

**Compartment 26, Beccles Marshes, Suffolk, 2006  
(BCC043):  
Excavations of a brushwood trackway and causeway -  
Assessment Report and Recommendations**

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## 1. Background

### 1.1 Introduction

- 1.1.1 Excavation of a soke dyke across the floodplain of the River Waveney at Compartment 26, Beccles Marshes, Suffolk (NGR TM29156413 – Figure 1) during April 2006 uncovered upright posts and associated wooden remains. The nature of the tool marks on the timbers was suggestive of a prehistoric date.
- 1.1.2 Suffolk County Council Archaeology Service undertook an initial evaluation of the site. This evaluation indicated that the archaeological remains were more complex than first thought and required more detailed assessment excavation.
- 1.1.3 Assessment of samples of the worked timbers extracted during the excavation of the dyke suggested an Iron Age or perhaps Bronze Age date.
- 1.1.4 Two samples taken from the archaeological wood by Birmingham Archaeo-Environmental were submitted for to Beta Analytic Inc., Miami, USA, for radiocarbon dating. These samples produced dates of: 1940 $\pm$ 40 BP (Beta-216738; cal. BC 50-cal. AD 140) 2150 $\pm$ 40 (Beta-216739; cal. BC 360-270 and cal. BC 260-50) (Calibrated using OxCal 3.1, Bronk-Ramsey 2005). The first date is on a worked point and the second is from a sample of wood from one of the upright posts. This suggested an Iron Age/Romano-British date for the site.
- 1.1.5 Excavation of an area measuring 20 x 5 m adjacent to the soke dyke was undertaken by a joint team of archaeologists from Birmingham Archaeo-Environmental (University of Birmingham) and Suffolk County Council Archaeology Service between 19<sup>th</sup> July and 5<sup>th</sup> August 2006. In addition to the main area of excavation, areas to the north and south were cleaned and recorded, with features recorded from both sections of the dyke. Samples of wood were taken for assessment and samples of sediment were collected for various palaeoenvironmental assessments. Additional work included an auger survey to establish the depth and character of the sediments around the site.
- 1.1.6 This assessment report forms a preliminary account of the results of the work to date and outlines recommendations for further assessment of material obtained from the fieldwork.

## 1.2. Objectives

1.2.1 As outlined in the archaeological brief, the objectives of the project were divided into three principal areas:

- Archaeological excavation and sampling
- Auger core sampling over a wider area around the site
- Preparation of a report and archive

1.2.2 The overall aims of the project were thus to:

- Fully expose all upright timbers and to expose any surfaces which are, or could be interpreted as structural and identify all associated finds.
- Record all elements of the site in two and three dimensions,
- To sample from all contexts as per a pre-agreed sampling strategy for further analysis, identification and dating.
- To identify the wider environmental context of the site through analysis of the local stratigraphy (c.100m radius) and to record and sample these contexts.

1.2.2 In addition, objectives were outlined to:

- Provide a record of archaeological remains which had been damaged or removed during the initial excavation of the soke dyke
- Monitor and investigate the areas for potential finds or sites of an archaeological nature
- To record archaeological deposits during excavation and of soil sections following excavation

## 2. Factual data

### 2.1 Introduction

2.1.1 The excavated area principally consisted of a trench 16m long and 5m wide that was previously defined by the WSI (henceforth referred to as the trench). A 20m strip to the north of the main trench and a small trench, 2m square, to the south were also cleaned by hand.

### 2.2 Excavation and Sampling

2.2.1 Successive 0.10m spits were removed from the trench by hand. The brief required excavation to 1.0m depth from the current ground surface; in the event the high ground water table restricted the depth of excavation. The trench and all surrounding features (e.g. Boreholes) were surveyed using a combination of Trimble RTK5800 GPS and Automatic Level. In addition, all wood samples and structural remains were planned by hand.

2.2.2 This process revealed 22 upright posts, aligned north-west to south-east. Certain of these posts had notches cut into their upper extent (Plate 1). Wood remains; including fragments of planks, pegs, woodchips and tree roots were found in concentrations within the alignment defined by these posts.

2.2.3 Two sections 1.0m wide were excavated to an additional depth of 0.4m on an east-west orientation across the alignment of the posts to elucidate the character of the structure and to uncover any underlying features. The southernmost section revealed a concentration of coppiced rods on an east-west alignment, hence perpendicular to the alignment described above (2.2.2). The trench was extended by 0.50m to the west, confirming that this structure continues under the baulk and hence outside the scope of this excavation.

2.2.4 A further 7 posts were found in the 20m strip to the north as well as two possible planks. An east-west orientated, linear, flat-bottomed ditch was also located in this area. No features were located in the small trench to the south.

2.2.5 The 22 posts were extracted by hand and wrapped in plastic sheeting. In addition, bulk samples of wood chips and other wood samples were collected. All of these samples were deposited at the wet wood storage facility at Flag Fen.

2.2.6 The stratigraphy of the trench (from base upwards) was recorded as follows:

- 1002 - *Red-brown, moderately humified herbaceous peat with abundant monocot and wood remains and abundant small flint fragments. Thin grey sand horizons towards top of unit.*

- 1001 - *Light yellow brown (oxidising to grey-brown) very silty, well-humified peat with abundant monocot remains and occasional small flint fragments. Occasional fine grey sand layers.*
- 1000 - *Dark red-brown well humified herbaceous peat with wood fragments and rootlets. Occasional silt-rich clasts.*

2.2.7 The brushwood structure (see above 2.2.2) was situated within the lower peat (1002). The majority of the wood remains, both archaeological and natural, were located within the yellow brown well-humified peat (1001). This unit was sealed by the upper red brown moderately humified peat (1000). It is unclear at this stage how the upright posts are related to the sequence of peat accumulation.

2.2.8 A palaeoenvironmental 'master' sequence was bulk sampled from the east facing trench edge (Plate 2). In addition, 'spot' samples were recovered from various locations in the trench.

2.2.9 To complement the archaeological excavations at Beccles, an auger survey was carried out in order to establish the stratigraphy of the 'off site' deposits and their relationship to the 'on site' stratigraphy. The auger survey was undertaken with the two main aims of: identifying and recording the subsurface stratigraphy of the sedimentary archive and; recovering subsamples to assess the palaeoenvironmental potential of these 'off site' deposits. A total of 46 cores were excavated in the form of four transects. A coring transect containing seven cores was located running east from the excavation (Cores 1-7), whilst three further coring transects were excavated running approximately north-south parallel to the flood embankment, each containing between 10 and 16 cores. In addition, two further cores were taken from within the excavated area (Cores 44 and 45) to assess the stratigraphy immediately underneath the wooden structure (see figure 4 for core locations). The initial coring strategy intended to take cores at roughly 20 metre intervals surrounding the excavation site. The first of these transects however, running proximal to the embankment, had cores taken at 10 metre intervals. To the north of the excavations, it became clear that the stratigraphy changed considerably, hence borehole spacing was maintained at 10 metre intervals in the northern section of the site. Elsewhere, the coring resolution was at c. 20 metre intervals.

