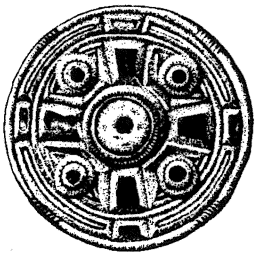

Archaeological Field Unit

The effects of agriculture on selected Archaeological sites within the Cambridgeshire County Farms Estate. MAFF/OAU Research Project

Joe Abrams

October 2001

Cambridgeshire County Council

Report No.196
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2001

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SUMMARY

A series of 4 archaeological evaluations and one monitoring visit were carried out at locations on the Cambridgeshire County Farms Estate, as part of a project looking at the effects of arable agriculture on archaeological sites. The work was carried out by the Archaeological Field Unit of Cambridgeshire County Council between 24th September and 2 October 2001.

The work had three goals. Firstly to understand how arable farming effects archaeological remains. The second was to assess the success/failure of previous management strategies to lessen the impact of arable farming. The third aim was to record any archaeology that was encountered and add to the understanding of these important sites.

The selected sites were Isleham (Moor Farm), Landbeach (Car Dyke Farm), Landbeach (Limes Farm), Swaffham Prior (Gallows Hill) and monitoring work at Wimblington (Stonea Camp).

The results of the project vary, with each individual site having differing aims. Arable farming was clearly damaging archaeological remains at Isleham (Moor Farm), however continuing arable cultivation at Landbeach (Limes Farm) was not damaging archaeology, which was protected by a buffer of older plough soil. The sites which have recently been removed from ploughing regimes (Car Dyke Farm, Gallows Hill and Stonea Camp) have all been protected by reversion to grass. There has, in the case of Car Dyke Farm (Landbeach), been a worrying lowering of the water table, despite grass reversion.

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The effects of agriculture on selected Archaeological sites within the Cambridgeshire County Farms Estate. MAFF/OAU Research Project

1 INTRODUCTION

A series of four archaeological evaluations and one monitoring visit were carried out at locations on the Cambridgeshire County Farms Estate, as part of a project looking at the effects of arable agriculture on archaeological sites. The work was carried out by the Archaeological Field Unit of Cambridgeshire County Council between 24th September and 2nd October 2001.

The overall project "Management of Archaeological Sites in Arable Landscapes" was commissioned by MAFF (now DEFRA) in 1999 and undertaken by the Oxford Archaeological Unit (OAU). The Archaeological Field Unit (AFU of Cambridgeshire County Council has been a pioneer in the field of trying to bring in change to arable regimes in order to better protect archaeological sites and monuments (Taylor 1994). The present work has been commissioned from the AFU to go back to test the efficacy of some of these protective measures that were implemented in the early 1990's and also to examine one or two further sites where subsoiling is known to have occurred.

The report is set out with each individual site being given a section explaining the individual location, background, results and discussion of the results of the agricultural monitoring and archaeological excavation on each of these sites. A general conclusion draws the results of all these sites together in order to discuss their relevance to the project aims as a whole. Appendix 1 provides the detailed information required by the Oxford Archaeological Unit's *'Guidelines For Use On Site' (OAU 2001).* This also contains the scoring models used in calculating whether or not the current archaeological regimes threaten the archaeological features remaining on these sites.

2 FORDHAM, MOOR FARM

2.1 Aims and Objectives

As part of the County Farms Estate Survey (Malim 1990) part of Moor Farm (Fordham/Isleham) was put to grass to protect vulnerable archaeological deposits. Other areas of significanct archaeology, however, continues to be cultivated including the Isleham Hoard and a circular earthwork. Although no previous management agreement has been put in place for these areas a programme of evaluation has been followed over the years and the circular earthwork was chosen for this project as a site threatened by erosion and subsoiling.

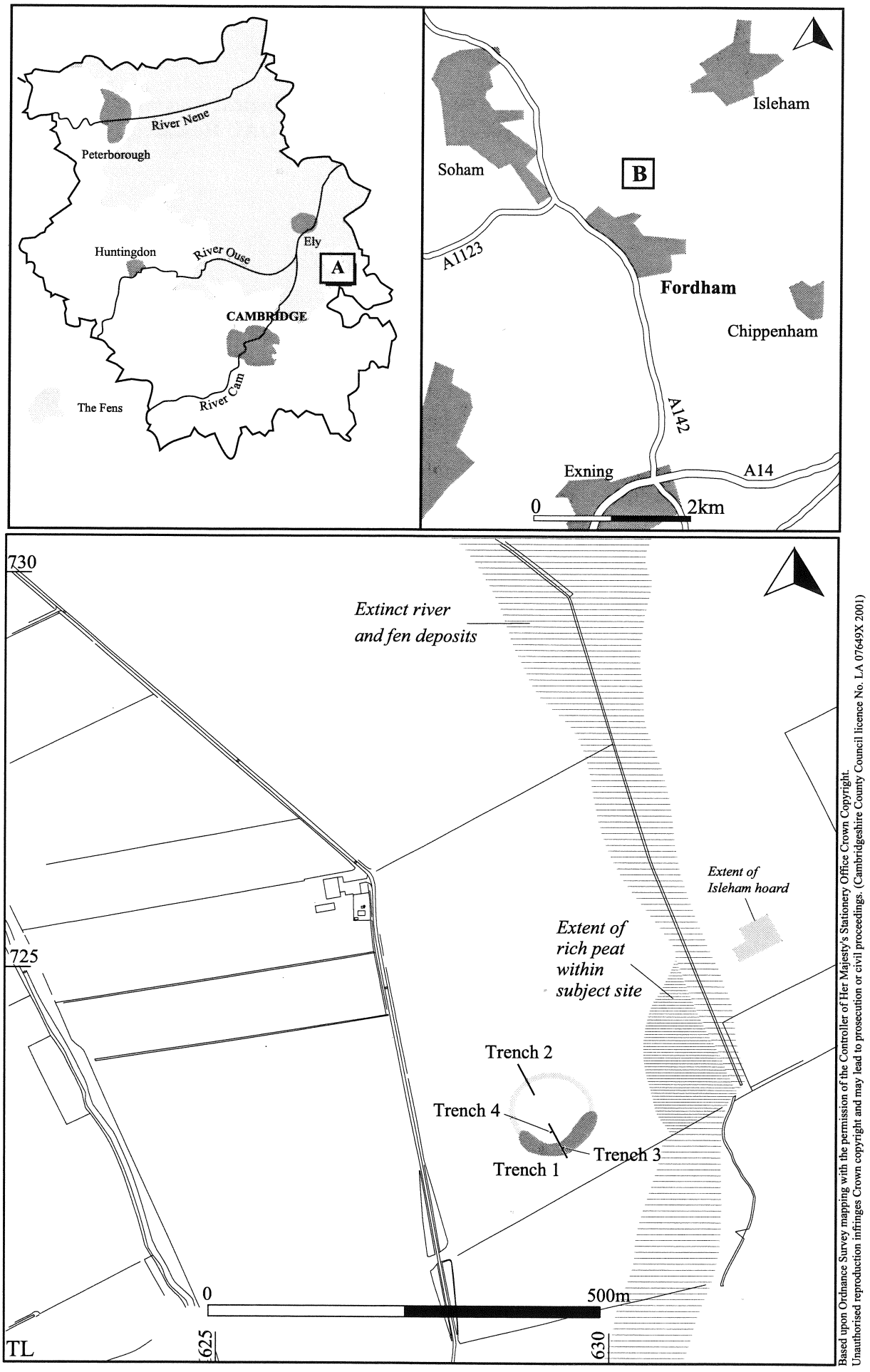


Figure 1 *Location plan of Trenches 1 - 4: The visible extent of the earthwork is shown in dark tone, the extent of the cropmark in lighter tone.*

2.2 Geology and Topography

The geology of the area is lower chalk, but with a pocket of 2nd terrace river gravels between the circular earthwork and Fordham, Moor Road (Fig 1). The field has peat rich soil in the southeastern corner (along the likely route of the drained river) and a sandy silt soil in the rest of the field. This overlay sandy natural. The TBM on site was 5.43m above Ordnance Datum, which was deliberately located at the centre of the circular cropmark spotted on aerial photographs of the site and shown in Figures 1 and 4 of this report. To the south of the TBM a semicircular depression was visible on the ground which corresponded in size to the circular shape visible on the AP's. The northern half of the circular cropmark was not visible on the ground. The rest of the field was relatively flat.

