NEOLITHIC STRUCTURES AND AUROCHS BONES AT WALPOLE LANDFILL SITE, SOMERSET: ARCHAEOLOGICAL WORKS IN 2005-6
(Interim results from Cells B, C and D)

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An archaeological watching brief undertaken during waste cell excavations within a thick sequence of Holocene estuarine clays, has recorded several early-Neolithic accumulations of wood, including the remains of structural trackways and lines of vertical stakes, both within and crossing palaeochannels. Dispersed bones from an aurochs were also found scattered along one of the channels. Radiocarbon dates from structures recorded in 2005 and from aurochs bone provide calibrated dates between c. 4000 BC and 3000 BC. Lias bedrock, the lower, western slopes of a large, buried island or outcrop of the formation, was recorded along the east side of the excavation area in 2005, and a number of bog oak fragments were recorded in that area. In 2006, a trial, exploratory excavation was undertaken at the western end of the surface of the buried Lias island. A drainage or boundary ditch was recorded. Finds from within and below a buried

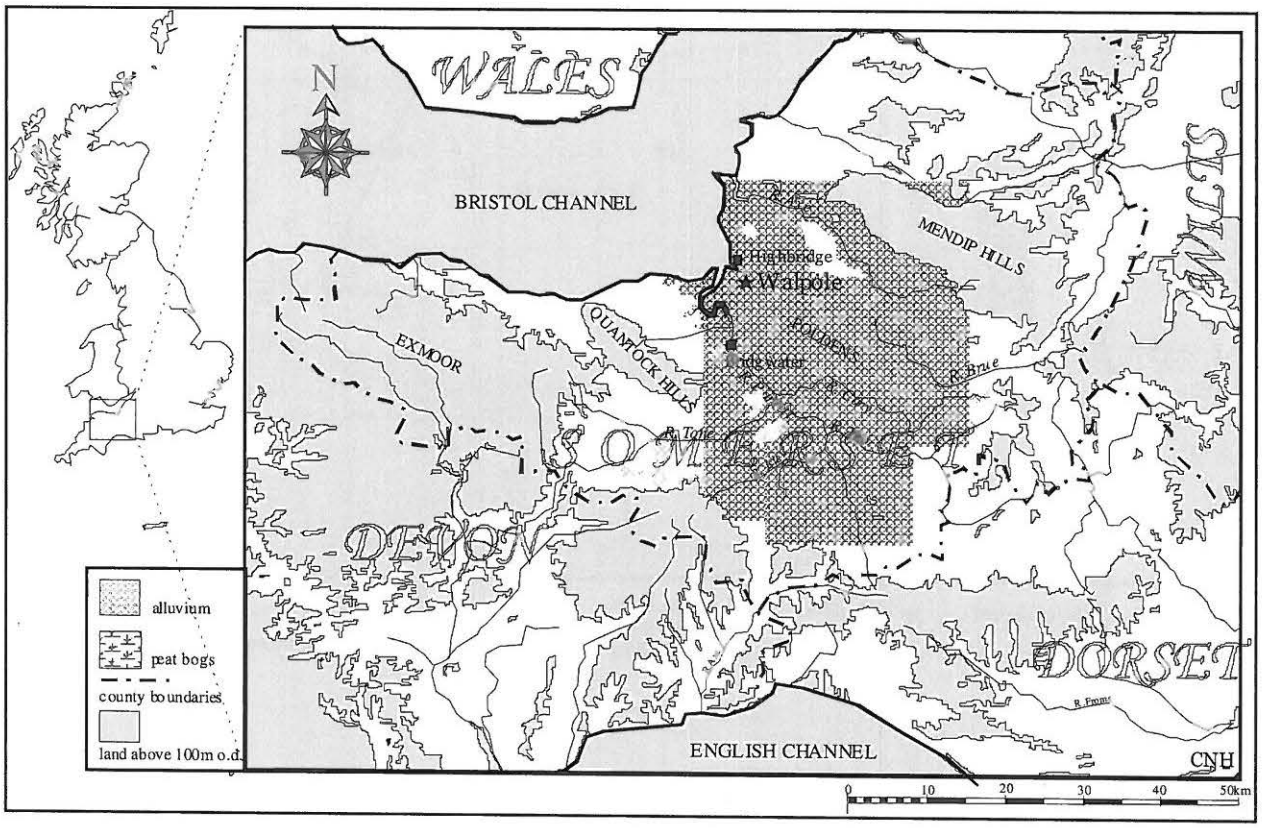

Figure 1. Location of Walpole landfill site, Somerset (shaded area shows land above 100 m OD).

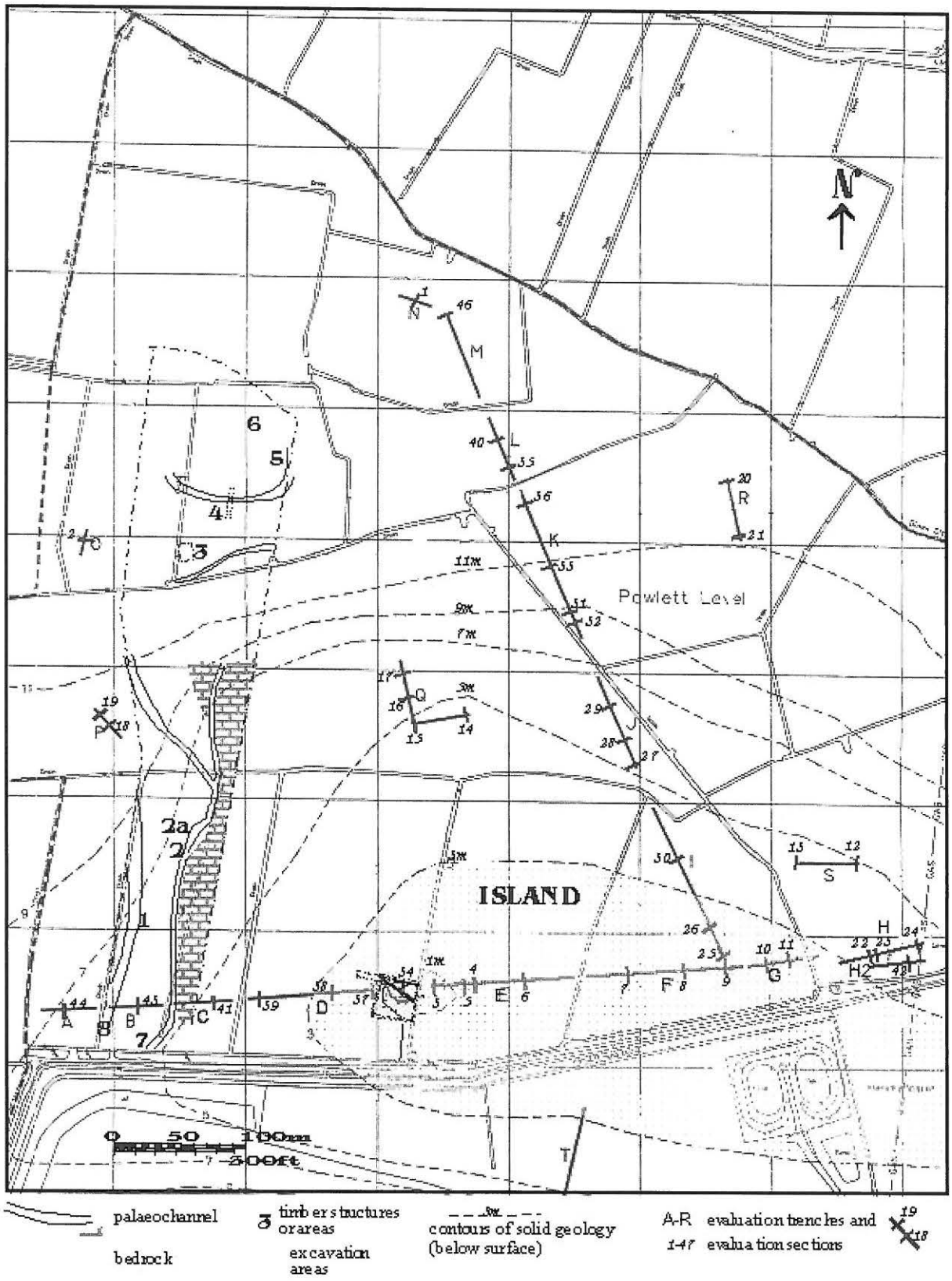

Figure 2. Walpole landfill site with the results from the 2005 and 2006 watching briefs and the excavation area on the buried Lias island superimposed upon a survey of the site before excavation of the cells. The cells are not shown. Grid lines depict squares with 100 m sides.