## 2.3 Archaeological wood

2.3.1 381 samples were submitted for assessment from the excavations, with associated wood recording sheets. The assemblage is described as well preserved. The samples fell into several categories –

- *Roundwood* (156 items): including both small coppice rods and large posts. The posts are all in the round and have been sharpened to a tapering point. A total of 7 of the large posts display halving lap joints towards their top ends. Several of the

large posts display morphological traits suggesting they could be overgrown coppices. Several smaller stakes with sharpened ends were recovered in association with these larger uprights.

- *Timber debris* (216 items): a large volume of material that can be classified as timber or timber debris was recovered. These represent the ‘waste’ material from the production of timbers. This class includes tangentially and radially split timbers with a variety of conversions, many of which exhibit trimmed ends.
- *Timber* (6 items): Despite the high volume of debris, there is a scarcity of timber, with only 2 items classed as artefacts. One of these is a small item of unknown species worked into an unusual joint. The second is a rough dowel fashioned from oak heartwood. These have been described as worthy of individual study.
- *Wood chips* (136 items): These are predominantly radially aligned. The few tangentially aligned chips may be derived from the working of the large posts, but the majority of the chips are from splitting debris from material that is not represented in the excavated wood assemblage.

### 2.3.2 Tool Marks

A total of 13 ‘stopmarks’ were recorded, the majority of which were present on the large posts. The woodworking is in general very clean with clear facet marks. The quality and style of the woodworking, when considered in conjunction with the stopmark curvature ratio, suggests the use of iron tools.

## 2.4 Other finds

### 2.4.1 Introduction

Finds were assigned a total of 13 separate numbers. The finds and their findspot numbers are listed in the Table below:

Findspot	Pottery		Animal Bone		CBM		Flint		Spotdate
	No.	Wt/g	No.	Wt/g	No.	Wt/g	No.	Wt/g	
0001	2	11							M1st-E2nd C
1001			1	8					Undated
1002			1	81					Undated
1003	1	81							M1st-E2nd C
1004	8	315							M1st-E2nd C
1005							1	5	Prehistoric
1006			1	42					Undated
1007					1	506			Post-Roman
1008			1	18					Undated
1009			1	350					Undated
1010			2	33					Undated
1011							1	27	Undated
1012					1	247			Post-Roman
Total	11	407	7	532	2	753	2	32	

Table 1: Quantities of finds

#### 2.4.2 Pottery (by Cathy Tester and Richenda Goffin)

A substantial proportion (11 fragments weighing 407g) of a single Roman vessel was collected from two findspots 1003, 1004 and unstratified 0001 in the southern end of the trench. The vessel, a narrow-mouthed flask or bottle with a cordon at the base of its neck, is small to size; 180mm high with a rim diameter of 68mm and a footring base 70mm in diameter. It is in the black-surfaced variant (GMB) of the grey micaceous fabric that is a major component of coarseware assemblages in the northern part of the county. It has a fine uniform sandy texture with abundant mica and few other inclusions. The surface is soft and powdery due to adverse post-depositional conditions and the vessel is decorated with bands of incised lines. The first zone just below the cordon contains two bands of irregular wavy lines and this is followed by bands of horizontal lines at intervals down the length of the vessel. The vessel is similar to *Camulodunum* form Cam 231b that is described (Hawkes and Hull, 1947) as fully Romanised and it probably belongs to the early Roman Period (mid or late 1st to early 2nd century).

As all the fragments originate from a single vessel, it seems likely that the bottle was deposited either accidentally or deliberately, perhaps as part of a religious/votive offering on the water's edge. Further discussion on the significance of the deposition is recommended, following on from more detailed stratigraphic analysis and a reconstruction of the physical environment during the Roman period. An illustration of this vessel for publication is also required.

#### 2.4.3 Ceramic building material

A total of two fragments of ceramic building material were recovered (0.753kg). The remains of a small floor brick made in a silty grey and pale orange fabric with red clay pellets (mscp) was found (findspot 1007). The brick dimensions are 35mm in depth and 112mm in width. It has moulding sand on the lower surface and one of the edges, and has been burnt. Although not typical, it is probably post-medieval in date (Sue Anderson, pers. comm).

A second, more abraded corner fragment (findspot 1012) was made from a coarse sandy fabric containing occasional flint inclusions up to 6mm in length (csf). It is also burnt at one end. The only measurable dimension is the depth, which is 27mm. It has slight knife trimming on one edge and is probably a floor tile. It is most likely also to be post-medieval in date, although it could be earlier (Sue Anderson, pers. comm). Neither fragment is of a standard size for post-medieval floor bricks and tiles of the region.

#### 2.4.4 Burnt flint (identifications by Colin Pendleton)

Two fragments of flint were collected weighing 0.032kg. A small grey squat flake with edge retouch was recovered (findspot 1005). It can only be dated to the general prehistoric period. A second flint (findspot 1011) is a battered fragment of natural gravel flint.

#### *2.4.5 Animal bone (by Julie Curl)*

The animal bone was examined and recorded using a modified version of a system devised by Simon Davis for recording faunal assemblages (Davis 1992). Each context chosen was sorted into immediately identifiable species or bone that could not be identified to species (simply referred to as 'mammal' or 'bird'). Contexts totals were recorded for each species and the numbers of measurable and countable elements present were also recorded. A note was also made of any other useful information such as types of elements present, butchering or other modifications, pathologies or bone/antler/hornworking. Few reasonably complete or measurable elements were present, so no measurements were taken for this assemblage. All information was recorded on the faunal remains recording sheets along with total weights for each context. A table giving a summary of the results for each context is shown in Appendix 1.

Bone totalling 0.534kg, was recovered from seven findspots, including the ditch to the north of the trench. The faunal remains were all stained a dark brown colour, indicative of bone that has lain in organic and waterlogged soils for a long time, otherwise they were in generally good condition, although fragmentary due to butchering and wear. Bone from findspots 1007 and 1009 showed some erosion of the surfaces, suggesting some acidity in the soil. Most of the bone in this assemblage was derived from cattle and sheep/goat and comprised of both primary and secondary butchering and food waste, suggesting that whole animals were processed and consumed at this site. A canid mandible was found in findspot 1007, the teeth in this jaw were well worn, suggesting an old animal; the jaw also shows signs of periodontal disease, again suggesting an old animal in quite poor health. It is possible that the canid jaw is from a wolf, but may be from a large domestic or hunting dog. A goat mandible was recovered from findspot 1008, which showed numerous knife cuts from skinning. Further skinning evidence was noted in findspot 1009 with a complete pony-sized tibia bearing knife cuts from when the animal was skinned; it is possible that the animal was eaten, either by dogs or by people in times of normal meat shortage. It is quite likely that many equids would have had a working life and then have been utilised for their hides and meat afterwards.

#### *2.4.6 Summary*

The small quantity of finds recovered from the excavation is of mixed date. A single piece of prehistoric worked flint was recovered, and the substantial remains of a Roman vessel and two fragments of Post-Roman ceramic building material. As the animal bone was also plotted by individual findspot, there is no associated dating with this material, although selected fragments could be radiocarbon dated. Further spatial analysis of both the finds and the faunal evidence may contribute to establishing the later part of the archaeological sequence. Further discussion on the significance of the deposition of the Roman vessel may also be worthwhile.