2.3 Archaeological and Historical Background

Bronze Age

Previous work has resulted in prolific recovery of prehistoric artefacts in the Fordham/Isleham area (Hall and Coles 1994; Hall 1996). This indicates a distinct preference for settlement and other activity on what would have been a peninsular of the mainland sticking out into the fens. Of particular interest is the largest Bronze Age hoard found in the UK discovered by ploughing in 1959, and excavated in 1960 (Britton 1960). The exact location of this find was not clear from the original fieldwork but had been placed to the east side of the now extinct river channel of the Snail, just within Isleham parish. Recent work in 2000 (Malim unpublished) has discovered that the hoard site however, was actually to the west of the parish boundary, in Fordham parish and on the edge of a wet area beside an extinct river channel. Immediately to the west of this river lies the subject site, a large field in which previous field walking has identified worked flints and a curious low circular earthwork (Hall 1994 & 1996, Malim unpublished) this is in Fordham Parish. Air photographs show this circular feature as a cropmark within an arable field (Fig 4), and enclosure ditches around the possible find spot of the hoard site can also be detected abutting on the old river channel. Both the hoard and the circular earthwork lie within the boundaries of land owned by Cambridgeshire County Council, within Moor Farm, Fordham, and Chalk Farm, Isleham.

Excavations in 1992 during the laying of a water pipeline to the north of Fordham Moor revealed a Bronze Age roundhouse and other settlement evidence, a miniature antler bow, burnt flint, as well as paleoenvironmental evidence, flintwork and human skull fragments next to the River Snail palaeochannel (Taylor et al 1995). A Bronze Age axe was also found. The paleoenvironmental evidence has shown the progression of woodland clearance through to a landscape dominated by pasture and arable agriculture, dated to the Neolithic and Bronze Ages through radiocarbon dating (Wiltshire in Hedges et al 1997).

A Bronze Age barrow (SAM 258) is recorded just to the north of the subject site at New Farm and other barrows are recorded close by (Malim 1990 p46-49).

During the programme of field walking which was undertaken by the Archaeological Field Unit of Cambridgeshire County Council in 2000, further evidence of prehistoric activity in the form of burnt and worked flint tools was recorded. It was observed that the circular feature, which was investigated as during this project, appeared to have a ditch around *part* of it. The centre of the feature was characterised by lighter brown sandy soil when compared with the rest of the field.

2.4 Methodology

Four trenches (1,2,3 and 4) totalling 98.00m in length were excavated. A wheeled mechanical excavator with a flat bladed ditching bucket 1.60m wide, was used to remove either topsoil and subsoil layers or just topsoil, dependant on the purpose of each trench. Trench 1 was 49m long and both topsoil and subsoil were removed down to natural geology. Trench 2 was 43m long and only topsoil was removed (subsoil was absent). Trenches 3 and 4 were both 3m long and were located adjacent to Trench 1. Only topsoil was removed, in order to reveal and and to record this layer in detail. Soil stripping was carried out under the supervision of an archaeologist.

Trenches 1 and 2 were located on a circular cropmark in the central southern part of the field (see Fig. 1). The trecnhes were orientated on a northwest-southeast alignment. The location had already been identified from aerial photographs and by field walking as the site of potentially important archaeological remains.

Trenches 3 and 4 were located at right angles to Trench 1, in order to open up an un-contaminated piece of subsoil 101 (see below) for experimental work on plough degradation. After machining each trench to the base of the plough depth limit (over archaeology) a 3m length of geotextile was placed in Trenches 3 and 4, and a finds bag and label with the date of the project was placed beneath this layer. The intention is to return to the subject site (as part of the on-going County Farms evaluation project) and re-excavate Trenches 3 and 4 in order to test whether the subsoil is being damaged by the current cultivation methods.

All archaeological features were excavated by hand in order to determine date and character (see below – section 2.5). The AFU's single context based recording system was used to record all the archaeological features and deposits. Sections were hand drawn at a scale of 1:10 or 1:50. Plans were hand drawn at a scale of 1:50. In addition the spoil heaps were scanned for artefacts. Particular attention was paid to plough scars, depth and character of topsoil and subsoil and evidence of bioturbation. This was in order to adequately gather information relevant to this project.

In this report deposit numbers are shown in plain text and cut numbers are in **bold** text. Features are discussed in the phases suggested by their stratigraphic relationships, character and morphology and the finds recovered from them.

2.5 Agricultural Monitoring Results

A detailed assessment of the current agricultural system and how it is effecting the archaeology present on the site is given in Appendix 1. This section describes the most important information that was observed during this project and also what steps were taken in order to monitor future changes.

The current agricultural system is arable, with landuse primarily for cereal crops and sugar beet and involves ploughing to a depth of 0.25m. Minimal cultivation techniques are never used on this site. Topsoil is 0.30m to 0.50m deep, below which there was a subsoil in parts of the site. This subsoil was 0.20m deep and protected the only archaeology found on the site. This is of significance as Trench 1 showed clear evidence of modern plough scars (see Fig. 2), 8m in length and was recorded at 0.31m below ground surface. This would be deep enough to disturb the protective layer of subsoil.

In order to monitor the effect of ploughing on this subsoil, trenches 3 and 4 were excavated to the interface between topsoil and subsoil and a layer of geotextile was placed above the subsoil and reburied. It is the intention to return and re-excavate these trenches at a later date in order to record any damage to the geotextile and thus very likely to the subsoil over a much larger area.

Evidence of bioturbation was noted in the section of Trench 1 (see Fig. 2), which stopped with layer 108, possibly due to the very compact nature of the archaeological features recorded below this level.

2.6 Archaeological Results

2.6.1 Topsoil, subsoil and natural geology

The topsoil, 100, in all four trenches was a dark brown sandy silt which varied from 0.35m in most of Trench 1 and all of Trenches 2,3 and 4 to 0.50m deep, to 0.50m over ditch feature **112** in Trench 1. The topsoil in the southeastern part of the subject site had a peaty element most likely due to its proximity to the drained river, which had run through this part of the field. However, this did not extend as far west as the cropmarks, which were the subject of this project. The subsoil, 101, encountered only in Trench 1 and adjacent Trenches 3 and 4, was a medium brown silty clay with occasional fine gravel, which varied from 0.10m to 0.20m deep. It was not a continuous layer even in Trench 1 and significantly it occurred only over the only major archaeological features on the site. The absence of any subsoil in the other major trench on the site (Trench 2), together with the complete lack of any archaeological

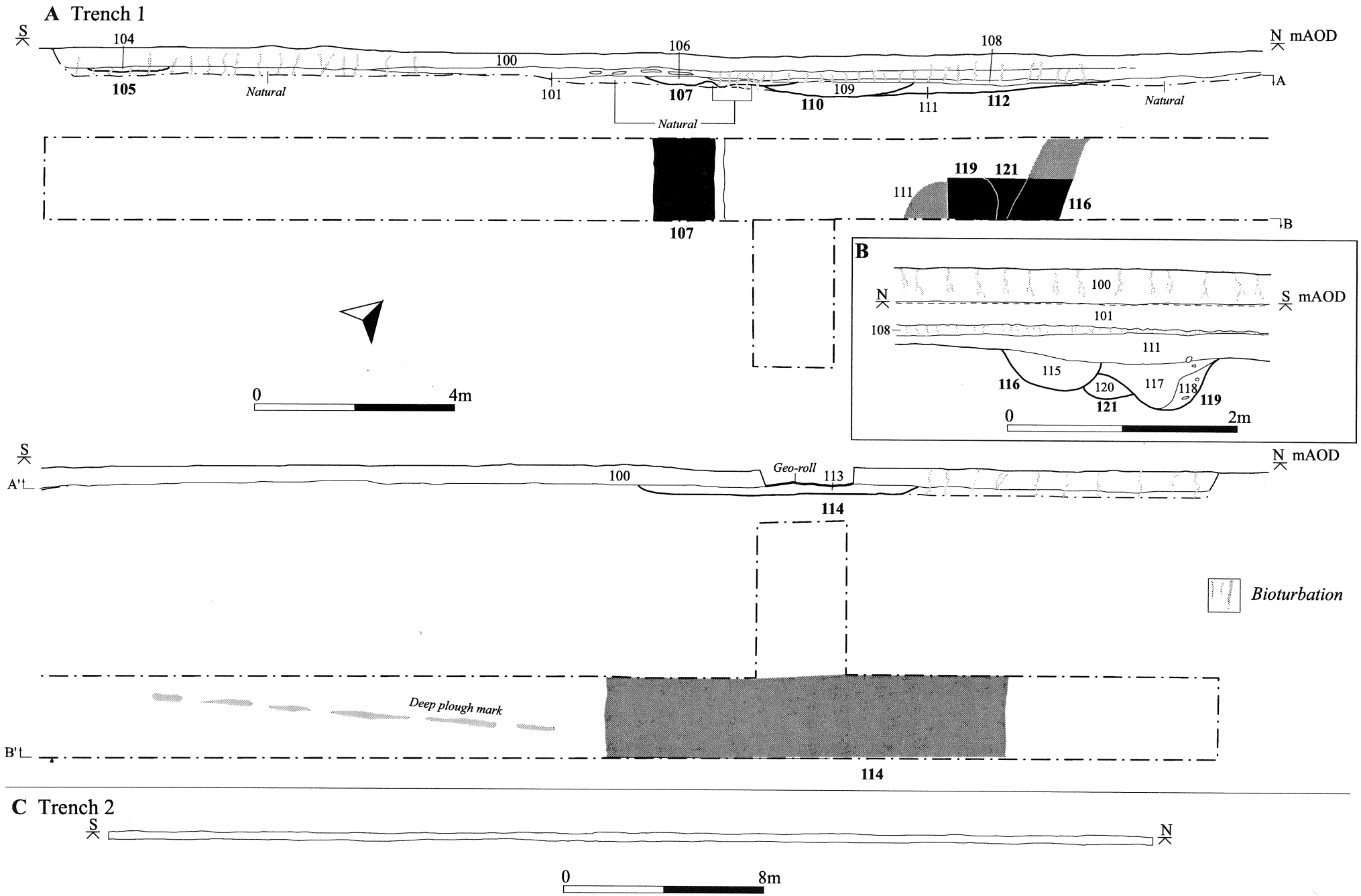


Figure 2 *A. Plan and section of Trench 1.* ***B.*** *detail section through Cuts* ***116, 121*** *and* ***119*** ***C.*** *Profile of topsoil* (100) *in Trench 2*