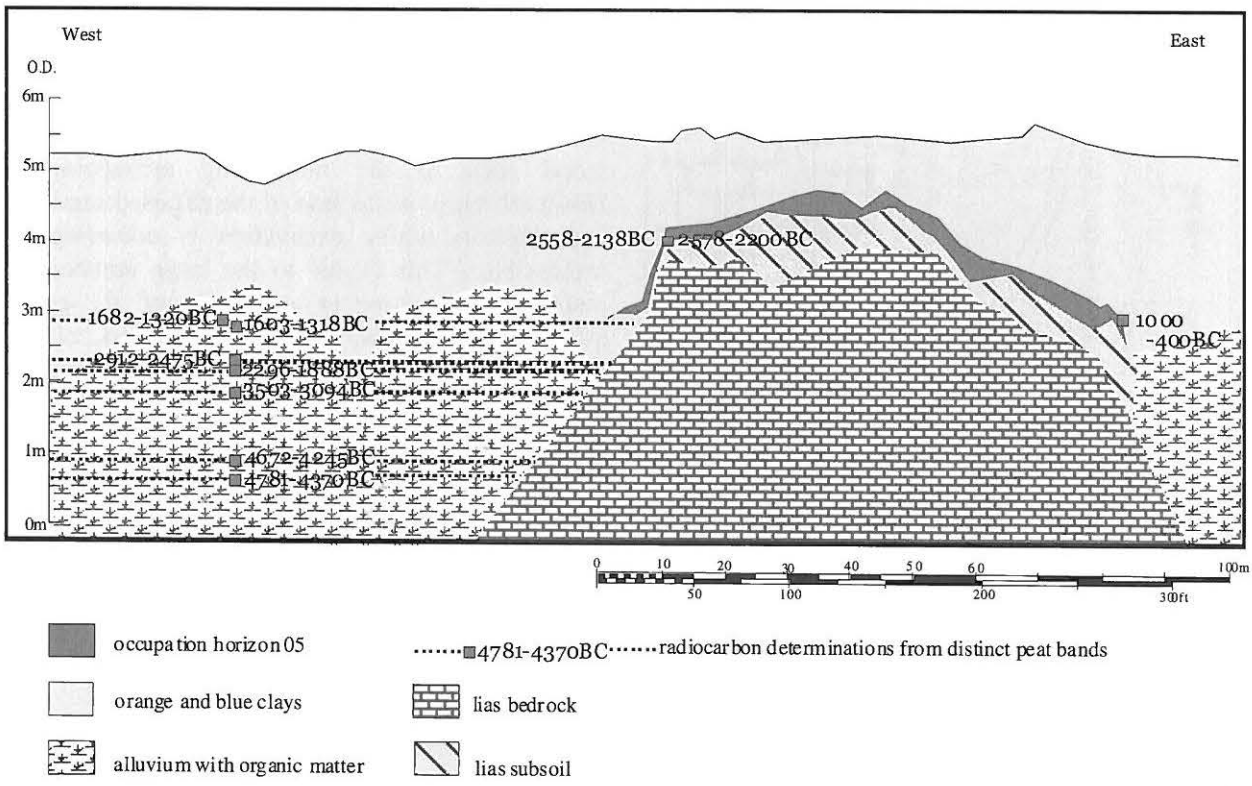

Figure 3. Schematic, composite section produced from the drawn sections plus coring, carried out during the evaluation (after Hollinrake et al *2001). The peats producing the radiocarbon samples are separated by layers of clays containing varying amounts of organic matter.*

soil layer that lies above the natural Lias clay and stone forming the island or outcrop, and that is sealed, in turn, below the overlying, alluvial clays that accumulated from the later-Roman period onwards, included prehistoric flint flakes, animal bone fragments and occasional pottery sherds ranging in date from the late Bronze Age through to the Roman period. Small palaeochannels were recorded cutting through the buried soil and the surface geology and were also recorded within the overlying, post-Roman, alluvial clay.

INTRODUCTION

A northern extension to the existing Landfill Site at Pawlett, in the Somerset Levels, operated by Viridor Waste (Somerset) Ltd. and situated within extensive Holocene alluvial deposits midway between Bridgwater and Highbridge at NGR ST 312434 (Figure 1), requires the excavation of around 20 new waste cells, each cell measuring approximately 600 m long and 30 m wide. The total area of the northern extension is in excess of 350,000 m^2, the majority of which is within the Holocene deposits, with the remainder, at the south end of the extension area, containing the Lias outcrop of the buried island.

An archaeological watching brief has been implemented for all of the cell excavations apart from the buried island, which will be investigated through archaeological investigations in advance of cell construction. An extensive archaeological evaluation (Figures 2 and 3) undertaken in 2000 recorded a substantial buried Lias island sealed by alluvial clay deposits and surrounded by deep alluvial clays interspersed with peat bands (Hollinrake *et al* 2001).

Construction of the new landfill facility entails the removal of *c.* 5 m of alluvial clays and bedrock to produce rectangular trenches with a horizontal base. The cell bases are finished to an approximate level of around 0.60 m OD. Three cells are excavated together so that the excavated area is *c.* 100 m wide. Each block of cells is excavated over two years with the southern half excavated in the first year and the northern half in

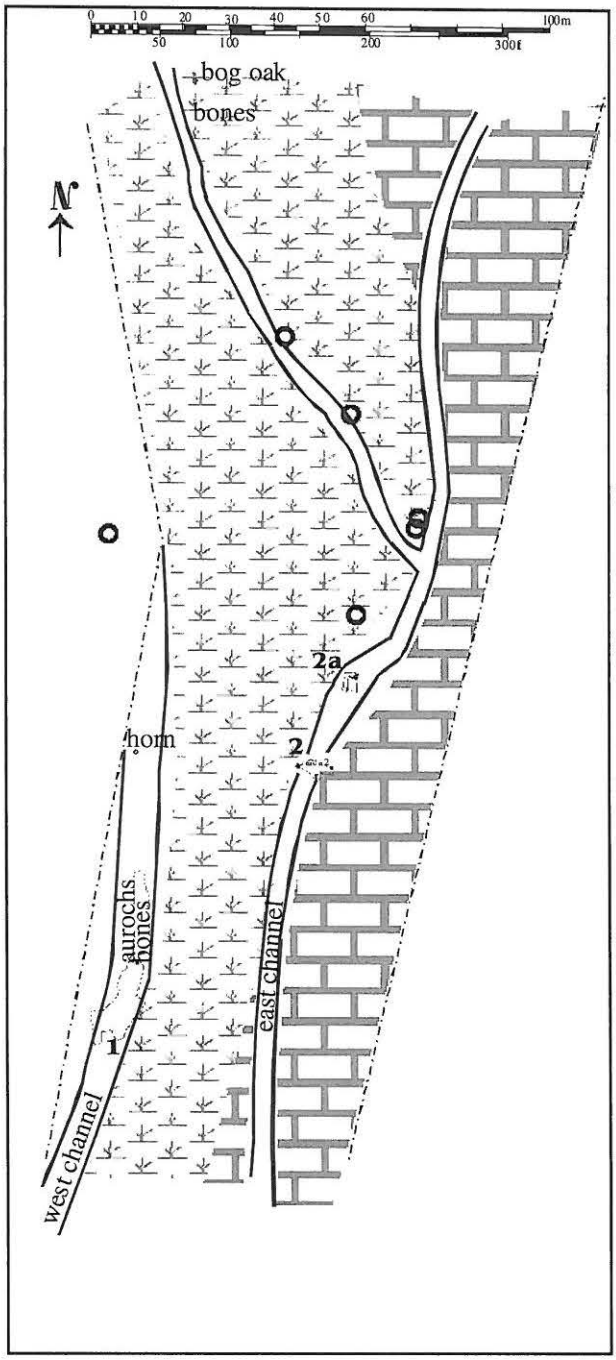

Figure 4. Results of the 2005 watching brief. Two palaeochannels flowing through organic clays and bedrock. Driven piles shown as open circles.

the second. The 2005 and 2006 works were concerned with the construction of Cells B, C and D.

