32 m	0.48 m	0.36 m	0.52 m
Context	15365	15362	15361	405	402
Spores cont...					
Polypodium vulgare	4	1	2	1	2
Sphagnum	-	120	1	-	-
Unidentified/degraded	3	2	-	-	5
Pediastrum	-	-	-	-	1
Pre-Quaternary	11	-	1	2	-
Total Pollen Count	103	120	106	142	129
Abs. Poll. Freq. Grains/ml.	12222	35599	16648	19443	28702

are defined.

1. 0.30cm to 0.14 m. *Chenopodiaceae-Plantago lanceolata-Poaceae.* This zone is dominated throughout by Poaceae (grasses; to 40%), *Plantago lanceolata* (ribwort plantain; to 33%) and Chenopodiaceae (goosefoots and oraches; to 27%). There is an expansion of *Sinapis* type (brassicas/charlocks; to 16%) from 26%). Cereal type is present and peaks to 18% at 0.24 m. There is a diverse range of herbs which also includes the halophytes, *Armeria* 'A' line (thrift and sea lavender). There are few trees and shrubs with only occasional occurrences of *Betula* (birch), *Quercus* (oak), *Alnus glutinosa* (alder) and single occurrences of *Tilia* (lime) and *Taxus* (yew). Shrubs comprise *Corylus avellana* type (probably hazel but possibly bog myrtle). There are few marsh and aquatic types with occasional Cyperaceae and *Potamogeton* type (pond weed and sea arrow grass). Fern spores are dominated by *Pteridium aquilinum* (25%).

2. 0.14 m to 0.08 m. *Quercus-Corylus avellana type-Chenopodiaceae-Poaceae.* This zone is delimited by an expansion of tree and shrub taxa and percentages. *Quercus* (22%), *Corylus avellana* type (15%) and *Alnus glutinosa* (alder,10%) are the dominant trees. There are also sporadic occurrences of *Betula* and *Tilia* (lime). Although trees and shrubs become more important, herbs (including marsh taxa) values remain high with continuing dominance of Chenopodiaceae, *Plantago lanceolata* and Poaceae. Spores of *Pteridium aquilinum* expand to 30% with some increase in *Polypodium vulgare* (common polypody fern) and monolete forms (*Dryopteris* type). This zone contains algal *Pediastrum* and, in the upper levels, reworked, pre-Quaternary palynomorphs (including hystrichospheres and dinoflaggelates).

Ditch 15364, the upper and later of the two ditches (Figure 3), contained three contexts (15365-15367), with the transition from context 15365 to 15366 apparent with greater numbers of Chenopodiaceae (goosefoots, oraches and glassworts), Hystrichospheres and spores of ferns and *Sphagnum* (bog moss). These suggest that the upper contexts were subject to marine or brackish water inundation. Apart from these expansions in halophytic taxa from 0.4 m upwards, the pollen sequence is largely homogeneous throughout with dominance of herbs and few trees and shrubs represented. No zonation is consequently possible.

Trees and shrubs average 10% in ditch 15364 with small but consistent occurrences of *Quercus* (oak; 3-5%) with *Corylus avellana* type (hazel and bog myrtle; peaks to 10-15%) the latter increasing in context 15365. Sporadic occurrences of *Fagus sylvatica, Tilia*, *Fraxinus excelsior* (ash) and *Alnus glutinosa* were also

recorded.

Herbs, Poaceae (grasses; to 36%) and *Plantago lanceolata* (ribwort plantain; 20-30%) are dominant throughout. Chenopodiaceae occur throughout (10-15%) but with a peak to 28% at 0.32 m (context 15366). Other herb taxa include *Sinapis* type (charlocks; to 28%) at the base of context 15366 and Lactucoideae (dandelion family; 5-6%). Cereal pollen occurs sporadically throughout the sequence. Marsh and aquatic herbs taxa include occasional freshwater taxa including *Myriophyllum* (water milfoil), *Alisma plantago-aquatica* (water plantain), *Menyanthes trifoliata* (bogbean), *Sparganium* type (bur-reed) and Cyperaceae (sedges). Of note is *Ruppia maritima* (beaked tasselweed) at 0.24 m. Ferns, *Pteridium aquilinum* (bracken; to 45% sum+spores) and other spores are important especially in the upper contexts 15366 and 15367 where Hystrichospheres also occur.