features in this trench, suggests that the presence of subsoil is a key indicator of preserved archaeological surfaces/features on this site. Such an interpretation would also account for the large numbers of flint tools and burnt flint found in the topsoil from fieldwalking. The flints were originally on surfaces or in features that have been ploughed away and the lithics incorporated into the topsoil.

The natural geology (122), encountered in Trenches 1 and 2 was a dark /medium orange coarse sand. This was encountered at a depth of 0.35m to 0.55m in Trench 1, and at a uniform depth of 0.35m in Trench 2.

2.6.2 Prehistoric

Layer 108 formed a seal over a series of ditches which together made up the only archaeological features excavated on the site. Layer 108 is located 6.5m from the southern end of Trench 1 and extends c15m north of this point, it corresponds roughly with the sub-circular depression observed on the ground and the ring in the aerial photographs. Layer 108 was 0.05m deep and consisted of re-deposited natural material, which had been leached giving it a white-ish appearance. Below 108 was ditch feature **107**, the first of a series of ditch features in this part of Trench 1, all of the features described below follow an east north east – west south west alignment. Ditch **107** contained one fill 106, which produced no dateable material but is considered to be of likely prehistoric date, due to its association with ditch **112**, which contained material from the Bronze Age.

Ditch feature **110** contained one fill 109, which also contained no dating evidence. It was truncated by feature **107** and respects the earlier alignment of **112**, which it truncates. For the same reasons as **107,** ditch **110** is considered to be of likely prehistoric date.

2.6.3 Bronze Age

Ditch feature **112** contained one fill 111, which was the only feature to produce reliably stratified and dateable material. The artefactual evidence consisted of worked flints typical of the period, flint tempered pottery and faunal remains, most significantly pieces of antler.

Truncated by **112** was ditch feature **116** which also contained one fill 115, absent of finds this feature can be relatively dated by its stratigraphic position below **112,** to at least Bronze Age. This feature followed the same general east north east – west south west alignment of all the above ditches.

Ditch **119** contained two fills 117 and 118, both of which were artefactually sterile, this feature was truncated by **116** giving it a relative date of at least Bronze Age.

Ditch **121**, also contained one fill 120, and produced no artefactual evidence. This feature was very truncated but represents the earliest archaeological evidence on the site.

Topsoil layer 100, dark brown sandy silt, occasional fine gravel, occasional rounded flint pebbles. Depth in trench 1 varies from 0.35m to 0.50m. Depth in Trench 2 is consistently 0.30m deep.

Subsoil layer 101, medium brown silty clay, and occasional fine gravel. Plough scars visible at the surface of this layer. Depth in Trenches 1,3 and 4 varies from 0.10m to 0.20m.

105, (observed during machining) 1.50m long, 0.10m deep, semi-circular in plan, vertical sides, irregular flat base, contained one fill: Fill 104, dark grey silty sand, occasional pieces of charcoal, very effected by bioturbation.

107, 3.15m wide, 0.15m deep, linear in plan, concave gentle sloping sides, irregular flat base, contained one fill: Fill 106, light brown silty sand, occasional lenses of medium orange sand, very effected by bioturbation.

Subsoil layer 108, white-ish light brown, fine/medium sand, very affected by bioturbation. The depth of this layer was 0.05m.

110, 2.85m wide, 0.25m deep, linear in plan, gently sloping concave sides, concave base, contained one fill: Fill 109 light grey fine sand, occasional flint pebbles, bioturbation.

112, 4.75m wide, 0.27m deep, linear in plan, gently sloping flat sides, flat base, contained one fill: Fill 111, light grey sandy silt, frequent fine angular flint pebbles, very little bioturbation.

114, 6.70m wide, 0.25m deep, linear in plan, steeply sloping sides, irregular flat base, contained one fill: Fill 113, mid brown silty sand, moderate fine gravel, occasional lenses of clay, very effected by bioturbation.

116, 0.85m wide, 0.35m deep, linear in plan, steeply sloping concave sides, concave base, contained one fill: Fill 115, orange-ish brown silty sand, frequent coarse gravel, occasional medium flint pebbles, no bioturbation

119, 1.00m wide, 0.40m deep, linear in plan, steeply sloping sides, slightly concave base, contained two fills: Fill 117, light grey-ish brown fine sand, frequent coarse gravel, no bioturbation: Fill 118, orange-ish brown medium sand, frequent coarse gravel, no bioturbation.

121, 0.45m wide, 0.21m deep, linear in plan, sides are truncated, concave base, contained two fills: Fill 120, light grey with orange mottling, fine sand, frequent coarse gravel, no bioturbation.

Natural geological layer 122, dark and medium orange coarse sand.

2.7 Discussion

The TBM 5.43m OD was deliberately positioned at the centre of the feature spotted on aerial photographs and during field walking (see Figs. 1 and 4). A depression of c0.30m depth and 15m width was visible as a semi circle around and to the south of this point, whereas, to the north of the TBM at the point where aerial photographs showed a circular shape, there was no discernible change in the level of the soil.

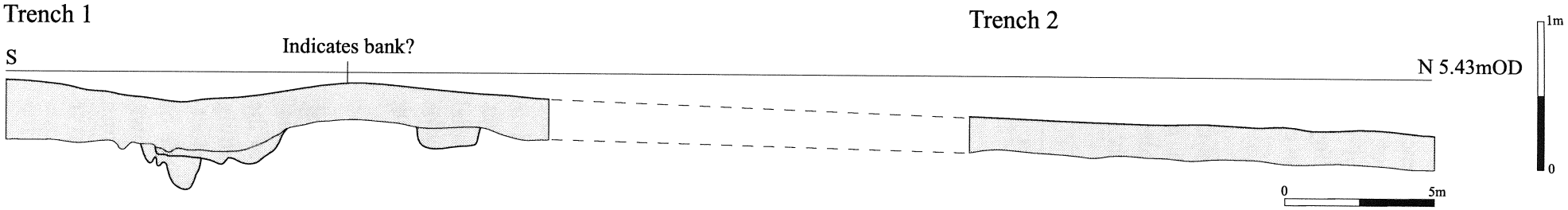


Figure 3 *Schematic profiles of Trenches 1 and 2 with exaggerated vertical scale*

Figure 4 *Aerial photograph showing the cropmark investigated by Trenches 1 and 2 at FORMF 01*

To confirm whether there were any subtle changes in the level of the ground surface in this area, levels were taken at 5m intervals the length of Trench 1 and Trench 2. This confirmed a change to the south where the base of the semi circular depression was 5.35m OD, while immediately north of the depression a reading of 5.54m OD was taken. This level was 0.11m higher than the TBM at the centre of the postulated circle, and may be evidence to support the remnant of an internal bank at this point.

The levels taken for Trench 2, positioned to cross the northern half of this circle, give an entirely different picture to those taken in the south and revealed no evidence for a ditch surviving on the north side (see Fig. 3 also). Levels were taken from the southern end of the trench working to the north:

Distance along Trench 2	**Height above Ordnance Datum**	
	Topsoil	**Geological Layer**
0.00m	5.35m OD	4.97m OD
5.00m	5.27m OD	4.87m OD
10.00m	5.17m OD	4.81m OD
15.00m	5.09m OD	4.74m OD
20.00m	5.07m OD	4.71m OD
25.00m	5.02m OD	4.68m OD
30.00m	4.99mOD	4.69mOD
35.00m	-	-
40.00m	5.07m OD	4.65m OD

These levels illustrate how the subject site is sloping slightly downwards to the north of Trench 1 and the TBM. It is interesting to note that the first reading on Trench 2 is identical to that at the base of the semi circular depression in Trench 1 at 5.35m OD. It is possible that the circular feature identified on AP's was once a complete ring ditch but ploughing combined with a natural slope have contrived to destroy the northern part of this circle whilst the southern half has remained comparatively intact. The guidelines used in undertaking this project (Oxford Archaeological Unit 2001), mention that there have been recent cases when features clearly shown on aerial photographs are not apparent when excavation takes place on a site, it may be that we have such a case here with the archaeological remains only surviving as a "ghost" visible in the topsoil from the air.