After excavation has been completed the cells are lined with a geo-textile membrane and the bases are then raised with compacted, crushed stone, after which waste is introduced.

The excavations are monitored continuously and the machine drivers report all wood seen to the monitoring archaeologist. However, close inspection of the exposed sections and deposits whilst excavation is occurring is impossible. This is due to the large number of machines excavating at any time and the great quantity of silts removed by the machines, allied to the real danger of collapse of the unstable, 5 m high sections, a situation exacerbated by the presence above these sections of heavy excavating machines and dumper trucks.

Recording can be carried out when the cell base is scraped clean and levelled. At this juncture, palaeochannels can be recognised and recorded and any timbers within or around those channels can be planned and examined.

The position and height above Ordnance Datum of all wood and bone fragments and peat layers, and the outlines of the palaeochannels, are recorded using a GPS system provided by the contractors. Cleaning, photography, planning and removal of wooden stakes and branches takes place after the excavated face of the new cell has moved to a position at least 25 m away from the recording area (when exposed faces collapse, as they frequently do, at least that amount of space is required to ensure safety of personnel).

SUMMARY OF THE RESULTS OF THE 2005 WATCHING BRIEF

The 2005 watching brief recorded two palaeochannels running approximately N-S along each side of the excavation area with a third channel running NW-SE joining the eastern channel (Figure 4). The base of the cell consisted of soft, grey, alluvial clays interspersed with extensive areas containing the base of the lowest peat layer (the lowest, dated peat band shown on Figure 3). As well as the main palaeochannels, filled by very soft, very pale grey, silty clay, there were occasional small, sinuous palaeostreams or creeks, the most obvious of which were filled by the lower peat. Most of these smaller channels ran roughly west to east, across the cell.

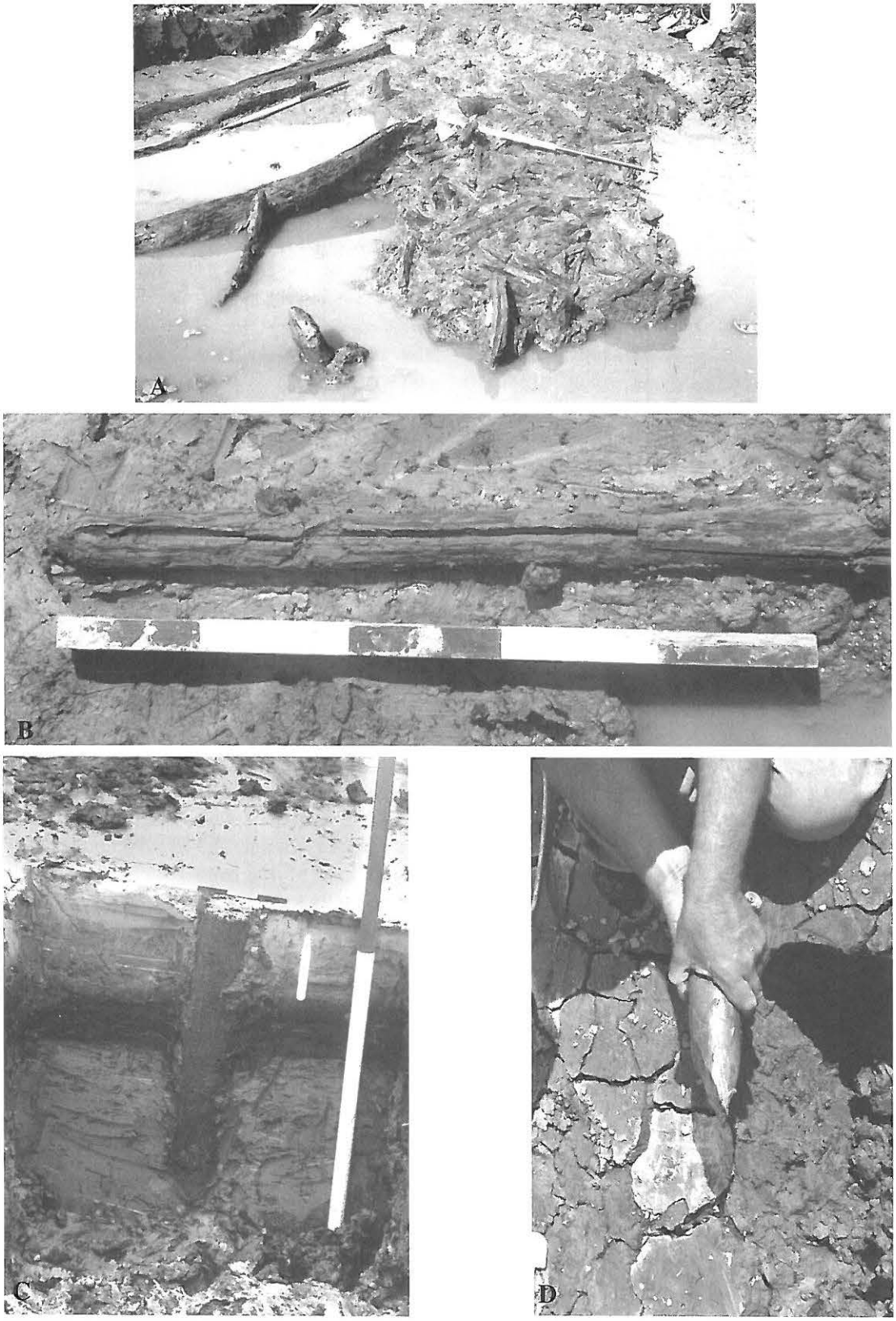

Figure 5. A - General view of Area 1, brushwood and roundwood. B - Detail of Area 1 showing pegged roundwood with 0.5 m scale. C - Southwest corner, 2005, timber 6 driven through the lowest peat layer. D - Stake from Structure 4, removed from ground showing sharpened end.

Table 1. Species of roundwood identified from Area/Structure 1.

context	hazel	dogwood	hawthorn	black-thorn	willow	ash	elm	oak
1009	7	5	2	5	-	24	1	-
1010	1	10	-	-	-	3	-	-

Area/Structure 1

A substantial mass of wood and roundwood was recorded lying across the western channel - Area/Structure 1 (Figures 4, 5a-b). In addition, the bones of an aurochs were found scattered along the same channel, some of the bones, including a sacrum and lower leg bones, being caught up amongst the wood of Area/Structure 1. A horn core from the aurochs was found approximately 60 m north of Structure 1. This was the heaviest aurochs bone and other bones, mostly ribs and vertebrae, were found to the south, as far as Structure 1, and this might indicate that the flow within the channel was from north to south. Structure 1 consisted of a large mass of roundwood, mostly branches, that had probably been carried along by the current and had then encountered a structure, probably a small trackway, that seems to have been pegged into place to cross the channel (some small, pegged, branches were recorded *in-situ).* This structure is likely to have formed a barrier to any material floating down the channel and a build-up of material was formed that must have partly obstructed the water flow. It was noted that no aurochs' bones were seen to the south of Structure 1 (Higbee 2006).

