

## AN INVESTIGATION OF A MEDIEVAL AND POST MEDIEVAL FIELD BOUNDARY COMPLEX AT BRITISH GAS SEABANK, ON THE NORTH AVON LEVELS

by Peter Insole

### Introduction

Bristol and Region Archaeological Services (BaRAS) were commissioned by British Gas to undertake an archaeological excavation at Seabank north of Avonmouth by the A403 Avonmouth to Severn Beach road (Figure 1). This work was necessitated by an impending development by British Gas to redevelop the site of their redundant Hydrocarbon Reforming Plant and build a gas-powered, electricity-generating station in its place.

Prior to the excavation an archaeological evaluation had been undertaken by BaRAS in 1995 which revealed, in one trench, a north to south ditch containing sherds of 12th century pottery, with a series of three recuts dating to the medieval and the post-medieval periods. A larger-scale excavation between June and August 1996 was carried out to reveal more of the ditch and any associated settlement. The work also provided an ideal opportunity for a detailed examination of the historic environmental changes that have taken place on the Gloucestershire side of the Severn Estuary. In addition, an auger survey was undertaken in the adjacent area to the north (Figure 2).

### The site (Figures 1 and 2)

The site lies approximately 3 miles north of Avonmouth, at NGR ST 5335 8259 and between 6.6 m and 6.9 m AOD (Above Ordnance Datum). The area of the excavation and auger survey lies on the riverward (west) side of the Seabank redevelopment site in an open grassed area just to the south of the main access road to the old plant. The field is bounded on the north by the access road to Seabank and on the west by dense trees, undergrowth and ditch alongside the A403. To the south and east the

excavation was bounded by the redevelopment site.

The Deposit Bristol Local Plan zones the Seabank site for industry and warehousing while the surrounding fields are designated for open land and recreational uses (Bristol City Council 1993).

Historically the site formed part of the manor of Henbury, within the hundred of Brentry (later Henbury hundred), and was part of the tithing of Stowick in the parish of Henbury. Most of the plots in the area remained as open land until industrial development began north of Avonmouth docks after the First World War. Seabank Farm, from which the site takes its name, was built in the 19th century and stood north of the excavation to the rear of the present Seabank administration block. The former field boundaries within the site remained unchanged until the 1960s when the Hydrocarbon Reforming Plant was constructed and the A403 was built along the seabank parallel with Chittening Warth. That development resulted in the destruction of Seabank Farm (Brett 1995).

Geographically, the site lies on the Gloucestershire Severn Levels: a reclaimed wetland which has been recognised as being archaeologically and environmentally sensitive. Furthermore, the seabank and intertidal zone from Avonmouth to Chittening Warth is an internationally important wetland and bird protection site, and has been designated as a Site of Special Scientific Interest (64) (Nature Conservancy Council 1991).

The underlying solid geology comprises mudrocks of the Triassic and early Jurassic periods, overlain by over 5 m of estuarine deposits which are interleaved by bands of peat. These alluvial deposits are known as the