Despite the fact that we may never be able to fully appreciate the original morphology of what certainly appeared to be a fully circular feature on aerial photographs, we can now reliably date the remains of these earthworks to the Bronze Age. They appear to have consisted of several phases of intercutting ditches which share the same east-northeast – west-southwest alignment, sharing a similar function which appears to be to mark out a circular piece of land immediately to the north. The proximity of this site to the other known monuments and finds of this period (see section 2.2), suggests that it may form part of a series of prehistoric monuments located along a now drained river channel.

3 LANDBEACH, CAR DYKE FARM

3.1 Aims and Objectives

In 1996 a programme of evaluation was carried out to look at the condition of preservation of the Roman road Akeman Street and associated settlement related features. As a result of this work the land was put down to grass to prevent further erosion from ploughing and to protect waterlogged deposits (in a Countryside Stewardship Scheme). As part of the present project this site was selected for re-evaluation to test how effective the protection provided by the grass management has been, and how well waterlogged deposits have remained wet.

3.2 Geology and Topography

The subject site lies on very low lying ground north of Cambridge and west of the River Cam immediately north of the village of Landbeach, at an average of 4m OD at TL 475 661. The geology is 2nd Terrace gravels (late Ipswichian/Devensian) overlying gault clay.

3.3 Archaeological and Historical Background

Roman

The site was originally identified from cropmarks and evaluated as part of the Cambridgeshire County Farms Estate Evaluation Programme (Macaulay 1997) and include part of Akeman Street, the name given to a Roman road which runs between Cambridge and Ely and beyond towards Denver. Sections of it run from Cirencester through Verulamium (St Albans), and then possibly on to Biggleswade, before connecting Ermine Street with Cambridge from where the road ran further northeast across the Fens to a possible destination of Denver thus meeting with the Fen Causeway.

To the north of Cambridge and within the proximity of Landbeach there exists a number of extensive cropmark complexes suggesting a pattern of dispersed farming hamlets amongst a well ordered system of fields and trackways dating to the Late Iron Age and Roman periods (Leith and Reynolds 1992). The economy would have been based on mixed arable and pastoral agiculture supplemented by fenland produce. The area is likely to have developed a more organised agricultural economy with the construction of Akeman Street (Margary 1967, Ozanne 1991 & Walker 1910) and the Car Dyke Roman canal, which linked the southern fens to Lincolnshire (Fox 1923, Philips 1970, Simmons 1979, Macaulay & Reynolds 1994). Both routes acting as arteries for trade and communication between population centres and ultimately Continental Europe.

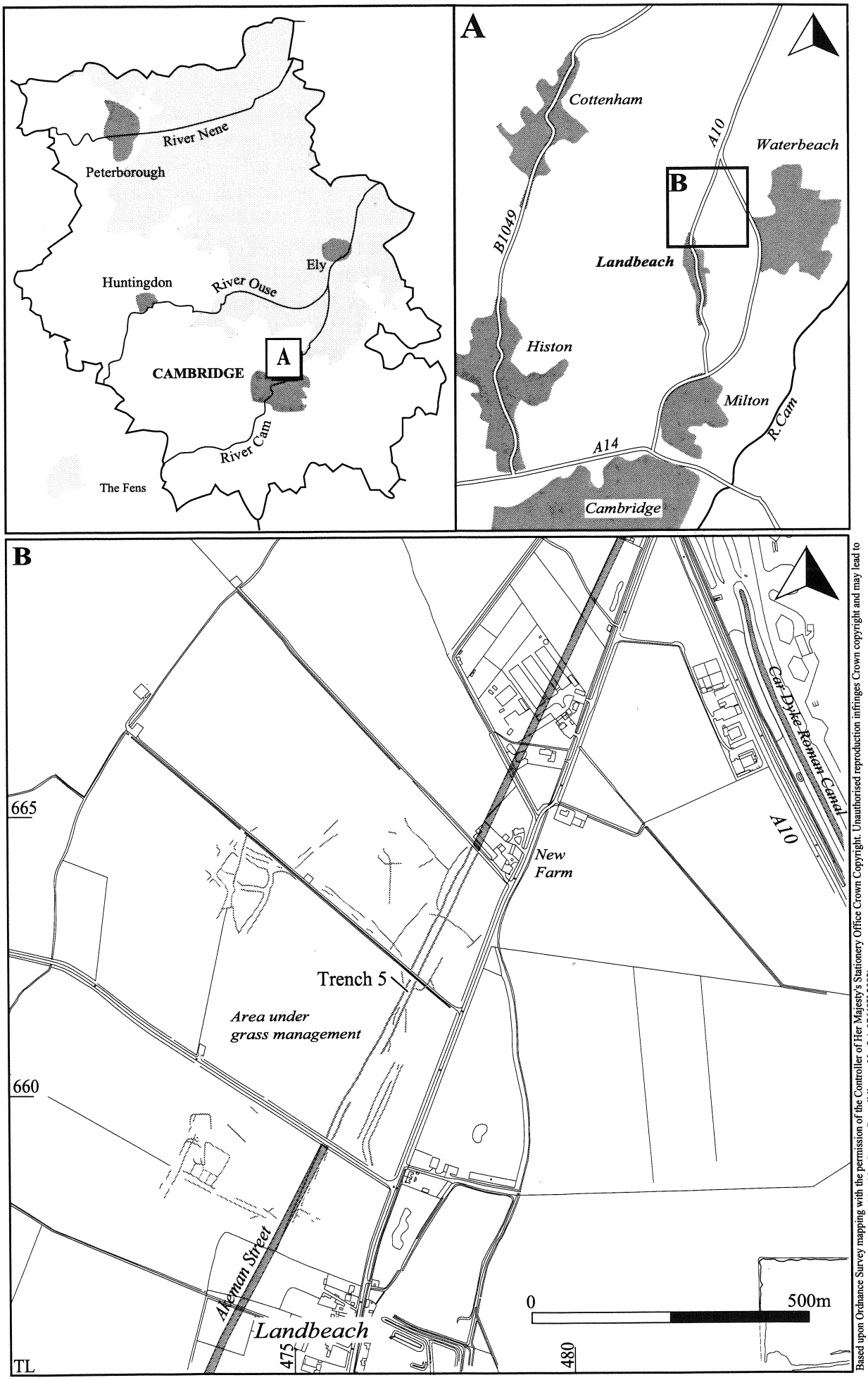


Figure 5 *Trench 5 location plan*

3.4 Methodology

One trench (Trench 5) totalling 38.00m in length was excavated. A wheeled mechanical excavator with a flat bladed ditching bucket 1.60m wide, was used to remove topsoil and subsoil layers. Trench 5 was located in order to cross the western ditch of Akeman Street.

After machining Trench 5 to the required depth all archaeological features were excavated by hand in order to determine date and character (see below – section 3.5). The AFU's single context based recording system was used to record the archaeological feature and deposits. Sections were hand drawn at a scale of 1:10 or 1:50. Plans were hand drawn at a scale of 1:50. In addition the spoil heaps were scanned for artefacts. Particular attention was paid to plough scars, depth and character of topsoil and subsoil and evidence of bioturbation. This was in order to gather specific information relevant to this project.

In this report deposit numbers are shown in plain text and cut numbers are in **bold** text. Features are discussed in the phases suggested by their stratigraphic relationships, character and morphology and the finds recovered from them.

3.5 Agricultural Monitoring Results

A detailed assessment of the current agricultural system and how it is affecting the archaeology present on the site is given in Appendix 1. This section describes the most important information that was observed during this project. And describes what measures have already been taken in order to prevent further damage to the archaeology on the subject site.

Currently the agricultural system is pasture, and no ploughing takes place. However, in the past crops have included cereals, sugar beet and rape, and therefore ploughing will have been to the 'normal' depth of at least 25cms. Topsoil was 0.30m in depth, subsoil where it occurred was 0.10m in depth and occurred sealing the one archaeological feature on the site.

Trench 5 showed clear evidence for modern plough scars (see Fig. 6), with one example 2m in length and recorded at a depth of 0.35m below ground surface. A single archaeological feature was found, ditch **204**, which is interpreted as the western roadside ditch for Akeman Street.

Evidence of bioturbation was noted in the section of ditch **204** (see Fig. 6), it occurred throughout the fills of this feature.