## 2.5 Palaeoenvironmental Assessments

2.5.1 *Palaeoenvironmental assessments (pollen, coleoptera, plant macrofossils and diatoms)*: These assessments were targeted on a 'Master' sequence c. 1.15m deep sampled from the section at the western edge of the trench (Plate 1). The stratigraphy of this sequence and the sub-samples taken for the different proxies are described in Table 1. Five sub-samples were taken for pollen and diatom assessment and eight for macrofossil and coleoptera assessment. The rationale behind the assessment of a single sequence was to allow an integrated evaluation of the excavated deposits and their potential to provide information regarding the relationship between the archaeological sequences and changes in the local environment. The organic deposits are present to a depth of c. 3m below the level of the excavated archaeology, but the intention of the sampling strategy was to concentrate on the excavated sediment units. In addition, a sediment core taken from 'off' site was assessed for diatoms (see below) and will also be assessed for pollen as part of the English Heritage funded 'Suffolk Rivers Project'.

Detailed results of the assessments are discussed in the individual specialist reports (see Appendices). This section will present a synthesis of the pollen, coleoptera, and plant macrofossil and diatom data. The plant macrofossil assemblages, especially the three samples from the base of the sequence (0.85-0.95m, 0.95-1.05m and 1.05-1.15m) were poorly preserved and show little intra-sample variation, hence less reference will be made to these data.

### **1.15-1.05m - Bulk: coleoptera/plant macros**

#### **1.15m: pollen and diatoms**

#### **Red-brown, moderately humified monocot/wood peat (1002)**

The coleoptera indicate the existence of low growing vegetation dominated by grasses and sedges and reeds around muddy pools. The plant macrofossil record reflects similar habitats, with the remains of *Juncus* spp. (rushes) and *Alisma plantago-aquatica* well represented (water plantain). A record of the halobiontic carabid *Dyschirius salinus*, a taxon exclusively found on saltmarshes (Lindroth 1974, 1985) hints at nearby coastal or estuarine influence, whilst relatively high numbers of dung beetles reflect the presence of large herbivores in the close vicinity of the sampling site. Pollen concentrations (1.15m) are low but may suggest that wet woodland in the form of alder was also present in the near vicinity, if not actually on the sampling site. The presence of wood remains in the peat would also appear to be indicative of local tree cover, but alder fruits are rare in the plant macrofossil samples.

**1.05-0.95m - Bulk: coleoptera/plant macros**

**Red-brown, moderately humified monocot/wood peat (1002)**

The coleoptera suggest that conditions were somewhat drier compared to the previous sample, with species indicative of sedges and tussocky grassland. Insect evidence for tall emergent riparian species is absent, as are aquatic species associated with deeper, permanent bodies of water. However, high numbers of dung beetles are again present. The plant macrofossil sample shows little variation with the previous one, containing the remains of a range of wetland/aquatic taxa and a few dryland herbs.

Depth/ (Context) (mOD)	Stratigraphy	Pollen/ Diatoms/ Depth/m (mOD)	Macros/ Coleoptera Depth/m (mOD)
0 (1000)	<i>Dark red-brown well humified herbaceous peat with wood fragments and rootlets. Occasional silt-rich clasts.</i>	0.05m (-0.72)	0-0.25m (-0.67 to -0.92)
		0.34m (-1.01)	0.25-0.50m (-0.92 to -1.17)
0.52m (1001)	<i>Light yellow brown (oxidising to grey-brown) very silty, well-humified peat with abundant monocot remains and occasional small flint fragments. Occasional fine grey sand layers.</i>	0.57m (-1.24)	0.50-0.62m (-1.17 to -1.29)
			0.62-0.74m (-1.29 to -1.41)
		0.82m (-1.49)	0.74-0.85m (-1.41 to -1.52)
0.86m (1002)	<i>Red-brown, moderately humified herbaceous peat with abundant monocot and wood remains and abundant small flint fragments. Thin grey sand horizons towards top of unit.</i>		0.85-0.95m (-1.52 to -1.62)
1.20m			0.95-1.05m (-1.62 to -1.72)
		1.15m (-1.82)	1.05-1.15m (-1.72 to -1.82)

**Table 1: The Palaeoenvironmental Master Sequence**

**0.95-0.85m - Bulk: coleoptera/plant macros**

**Red-brown, moderately humified monocot/wood peat (1002)**

The coleoptera again reflect a change in the local environment with increasingly wet conditions reflected in the form of species indicative of reedswamp and deeper, permanent bodies of water. The reduction in the numbers of dung beetles suggests that large herbivores were no longer able to graze in the vicinity of the site.

**0.85-0.74m - Bulk: coleoptera/plant macros**

**0.82m: Pollen and diatoms**

**Light-yellow brown, silty, well humified monocot peat (1001)**

The coleoptera clearly reflect the presence of reed swamp or reed fen, whilst wholly aquatic species indicative of open water are virtually absent. The presence of relatively large numbers of the anobid *Anobium punctatum*, the common 'woodworm', probably reflects the infestation of the archaeological wood remains (the majority of which are located within this peat unit). The pollen sample from 0.82m would seem to support the evidence for more open, grass-sedge dominated vegetation. *Carex* spp. remains are also well represented in the plant macrofossil record. Although pollen concentrations are low, there is also some indication of alder-oak woodland as well as more open, although few alder fruits are present in the plant macrofossil record. Somewhat disturbed environments on dryland areas in the form of ribwort plantain and sorrels. The latter genus is also recorded in the macrofossil sample; it is thus unclear whether this represents plant material washed onto the site, or the presence of sorrel on drier parts of the floodplain. The shift to wetter conditions is probably also indicated by the stratigraphic change from woody herbaceous peat to silty, well humified sediment with indications of fluvial influence in the form of sand lenses.

**0.74-0.62m - Bulk: coleoptera/plant macros**

**Light-yellow brown, silty, well humified monocot peat (1001)**

The local environment is similar to those in the previous sample, with tall reed swamp but also some suggestion of lower-growing vegetation, composed of sedge and grasses. *Carex* spp. remains are again common in the macrofossil assemblage. Aquatic taxa indicative of deeper, permanent pools increase. Few dung beetles are recorded in this sample, which suggests the area was no longer being used for pasture.

**0.62-0.50m - Bulk: coleoptera/plant macros**

**0.57m: Pollen and diatoms**

**Light-yellow brown, silty, well humified monocot peat (1001)**

This sample indicates a significant change in the local environment, with indicators of tall reed disappearing from the record with a marked reduction in aquatic insects and few dung beetles. In contrast to the previous samples, the coleoptera suggest conditions at the site have become significantly drier, but this is not clearly reflected in the plant macrofossil assemblage with a range of wetland taxa still present. The landscape seems to have been dominated by tussocky grassland surrounding shallow, muddy pools of water. Pollen counts are very low for the sample from 0.57m, but the grains that are recorded reflect open habitats with few trees.

**0.50-0.25m - Bulk: coleoptera/plant macros**

**0.34m: Pollen and diatoms**

**Dark red-brown well humified monocot-wood peat (1000)**

Conditions are very similar to those of the previous sample with relatively dry conditions and vegetation dominated by tussocky grassland around shallow, muddy pools of water. Few true aquatic insects are recorded. Pollen counts from 0.34m are very low precluding useful comment.