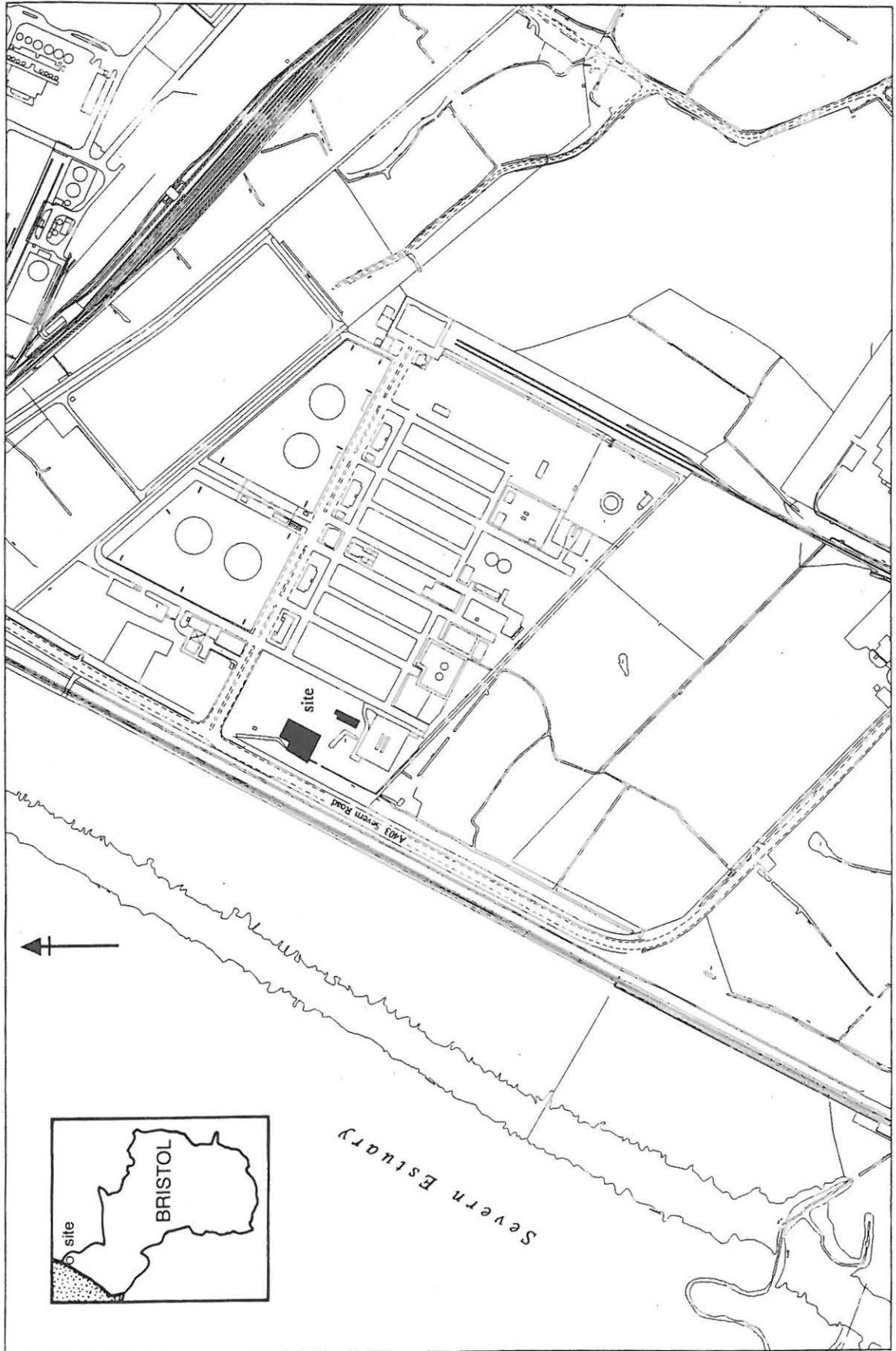


Figure 1: Site location plan



Wentlooge Formation to a depth of 2.8 m (4 m AOD).

At the base of this sequence were dark clays and organic beds through which a monolith was taken from a vertical section for environmental reconstruction. The top of the monolith lay at 4.72 m AOD and the following stratigraphic sequence was recorded (data courtesy of Julie Jones, all measurements from the top of the monolith).

0-40 mm	Dark olive grey (2.5GY 4/1) clay (context 44).
40-190 mm	Olive black (7.5Y 3/2) clay with fragmented plant matter (context 45). Higher concentration of organic matter than below.
190-370 mm	Dark olive grey (2.5GY 4/1) clay with fragmented plant matter (context 46).
370-390 mm	Olive black (7.5Y 3/1) clay with fragmented plant matter (context 165).
390-430 mm	Black (5YR1.7/1) peat. Lying at 4.32-4.29 m AOD (context 47).
430-500 mm	Dark olive grey (2.5GY 4/1) clay with fragmented plant matter (context 48).

Context 44 continued above the monolith for a further 0.14 m (total depth 0.18m) and was overlain by 0.62 m of blue silty clay with brown manganese stains (context 43).

Above context 43 were two deposits of mid-brown silty clay with varying degrees of dark brown manganese staining. These two deposits (42 and 41) were 0.71 m and 0.38 m deep respectively.