The taphonomy of pollen from such ditch fills may be complex, coming from a variety of both primary and secondary sources, though often very localised. The former may originate via normal air, insect and waterborne dispersion. Secondary pollen may come from domestic waste, for instance human and animal faeces, crop processing waste, floor coverings, offal, food waste and floor sweepings which will complicate interpretation of the pollen data by masking 'naturally' derived pollen from which interpretations of the local environment are drawn.

The lower and earlier of the two inter-cut ditch profiles (15361) contains a dominant herbaceous flora representing the on-site flora and more regional elements. Small values of tree and shrub pollen suggest that there was no woodland within the proximity of the site, the oak and hazel typically coming from long distance/more regional sources. The profile contains evidence of pasture and arable communities, the latter represented by continuous presence of cereal type pollen which peaks at 0.32 m and 0.24 m. Weeds of arable ground, including Polygonaceae, *Fallopia convolvulus* (black bindweed), *Polygonum aviculare* (knotgrass) and *Plantago major* (greater plantain) also increase at these levels. Cereal pollen is present but less abundant in the fills of the upper ditch (15364). Whilst it seems likely that this comes from local arable cultivation, it should also be considered that such pollen may also derive from secondary sources, such as pollen liberated during crop processing activities (winnowing and threshing). Both ditch profiles have substantial numbers of ribwort plantain pollen which, along with grass pollen and other typical pasture taxa, attests to the overall local dominance of grassland on and near the site. This was probably rough, long pasture, given the floodplain setting of the site.

Evidence for salt marsh halophytic communities also occurs throughout. Substantial numbers of Chenopodiaceae appear along with the less well represented taxa such as *Armeria* (thrift and sea lavender) and possibly Spurrey (*Spergula/Spergularia* type), Brassicaceae (*Sinapis* type; such as wild/sea radish) and *Ruppia maritima* (beaked tassel weed). The latter is specifically associated with brackish ditches near to the sea (Rose 1981). There is evidence for such salt marsh elements throughout both ditch profiles and it is suggested therefore that there was periodic (tidal) ingress of saline/brackish water containing halophytic pollen assemblages into the ditches.

Both ditches also have evidence of freshwater plants, including aquatic megaphytes, possibly pond weed, bog bean, white water lily (*Nymphaea alba*), and rooting marginal aquatics including sedges, water plantain and reed mace and/or bur reed. Algal *Pediastrum* are also present. These are more abundant in the fills of 15364 and probably represent the more constant wetland vegetation of the ditches.

The upper levels of profile 15631 overlaps with the basal levels of 15364 by *c* 0.08 m. Inspection of the pollen diagrams shows that zone 2 of the lower profile with its higher values of trees and shrubs is not replicated in the overlapping levels of profile 15364. This seems incongruous but can be explained by pollen coming from reworked earlier sediments of the Wentlooge sediments along the sides of the ditch.

Waterlogged Plant Remains (CS)

Several of the deeper archaeological features contained waterlogged material. Most plant remains were of wetland taxa, representing species that were growing within the ditches, as

well as a few which may have been brought in during flood events. Seeds of the brackish water beaked tasselweed (*Ruppia maritima*) were recovered from some of the ring-gullies, while soft hornwort (*Ceratophyllum submersum*), whose seeds were common in several of the Romano-British samples, tolerates slightly brackish water, as does fat-duckweed (*Lemna gibba*), although seeds of *Lemma* were not identified to species. It is also possible that species of water-crowfoot (*Ranunculus* subg. Batrachium) and pondweed (*Potamogeton* sp.), whose seeds were frequent in the samples, come from species tolerant of similar situations. Seeds of club-rush (*Schoenoplectrus* sp.) can be taken to be indicative of estuarine marsh in the area, while buttercup (*Ranunculus acris/repens/bulbosus*) is commoner in rough grassland.

A single sample from the late Romano-British ditch 15088 (same as 15067) was particularly rich in waterlogged plant remains and provided substantive information concerning the local environment. Alongside seeds of wetland species described above, were several that doubtless reflect the close proximity of saltmarsh in the area. These included probable seeds of perennial sow-thistle (*Sonchus arvensis* var. *maritimus*), sea-milkwort (*Glaux maritima*), lesser sea-spurrey *(Spergularia marina*), and possible seeds of toadflax (*Linaria* sp.). Wild celery (*Apium graveolens*), and horned pondweed (*Zannichellia palustris*), are both frequently found on damp, bare ground inundated with brackish waters in coastal areas. It is probable that the seeds of greater plantain found are those of *Plantago major* ssp. intermedia, which occurs on damp, often slightly saline soils. This group might also include some of the seeds of orache (*Atriplex* sp.).