**0.25-0.0m – Bulk: coleoptera/plant macros**

**0.05m: Pollen and diatoms**

**Dark red-brown well humified monocot-wood peat (1000)**

The coleoptera suggest that the local environment had again changed considerably; whilst tussocky grassland persists, reed swamp species become re-established and species associated with drier pasture re-appear, perhaps reflecting the presence of meadows on the dry land fringes. Species associated with muddy, ephemeral pools are recorded. Occasional episodes of fluvial influence as reflected by the presence of silty clasts in the stratigraphy are also hinted at by the dryopid *Oulimnius* spp. which is found in well oxygenated, rapidly flowing waters with unstable sand and gravel armoured substrates (Holland 1972). This mosaic of vegetation types perhaps suggests some form of human agency or management of the environment during deposit formation. The pollen sample from 0.05m is also indicative of open environments on and around the site, although counts for ‘anthropogenic indicator’ types are rather low; ribwort plantain and a single grain of cereal pollen suggest grassland and arable contexts within the pollen catchment. The diatom sample from this level provides some additional information on the local sedimentary environment at this time, with a

fauna typical of deposition in an estuarine setting with freshwater and marine influence.

### 2.5.2 *Summary: major habitat types represented*

The proxies therefore represent a range of habitats on and around the sampling site during the period of peat accumulation represented by the 'master' sequence:

- **Grassland/meadow** – Both plant macrofossils and coleoptera indicate grazed/managed damp grassland (low incidence of colonizing weeds/high incidence of dung beetles) although use of the grassland appears to have been intermittent and may have been dependant on variable soil water conditions and episodes of seasonal flooding.
- **Wetlands** - Sedge fruits and seeds of water-pepper are particularly abundant within the plant macrofossil assemblages; both plants are common in wetlands and on the sides of waterfilled ditches. The coleoptera also suggest similar environments and, more specifically, show a pattern of intermittent dry/damp episodes.
- **Standing/flowing water** - The plant macrofossil assemblages contain a moderately high density of taxa specific to shallow pools and/or wet ditches alongside species more commonly found in low to medium flow water conditions in channels with muddy bases and margins. This evidence is largely corroborated by the coleoptera although again, the latter appear to be more specific about subtle habitat changes.
- **Brackish water conditions** - Plant remains, diatoms and coleoptera indicate that the area was subject to intermittent 'estuarine' conditions, that is periodic tidal inundations of brackish/salt water
- **Woodland** - Both coleoptera and pollen suggest that alder woodland was growing on or near the site at various points during its development. However, although alder fruits are present within the plant macrofossil assemblages, the density is insufficient to indicate anything other than occasional alder stands. Alder carr does not appear to have become established at any stage, which may very well indicate a degree of deliberate land management.

2.5.3 *Auger Survey (Figure 5):* The cores extracted from the east, west, south and immediately north of the trackway excavation contained very similar stratigraphic sequences. In addition, the two cores extracted from within the excavation site showed little variation. The general stratigraphic sequence can be summarised as follows:

*Depth*

<b>Unit 1</b>	0.00-0.90m	Dark grey-brown herbaceous well humified slightly silty PEAT
<b>Unit 2</b>	0.90-1.00m	Light grey organic rich SILT
<b>Unit 3</b>	1.00-1.90m	Dark grey-brown herbaceous humified slightly silty PEAT
<b>Unit 4</b>	1.90-4.50m	Dark red-brown herbaceous humified PEAT with wood fragments
<b>Unit 5</b>	4.50-5.50m	Dark brown-black very well humified PEAT
<b>Unit 6</b>	> 5.50m	SANDS and GRAVELS

Although not extracted due to high levels of saturation, basal sands and gravels were commonly encountered at a depth of between 5.50m and 6.00m (Unit 6). This was overlain by a dark brown or black, occasionally sandy, very well humified peat (Unit 5), in turn overlain by red-brown or black well-humified herbaceous peat with wood fragments in varying abundance (Unit 4). Above this, a dark grey-brown slightly silty herbaceous, moderately humified peat (Unit 3) was present. A thin organic-rich silt unit was then encountered; commonly c. 0.10m thick, although up to 0.30m in places (Unit 2). The cores are all capped by a dark grey-brown herbaceous well-humified slightly silty peat (Unit 1). All stratigraphic boundaries except those relating to the upper organic silt unit were found to be gradational, which was recorded as having relatively sharp upper and lower boundaries, possibly indicating an erosive contact.

Some 40m to the north of the site, the upper c. 1.0m of the deposits became more silt-rich, trending into grey-brown/blue-grey organic-rich silts and clays. The upper peat hence (Unit 1) 'thins out' northwards, being replaced by the minerogenic unit, which is possibly related to the thin organic-rich silt unit that was commonly encountered at c. 0.90m depth (Unit 2) across the rest of the surveyed area. The minerogenic unit increased in thickness, with the surface of the underlying peat (Unit 3) being encountered at greater depths within the cores to the north. Core 23, located furthest north, contained 4.90m of silts and clays without the underlying peat surface being encountered.

These results, supported by aerial photography, and analysis of LiDAR data for the area, suggests that the River Waveney does not appear to have moved considerably from its present position for much of the Holocene. This is indicated by substantial thicknesses of peat around the site indicating sediment accumulation in a semi-terrestrial floodplain environment. The sedimentology of the fine-grained minerogenic deposits described above appears to reflect deposition in an estuarine context. Indeed, previous palaeoenvironmental research in the Waveney Valley had encountered estuarine sediments as far west as Beccles (Alderton, 1983). The interpretation of an estuarine context is further supported by the relationship between the silts and clays with the underlying peat unit, which could be interpreted as evidence for a positive sea-level tendency (ie. rising relative sea level): an increase in marine influence would have resulted in

the gradual landward transgression of estuarine conditions, submerging the former semi-terrestrial land surface with fine-grained silts and clays through tidal inundation. This transgressive phase is represented in the stratigraphic archive by the thinning of the peat unit and thickening of the minerogenic unit immediately to the north of the site.