### *The Organic Beds*

Organic deposits of the Upper Wentlooge Formation were discovered in both excavation trenches and in all the auger positions. A thin upper band of peat (47), ranging from 30 mm

to 100 mm in depth was revealed at heights between 4.32 m AOD and 4.04 m AOD (Figure 3) generally decreasing in height towards the coast. Above and below this peat band were organic clay deposits of the Upper Wentlooge Formation (46 and 48) including a poorly preserved peat deposit (45) approximately 200 mm above the peat band, context 47 (Figure 3). Samples were taken from the peat deposit for plant macrofossil assessment and radiocarbon dating. The plant macrofossil remains recovered included over 500 seeds of rushes, together with the aquatic water crowfoot (*Ranunculus* subgenus *Batrachium*), water plantain (*Alisma* sp), celery-leaved buttercup

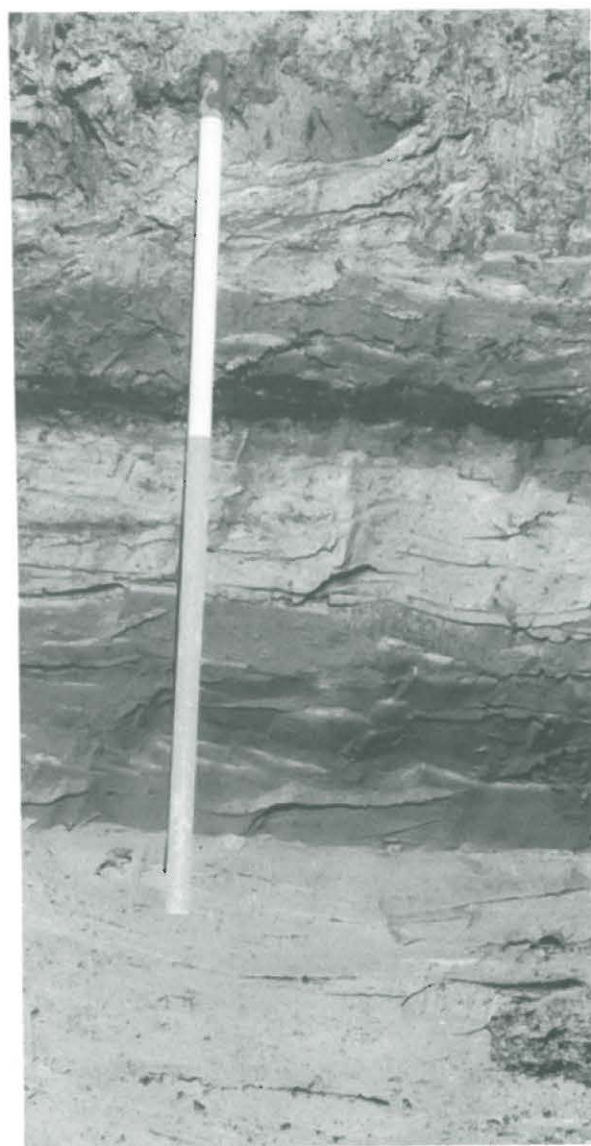


Figure 3: organic beds in Trench 1, viewed from the south.

(*Ranunculus sceleratus*), marsh pennywort (*Hydrocotyle vulgaris*) and bullrush (*Typha* sp). The presence of these species suggests a predominantly freshwater environment.

The peat deposit (context 47) has been radiocarbon dated at the University of Waikato, New Zealand with a conventional age result of  $3730 \pm 40$  BP (lab code Besma 5>/1996) and a calibrated two Sigma age range (95% confidence intervals) of 2290 - 2030 BC (calibrated by Alex Bayliss using the maximum intercept method and data of Pearson and Stuiver 1986).

This makes the Seabank peat band more recent than the dates from the 4th peats sampled during the assessment work on the Second Severn Crossing (GGAT 1992) which provided a two Sigma age range of 2870 - 2140 BC from a peat level at 3.17 m AOD. Since the Seabank peat at a height of 4.32 m lies 1.15 m above the GGAT 4th peats it suggests that context 47 may be correlated with the 5th peats discussed as part of the assessment work by GGAT. The 5th peats, however, have been previously dated with a two Sigma age range of 1620 - 1090 BC (Heyworth and Kidson 1982) from a sample recovered at a height of 3.96 m AOD. This Heyworth and Kidson borehole also provided a sample from the 4th peat at a height of 3.35 m AOD which produced a two Sigma age range of 2860 - 2040 BC (Heyworth and Kidson 1982). The height and date of the 4th peats from the Heyworth and Kidson report correlates with the GGAT results, but the Seabank peat has been dated to between c500 and 1000 years earlier and 0.36 m above the Heyworth and Kidson 5th peats. The height difference is probably misleading as the auger survey has shown the peat deposit to be decreasing in height as it nears the coastline. The date range for the peat at Seabank places the deposit between the recorded date ranges of the 4th and 5th peats from the other sources. These results further our understanding of the upper peat bands; that the 4th peats appear to be relatively consistent in date while the uppermost peat deposits of the Wentlooge Formation appear to be more 'patchy' in nature and inconsistent in date.