As with the pollen, there is some evidence of both rough grassland pastures and arable cultivation. Associated with the former are seeds of buttercup (*Ranunculus acris/repens/bulbosus*) and hairy-buttercup (*Ranunculus sardous*). This latter species, along with nettle-leaved goosefoot (*Chenopodium murale*), red-goosefoot (*Chenopodium rubrum*), black mustard (*Brassica* cf. *nigra*) and buck's-horn plantain (*Plantago coronopus*) are all common elements of coastal regions on disturbed soils. Associated with disturbed soils, cultivation and settlement in general were seeds of fat-hen (*Chenopodium album*) and chickweed (*Stellaria media*). Most indicative of arable and disturbed ground were seeds of fool's parsley (*Aethusa cynapium*) and stinking mayweed (*Anthemis cotula*), both common weeds of cultivated fields on heavy clay soils, whose charred seeds were present from this same sample.

Several seeds of birch indicate the existence of probably small local open stands or individual trees of birch, also suggested by the pollen record. However, there was generally very little evidence of woodland or even scrub beyond a few seeds of bramble (*Rubus* sp.) and, in accordance with the pollen evidence, the macrofossils suggest a largely open landscape, comprising arable land, probable rough grassland and areas of general disturbance probably linked to animal trampling and general settlement.

Charred Plant Remains (CS)

A total of 31 samples from Romano-British features were processed using standard flotation methods and assessed; 19 were selected for full analysis (Table 9). Multiple samples from the same feature/group have been amalgamated. The taxonomic classification of species follows Stace (1997).

The main cereal represented, predominately by glume bases, is spelt wheat (*Triticum spelta*), although emmer (*Triticum dicoccum*) was present in the late Romano-British sample from ditch 15067 (15088). A number of grains resembling free-threshing wheat (*Triticum aestivum* sl.) came from this same feature, although most had surface features more characteristic of the tightly enclosing glumes and chaff seen within spelt. This same sample produced a large number of basal rachis fragments of spelt wheat (*Triticum spelta*), many of which showed indications of aborted spikelets. Barley (*Hordeum vulgare* sl.) was conspicuous by its almost total absence. Spelt wheat appears to be the most prevalent crop in this region (Masser *et al* 2005; Clapham cited in Gardiner *et al* 2002), as well as in southern England generally during the Romano-British period (Robinson and Wilson 1987). Emmer (*Triticum dicoccum*) is, however, generally less commonly recorded in southern England at this time.

Table 9. Charred plant remains from Romano-British features.

Phase	2nd C.	2nd C.	?2nd C.	2-3 C.	2-4 C.	2-4 C.	2-4 C.	2-4 C.	3-4 C.	3-4 C.	3-4 C.
Group	18057	18057							15019	18058	15088
Feature type	enc-ditch	ditch	ditch	scoop	linear pit	gully	spread	spread	r-house gully	r-house gully	Ditch
Feature	15254	404	15027	16055	18021	18010		15038	15015	17015	15067
Context	15253	405	15028	16059	18048 49, 50	18011	15098	15311	15016, 24, 42,43,46	17022 17026	15069 15070
Volume (litres)	40	40	10	40	60	20	7	20	77	30	74
Cereals											
Hordeum vulgare L. *sl* (grain)	-	-	-	-	-	-	-	-	-	1	-
Triticum sp. L. (grains)	25	-	-	4	-	1	3	-	3	8	7
Triticum cf. *dicoccum* Schübl. (grains)	-	-	-	-	-	-	-	-	-	-	1
T. dicoccum Schübl. (spikelet fork)	1	-	-	2	-	-	-	-	-	-	24
T. dicoccum (terminal spikelet fork)	-	-	-	-	-	-	-	-	-	-	4
T. dicoccum Schübl. (glume base)	-	-	-	-	-	-	-	-	2	-	31
Triticum spelta L. (spikelet fork)	-	-	-	-	-	-	-	-	5	-	0
Triticum spelta L. (glume bases)	35	1	9	11	99	2	12	-	64	-	256
T. dicoccum/spelta (grain)	3	-	2	7	6	-	1	-	3	-	25
T. dicoccum/spelta (spikelet fork)	5	1	1	6	-	-	-	-	2	-	5
T. dicoccum/spelta (glume bases)	179	3	28	73	187	12	90	30	368	6	637
T. dicoccum/spelta (basal rachis frag.)	1	-	-	-	-	-	-	-	-	-	58
Triticum cf. *aestivum/spelta* (grain)	-	-	-	-	-	-	-	-	cf.1	-	5
Secale cereale (grains)	-	-	-	-	-	-	-	-	-	-	cf.1
Cereal indet. (grains)	20	-	7	12	7	-	1	-	5	-	18
Cereal indet. (est. grains from frags.)	20	-	8	10	14	-	-	-	5	-	15
Other crop species											
Vicia faba var. *minor*	-	-	-	-	-	-	-	-	-	-	cf.1
Vicia sp. L./*Pisum sativum* L.	1	-	-	6	1	-	-	-	4	-	1
Pisum sativum L.	7+3h	-	1	8+1h	1	-	-	-	5+19h	-	1+1h