The original trackway was composed of roundwood with pegs also being made from smaller, sharpened branches. It had been fixed with small pegs, but because they were driven into soft silts it cannot have been particularly stable and at some period, possibly after a rise in water level, it seems to have been largely washed away by the current after which other wood backed up against it.

Examination of a representative sample of the unworked wood from Area 1 (context 1009) and Area 1N (context 1010) by Rowena Gale is outlined in Table 1.

A line of driven posts or stakes was recorded on the edge of the western palaeochannel in the SW corner of the cell (Figure 5c) and some isolated driven stakes were also recorded within the western channel approximately 50-60 m north of Area 1.

Area/Structure 2

Other structures were found associated with the eastern channel: Structure 2 (Figure 6) and adjacent, smaller Structures 2A (Figure 7b) and 2B that consisted of driven stakes or posts running across the channel stabilising a mass of natural branches. These structures had also been broken up by the current and some of the outlying wood was aligned down the channel, rather than across it. This particularly applied to Area 2, which appeared to be mainly formed of loose timbers that had been washed away from Areas 2A and 2B, where the vertical stakes were concentrated. One piece in Area 2 was a large, radially split, oak plank, approximately 2.5 m long and 0.50 m wide, with an incised line cut across the flat surface plus a small, rebated cut, also across the flat surface (Figures 7a and 7b).

Examination of a representative sample of the unworked wood from Area 2 (context 1012), Area 2A (context 1014) and 2B (context 1015) by Rowena Gale are outlined in Table 2.

North of Structure 2 were remnants of other possible trackways or structures, of which only vertical stakes survived. These, like Structure 2, were recorded within the eastern palaeochannel. The majority of the stakes or posts were of oak whilst the mass of timber, from all structures, was a mixture of different species.

On the eastern edge of the excavated area, principally in the northeast corner, the cell had cut through fractured Lias bedrock forming the lower slope of the buried island. Within this bedrock

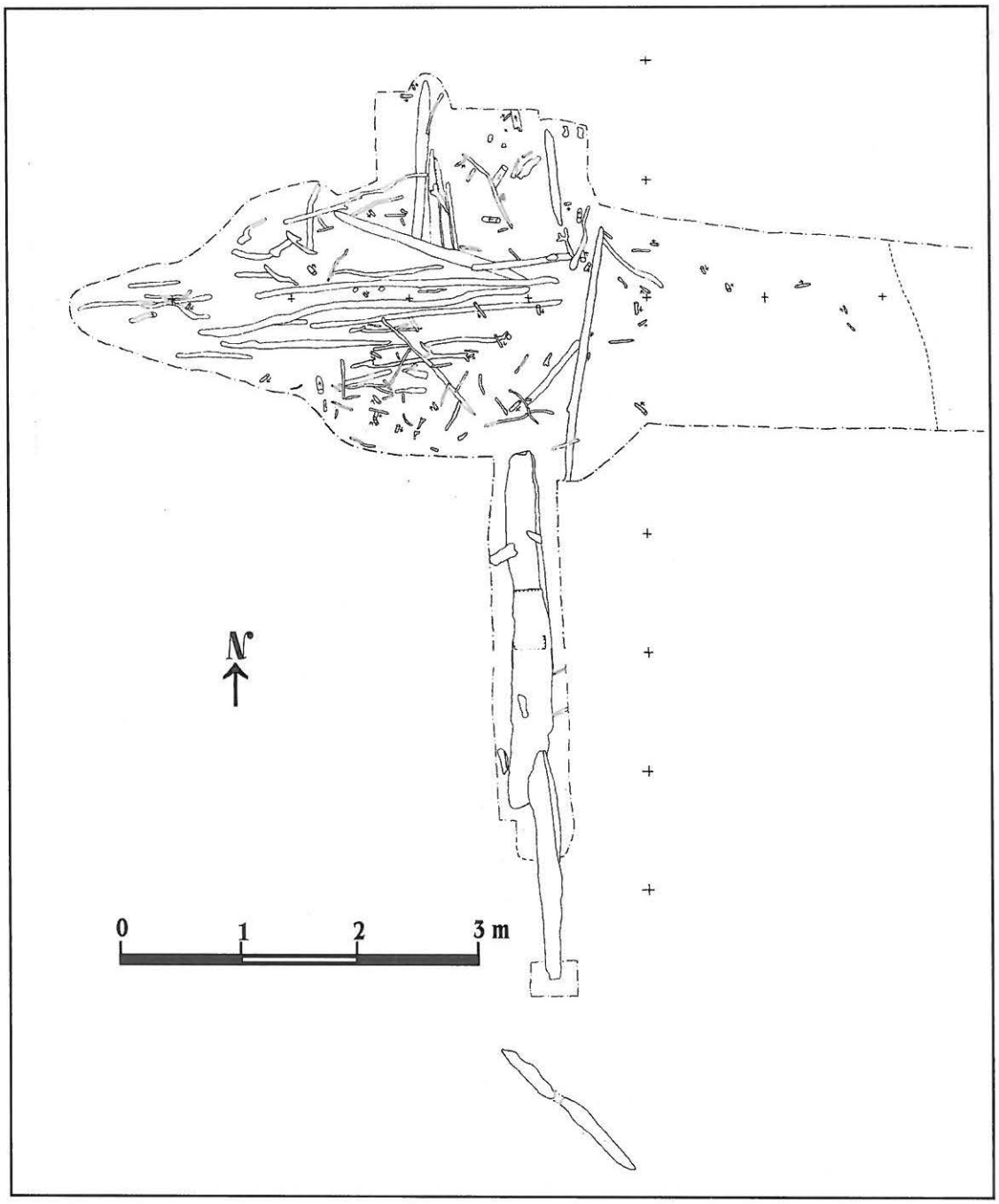

Figure 6. Area 2/Structure 2. The oak plant is aligned north-south in the centre of the drawing.

Table 2. Species of roundwood identified from Area/Structure 2.

context	hazel	dogwood	hawthorn	black-thorn	willow	ash	elm	oak
1012	8	-	5	10	-	2	-	2
1014	1	-	-	1	-	2	-	-
1015	1	1	-	-	-	-	-	-