In the auger survey four 6 m auger points (1, 3, 7 and 9, Figure 2) recorded a lower peat band between 1.4 m AOD and 1.8 m AOD. This peat deposit was thicker than the upper band (100 mm - 200 mm) and may correlate to the

3rd peats previously dated to 4230-3700 BC calibrated two Sigma age range recovered from a height of 1.73 m AOD (Heyworth and Kidson 1982).

### Trench 2 (Figures 4 and 5)

The work on Trench 2 revealed the same organic deposits as Trench 1 and a buried soil horizon within the upper silts of the Wentlooge Formation containing no archaeological remains. Six archaeological phases were also revealed, represented largely by a ditch and its successive recuts that formed a T-shaped arrangement across the trench, running in a north-to-south direction. They were found to contain artefactual remains dating from the 11th to the 18th centuries. Towards the northern limit of the trench the medieval and post medieval cuts and fills turned in a westerly direction towards the coast, the post-medieval fills also turned in this same area to run in a south-easterly direction. Later features dated to the 19th and 20th centuries were also found in the northern area of the trench, probably associated with the Seabank Farm.

### The Buried Soil Horizon

This layer (context 140) was 0.1 m thick and was recorded at approximately 0.5 m above the first organic bed (context 156), at 5.2 m - 5.3 m AOD, and about 1.4 m below the present ground surface. Context 140 was only evident in Trench 2. There were no finds present, and a bulk environmental sample produced rush seeds and charcoal flecks.

Despite the limited information available it is possible to suggest a date for context 140 based on comparable deposits locally. Buried soil horizons are known from archaeological work throughout the North Avon Levels and it is generally believed that these deposits date to the Iron Age or Romano-British periods. These horizons have been sealed by later silts of the Upper Wentlooge Formation as a result of the rise in sea level since the Iron Age. At Hallen the buried soil horizon into which the Iron Age features were cut was revealed at a depth of 0.8 m below the surface (Barnes *et al* 1993). At Awkley a test pit revealed a buried soil horizon at 0.7 m below the current surface at