Table 9 continued.

Phase	2nd C.	2nd C.	?2nd C.	2-3 C.	2-4 C.	2-4 C.	2-4 C.	2-4 C.	3-4 C.	3-4 C.	3-4 C.
Group	18057	18057							15019	18058	15088
Feature type	enc-ditch	ditch	ditch	scoop	linear pit	gully	spread	spread	r-house gully	r-house gully	Ditch
Feature	15254	404	15027	16055	18021	18010		15038	15015	17015	15067
Context	15253	405	15028	16059	18048 49, 50	18011	15098	15311	15016, 24, 42,43,46	17022 17026	15069 15070
Volume (litres)	40	40	10	40	60	20	7	20	77	30	74
Species											
Ranunculus L. sp. subg *Ranunculus* arb	-	-	-	-	-	-	-	-	-	-	1
Ranunculus sardous Crantz	1	-	-	-	-	-	-	-	-	-	-
Chenopodium album L.	-	-	-	-	-	-	-	-	-	-	2
Chenopodium murale L.	-	-	-	-	-	-	-	-	1	-	-
Atriplex sp. L.	1	-	-	4	-	-	-	-	1	-	5
Stellaria media (L.) Vill.	1	-	-	1	-	-	-	-	-	-	-
Polygonaceae indet.	-	-	-	-	-	-	-	-	-	-	1
Persicaria sp. Mill.	-	-	-	-	-	-	-	-	-	-	1
Polygonum aviculare L.	1	-	-	1	-	-	-	-	-	-	2
Rumex sp. L.	10	1	3	21	-	-	-	-	3	-	16
Rumex acetosella L.	-	-	-	-	-	-	-	-	cf.1	-	-
Brassica cf. *nigra*	-	-	1	-	-	-	-	-	-	-	21
Barbarea vulgaris W.T. Aiton	2	-	-	3	-	-	-	-	1	-	3
Capsella bursa-pastoris (L.) Medik	-	-	-	-	-	-	-	-	-	-	cf.1
Glaux maritima L.	-	-	-	-	-	-	-	-	-	-	cf.2
Potentilla sp. L./*Fragaria* L.	-	-	1	-	-	-	-	-	-	-	-
Vicia L./*Lathyrus* sp. L.	40	-	6	3	-	-	-	-	3	2	3
Medicago lupulina L./ *Trifolium* sp.	145	-	51	99	6	1	-	-	13	30	438
Apium graveolens L.	-	-	-	-	-	-	-	-	-	-	1
Torilis sp. Adans.	-	-	-	3	-	-	-	-	-	-	-
Prunella vulgaris L.	1	-	1	-	-	-	-	-	-	-	5
Plantago major L.	-	-	-	-	-	-	-	-	-	-	4
Plantago lanceolata L.	2	-	3	-	-	-	-	-	-	-	2

Table 9 continued.