## 2.6 Synthesis and summary of results to date (Figures 2-5)

- 2.6.1 The excavations indicate that the earliest structure was a narrow brushwood trackway constructed of coppiced rods with associated pegs, orientated east-west. This trackway runs for some 3.5m and continues beyond the western edge of the trench. The depth of this feature (-1.5m AOD) suggests that it reflects the earliest activity on the site. It is located within the basal peat (1002) that appears to have accumulated in a sedge, grass and reed dominated environment, with evidence for fluctuations in waterlevels during the period of accumulation. The presence of dung beetles in this deposit demonstrates that large herbivores were also grazing in the vicinity of the sampling site.
- 2.6.2 The 22 uprights revealed in the excavation appear to have formed three parallel rows of posts orientated on a north-west to south-east alignment. These posts were *Quercus* spp. (oak), which was possibly derived from overgrown coppice. The posts were sharpened using iron tools prior to their insertion into the ground. The diameter of the posts varies between 0.3 and 0.8m. The triple row is up to c. 3.0m wide in total, with the rows positioned between c. 1 and 1.5m apart. The spacing of the posts on the longitudinal axis is highly variable, between c. 2-3.5m. In places, the posts are arranged in groups of two or even three (Plate 2). The total length of this row is 55m but appears to extend beyond the area of excavation to both the north-west and south-east.
- 2.6.3 Seven of the posts submitted for assessment displayed 'halving lap joints' at their upper ends. Whilst it is possible these notches were cut to facilitate transportation of the posts, it is probable that they supported, or were designed to support, a superstructure. This is implied by the fact that the levels of these joints and in places the positioning of the joints behind other posts; suggest they were cut when the posts were *in situ*. However, the orientation of the joints is not consistent, and the precise detail of any superstructure remains unclear. The majority of the wood recovered from around and between the post rows consists of wood working debris that appears to have been derived from the splitting of timbers, which have not been recovered during excavation. It is possible that the debris derived from working of the wood used to build the superstructure. The small number of timber planks that were recovered indicates that either the structure was incomplete or was dismantled or decayed in antiquity. In only one location on the eastern edge of the trench, was there a structural relationship between a vertical post and a horizontal plank (Plate 3).
- 2.6.4 The wood remains are located within the middle peat unit (1001), which appears to have accumulated in a reedswamp or reed fen environment, which was somewhat wetter than the previous peat unit (1002). This deposit also contains concentrations of woodworm. These insects represent an infestation of dry, presumably seasoned timbers, although it is currently unclear how this relates to the archaeology. The overlying peat unit (1000) seals the site. The tops ends of a

- number of the upright posts extend into this deposit. The presence of material including clay pipe, medieval 'green glaze' pottery and other finds suggest that this unit is heavily disturbed, at least towards its upper extent.
- 2.6.5 In addition to the scatters of worked wood, a number of tree stumps some of which were relatively large (up to c. 1.0m diameter) and a tree trunk were recorded suggesting that the surface of the peat had been dry enough to permit tree growth. The trees appear to have been rooted at the interface between the lower (1002) and middle (1001) peat units. In one instance, a tree had grown around a post demonstrating that this phase of tree growth postdates the construction of the post alignment.
- 2.6.6 The Iron Age date for the post row is based upon the previous radiocarbon date obtained by Birmingham Archaeo-Environmental (Beta-216739, 2150±40BP, cal. BC 360-280 and 240-60) from one of the posts and is supported by the analysis of 11 diagnostic tool marks identified on the posts. The use of wood from overgrown coppices may also be indicative of an Iron Age date. The radiocarbon date on a worked wooden point of 1940±40 BP (Beta-216738; cal. BC 30-cal. AD 130) suggests activity in the later Iron Age to Romano-British period, which is also supported by the presence of fragments of a single Roman vessel.
- 2.6.7 The causeway is aligned broadly parallel to the course of this reach of the River Waveney. The auger survey has indicated that the course of the River has not changed substantially and that there is evidence for the deposition of sediment in an estuarine context to the north of the site (this interpretation is supported by the analysis of diatoms carried out on the sediments for the English Heritage funded 'Suffolk Rivers Project'), with possible evidence for a positive sea level tendency. Presently, the timing of this marine transgression and its relationship if any to the archaeological sequences is unknown.
- 2.6.8 The archaeological features excavated and recorded at Beccles Compartment 26 can therefore be interpreted as a brushwood trackway of unknown date. The precise chronological relationship between this trackway and the triple post row remains unclear, but on the basis of the peat stratigraphy, the wood debris, tree stumps and pottery, all post-date the brushwood trackway. Whilst there is no clear stratigraphic evidence for the exact relationship between the wood debris and post row, it seems possible on the basis of the notches in the posts and the remains of planks that the posts supported or were modified to support a raised walkway. The wood working debris may be interpreted as reflecting the splitting of timbers on site. Although not represented in the wood assemblage recovered from the excavation, these may have formed the superstructure of the walkway.
- 2.6.9 The structure possibly functioned as a causeway across the floodplain of the River Waveney. Although the exact length of this causeway is unknown, it seems possible that it ran towards Beccles, perhaps linking 'islands' within the wetland.

As such its potential total length, based on a projection of the post alignment and the width of the floodplain, is c.1000-1300m.

- 2.6.10 The northern section of this alignment appears to extend towards the edge of the estuary of the River Waveney. As such it is possible that the causeway was intended to provide access to the estuary. Such an environment would have provided a variety of economic resources and the possibilities of boat transport.
- 2.6.11 There are no useful direct parallels to aid interpretation of the site. The earliest structure is a pegged brushwood trackway. Brushwood trackways are one of the less sophisticated forms of structure and date to a range of periods, although they are the most prevalent form for earlier prehistory. They typically consist of longitudinally arranged branches and brushwood and are often supported by pegs and/or randomly placed transverse supports (e.g. the Viper's Track, Somerset Levels – Coles and Coles 1986). Such structures are known from the Neolithic period onwards within the Somerset Levels, in Irish contexts and across northwest Europe (Raftery 1996). In the Blackwater Estuary, Essex, a total of 9 brushwood structures dating to the Bronze Age were identified. Timber causeways are rarer than brushwood trackways. A single post from the site at Beccles has been radiocarbon dated to the mid to late Iron Age. There are other examples of possible causeways in Britain, although in many cases structural parallels are not convincing. In the majority of cases structures consist of 1, 2 or 3 post alignments with horizontal timbers, in some cases the horizontals displaying jointing (as at Shinewater, East Sussex). Such parallels include Bronze Age sites at Flag Fen, Peterborough (Pryor 2001), Caldicot, Monmouthshire (Nayling 1993), Ely (Lethbridge 1935) and Shinewater Park, East Sussex (*cf.* Pryor 2001), although these sites continue in use into the Iron Age. Iron Age parallels include the causeway at Fiskerton, Lincolnshire (Field and Parker Pearson 2004). Continentally, it may be argued that the nearest comparable site is that of La Tène in Switzerland (*cf.* Pryor 2001).
- 2.6.11 Hence, whilst there is no direct parallel to the site at Beccles, it appears to fall into this general pattern of prehistoric post alignments and associated walkways. In each of the examples cited, there has been a quantity of metalwork and other prestigious items deposited in relation to the structure, sometimes in large quantities. No such items were discovered at Beccles, despite extensive metal detecting. The longevity of activity at the Beccles site from later prehistory into the Roman period is also observed in a range of other examples.
- 2.6.12 According to English Heritage's Monument Protection Programme, all trackways should be considered as of 'national importance'. Of all the classes of trackways identified from prehistory, causeways (elevated walkways) are arguably the rarest, although structural variations make comparison between different sites extremely difficult.

- 2.6.13 A further significance of the site lies outside of the excavated area and hence the scope of the excavations. It is not currently known where the causeway was heading to or from, although as stated above, it may be hypothesised that it ran from the drier area of Beccles to the south, either to the estuary of the River Waveney or across it. In the overwhelming majority of other examples of prehistoric causeways, both in the UK and on the Continent, these sites are characterised by large depositions of metalwork and other non-utilitarian items. Despite the lack of artefacts at the site, and given the relatively small area of the excavation (less than 70 square metres), the density and number of well preserved wooden remains indicates that the site should be considered as certainly nationally important and of potential international significance.
- 2.6.14 The combination of the trackway and causeway is extremely rare, demonstrating multiple phases of activity and reflecting human responses to the dynamic environmental conditions on the floodplain of the River Waveney throughout prehistory and into the Roman period. Further work on the both the archaeological and palaeoenvironmental material recovered during the excavations is required to fully realise this potential and to fulfil the terms of the WSI.