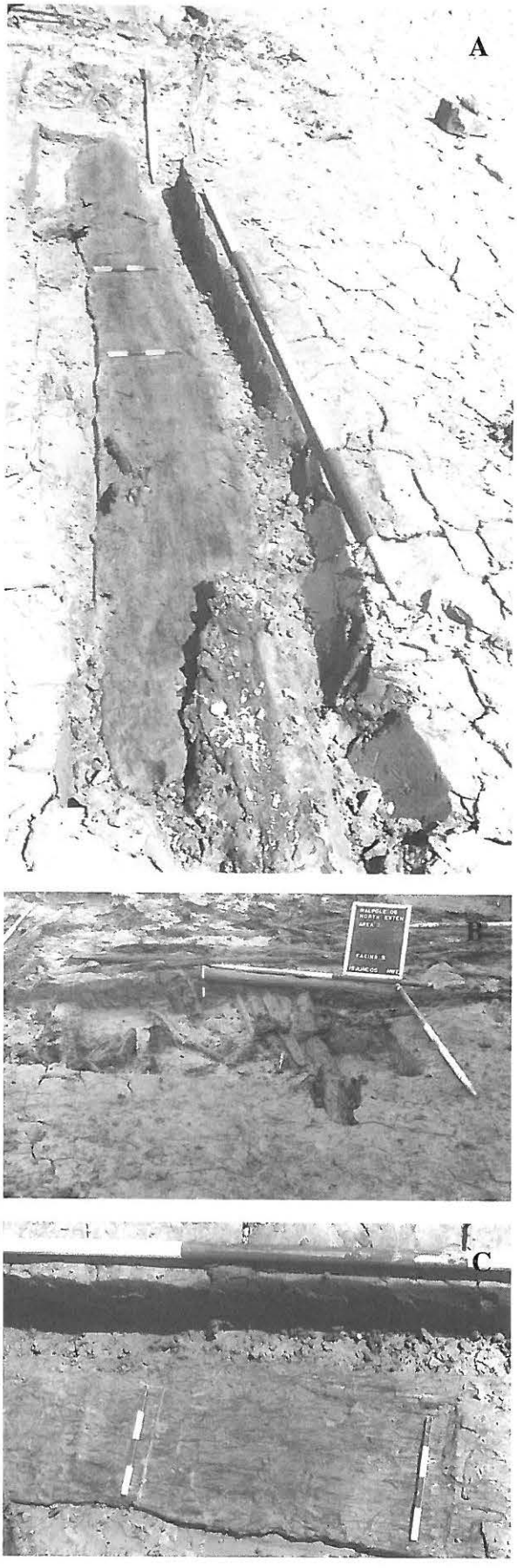

Figure 7. A - The plank in Structure 2, full length. B - Area/Structure 2A consisted of at least two layers of timbers at right angles to each other. C - Detail of plank, inscribed line to left, rebate to right.

area were scattered bog oak fragments, presumably growing upon the drier and more stable surfaces beyond the edges of the palaeochannel.

Samples of selected timbers, chosen from each of the main wooden structures and groups, were sent to Rowena Gale for species identification and then submitted to the radiocarbon laboratory at Waikato, New Zealand, together with an aurochs bone, for dating. The results, outlined in Table 3, produced dates in the early Neolithic.

THE AUROCHS

We are indebted to Lorrain Higbee, for allowing us to précis her report on the bone recovered during the 2005 watching brief (Higbee, 2006). The remains were of a young, adult male, larger than late Neolithic aurochs but smaller than Bronze Age aurochs. Consideration of the skeletal elements recovered and the preservation condition of the remains suggests that the aurochs' carcass was not significantly dispersed by fluvial action. This indicates that the palaeochannel flowed at a fairly low velocity and this is to some extent confirmed by the presence of mute swan bones that were also recovered from the western palaeochannel. The identification of a probable wild boar vertebra from the channel is a further indication of the types of other woodland species found in this area during this period.

SUMMARY OF THE RESULTS OF THE 2006 WATCHING BRIEF

The 2006 watching brief was undertaken in the northern part of Cells B, C and D. A wide baulk of undisturbed clay was left between the 2005 and 2006 excavations (Figure 2).

Spreads of peat were present either upon or just above the base of the cell, where the almost complete skeleton of a badger, stained black by

Table 3. Radiocarbon determinations, 2005. Radiocarbon dates are calibrated using the atmospheric data from Reimer et al *(2004).*

Context	Sample/species	Laboratory Code	Radiocarbon Years (BP)	Calibrated Age BC (2 sigma)	Probability
Area 1					
1009	Oak, 9-10 rings	Wk-17288	4356±61	3380-3020	92.1%
Area 2/2A					
1012	blackthorn	Wk-17289	4941±60	3820-3630	84.5%
1012	Ash, sapwood	Wk-17290	4978±106	3990-3620	91.9%
1014	hazel	Wk-17291	4966±65	3950-3640	95.4%
SW corner of cell Area 8					
Stake 5	hazel	Wk-17292	4781±63	3660-3490	75.7%
Auroch bone	rib	Wk-17293	4585±56	3520-3090	95.4%

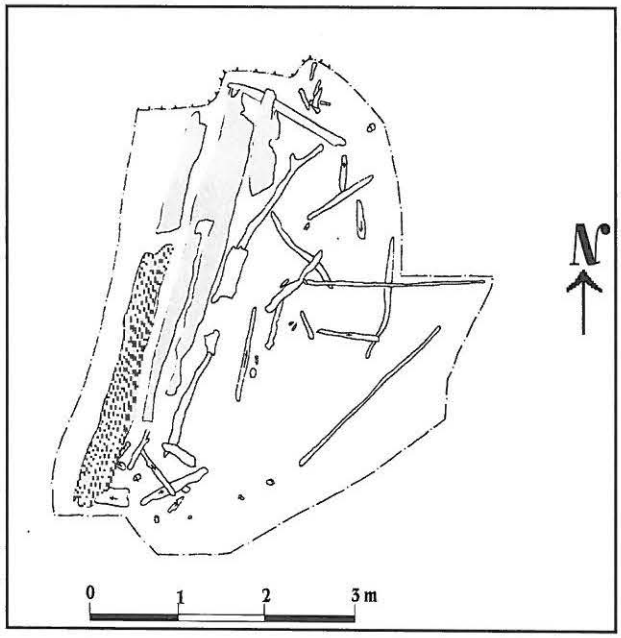

Figure 8. Structure 3.

the peat, and a deposit of fish scales, were found. The badger was identified by Lorrain Higbee and the fish scales will be sent for identification during 2007.

The two main palaeochannels recorded during 2006 ran approximately W-E across the excavation area (Figure 2). The course of the northern channel ran in a large bow to the south whilst the southern channel undulated gently across the cell.

Figure 9. Structure 3 timbers protected by plastic sheeting.

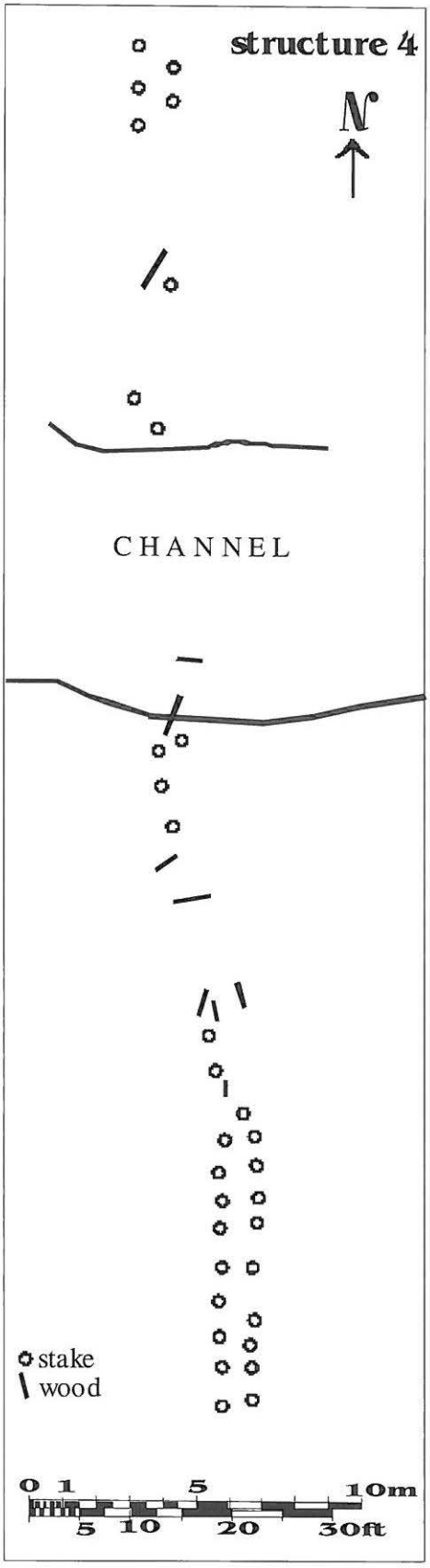

Figure 10. Structure 4.

Figure 11. Structure 4, general view looking north.

Figure 12. Structure 4, detail.