Phase	2nd C.	2nd C.	?2nd C.	2-3 C.	2-4 C.	2-4 C.	2-4 C.	2-4 C.	3-4 C.	3-4 C.	3-4 C.
Group	18057	18057							15019	18058	15088
Feature type	enc-ditch	ditch	ditch	scoop	linear pit	gully	spread	spread	r-house gully	r-house gully	Ditch
Feature	15254	404	15027	16055	18021	18010		15038	15015	17015	15067
Context	15253	405	15028	16059	18048 49, 50	18011	15098	15311	15016, 24, 42,43,46	17022 17026	15069 15070
Volume (litres)	40	40	10	40	60	20	7	20	77	30	74
Odontites vernus (Bellardi) Dumort.	-	-	-	1	-	-	-	-	-	-	3
Galium aparine L.	1	-	-	1	-	-	-	-	-	-	4
Anthemis cotula L.	-	-	-	-	-	-	-	-	-	-	11
Sonchus arvensis L. cf. var. *maritimus*	-	-	-	-	-	-	-	-	-	-	4
Schoenoplectrus sp. (Rchb.) Palla	-	-	-	-	-	-	-	-	1	-	3
Carex sp. L.	2	-	4	1	1	-	1	-	1	-	-
Poaceae (mid-large indet.)	15	-	-	10	-	-	-	-	-	-	13
Poaceae (small indet.)	2	-	2	9	-	-	-	-	1	-	1
Poaceae (culm nodes, rootlets, stems)	42	-	8	5	-	-	-	-	14	-	64
Lolium L./ *Festuca* L. sp.	28	1	21	-	3	-	-	-	8	4	68
Poa/Phleum sp. L.	-	-	-	-	-	1	-	-	5	-	2
Avena sp. L. (grain)	4	-	-	1	2	-	1	-	-	-	17
Avena sp. L. (floret base wild)	cf.1	-	-	-	-	-	-	-	-	-	2
Avena sp. L. (awn)	6	-	4	1	-	-	-	-	5	-	8
Avena L./*Bromus* L. sp.	-	-	1	-	1	-	1	-	-	-	4
Bromus sp. L.	-	-	-	-	-	1	-	-	-	-	5
Seed indet.	-	-	-	1	-	-	-	-	-	-	3

Pea (*Pisum sativum*), was recorded from several samples. That remains of the fragile hilum often outnumbered the more robust seed, suggests that the discarded waste, prior to charring, comprised more hilums than grains, presumably separated by winnowing and/or sieving. There are relatively few operations that could lead to such an assemblage. The most likely scenario is in the preparation of split peas, in which dried peas are threshed, and then contaminants, that will include detached hilums, winnowed and sieved off. Peas are usually harvested in late summer/early autumn and unless dried, as would appear to be the case here, would be eaten shortly after.

The seeds of wild species are most likely to derive from weeds that grew with the hulled wheat crop. The most common by far were those of clover (*Trifolium* sp.) and medick (*Medicago lupulina*). While seeds of each genus are not

distinguished from each other (Table 9), it is probable that both genera are present in the samples. Seeds of docks (*Rumex* sp.), probable perennial rye-grass (*Lolium perenne*) and possible fescue (*Festuca* sp.) were also common.

The samples contained a number of more ecologically distinctive species. Several can be associated directly with the coastal situation of the site and were present also in the waterlogged samples. These include hairy buttercup (*Ranunculus sardous*), nettle-leaved goosefoot (*Chenopodium murale*), perennial sow-thistle (*Sonchus arvensis* var. *maritimus*), probable sea-milkwort (*Glaux maritima*), and black mustard (*Brassica* cf. *nigra*) might also be included within this group. While some seeds may derive from the burning of local vegetation, it is more probable that many of these species were able to infest crops grown on local soils.

Particularly characteristic of cultivation of the local heavy clay soils is stinking mayweed (*Anthemis cotula*). Most of the seeds of this species were recovered from a single late Romano-British feature, ditch, 15088 (15067), although a single seed was recorded from 2nd century ditch 18057 (15060- not included in Table 9). This species is most commonly recovered from more Romanised settlements, predominately dating to the 3rd to 4th centuries, although 2nd century examples are known. The weed assemblage is broadly similar to that seen within the previous excavations at Avonmouth (Masser *et al* 2005), and while species more characteristic of coastal areas were slightly more frequent at this site, the samples from this site were also somewhat richer.

The high numbers of glumes are typical of many British archaeological sites and can be associated with the discarding of waste in the fire from pounding and sieving, necessary steps to separate the grain from the spikelet as they are taken from storage. Notably the weed assemblage is high in seeds of intermediate sized weed seeds: *Rumex*, *Lolium* and *Medicago*, whose seeds, by virtue of their appendages, stay with the spikelet, but are often released with the pounding of the spikelets.

Wood charcoal (CB)

Charcoal proved to be scarce in the fills of archaeological features, with only ditch 15088 (15067) (?first recut, lower fill 15070) producing quantities suitable for meaningful analysis. Although the total volume of charcoal from the flot of the 40 litre sample was small at 2 g/67 fragments, the pieces were generally large firm and fresh with no evidence of transport or rolling. Data on woodland resource use is rare for the Severn Levels, so this limited analysis was felt to be worthwhile.