### 3. Recommendations and Research Objectives

#### 3.1 Research objectives

3.1.1 The form of the Beccles site is in many ways unique with the only potential national parallels being the internationally important sites of Flag Fen and Fiskerton. The evidence from the excavations and the preliminary assessments has demonstrated that the causeway on Beccles Marshes was constructed during later prehistory, with one phase of construction following felling in the spring of 75BC. It is unknown whether this is the principal phase of construction but it appears that there is at least one other phase. Stratigraphically, an earlier brushwood trackway aligned perpendicularly to the main structure has been identified, and Roman pottery also indicates a later phase of use. The dendrochronological dating has further highlighted the importance of the site as to date; the samples from Beccles would seem to be the only late Iron Age dendrochronological sequence in Britain.

3.1.2 There remain a number of research questions, which require consideration to fulfil the requirements of the Brief and Specification for an Archaeological Excavation (June 2006). The assessments have highlighted the potential to address these questions through further analysis of specific samples. These analyses will enable the full chronological interpretation of the site, providing contextual information on the structures and the relationship of the archaeology with the changing local environment. The specific areas requiring further analysis may be defined as follows:

- *Dating and chronology:* Currently, only two radiocarbon dates, the Roman period pottery and broad stratigraphic relationships between the archaeological deposits provide currently chronological control for the site. However, the dendrochronological assessment has demonstrated that the archaeological timbers recovered from the site have the potential to provide secure chronological control for the main phases of construction (ie. the large timber posts with >50 rings). Radiocarbon dating of smaller wooden structures (the brushwood trackway) and other selected timber fragments is also recommended.
- *Wood analysis:* The assessment has demonstrated that the wood assemblage is extremely well preserved and worthy of further study. The data recovered from the post alignment need to be compared with spatial data from the excavation to obtain a clearer understanding of this structure. The timber debris and wood chips should be subjected to detailed statistical analysis within the chronology of the site. In addition, the non-oak woodchips should be identified to species to clarify the types of woodworking taking place on site. A sub-sample of the roundwood should also be analysed to determine a reasonable picture of the species present. Finally, these data can be compared with assemblages from other

prehistoric sites to situate the material within their broader context. (Full details of recommended work and method statement in Appendix 2).

- *Palaeoenvironmental analyses*

The preservation of the environmental remains is variable. Plant macrofossil preservation is poor, whilst pollen and diatom preservation is variable. Coleoptera are very well preserved and provide a clear sequence of environmental changes that can be related to the archaeological sequences. Preservation of the coleopteran sclera from these deposits was exceptional, rapid assessment that has provided an insight into processes, both natural and anthropogenic, operating in the landscape around Beccles from the Bronze Age through to the Romano-British period. Further analytical work on this material is strongly recommended; several of the species recorded have coastal connotations, which can only be confirmed by work aided by a comparative collection. The importance of this work, in both a regional and national context is highlighted by similarities between this site, Flag Fen and Fiskerton. Pollen and diatom analysis of the offsite core is being carried out under the auspices of the English Heritage funded Suffolk Rivers Project and the results of this work will be made available to the project.

### 3.2 Timetable for further work and costs

3.2.1 It is therefore recommended that further analyses are undertaken to address the research objectives outlined above, focused on dating, wood analyses, selected palaeoenvironmental analyses (coleoptera), reporting and publication, as specified in the WSI. These recommendations may be expressed as a series of tasks:

Task	Staff	Days	Date
<i>1. Dating</i>			
1.1 Selection of samples for c14	KK	0.5	March 07
1.2 Submission of samples for c14	KK	0.5	March 07
1.3 Selection of samples for dendrochronology	JS	1	March 07
1.4 Dendrochronological dating	IT	-	March-June 07
1.5 Integration with site chronology	HC	1	June 07
<i>2. Wood analysis</i>			
2.1 Statistical analysis of debris	MB	Fixed	March-June 07
2.2 Analysis of non-oak woodchips	MB	“	March-June 07
2.3 Assessment of roundwood species	MB	“	March-June 07
2.4 Regional assessment of woodworking	MB	“	June 07
<b>Suffolk Costs</b>			
Background	JN	1	April
Management	JN	2	April-August
Methodology/prep for figures	LE	5.5	April/May
<i>3. Palaeoenvironmental analyses</i>			
3.1 Full coleopteran analysis	ET	12	May 07
3.2 Synthesis of palaeoenvironmental analyses with Suffolk Rivers Project data	BG	1	June 07
<i>4. Synthesis and report preparation</i>			
4.1 Integration of results	BG	1	July 07
4.2 Preparation of excavation report	KK	3	July-August 07
4.3 Preparation of figures (B'ham)	BR	1	August 07
<b>Suffolk Costs</b>			
Illustrator	Illus	5	May/June
4.4 Preparation of journal paper	BG	1	Sept 07
	HC	1	

*Staff:* BG: Ben Gearey, BR: Bryony Ryder, HC: Henry Chapman, ET: Emma Tetlow, IT: Ian Tyers, KK: Kristina Krawiec, MB: Michael Bamforth, LE: Linzi Everett, JN: John Newman, Illus: Illustrator

BG	3 days @	380.00	1140.00
HC	2 days @	380.00	760.00
KK	4 days @	230.00	1020.00

BR	1 day @	230.00	230.00
ET	12 days @	280.00	3360.00
Birmingham Total (EXC VAT)			6510.00
JN	3 days @	221.54	665.00
LE	5.5 days @	197.60	1,087.00
Illus	5 days @	188.40	942.00
Suffolk total (EXC VAT)			2,694.00

### 3.2.2 *Publication synopsis*

In addition to the excavation report, data from the excavations will be written up for publication in the *Proceedings of the Prehistoric Society*. This publication will include: an introduction to the site, a description of methodology and a synthesis of results. It will also include a consideration of the site in its regional, national and international context. The paper will be entitled, "The Beccles Causeway: excavations of an Iron Age wetland site in east Suffolk, UK" and will be co-authored by Gearey and Chapman with contributions from Tetlow, Tyers, Bamforth and Krawiec.

### 3.2.3 *Archive deposition*

The site archive remains with Birmingham Archaeo-Environmental at present and will be formally archived on the production of the full report. All environmental samples are also held at this storage facility. The wood is currently being stored at Flag Fen awaiting full analysis and the possibility of preservation. Deposition is subject to the outcome of the report.