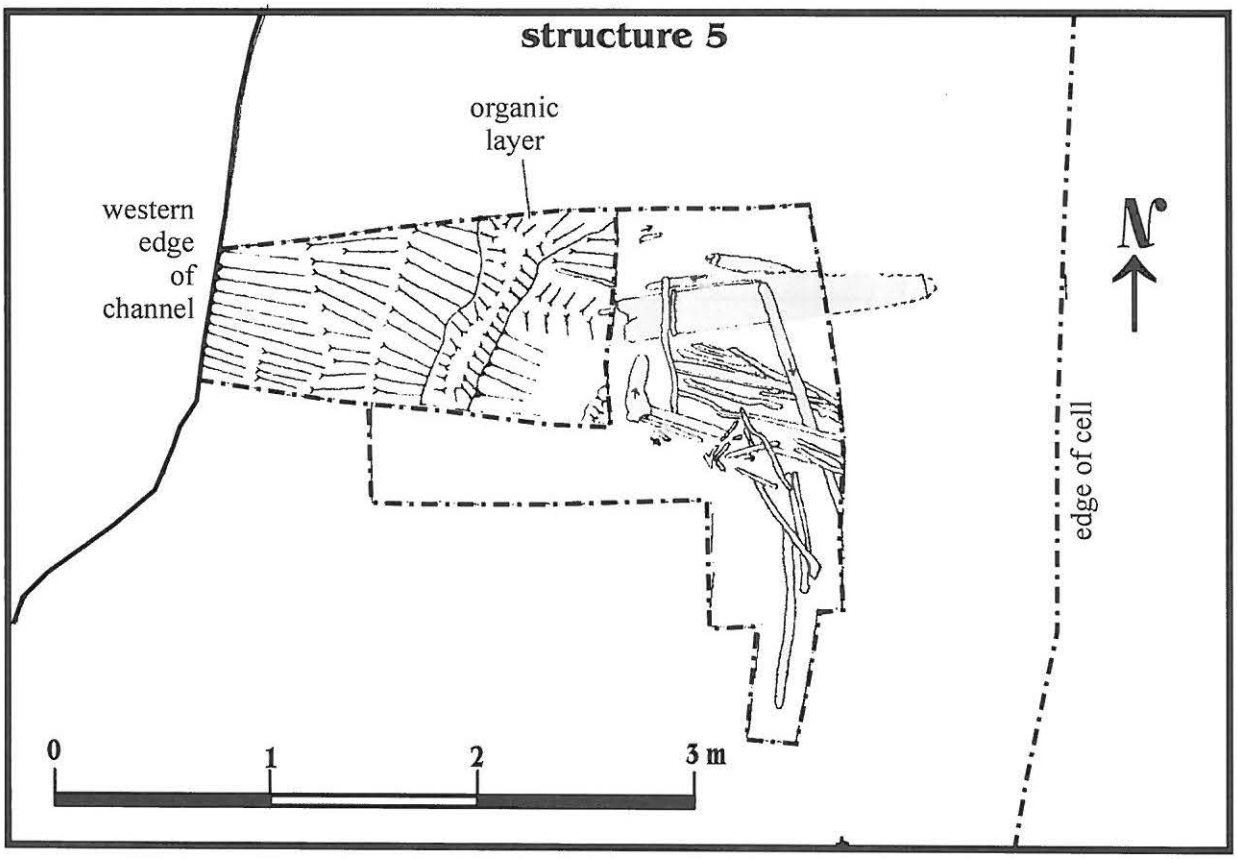

Figure 13. Structure 5.

Structure 3

Three structures were recorded. Structure 3 (Figures 8 and 9) was within a W-E oriented, shallow palaeochannel. The recording in this area was difficult due to a major collapse of the section. Structure 3 consisted of wooden branches and a large split oak, oriented roughly N-S. Structure 3 measured approximately 6 m^2. The wood may have been swept away from one of the channels. Examination of all of the unworked wood from Structure 3 by Rowena Gale are outlined in Table 4.

Structure 4

Structure 4 (Figures 5d, 10-12) was probably cut through by a W-E oriented palaeochannel, only a few floating fragments of wood were recorded within the channel, with the driven stakes recorded to the N and the S of the channel. Structure 4 consisted of two, roughly parallel rows of stakes or posts oriented N-S. The posts were natural roundwood, some with patches of bark still intact and generally 10-15 cm in diameter. The posts averaged *c.* 1 m apart N-S and slightly over 0.6 m apart W-E. It is assumed that the structure represents the base or the sides of a N-S oriented trackway and any superstructure, or wood bundles stabilised by the stakes has been washed away. Like the upright posts recovered during 2005, the driven stakes had sharpened ends exhibiting clear facets.

Examination of all of the unworked wood from Structure 4 by Rowena Gale is outlined in Table 4. In this case, it was impossible to tell whether the samples were willow or poplar and, as well as the species represented in the other structures, there were also three samples of birch and one of alder.

Structure 5

Structure 5 was recorded in the NE corner of the cell, adjacent to the eastern edge of the excavated area. It was built across the same channel as Structure 4 and consisted of wooden branches and a fragment of split oak. It seems likely that these had originally been deposited in layers, some laid

Table 4. Species of roundwood identified from Structures 3, 4 and 5.

context	hazel	dog-wood	haw-thorn	black-thorn	willow	ash	elm	oak	maple	lime
S3	4	-	7	-	-	11	-	2	1	1
S4	2	-	1	-	12	2	-	-	-	-
S5	3	12	-	-	-	15	-	-	-	-

W-E across the channel with other layers at ninety degrees. The structure, in common with all of the others recorded, seems to have been pulled apart by the current, with some outlying poles recorded to the south of the main body. Examination of all of the unworked wood from Structure 5 by Rowena Gale is outlined in Table 4. No radiocarbon dates have yet been received for the 2006 wood.

Structure 6

Structure 6 (Figure 2) was a fragmentary alignment of driven stakes and consisted of five vertical posts, possibly fragments of a damaged and incomplete double-post alignment. It was recorded *c.* 20 m to the north or north-east of Structure 4, although it is not thought to be an extension of that Structure. Recording and fixing the position of Structure 6 was made difficult due to two collapses of the working section adjacent to and over the line of posts, and by extensive flooding which followed a spell of heavy rainfall. It is possible that some posts might have been destroyed and/or buried by the collapsed silts.

THE BURIED ISLAND EXCAVATION

The earlier archaeological evaluation identified a buried island (Figures 2 and 14), formed of an upstanding mass of Lias cement stones and shales, whose surface area, as exposed within the evaluation trenches, measured more than 400 m WNW-ESE and approximately 200 m N-S. This island or outcrop lies mostly below the southern part of the northern, landfill extension and partly below the existing landfill facility to the south. A buried soil covering the surface of the island was recognised during the evaluation and sporadic cleaning of that surface produced occasional flint flakes, abraded pottery sherds and bone. Since the island will be destroyed by cell construction, an exploratory excavation was undertaken in 2006 to determine whether archaeological features may be present on the island and to find the best and most practical excavation methods.

Evaluation trenches D, E and F were situated above the island (Figure 2) and, therefore, the buried surface within those trenches was familiar.

The 2006 excavation area, approximately 35 m^2, was located at the western end of the island, at the point where the buried surface starts to slope sharply down to the west, around the eastern end of Evaluation Trench D. This area will be destroyed by cell construction in 2008 (the cells are being constructed from west to east). Approximately 1.2 m of overlying clay were removed, by machine, down to a black layer, assumed to be the buried soil. In the SE corner of the excavation area a small channel, possibly natural, and oriented NE-SW, was recognised within the upper clays. This was not removed and was left in an unexcavated baulk for later examination. The black surface, however, was not the buried soil but an extensive mineralized deposit, possibly manganese oxy-hydroxides mixed with grey, silty clay, up to 5 cm thick and covering the whole of the opened area. This deposit will be analysed during 2007. The machine was then brought back and the black layer, plus an underlying band of grey, alluvial clay, 10-20 cm deep, was removed down to the grey-brown surface of the buried soil. A shallow palaeochannel, filled by the overlying, orange, alluvial clay, cut through the upper black layer and the buried soil.