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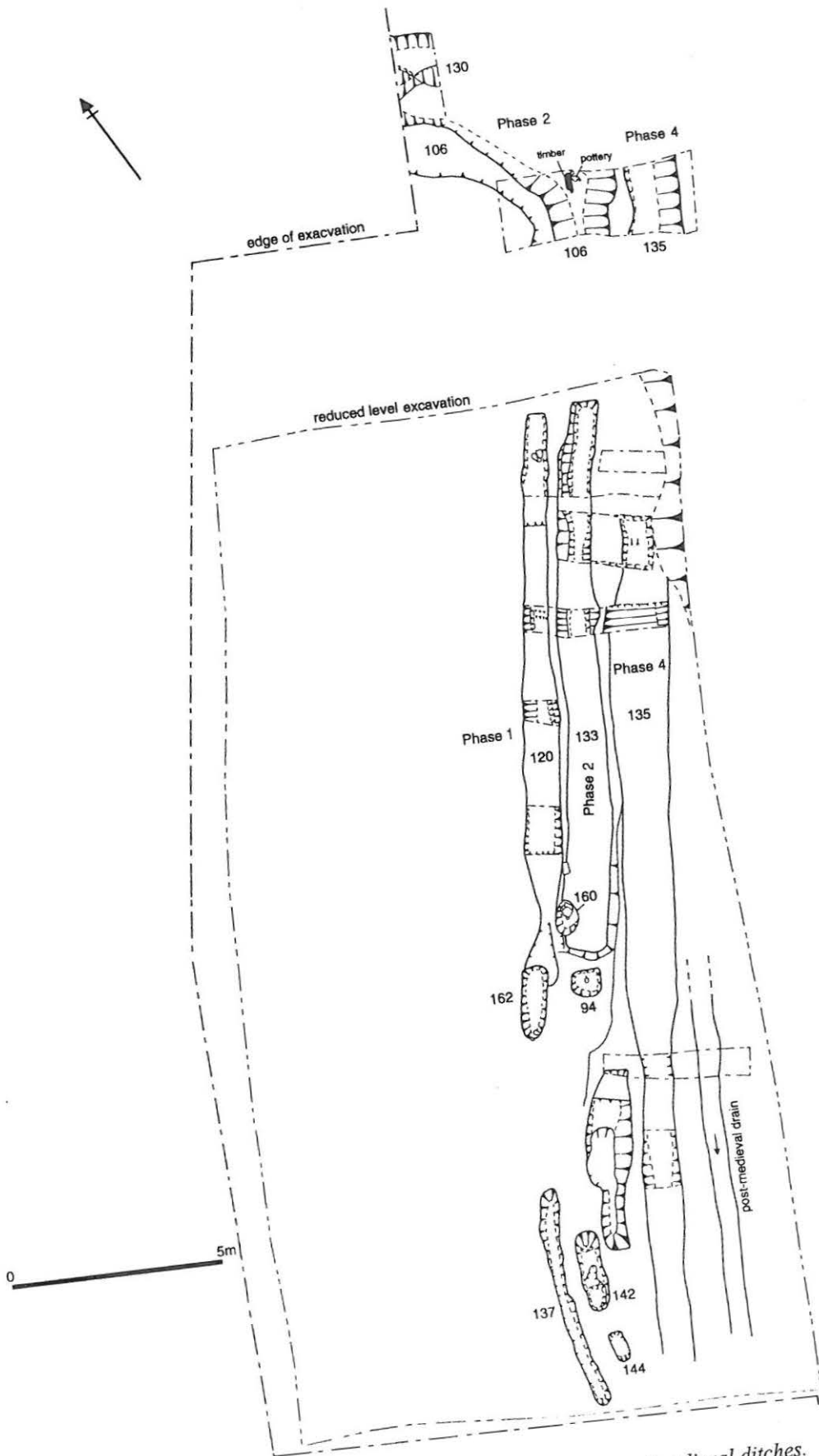


Figure 4: Plan of Trench 2 showing the sequence of medieval ditches.



Figure 5: view of Trench 2, from the north

7.38 m AOD (*ibid*). At Crooks Marsh the Romano-British remains were found 0.5 m below the ground surface (Everton and Everton 1981) and at Northwick a horizon was found at a depth of 0.45 m, approximately 6 m AOD (Newman and Barnes, forthcoming). Of all these sites Seabank is the nearest to the coast and would probably have received more alluvial deposits in the period since the Iron Age.

The buried soil horizons of the Iron Age and Romano-British periods in this area occur at variable depths, indicating that the landscape in these periods was more undulating than today. If this is the case then it is likely that the buried soil horizon in Trench 2 (context 140) could date to the Iron Age or Romano-British periods, although its depth at 1.4 m and residual Romano-British material in contexts at a higher level suggest that context 140 is more likely to have been formed during the Iron Age.

### Phase 1: The 11th Century Ditch

The earliest and most westerly of the ditches (120) was only recognised after the trench had

been machine-excavated to a depth of 5 m AOD, although the resulting section from this work revealed the ditch to have been cut from a similar height to the later ditches. The ditch terminated to the south (Figure 4) but continued into the north section of the deeper machined area. The cut for the ditch was narrow and shallow (0.2 m - 0.5 m wide and 0.2 m deep) with the fill (119) being a silty clay that was very similar to the alluvial silts through which it cut. A single sherd of 11th century pottery was the only find from the lower fill. The study of samples from the ditch suggests that it existed in a lower to middle saltmarsh environment, was open to the sea and linked with further ditches carrying fresh water from inland. Very few fish bones were recovered from the ditch, but those that were found were from stickleback, indicating a link to a freshwater system. This suggests that the ditch was primarily intended to help drain the surrounding land, and that a drainage system was in existence on the North Avon Levels by the end of the 11th century at the latest. The southern end of the ditch terminated either at an entrance to an enclosure or was a method of

drainage control similar to the function of the 12th century ditch discussed below. No other archaeological features were revealed from this phase.