## Figures

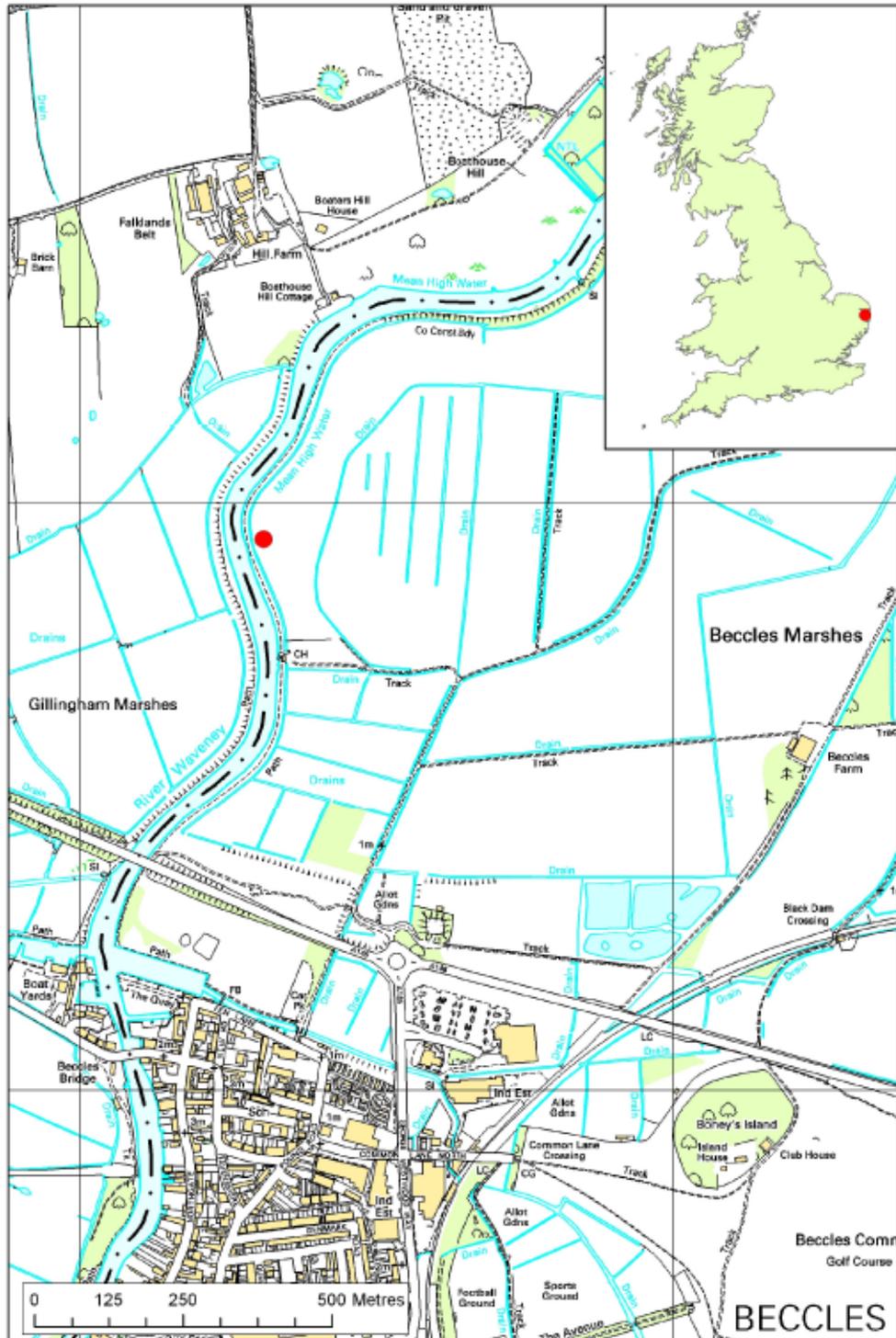


Figure 1. Location of the site



Figure 2. The main area of investigation.



Figure 3. Archaeological features in the trench.

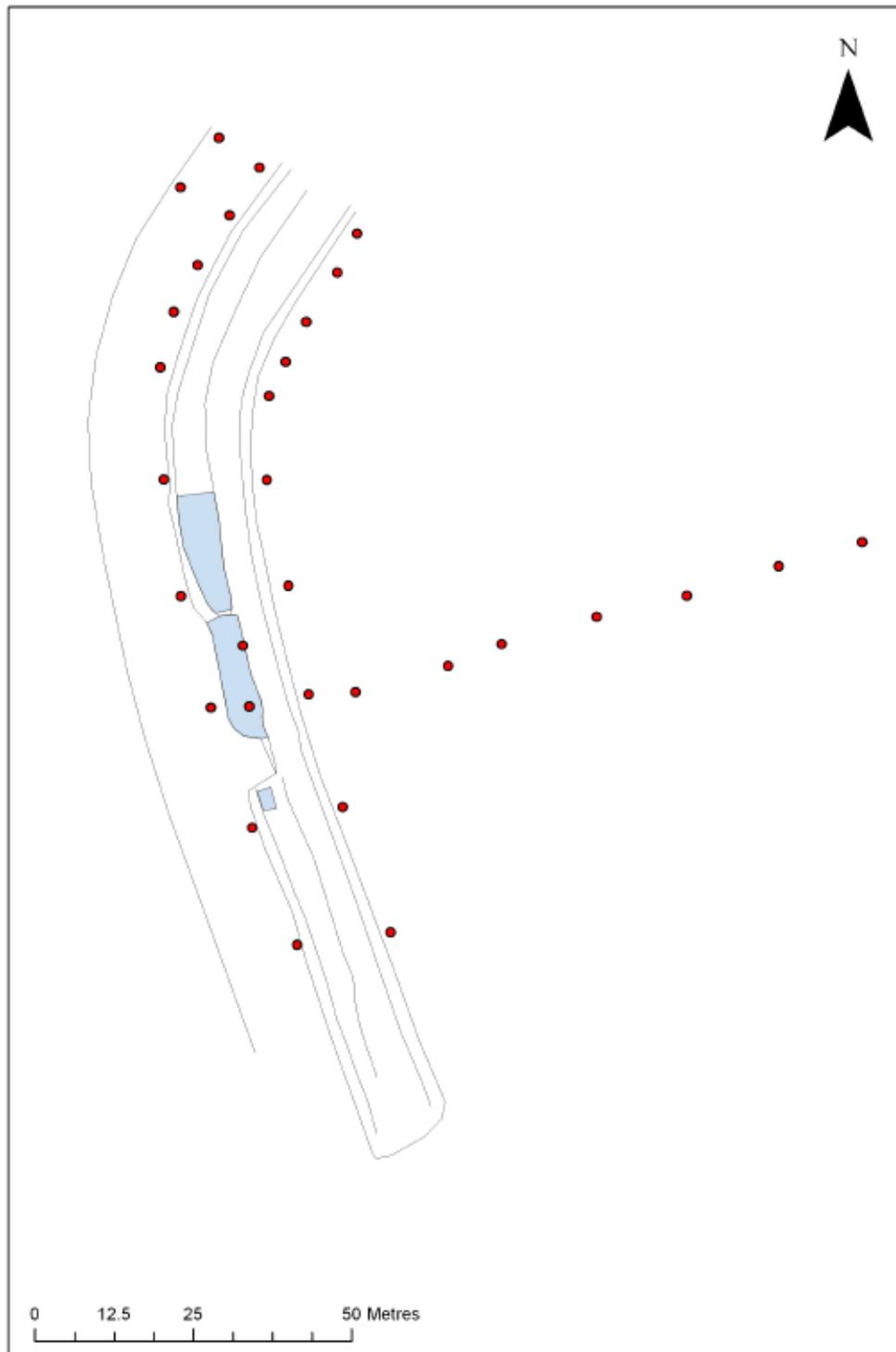


Figure 4. Location of boreholes (in red) in relation to the excavation (in blue).