The soil deposit was 10-20 cm thick, slightly sandy and gritty, with a blocky texture containing small fragments of Lias and relatively frequent white and pink quartz pebbles. It

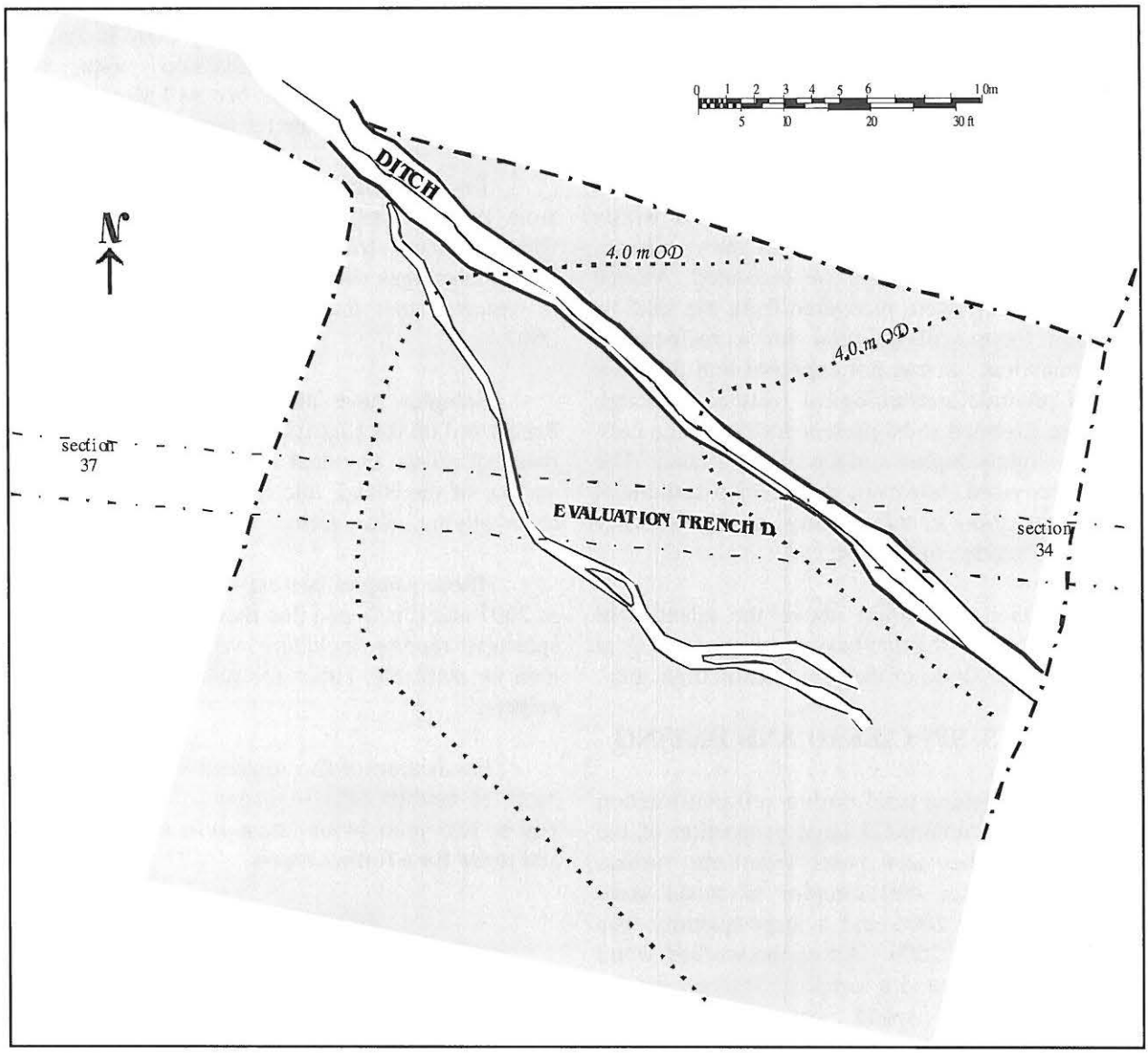

Figure 14. Excavation area on buried Lias island. The buried soil is shaded.

covered all of the excavation area and sloped down gradually from E to W and also from N to S. Rather than excavate all of the buried soil by hand, it was decided to use the machines to remove strips of the soil down to the underlying clay or bedrock. In this fashion, alternate strips of buried soil and of Lias clay and stone, each strip being around 2 m wide, were exposed.

The buried soil was cut by an artificial ditch feature and by a thin, shallow, palaeochannel. Blocks of the buried soil were excavated by hand. The soil contained few finds but occasional struck flint flakes, pottery sherds and bone fragments and relatively numerous pink or white quartz pebbles were recovered. The pottery ranged in date from the late Bronze Age to the Roman period. Below the buried soil was either natural Lias clay or fractured Lias mudstone with some areas of pebbly limestone. Cut into the Lias clay and sealed by the buried soil were various features including small, sinuous, channels, probably natural water channels, amorphous spreads, possibly tree holes, and a linear ditch feature. No dateable finds from the ditch were recovered but a few bone fragments might be used to obtain a radiocarbon date.

An extension trench to the west, running from the NW corner, was opened and the buried

soil very quickly disappeared as the surface of the Lias fell sharply to the west. A trench was opened to the north, from the NE corner, exposing a similar stratigraphy to that obtained in the main area but with no finds recovered.

The small channel or ditch present within the SE corner of the area, within the overlying, post-Roman, alluvial clays was sectioned. Animal bone fragments were recovered from the shallow fill and these will be used for a radiocarbon determination. It was not expected that this area would produce archaeological features, although they are assumed to be present further to the east, on the slightly higher surface of the island. The finds recovered, however, do indicate settlement or frequentation in the vicinity; again, probably relatively nearby, to the east.

Further excavation above the island will take place on a regular basis, always staying at least one year ahead of the construction timetable.

SAMPLES, SPECIES ID AND DATING

The 2005 watching brief during cell construction recovered and retained a large proportion of the wooden branches and posts from the various structures. Over 400 samples of wood were collected during 2005 and a large quantity was recovered during 2006. All of the worked wood has been retained and a sampling strategy for the 2005 unworked wood was designed, in consultation with Richard Brunning and Rowena Gale, whilst all of the unworked 2006 wood was sent for analysis. The 2005 and 2006 unworked wood has now been identified by Rowena Gale, wood anatomist and Honorary Research Associate, Royal Botanic Gardens, Kew and Visiting Research Fellow at the Department of Archaeology, University of Reading.

All of the driven posts have sharpened ends exhibiting clear facets. These will be photographed and drawn and then analysed by Richard Brunning, Moors and Levels Officer, Somerset County Council.

Dendrochronological dating of bog oaks, many of the driven oak posts and the various fragments of radially split oak is planned for 2007. Samples for radiocarbon dating of the 2006 structures will be chosen in early 2007 including some selected for comparison with the dendrochronological dates. We will also obtain a further, confirmatory date for the aurochs.

Environmental samples have been taken from the palaeochannels, from the small, peat-filled channels, from the lowest peat bands and from those areas within some of the structures. It is expected that these will be analysed during 2007.

Samples have also been taken from the buried soil on the Lias island and from the various palaeochannels that had cut, variously, into the surface of the island, into the buried soil and into the overlying, alluvial clay.

These samples are expected to be analysed in 2007 and it is hoped that these results and other specialist reports, including wood and bone, will then be available, either for publication or as an archive.

Excavation of the southern half of the next batch of landfill cells is planned for 2007 and it will be two years before those cells are completed and ready for a further report.

DISCUSSION

The Watching Brief

The watching brief on Cells B, C and D recorded several large, palaeochannels and a number of smaller channels that had cut through a peat band (Figure 7) that formed around 4500 Cal BC (the lowest peat band depicted on Figure 3, radiocarbon dated after the initial evaluation). A number of wooden structures and masses within the channels have provided calibrated dates between *c.* 3500 BC and 3900 BC (Table 3). In addition, the large scale of the project, both to date and in the future, is likely to throw light on the little known and poorly understood deposits in this area.