Regarding the future preservation of this site. As the subject site is within the Countryside Stewardship Scheme, and as such it is no longer ploughed, the potential for further damage through cultivation is low while the pasture regime continues. However, a separate problem, which is very relevant within Cambridgeshire, is the issue of drainage. It was noted that no water was

encountered at the base of ditch **204** even at a level of 3.72m OD, (the ground level was 4.88m OD), this is in contrast to the results of the earlier excavations (Macaulay 1997), which recorded waterlogged deposits at the base of the roadside ditches (Stephen Macaulay *pers comm*). This suggests that the water table in the area as a whole may have been lowered significantly in the intervening period, which would obviously effect the preservation of any organic remains on the site, and is part of a wider problem which effects Cambridgeshire as a whole. The apparent drop in the water table is particularly alarming because it has happened during a period of increased rainfall in East Anglia, when levels have been higher than average since 1996, and 1998 was the wettest year on record during the last century.

It is also interesting to note that subsoil 201 (see below), occurs only in the relatively low-lying southeastern end of Trench 5. Level readings for this site indicate a level of sloping not immediately apparent on the site. At the western end of the trench the ground level is 4.78m OD whilst at the lower eastern end it is 4.62 m OD, it is possible that the slightly higher western ground has been marginally more exposed to ploughing in the past and this has effected the preservation of a subsoil at this point. A marginally thicker series of deposits to the east possibly as a result of soil movement from the west has protected the subsoil at this point. If ploughing were to start again on this field it must be noted that normal ploughing would be very close to the interface with archaeological deposits.

3.6 Archaeological Results

3.6.1 Topsoil subsoil and natural geology

Topsoil 200 was dark brown sandy silt with occasional medium rounded pebbles. This was uniformly 0.30m deep within Trench 5.

The natural geology within Trench 5 consisted of medium/dark orange medium sand. This was encountered at a depth of 0.30m.

3.6.2 Roman

Below the topsoil was layer 201, it was a medium brown silty sand with frequent gravel and occurred only in the southeastern end of the trench. It was 9.60m in length and appeared to continue beyond the southeastern limit of the trench, and was 0.10m deep. This is interpreted as the remnant of the damaged agger of the Akeman Street, and it is identical to a deposit encountered in the earlier excavations at this site (see below – section 3.6).

One archaeological feature was encountered within Trench 5. Ditch feature **204** was a substantial feature 0.80m deep it contained three fills 202, a yellowish mid brown sandy silt with frequent coarse gravel. This deposit contained one sherd of 4th century Roman pottery, and formed the bulk of the archaeological fill in this ditch, its character is suggestive of a gradual backfilling by natural mechanisms rather a deliberate or sudden backfilling

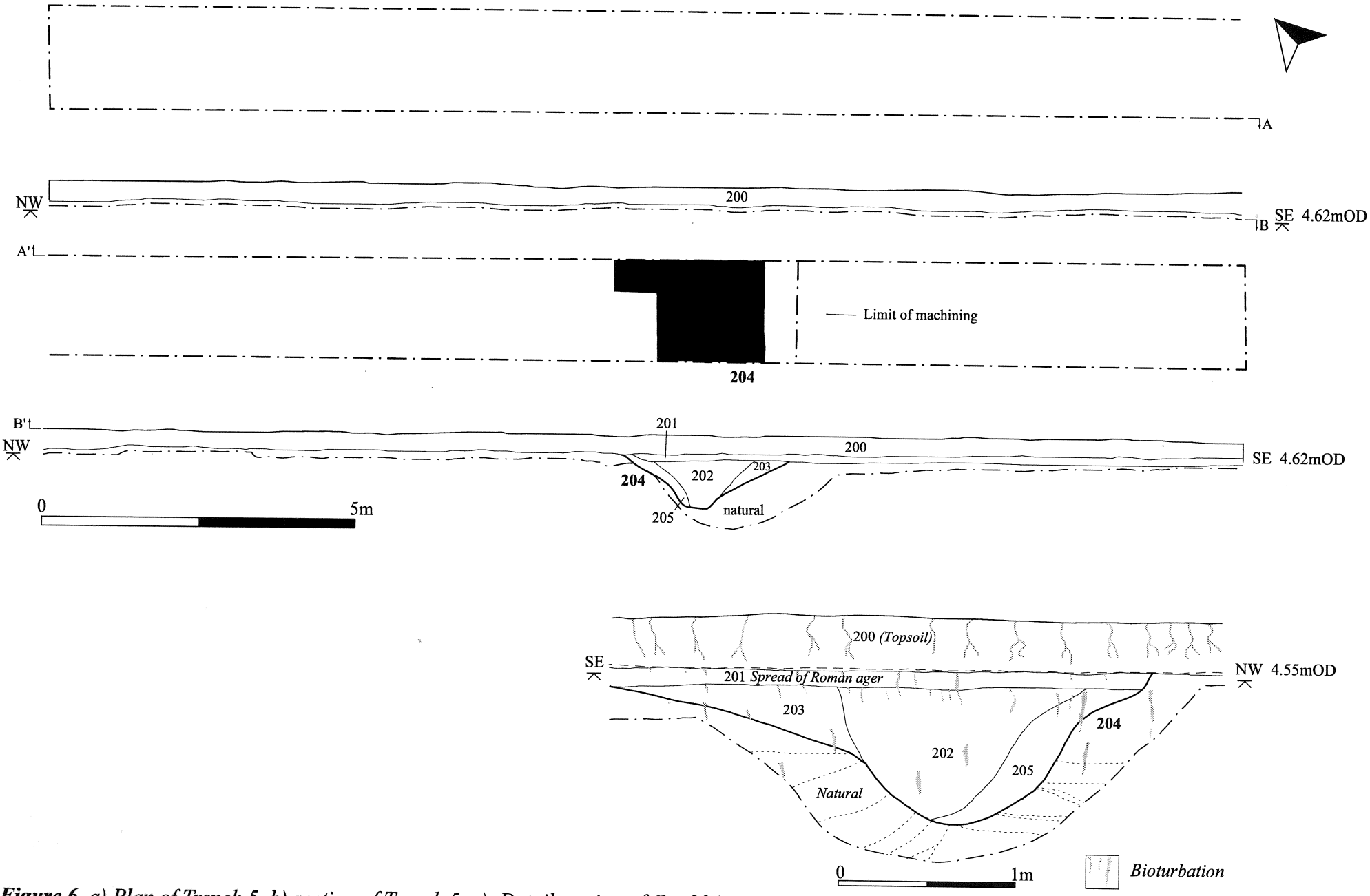


Figure 6 *a) Plan of Trench 5 b) section of Trench 5 c) Detail section of Cut 204*

event. Below this fill 203 was found positioned on the eastern side of **204**; an orange-ish light brown sandy silt with occasional coarse gravel, this deposit contained no finds. Also below 202 was deposit 205, this was positioned on the western side of **204** and had the classic appearance of re-deposited natural material which has slumped into a ditch as a result of erosion/weathering.

Topsoil layer 200, dark brown silty sand, occasional medium rounded pebbles. Depth in Trench 5 is 0.30m. Very effected by bioturbation.

Agger layer 201, medium brown sandy silt, frequent fine gravel, depth in Trench 5 is 0.10m.

204, 3.07m wide, 0.80m deep, linear in plan, steeply sloping sides, flat base, contained three fills: Fill 202, yellowish mid brown sandy silt, frequent coarse gravel: Fill 203, orange-ish light brown sandy silt, occasional coarse gravel: Fill 205, light brown sandy silt, occasional coarse gravel.

3.7 Discussion

Trench 5 was deliberately positioned in order to cross the western ditch of Akeman Street, which had been accurately located by earlier excavations (Macaulay 1997). This project appears to have picked up the western road ditch, an interpretation helped by reference to the results of those earlier excavations which picked up a ditch of similar proportions as well as having striking similarities with the deposits recorded in this project. In particular layer 201 from this project is stratigraphicaly identical to layer *18*, which is interpreted as being a layer of agger in the earlier excavations the plough spread of the Roman *agger* (Macaulay 1997), sealing deposits *117* (corresponds to 202), *118* (corresponds to 205) and ***119*** (corresponds to **204**). Thus we can be confident in saying that this feature is very likely part of the Akeman Street.

4 LANDBEACH, LIMES FARM

4.1 Aims and Objectives

The extensive cropmarks at Limes Farm were evaluated as part of the County Farms Evaluation Programme and a Training Excavation in 1999 (Connor forthcoming). No change of agricultural regime from arable cultivation was deemed necessary as the archaeological features were found to have been protected by a subsoil. It was therefore decided to investigate this site as part of the present project to see if the subsoil was continuing to protect the buried remains and whether it was becoming eroded through ploughing.

4.2 Geology and Topography

The site lies on the West Water second terrace river gravels. The underlying geology is Jurassic Gault Clay. The site lies at approximately 5.4m above ordnance datum and is generally flat, although remnant medieval headlands can be seen in some places. Topsoil was between 0.28 in depth across the site overlying subsoil which was approximately 0.35m thick.