As shown in Table 4, *Quercus* sp. (oak) heavily dominated the assemblage at 76% but appreciable quantities of wood charcoal from four smaller native deciduous trees and shrubs, particularly *Corylus avellana* (hazel, 15%), were also identified. The *Corylus avellana* and a piece of Pomoideae (pomaceaous fruits such as *Crataegus monogyna,* hawthorn) suggest that open scrub or woodland-edge sources were exploited, while the presence of small numbers of wet-loving *Alnus glutinosa* (alder) charcoal fragments also attests to use of the wet floodplain-edge flora. A single piece of *Euonymus europeus* (spindle), a native shrub or small tree of base-rich soils (Stace 1997), is a relatively unusual find.

The assemblage as a whole is not diagnostic of any particular activity, but the range of taxa from different local habitat-types suggests small-scale domestic collection for fuel.

Molluscs from enclosure ditch 18057 (SW)

Although mollusc preservation was generally poor across the site and through the Wentlooge sequence, that in enclosure ditch 18057 section 404 proved somewhat better, providing an opportunity to evaluate the Romano-British environment (Table 10). A sequence of five contiguous snail samples through the alluvial fill 405 was processed following the methods of Evans (1972). The results are augmented by the assessment of two 40 litre bulk samples taken from the same ditch. The flots of the latter were scanned and the numbers of shells and the presence of taxonomic groups quantified. The shells were identified, with nomenclature following Kerney (1999), and the results are presented in Table 10.

Table 10. The Mollusc assemblages from enclosure ditch 18057, feature 404, context 405. Key: *C=1-4, B=5-9, A=10-29, A*= 30-99, A** = 100+*

	Analysed					Assessed	
Sample	20018	20017	20016	20015	20014	20011	20012
Depth (m)	0.4-0.5	0.3-0.4	0.2-0.3	0.1-0.2	0.0-0.1	lower	upper
Wt (g)	565	567	665	623	747	40 litres	40 litres
Land							
Succinea cf. putris (Linnaeus)	-	2	3	-	-	-	-
Oxyloma cf. pfeifferi (Rossmässler)	-	3	5	-	-	-	-
Succinea/Oxyloma spp.	-	3	26	3	-	A**	A*
Cochlicopa spp.	-	-	1	-	-	C	C
Vertigo spp.	-	-	-	-	-	A	A
Pupilla muscorum (Linnaeus)	-	-	-	-	-	A	A
Vallonia cf. *pulchella* (Müller)	-	-	1	4	5	-	-
Vallonia spp.	-	-	-	-	-	A*	A*
Punctum pygmaeum (Draparnaud)	-	-	-	-	-	-	C
Oxychilus cellarius (Müller)	-	-	-	-	-	C	C
Limacidae	1	-	1	1	7	-	-
Trichia hispida (Linnaeus)	-	-	-	-	-	C	B
Cepaea spp.	-	-	-	-	-	C	C
Fresh-brackish water							
Hydrobia ventrosa (Montagu)	-	-	-	-	2	-	-
Hydrobia Spp.	1	-	-	-	8	C	C
Lymnaea/Bithynia spp	-	-	-	-	-	B	B
Anisus leucostoma (Millet)	-	1	11	2	1	-	-
Gyraulus crista (Linnaeus)	-	1	88	5	3	-	-
Planorbids	-	-	-	-	-	A**	A*
Pisidium cf *Milium* (Held)	-	-	-	1	1	-	-
No taxa/total number shells (in brackets)	2 (2)	4 (1)	7 (136)	6 (16)	6 (27)	300+	180
Shannon Index	0.693	1.168	1.106	1.630	1.518	-	-
Brillouin Index	0.347	0.853	1.036	1.264	1.272	-	-
Shannon Index – Brillouin Index	0.347	0.316	0.070	0.367	0.246	-	-
Delta 2	0.500	0.6400	0.5416	0.7813	0.7462	-	-
Delta 4	0.0	2.4615	1.2009	5.000	3.4430	-	-
% Intermediate species	50.0	-	1.47	6.25	25.93	-	-
% Open country species	-	-	0.74	25.00	18.52	-	-
% unassigned species	-	80.0	25.00	18.75	-	-	-
Total % Land snails	50.0	80.0	27.21	50.00	44.44	-	-
% Amphibious species	-	10.0	8.09	12.5	3.70	-	-
% Catholic species	-	10.0	64.71	37.5	14.81	-	-
% Brackish species	50.0	-	-	-	7.41	-	-
% unassigned species	-	-	-	-	29.63	-	-
Total % fresh/brackish water species	50.0	20.0	72.79	50.0	55.56	-	-