The substantial remains of an aurochs, found scattered down the western channel provided a date in the second half of the 4th millennium Cal BC. The scatter of bones down the channel, from north to south, probably reflects

the prevailing current and this would appear to indicate a tidal flow, rather than a flow from an island spring or from higher ground to the east. (Higbee *pers. com.*). Environmental analysis of the samples taken during the evaluation indicated a range of conditions from brackish to fresh water, however, indicating that the hydrological regime in the area is subtle and complex (Hollinrake *et al* 2001).

The radiocarbon dates for the various wooden structures at Walpole compare with those of the earliest timber trackways recorded during the Somerset Levels Project, situated within the inland peat moors to the west of Glastonbury. There, the earliest structure recorded is the Sweet Track which provided a dendrochronological date of 3807/06 BC (Coles and Coles 1986). The early trackways within the peat moors and the structures recorded at Walpole appear to reflect increasing exploitation of the wetlands associated with the Climatic Optimum of the early 4th millennium Cal BC (Storer 1985). Comparison of Figure 3 with Figure 15 demonstrates the significant differences between the two areas; direct comparison between the landscapes of the peat moors and the coastal or littoral site at Walpole is problematic due to differential compaction of the sediments filling the two areas.

The Walpole sediments compare more readily to the archaeological investigations carried out within the intertidal zone at Goldcliff, in South Wales. There, timber structures and occupation sites have been dated, broadly, to the 6th millennium Cal BC and to the 1st millennium BC (Bell *et al* 2000). The Walpole site, therefore, can be said to both supplement and complement the Goldcliff data.

Only the unworked wood has been identified to species and it would be unwise to draw any conclusions from this until more data is available. However, it should be noted that the wood species differ from one structural group to another and when more radiocarbon dates are available this may provide a pattern. It might also be noted that, to date, only one fragment of elm and one fragment of lime have been identified, possibly indicating the period of elm decline in this region.

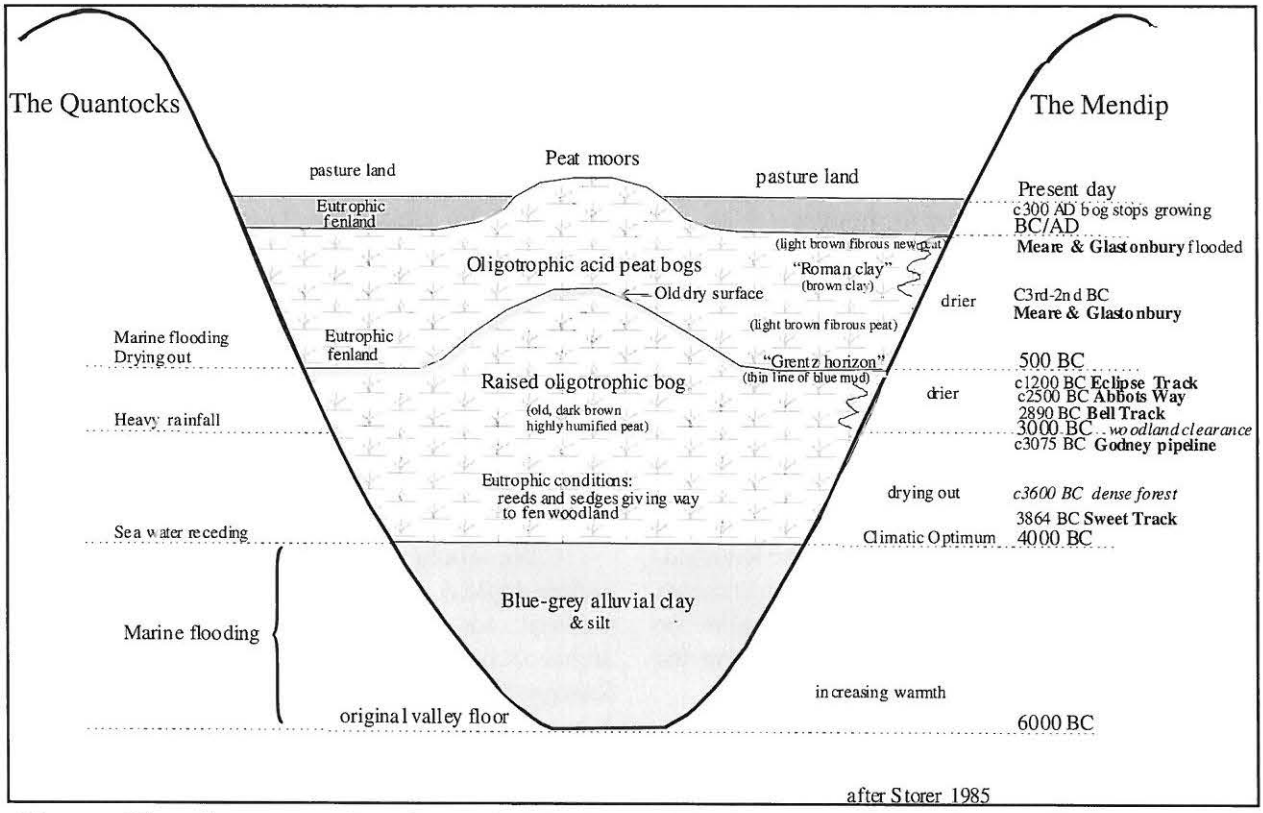

Figure 15. Structures found on the Somerset Levels compared with a schematic section through the deposits and arranged by date.

It is assumed that the various wooden structures at Walpole relate to occupation on the adjacent Lias island, or outcrop, situated immediately to the east and south-east of the watching brief areas.

Another outcrop of dry land occurs nearby at Pawlett, *c.* 1 km west of the landfill site, where a Lias outcrop measures approximately 2 km long and 1 km wide (above the 10 m contour). The Pawlett outcrop, of course, would be considerably larger if the surrounding alluvium were removed down to either the 5 m or 0 m contours, as is the case at the landfill site. Indeed, it is possible that the Lias island at the landfill site might be an eastern extension of Pawlett. It is also assumed, therefore, that any occupation on the Lias island at the landfill site would be secondary to occupation at Pawlett (where there has been little or no recent archaeological work). Roman period finds have been recorded from Pawlett at a number of locations and a Bronze Age palstave was also found there. In addition, there is a cropmark of a possible cursus, located at the NE corner of Pawlett, opposite the landfill site (entry 10700 on the county council HER list).

The Lias Island or Outcrop

The 2006 excavation at the western end of the summit of the Lias island was undertaken in order to determine future requirements regarding the stratigraphy and excavation techniques.

One important consequence of the 2006 excavation was the recognition that there are archaeological features and identifiable horizons within the upper clays that seal the island. The buried soil, first identified in the original evaluation, was identified and examined. Artefacts recovered from that soil provided confirmation that the latest finds relating to occupation consist of abraded sherds of Romano-British pottery. Flint flakes and occasional sherds of prehistoric pottery indicate, as might be expected, that the site was frequented during the prehistoric period.

Numerous quartz pebbles were also recovered from the soil, as they were during the evaluation. Until and unless an alternative theory is forthcoming regarding the manner of their arrival within the soil, it might be best to assume that these are prehistoric sling shot pellets as suggested by John Allen for the site at Oldbury-on-Severn (Allen 2000). The pebbles recovered to date, and those recovered in future years, will be analysed in a manner similar to that used to quantify the Oldbury-on-Severn material in order to provide a meaningful comparison.

The various categories of finds recovered from the island, essentially flint flakes and artefacts, pebbles and exotic stones, animal bone and pottery sherds, will be examined and properly commented upon in due course when there is a large enough collection for valid comment.

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The watching brief recording and sampling

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