4.3 Archaeological and Historical Background

4.3.1 Prehistoric

The subject of this report is a site, which has already been evaluated (Connor forthcoming), and is known to be made up primarily of Iron Age features with a small component of Romano British features. The site was characterised by features representing timber structures, pits, and a complex of intercutting ditches. Pottery of Middle Iron Age character was recovered from most feature types and a small component of 'Belgic' and Roman pottery was also recovered. A Middle Iron Age occupation phase is indicated by the presence of at least one timber building, possibly associated with several pits, containing general rubbish including large unabraded pottery and animal bones. A final phase of ditches replaced the Middle Iron Age occupation and these ditches were probably backfilled in the late Iron Age. Evidence was found for ditch filling in the Roman period. The inhumation of a baby was also found associated with this phase of activity.

4.4 Methodology

Four trenches/test pits (6,7,8 and 9) totalling 12.75m in length were excavated. A wheeled mechanical excavator with a flat bladed ditching bucket 1.60m wide, was used to remove topsoil and subsoil layers, or just topsoil dependent on the purpose of each test pit. Trenches 6 and 8 were 4.25m and 4.00m long respectively and both topsoil and subsoil were removed. Trenches 7 and 9

Figure 7 *Trench location plan showing cropmarks from aerial photographs (shown in tone).*

were 2.25m and 2.00m long respectively and only topsoil was removed in order to preserve the upper surface of the subsoil, in order to record the level at which plough scars were found. Soil stripping was carried out under the supervision of an archaeologist.

Trenches 6 and 7 were located in the northern part of the subject site in an area where the depth or existence of subsoil or archaeology was unknown. Trenches 8 and 9 were located in the southern part of the site close to previous excavations (Connor *forthcoming*), an area known to contain archaeology sealed by this subsoil layer.

After machining each trench to the required depth, a 2m length of geotextile was placed in Trenches 7 and 9, and a finds bag and label with the date of the project was placed beneath this layer. The intention is to return to the subject site and re-excavate Trenches 7 and 9 in order to test whether the subsoil is being damaged by the current cultivation methods.

All archaeological features were excavated by hand in order to determine date and character (see below – section 4.5). The AFU's single context based recording system was used to record all the archaeological features and deposits. Sections were hand drawn at a scale of 1:10 or 1:50. Plans were hand drawn at a scale of 1:50. In addition the spoil heaps were scanned for artefacts. Particular attention was paid to plough scars, depth and character of topsoil and subsoil and evidence of bioturbation. This was in order to adequately gather information relevant to this project.

In this report deposit numbers are shown in plain text and cut numbers are in **bold** text. Features are discussed in the phases suggested by their stratigraphic relationships, character and morphology and the finds recovered from them.

4.5 Agricultural Monitoring Results

A detailed assessment of the current agricultural system and how it is affecting the archaeology present on the site is given in Appendix 1. This section describes the most important information that was observed during this project and also what steps were taken in order to monitor future changes.

The current agricultural system is arable and involves cultivation to a depth of 0.10m. Although minimal cultivation techniques (disked) have been used on this site in 2001, in the recent past crops of sugar beet have been grown here and required deeper ploughing of the site. Topsoil is 0.28m deep, below which there was a subsoil. This subsoil was 0.35m deep and was encountered in both trenches, which were deliberately located 450m apart at the southern and northern extremes of the subject site. This was in order to test whether subsoil was likely to occur over the entire subject site, and thus form a protective layer above the important archaeological remains, which have been recorded here (Connor forthcoming).

In order to monitor the effect of ploughing on this subsoil, Trenches 7 and 9 were excavated to the interface between topsoil and subsoil and a layer of geotextile was placed above the subsoil and reburied. Significantly both Trenches 7 and 9 showed clear evidence of modern plough scars (see Fig. 8). It is the intention to return and re-excavate these trenches at a later date in order to record any damage to the geotextile which would indicate erosion of the subsoil over a much larger area.

Evidence of bioturbation (indicating that ploughing is not affecting archaeology) was noted in the section of Trenches 6 and 8 (see Fig. 8), this was particularly evident in the base of Trench 8, where it continued into at least the upper part of the natural geology.

4.6 Archaeological Results

4.6.1 Topsoil, subsoil and natural geology

Trenches 6 and 7 contained topsoil 300, a dark brown silty sand, containing moderate to occasional flint pebbles. This was 0.30m deep within these trenches. Below this was subsoil layer 301 a medium brown sandy silt with moderate medium rounded flint pebbles. This was 0.40m deep.

The natural geological layer within Trench 6 was 302, medium orange coarse sand and gravel. This was encountered at a depth of 0.67m.

Trenches 8 and 9 contained topsoil 303, a dark brown sandy silt, occasional medium angular flint pebbles. This was 0.30m deep within these trenches. And is identical to topsoil 300 above. Below this was subsoil 304 a grey-ish mid brown silty sand, frequent rounded medium pebbles. Depth in Trenches 8 and 9 was 0.30m, any differences between this and subsoil 301 described above may be attributed to the high level of bioturbation apparent in the sections and base of Trench 8. Which was not apparent in Trenches 6 and 7.

4.6.2 Iron Age

One archaeological feature was encountered on this site it was located in trench 8. Pit feature **306** contained one fill 305, a dark grey sandy silt which contained several pieces of animal bone. Bioturbation had made the edges of this feature diffuse, but it appeared to extend beyond the edge of the trench to the east.

Topsoil layer 300, dark brown silty sand, moderate fine angular flint pebbles, occasional medium angular flint pebbles. Depth in Trenches 6 and 7 was 0.25m. Some bioturbation visible.

Subsoil layer 301, medium brown sandy silt, moderate medium rounded flint pebbles. Depth in Trenches 6 and 7 was 0.40m deep. Some bioturbation visible. Plough scars visible at the surface of this layer.

Natural geological layer 302, medium orange coarse sand and gravel.

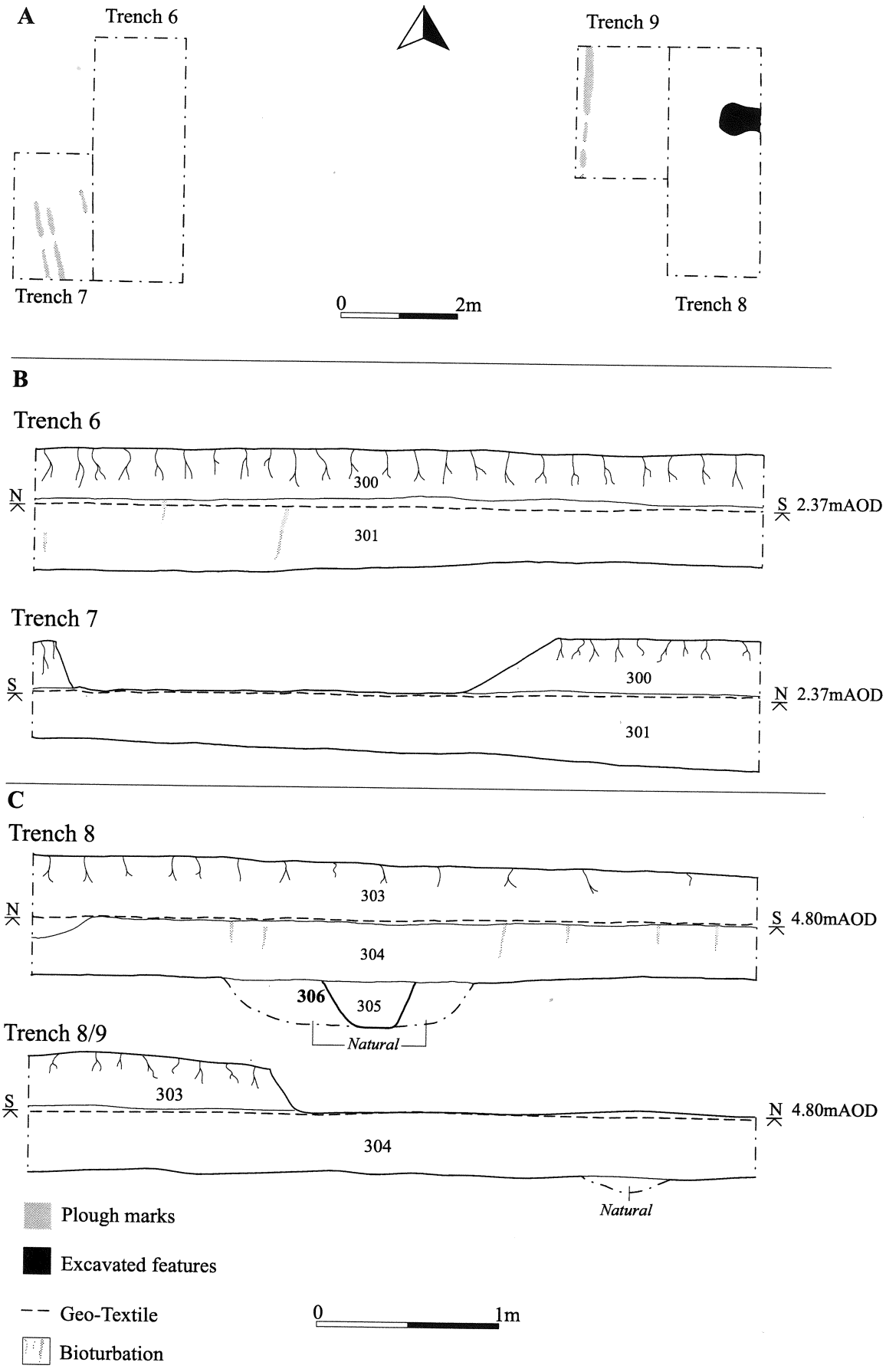


Figure 8 *Trenches 6, 7, 8 and 9: A. Plans B. Sections of Trenches 6 and 7 C. Sections of 8 and 9.*

Topsoil layer 303, dark brown sandy silt, occasional medium angular flint pebbles. Depth in trenches 8 and 9 was 0.25m. Some bioturbation vis ible.