### Phase 2: The 12th Century Ditch

The upper part of the 12th century ditch (133) was almost completely removed by later ditch cuts. At the northern end of the deeper machined area the ditch was found to terminate at the cut for the evaluation trench and further excavation of this feature revealed a large quantity of pottery sherds representing semi-complete vessels. Context 133 was a narrow linear feature approximately 0.3 m wide and 0.25 m deep with a 'V'-shaped profile (Figure 4). Beyond the terminus of the ditch, hand excavations of a section north of the deeper machined area revealed a similar ditch containing identical pottery and a fragment of poorly preserved oak timber that had not been worked.

Context 133 also terminated in the southern area of the deeper machined area and beyond this, on the same alignment as context 133, were a number of slots (Figures 4 and 6). Most were ovalute in shape with steep sides and approximately 0.3 m deep. One, however, appeared as a curving gully (context 137). These 'scoop'-like features produced few finds but their alignment and relationship to the phase 2 ditch suggest they are associated with it, or possibly part of the same feature, the shallower parts of which were lost due to machining or due to the later phases of the ditch. One explanation for these 'scoops' would be as a primitive gout system maintaining water within the ditch at a constant level whilst allowing seasonal flooding to drain away.

Context 133 had two fills, the lower of which, a blue silty clay (context 126), produced few finds and limited palaeoenvironmental information. The secondary fill (context 132), a dark ash, contained a large quantity of pottery of 12th century date. Most of this ceramic material was from cooking pots of local varieties. Context 132 was also rich in charred cereal remains which are likely to have been placed in the ditch. It also produced the most fish bone with eel and stickleback being the most common, both of which could have been living in the ditch. Evidence of food debris amongst

the assemblage include several burnt bones (4 eel vertebrae, 3 small gadid vertebrae and 2 scombrid vertebrae) as well as roker and herring. Foraminifera and diatoms recovered from sampling context 132 suggest a lower saltmarsh environment with the ditch experiencing regular fluctuations in water salinity as fresh water draining from the land mixed with brackish and marine waters from occasional tidal inundations.

Associated with this phase was a gully (102) 0.4 m wide and 0.2 m deep with 'v'-shaped profile. This was aligned north-west south-east and drained away from the ditch. It contained early 12th century material including a fragment of quern stone (SF 2) of coarse grit-fine conglomerate, common to the Long Ashton and

Figure 6: the curving ditch 137 (left) and intermittent slots 142 and 144 (right), from the south





Portishead areas. A similar quern fragment was found unstratified nearby. As the gully drains away from the ditch it probably formed part of an irrigation system, of which the 'scoops' in the bottom of the ditch possibly also formed an essential part.

### Phase 3: The 13th Century Ditch

The 13th century ditch (139) was found to be a continuous feature draining south with a distinctive flat bottom. At 5 m AOD the cut for the ditch was c0.4 m wide and filled with a brown silty clay containing late 13th century pottery. Little of the fill survived. Analysis of samples from the ditch suggest similar conditions to the 12th century ditch, with a mixture of freshwater, brackish and marine forams and diatoms and only the bones of eel and stickleback present.

### Phase 4: The 14th Century Ditch

The latest medieval ditch was a wide cut 1.5 m across with a rounded bottom and steepening sides (Figure 4). It was filled with a dark brown silty clay (context 131) containing 14th century pottery and an annular brooch (SF 6) of 13th-14th century date (Wheeler 1940). Diatoms were absent from the samples taken from the ditch, while the forams recovered are typical of a middle saltmarsh environment. *Elphidium oceanensis* was present in the samples, indicative of standing water, and may suggest a partial obstruction at the seaward end of the ditch which prevented it from draining completely.

A gully (80) with similar dimensions to 102 in phase 2 was found west of the ditch, approximately 0.8 m to the north and parallel with it. This contained early 14th century material, and may indicate a secondary phase of irrigation.

### Phase 5: The Post-Medieval Ditch

The post-medieval ditch cut (28) was found to approximately follow the alignment of the earlier ditches although it turned inland in an easterly direction. It measured c2 m across and between 1 m and 1.5 m in depth, draining to the south. The cut had two fills, the earliest (phase 5a) (contexts 29 and 53) being a dark silty clay

containing domestic debris including bone, oyster shell, charcoal and pottery of 16th to earlier 17th century date. Bulk and column samples from this lower fill produced charred plant macrofossils, indicative of a hay meadow environment, and a limited number of foraminifera. The sparse forams suggest a marsh creek environment with free flowing conditions and therefore subject to strong diurnal salinity fluctuations with the flood and ebb of the tide. The latest fill of the post-medieval ditch (phase 5b) (27), a mid-brown silty clay, contained pottery of 18th century date.