Although shell numbers were generally too low for detailed analysis, there was a mixture of terrestrial, fresh water and brackish water species. The land snail elements are dominated by species of Evan's Marsh group (Evans 1972), including obligatory marsh species such as *Succinea putris* and *Oxyloma pfeifferi* as well as *Vallonia pulchella*. The majority of the other land snail species, such as *Vertigo* spp., *Cochlicopa* spp., *Trichia hispida* and *Punctum pygmaeum* typically favour more terrestrial habitats but are also frequently found in marshes. *Pupilla muscorum*, an open-country species, has also very occasionally been found in marshes (Boycott 1934, 18).

The dominant fresh water species is *Gyraulus crista*. This species thrives in most lowland habitats apart from those liable to drying, including weedy ditches. There were a few *Pisidium* shells, probably *Pisidium milium*, a species which occurs in a variety of aquatic habitats and is frequent in marsh drains, avoiding only swampy places and those liable to dry up. *Anisus leucostoma* was also recovered, a taxon which inhabits a variety of aquatic habitats, especially swampy pools and ditches, particularly those drying up in the summer (Kerney 1999). There is also a small element of snails which favour brackish environments: *Hydrobia* spp. and *H. ventrosa. H. ventrosa* favours water of low to moderate salinities in places such as quiet estuaries and drainage ditches in coastal marshes (Kerney 1999).

The feature appears to have been acting as a drainage ditch cut into a marshy area, which remained mainly wet rather than regularly drying out on a seasonal basis. It seems that although the water environment was predominately fresh water, there was the occasional inundation of brackish water from the estuary, bringing in brackish taxa or enabling them to occupy the ditch.

Microfauna (Ostracods and Foraminifera) (JR)

Mollusc samples processed to 500 µm from enclosure ditch sections 404 (405, sample nos. 20014-7) and 18057 (15302-3) (Figure 3) produced adult ostracods including *Cyprideis torosa, Candona candida*, *Ilyocypris* sp. and *Darwinula stevensoni*. Rare foramaniferal tests were noted including *Ammonia* sp. and *Elphidium* sp.. One microfaunal sample processed to 63 µm from 404 (405; monolith 20010, 0.28-0.30 m) produced adult and juvenile ostracod carapaces including *Ilyocypris getica* and *Candona* (probably *C. weltneri and C. candida*).

Overall, the ostracods from the ditch are indicative of small, still and shallow predominantly freshwater environments. *I. getica* and *C. candida* are both tolerant of slight increases in salinity and also occur in drainage ditches (Meisch 2000). The limited ostracod fauna is possibly due to occasional brackish incursions slightly raising the salinity, which is also suggested by the presence of *Cyprideis torosa* and rare and poorly preserved foraminifers including *Trochammina inflata* and *Ammonia* sp. and *Elphidium* sp..

DISCUSSION: ROMANO-BRITISH ACTIVITY

The investigations have revealed evidence for small-scale rural settlement of 2nd to 4th century date with probable pre-2nd century origins. The farmstead was sited on slightly higher and therefore drier ground and appears to have been built on a piece of land that may have been deliberately drained.

In the 2nd century a substantial ditched farmstead was created, defined by ditch 18057. This enclosure appears to be linked to a wider network of ditches that were only partially revealed in Area 2. Some settlement shift is possibly indicated by the recutting of ditches on the western side of Area 2 (15354 and 15361).

The function of the enclosure formed by ditch 18057 remains unclear, but possible evidence of roundhouse gullies may be attributed to features 15450 and 15453 (un-phased Romano-British) indicating settlement activity. Definite evidence of human occupation in the form of roundhouse gullies 15019 and 18058 within Area 1 have, however, been dated to the 2nd-3rd centuries AD and the 3rd-4th centuries AD, respectively. Structure 18058 was sited within the 2nd century enclosure (18057) suggesting settlement activity of some description within the enclosure lasted over a century. Structure 15019

was sited outside the main enclosure and may suggest the abandonment of the enclosure or a shifting of settlement foci at a later date.

Analysis of the pottery distribution has identified six major concentrations that span the Romano-British period. The earliest pottery concentration (163 sherds) dated to the 2nd century was recovered from enclosure ditch 18057 in the southern corner of Area 2. A second concentration of 121 sherds of 2nd-3rd century AD date was recovered from a large tree-throw hole (18032) also in Area 2, although it is highly likely that some of the pottery recovered would have originated from a ditch that it disturbed.