Subsoil layer 304, grey-ish mid brown silty sand, frequent rounded medium pebbles. Depth in Trenches 8 and 9 was 0.30m. Plough scars visible at the surface of this layer. Very effected by bioturbation.

306, 0.80m long, 0.50m wide, 0.30m deep, ditch terminal end in plan, steep concave sides concave base, contained one fill: Fill 305, dark grey sandy silt, occasional fine angular flint gravel occasional medium rounded flint pebbles, lenses of re-deposited gravel at base of fill.

Natural geological layer 307, medium orange coarse sand and gravel with frequent bioturbation visible at the interface of 304 and 307.

4.7 Discussion

Trenches 8 and 9 were deliberately located in an area of known cropmarks and confirmed archaeology due to earlier excavations (Connor forthcoming). Therefore the presence of pit **306** was not unlikely and because of its proximity to other known examples of Iron Age features it is likely that this feature is Iron Age in date. The purpose of these trenches was to try and define how far the protective subsoil layer extended over the site. To this end trenches 6 and 7 in the extreme north of the subject site were very informative and suggest that currently this site has a layer of subsoil 0.30m to 0.40m deep covering all the archaeological features.

5 SWAFFHAM PRIOR, GALLOWS HILL

5.1 Aims and Objectives

In 1993 an evaluation was carried out at Gallows Hill to investigate the state of preservation of a Roman Temple and Anglo-Saxon cemetery as part of the Cambridgeshire County Farms Evaluation Programme (Bray & Malim 1998). As a result of this work the hilltop was put down to grass to prevent further erosion from ploughing (in a Countryside Stewardship Scheme). As part of the present project this site was selected for re-evaluation to test how effective the protection provided by the grass management has been.

5.2 Geology and Topography

The site is situated near the fen edge, on an outcrop of Middle Chalk surrounded by a band of Melbourn Rock (BGS sheet 188). The hill rises up over 35m OD from a ridge of Lower Chalk which crosses southern Cambridgeshire. The location of the site gives a commanding view across a landscape, the archaeological features denoting both historic and prehistoric land use. To the northwest the land drops away sharply into the fens; to the south and southeast the land gradually falls away from the chalk ridge to the gently undulating chalkland of southern Cambridgeshire. Devils Dyke, lying approximately 350m to the northeast of the site, runs from Reach in a southeasterly direction for 12km, abruptly terminating on the Boulder Clay plateau of south Cambridgeshire between the villages of Stetchworth and Wood Ditton.

5.3 Archaeological and Historical Background

The subject of this report is the site of a Romano-British temple and associated Anglo-Saxon burials (Bray & Malim 1998), that project concentrated on a series of crop marks which are linked to a Roman Villa (SMR Camb 32), by a trackway. The evaluation confirmed the presence of several ditched and fenced enclosures which when viewed in plan are suggestive of other Romano-British religious complexes found elsewhere in Britain. The archaeological evidence retrieved suggested that the cropmark complex dates mainly to the 1st and 2nd centuries AD, with further use as a cemetery, in the early pagan Saxon period of the 6th century.

5.4 Methodology

One trench (Trench 10) totalling 24.00m in length were excavated. A wheeled mechanical excavator with a flat bladed ditching bucket 1.60m wide, was used to remove topsoil and subsoil layers. Trench 10 was located in order to cross

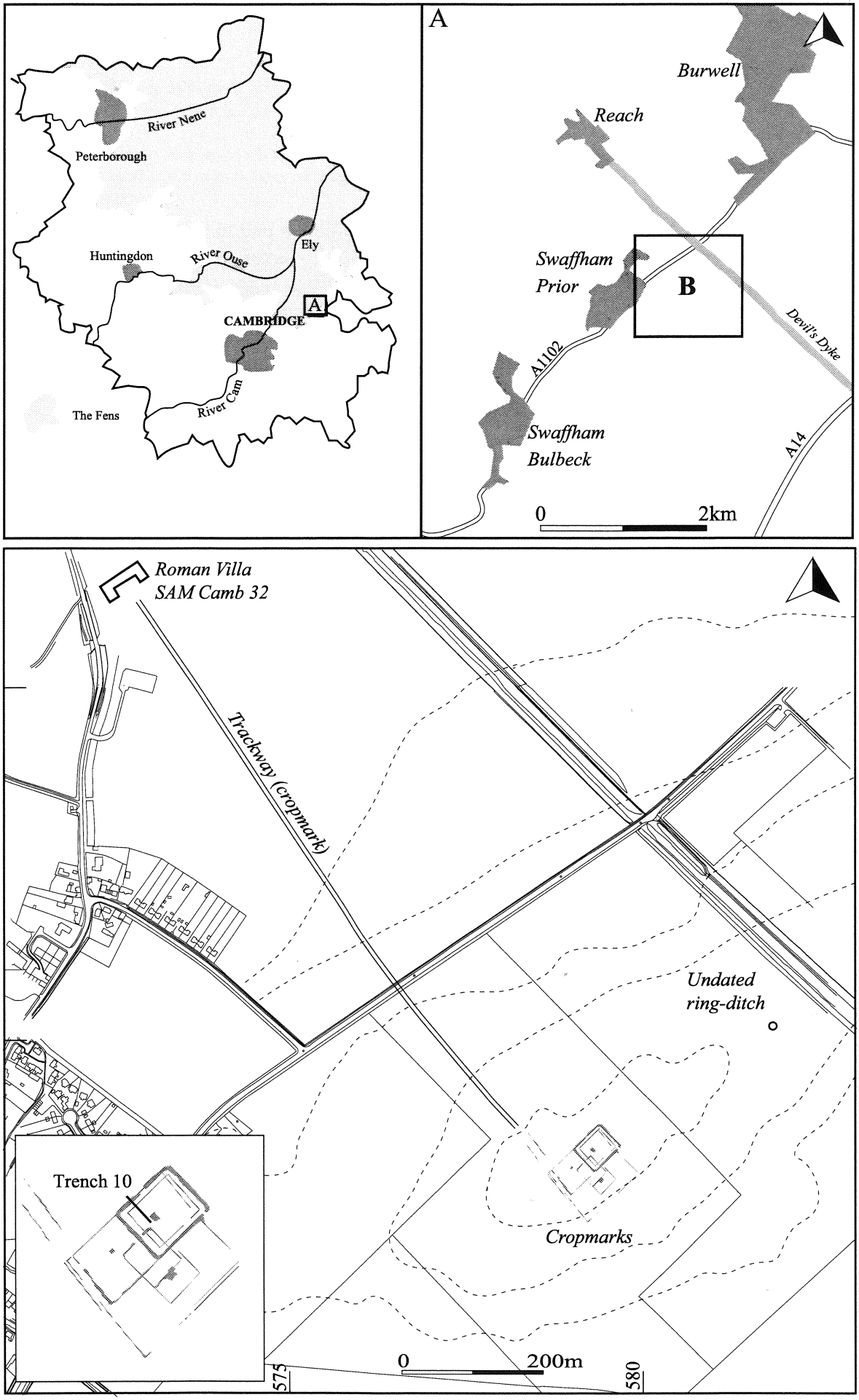


Figure 9 *Location plan of Trench10: The visible extent of the cropmarks are shown in black*

the known location of one of the square enclosures located in previous excavations (Bray & Malim 1998).

After machining the trench to the required depth, all archaeological features were excavated by hand in order to determine date and character (see below – section 5.5). The AFU's single context based recording system was used to record all the archaeological features and deposits. Sections were hand drawn at a scale of 1:10 or 1:50. Plans were hand drawn at a scale of 1:50. In addition the spoil heaps were scanned for artefacts. Particular attention was paid to plough scars, depth and character of topsoil and subsoil and evidence of bioturbation. This was in order to gather specific information relevant to this project.

In this report deposit numbers are shown in plain text and cut numbers are in **bold** text. Features are discussed in the phases suggested by their stratigraphic relationships, character and morphology and the finds recovered from them.

5.5 Agricultural Monitoring Results

A detailed assessment of the current agricultural system and how it is affecting the archaeology present on the site is given in Appendix 1. This section describes the most important information that was observed during this project. And describes what measures have already been taken in order to prevent further damage to the archaeology on the subject site.