A gully was also found associated with this phase running parallel with, and of similar dimensions to, 80 and 102 in phase 1 and phase 2. Unlike the medieval gullies, this feature drained into the ditch.

### Phase 6: 19th and 20th Century Features

In the northern area of the trench there was a sub-circular pond or water hole, 10 m across lined on the bottom with blue clay and filled with black ashy material (11) (Figure 5). It contained pottery of 19th century date including slipwares, red wares and willow pattern, farm refuse, rusted iron tools, and a variety of glass bottles. Context 11 was cut by the construction trench for a rectangular brick-built cess tank (7) measuring 2 m by 1.5 m and 0.5 m deep.

West of the pond or water hole was a rectangular pit (23), 2 m long by 1 m across and 1.5 m deep filled with similar material to (11). It contained numerous glass bottles of 19th century date and lay at the junction of two contemporary walls (13 and 14) aligned east-west and north-south, which were of limestone and pennant sandstone in a grey lime and ash mortar. The walls were shallow-founded with only between one and two courses surviving, and both were roughly faced. Wall 13 was cut by the pit (23) and had been rebuilt and supported by a brick construction. It continued west beyond the section and was 5.5 m long and 0.5 m wide. Wall 14 measured only 2.2 m in length with no indication that it had continued further north or south. A 19th century penny with a date in the 1830s was recovered from the wall.

South of Wall 13, running beneath the west section, was a rectangular pit (10) measuring 2 m square and 0.45 m deep, filled

with mortar, ash and a large number of pan roof tiles of 19th century date.

Three features of 19th and 20th century date were recorded in the eastern area of Trench 2. Two were east-west parallel linear features, contexts 15 and 16, of nearly identical dimensions measuring 50 - 100 mm in depth and c1.5 m across, interpreted as agricultural furrows. They extended beyond the eastern limit of the area and both terminated at their western ends at a shallow, north-south ditch (34), 0.35 m deep. The ditch contained dark silt and ash with glass, iron and pottery of 20th century date. At its northern end the ditch turned east into a wider and deeper cut, 2 m across and 1.3 m in depth, that ran beyond the east section. The dimensions of this larger east-west ditch are comparable to the existing rhines in the area and probably represents a late field boundary that drained into an earlier ditch. The east-west ditch can be traced today as a shallow depression in the grass on the east of Trench 2 and is further marked with three willow trees.

### Discussion

The excavation revealed five successive ditches running north-south through the site at Seabank, all of them turning west to drain into the Severn, at the northern end of trench 2. They all followed a similar alignment and were cut from a level close to the present ground surface.

Each ditch was found to be aligned slightly to the east of its predecessor (Figure 4) suggesting that they were infilled from the west. The line followed by these ditches appears to have been maintained from the 11th to the 18th century, with the western branch of the east-west ditch continuing into the 20th century. The line of the ditch is shown on the Ordnance Survey plans of the 19th and 20th centuries, and clearly it formed a boundary between fields, though, the unusual nature of the two earliest cuts possibly suggests it had a greater importance in the 11th and 12th centuries (phases 1 and 2).

The richest deposit recorded during the excavation was the secondary fill of the 12th century ditch (132), which produced a large quantity of ceramic and environmental information to suggest that by the 12th century, the local environment was stable enough to allow domestic activity to take place on the saltmarsh.

Palaeoenvironmental analyses of the samples from the ditches has shown a very slight trend of a decrease in the salinity of the environment. The earliest ditch (phase 1) produced foraminifera from a lower saltmarsh environment while the 14th century ditch (phase 4) contained upper to middle saltmarsh indicators. However, all the ditches revealed evidence to suggest that they were open to the sea and drained the surrounding land.

Indications are that the ditches revealed by the excavation have always been as close to the coast as they are now, and therefore show no evidence for there having been a setback in the sea defences along this stretch of the South Gloucestershire Levels. The ditches run parallel with the present sea defence, and the presence of varieties of fish such as small flatfish and young conger eels which inhabit shallow inshore waters and rock pools (from phase 4 in particular) suggests that the ditch in the 14th century lay in close proximity to the coast.

The large quantity of ceramic material recovered from the ditches, particularly from the 12th century ditch, and total absence of finds from the area immediately to their east suggests the nuclei of a settlement probably to the west, perhaps beneath the A403.

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