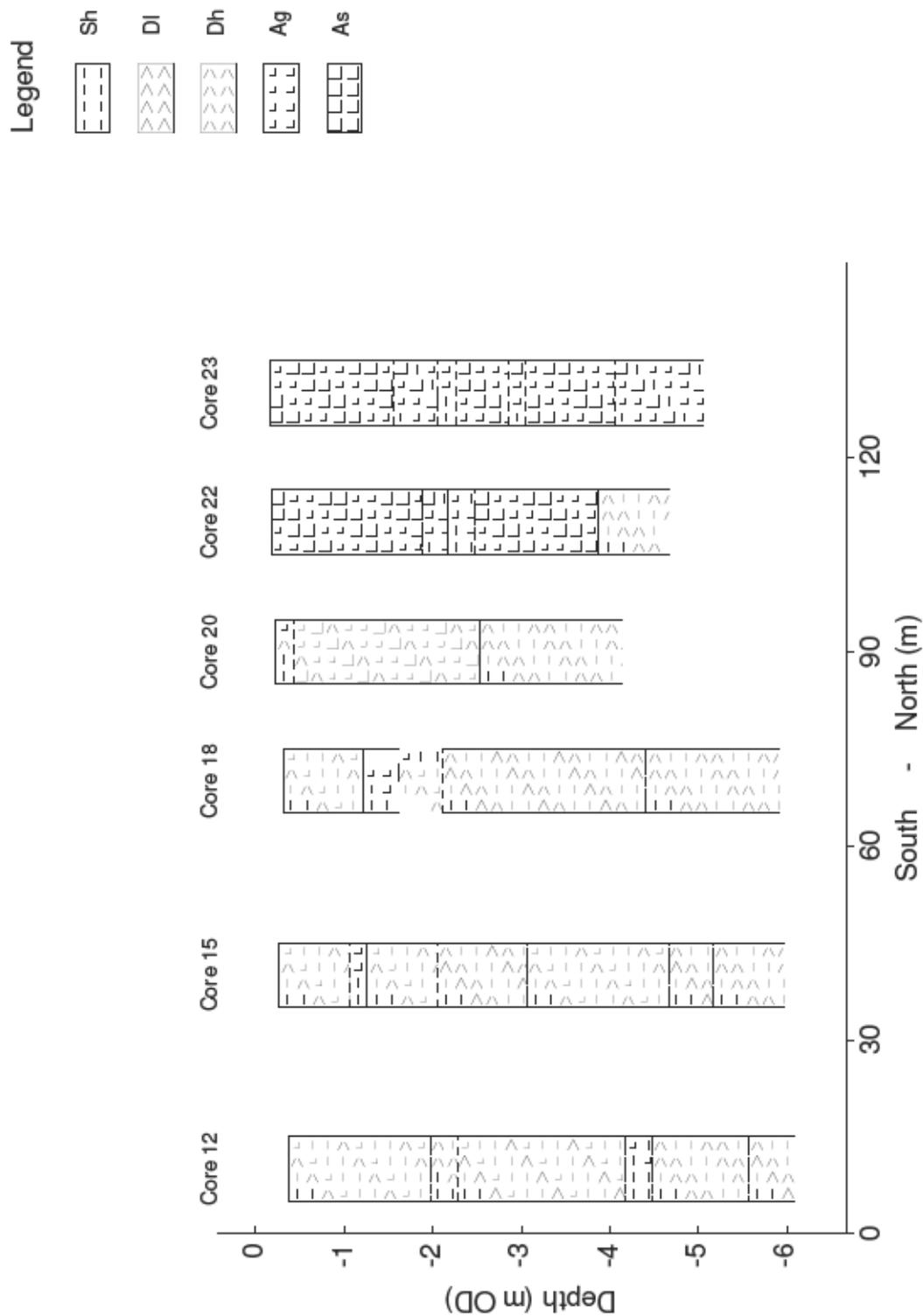


Figure 5. Summary of bore hole stratigraphy from selected cores taken at Beccles. See Figure 4 for core locations. Stratigraphic descriptions based on Troels-Smith (1955). Key: Sh - *Substantia humosa*; DI - *Detritus lignosus*; Dh - *Detritus herbacea*; Ag - silt; As - clay.

## Plates



Plate 1: One of the upright posts showing the sharpened end.



Plate 2: The upright posts showing the lap joints.



Plate 3: Sampling the palaeoenvironmental 'master' sequence



Plate 4: Evidence for structural relationship between a post and overlying timber plank

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- Rafty, B. 1996. *Trackway excavations in the Mountdillon bogs, Co. Longford 1985-1991*. Dublin: Irish Archaeological Wetland Unit.

### Appendix 1: Catalogue of the faunal remains

Findspot No	Total Qty	Wt (kg)	Species	Sp. Qty	Ages	Butchering	Type	Comments
1001	1	0.012	Cattle	1		chopped	secondary	Chopped rib
1002	1	0.087	Cattle	1	adult	chopped/cut	secondary	Chopped/cut scapula
1006	1	0.045	Cattle	1	adult	butchered	secondary	vertebrae
1007	2	0.034	Canid	1	adult			Mature canid mandible, very worn teeth. ?wolf Periodontal disease.
1007			Sheep	1	adult	chopped	secondary	Humerus
1008	1	0.020	Goat	1	adult	cut	primary	Mandible, goat of 4-6 years Numerous cuts
1009	1	0.336	Equid	1	adult	cut	primary	Tibia, knife cuts from skinning. Pony sized.

**Appendix 2**  
**Method Statements**

## **1. Coleoptera**

The analysis of these samples will consist of identification of coleopteran taxa to species level where possible, due to the exceptional preservation of Beccles assemblages; this will be the majority of sclera recovered. Speciation of these remains will be by comparison with the Gorham and Girling Insect Collections, housed at the University of Birmingham, and where appropriate, using modern entomological keys. Minimum number of individuals of each taxa present will be established and a table, presenting this information, sample, by sample will be produced. The ecological, hydrological, lithological and archaeological implications of these assemblages will then be fully discussed in the report, sample by sample. Finally, the relationship between the insect assemblages, archaeology and ecological implications of the samples and comparison with other sites, regionally and nationally will be discussed.

## **2. Dating and dendrochronology**

Dendrochronological analyses will be carried out by Dendrochronological Consultancy Ltd. The analyses will involve assessment of every structural oak timber from the excavations with the aim of establishing a robust site chronology. In particular, all the larger roundwood with surviving bark edges or bark will be targeted for micro-chronology and all non-roundwood if it contains sufficient rings to help with strengthening the site reference chronology. The analyses can also provide additional information on 'how long' and 'how far' the construction events extend physically and temporally. Sampling, recording and photography will be carried out in a single phase at Flag Fen. A report and publication standard text will be produced detailing the site chronology, implications for phasing and any other additional information regarding the use of the timber and implications for the environment, woodland management etc. Additional samples for radiocarbon dating will be selected following consultation with English Heritage's Scientific Dating Team.