Two concentrations of 2nd-3rd century pottery were identified. The largest (127 sherds) was recovered from pit 16055 and roundhouse gully 18058 produced 72 sherds. Both pit and roundhouse gully were located at the south-eastern end of the enclosure within Area 1. The second concentration (66 sherds) was recovered from surface collection of apparently conjoined features 15173 and 15178 within Area 2. This concentration may be associated with the heavily truncated gully 15450 a short distance to the southeast, which may represent the remains of a roundhouse drip gully. This concentration may also indicate occupational activity within the smaller enclosure formed by feature 15173.

A further two concentrations of pottery were recovered from Area 1 and dated to the 3rd-4th century AD. The largest (291 sherds) was recovered from a ditch terminus that truncated both roundhouse 18058 and pit 16055; the function and extent of this ditch were not ascertained. The smaller concentration (67 sherds) was recovered from roundhouse gully 15019.

As well as the concentrations of pottery, the refuse also included animal bone, fragments of utilised stone, tools as well as building materials, metalwork, fired clay, worked bone, glass and charred plant remains. Again this tended to be concentrated near to the ring gullies that defined the sites of probable household buildings.

All features investigated spanned the Romano-British period and related to animal stockades and/or settlement activity. Analysis of the animal bone revealed that cattle were principally kept for dairying, while pigs were bred on site. There was little evidence to suggest that wild animals and fish were exploited, although this is likely to be, in part, a result of taphonomy.

The low lying position of the farmstead suggests that the area was prone to seasonal or occasional flooding and this is borne out by the alluviated ditch fills and the occurrence of brackish water molluscs. Similar conditions prevailed at a number of sites in the region (eg Rippon 2000, 190; Gardiner *et al* 2002, 25). However, settlement at Plot 4000 did appear to be permanent (as attested by the accumulations of refuse, human burial, the construction of houses and the recutting and replanning of ditches), even if there were occasional abandonments. Analyses of the pollen, waterlogged plant remains and charred plant remains all indicate that pasture as well as arable cultivation were taking place near to the site, the latter perhaps on a modest scale. The inhabitants clearly had access to non-local goods typical of the period (portable worked stone objects, pottery and metalwork) which were brought, used and discarded on site. At the same time there is little recovered evidence to suggest that wetland resources were specifically or extensively exploited. This is of some interest and can be paralleled at other sites in the region (see for example, Rippon 2000, 194).

The charred plant evidence is in keeping with the interpretation from Masser *et al* (2005) of mixed farming, including arable cultivation on the Avon levels continuing into the later Romano-British period rather than the seasonal occupation and emphasis on pastoral activities suggested in Gardiner *et al* (2002).

The distribution of Romano-British sites in the immediate area has been discussed by Gardiner *et al* (2002, 25 & fig. 8), with sites occurring within the levels and on the fen-edge. They also note that most sites within the levels were abandoned by the mid-Romano-British period with the notable exception of Crook's Marsh and possibly Green Lane, Renwick (Gardiner *et al* 2002, 26), to which the farmstead at Plot 4000 can now be added. Certainly the evidence from Plot 4000 fits the model of localised formal land management proposed for the Romano-British period (summarised in

Gardiner *et al* 2002) and the site has a similar history to Crook's Marsh with settlement persisting into the late Romano-British period, despite increasing wetness with eventual abandonment by the mid-4th century AD. The initial localised drainage of the land and drier conditions would have made it more suitable for the raising of animals, in particular, dairy cattle and sheep (*see*, Grimm above), and not least for more permanent human occupation in the early Romano-British period. The suggestion (see Gardiner *et al* 2002, 31) that cattle herding became more important in the late Romano-British period unfortunately cannot be substantiated at Plot 4000 for taphonomic reasons (*see*, Grimm above). After AD 350 the site was abandoned, although there is the possibility that settlement foci simply shifted elsewhere. Little post-Romano-British activity occurred on the immediate site other than the digging of an isolated pit for the deposition of a partial animal burial (Figure 2: 15065) and the digging of ditches for drainage during the medieval and post-medieval periods. In between these episodes of human activity there was no significant accumulation of alluvium or estuarine clays and silts at Plot 4000. Certainly by the mid-4th century AD the area had become wetter and more inhospitable once again and, therefore, less attractive for human occupation.

ARCHIVE

The site archive is currently stored at Wessex Archaeology under the project code 60010. It will be deposited with Bristol City Museum in due course.

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