Currently the agricultural system is pasture, and no ploughing takes place. However, in the past crops have included cereals, sugar beet and rape, and therefore ploughing will have been to the 'normal' depth of 0.25m at least in the past. Topsoil was 0.30m-0.35m in depth, no subsoil was observed on this site.

Evidence of bioturbation was noted in the section of Trench 10 (see Fig. 10), it occurred the length of the section and was also evident in the base of the trench, which contained irregular shapes typical of root holes or animal burrows, as well as the more regular archaeological features.

The subject site is within the stewardship scheme, and as such is no longer ploughed, the potential for further damage through cultivation is low while the pasture regime continues. This site represents an example of how stewardship of the archaeological resource and a working agricultural farm can be successful.

5.6 Archaeological Results

5.6.1 Topsoil 400, a dark brown silty sand, containing moderate to occasional flint pebbles, was 0.30 to 0.35m deep. No subsoil was present at this site, which is probably due to its location at the top of a hill which has been subject to ploughing and wind erosion for many years.

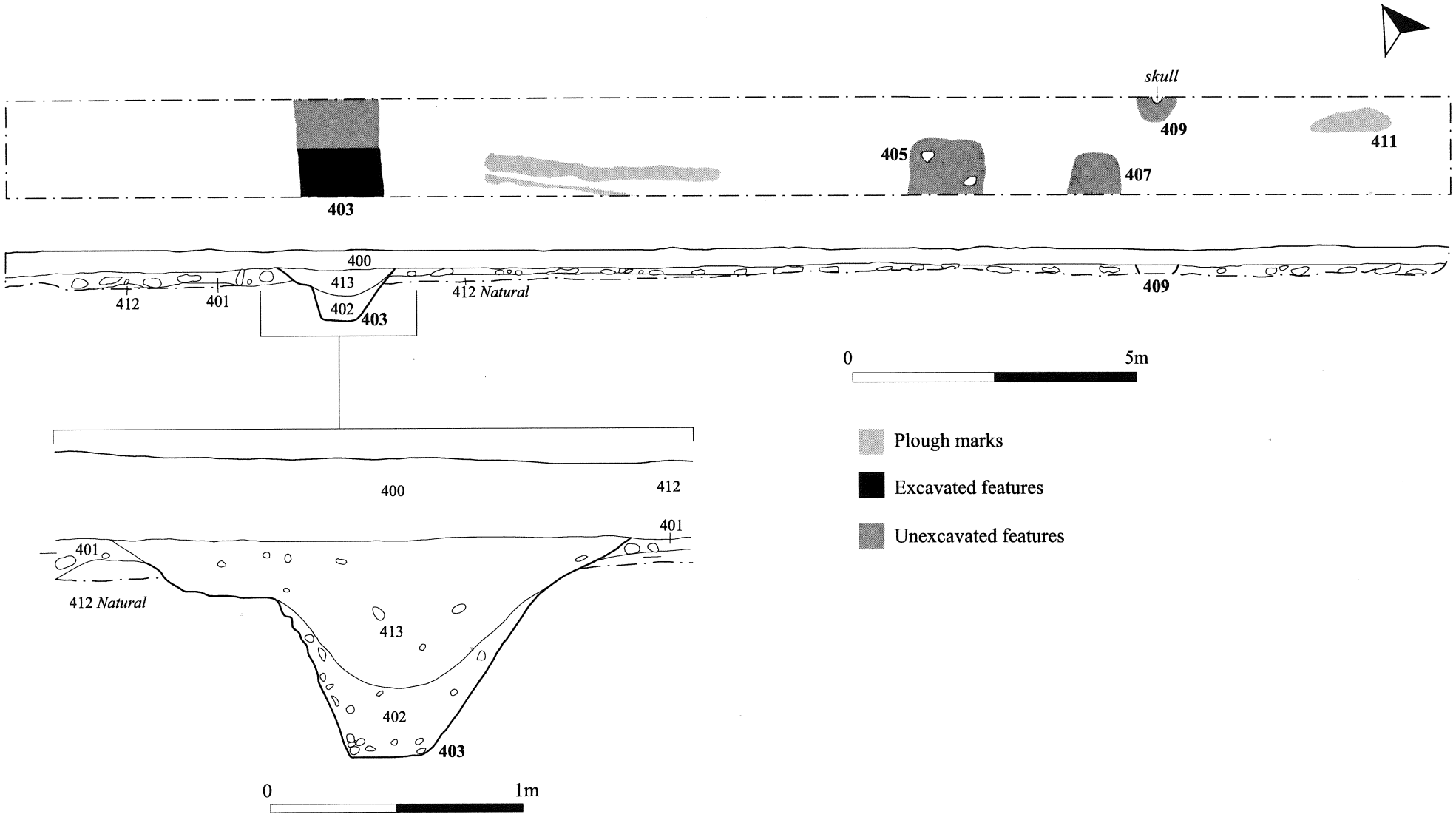


Figure 10 *Trench 10: a) Plan and section b) Detail section of Cut 403*

The natural geological layer 412 was a layer of solid yellowish white chalk. This was encountered at a depth of 0.30m-0.40m.

5.6.2 Romano British/Anglo Saxon

Several archaeological features were recorded in Trench 10. Ditch **403** contained two fills, 413 was a dark grey-ish brown sandy silt containing occasional fine and medium rounded chalk pebbles. Which produced no dateable material, below this was 402 which contained many sherds of Romano British pottery. Ditch **403** is part of one of the square enclosures first recorded in the original evaluation (Bray and Malim 1998).

To the southeast of **403** and therefore 'within' the enclosure several features were recorded although unexcavated as they were all thought to be likely graves. Feature **409** was certainly a grave as a human skull was revealed during machining, this contained one fill 408, which was a medium light brown fine sand with occasional small chalk pebbles. Features **405**, **407** and **411** all shared identical fills to **403** for this reason and because of their morphology, these features were assumed to have a high probability of being inhumations for this reason they were left unexcavated.

Topsoil layer 400, dark brown fine sand, occasional fine flint and chalk pebbles. Depth in Trench 10 was 0.30m to 0.35m

Layer 401, Is the upper surface of natural chalk, light brown fine sand/ very frequent solid chalk and chalk cobbles. Depth in Trench 10 is 0.10m. Very affected by bioturbation, especially at interface with 412 (natural), thus base is very irregular.

403, 1.45m wide, 0.75m deep, linear ditch in plan, steeply sloping flat sides, flat base, contained two fills: Fill 413, dark grey-ish brown sandy silt, occasional fine and medium rounded chalk pebbles, occasional chalk flecks: Fill 402, light greyish brown sandy silt, frequent medium and large chalk pebbles in tip lines on sides and base of 402.

405 (un-excavated), 0.80m wide, sub rectangular in plan, contained one fill: Fill 404, medium/light brown fine sand, occasional small chalk pebbles.

407 (un-excavated), 0.85m wide, sub rectangular in plan, contained one fill: Fill 406, medium/light brown fine sand, occasional small chalk pebbles.

409 (un-excavated), 0.70m wide, semi-circular in plan, contained one fill: Fill 408, medium/light brown fine sand, occasional small chalk pebbles. NOTE – skull observed if 408 east facing section of trench 10.

411 (un-excavated), 1.50m long, 0.40m wide, and sub-oval in plan, contained one fill: Fill 410, medium/light brown fine sand, occasional small chalk pebbles.

Natural geological layer 412, yellowish white chalk

5.7 Discussion

Trench 10 confirmed the location and date of the enclosure ditch in this part of the temple complex and also identified one certain and several other probable graves. The presence of such remains was to be expected after earlier

excavations had already recorded their existence at this location. The main contribution of this project was to confirm that these well preserved remains had remained intact and had been preserved by the prescriptive steps taken for the site.

6 STONEA CAMP

6.1 Aims and Objectives

The investigation was based on the monitoring of water levels after remedial action to reinstate earthworks and maintain a wet environment for waterlogged features.

6.2 Geology and Topography

The subject site lies on the glacial sands and gravels capping Chalky Jurassic (Boulder Clay), Much evidence of solifluction activity has been identified, which has resulted in lumps of Boulder Clay being brought close to the surface. Stonea Camp lies at c2.0m OD

6.3 Archaeological and Historical Background

Stonea Camp is a multi-vallate Iron Age fort whose outermost defences enclosed 24 acres. Evidence of Neolithic, Bronze Age and later Iron Age activity on the site (Malim 1992), is well documented. The subject of this report concerns the management of the later Iron Age remains in particular.

The visible earthworks of this fort were mostly destroyed 40 years ago as part of an arable farming regime. The most recent excavations at the site were conducted by the Archaeological Field Unit, Cambridgeshire County Council between 1990 and 1992 (Malim 1992), and involved the re-instatement of the Iron Age ditch and bank earthworks to their height during the 1960's. Those excavations involved nineteen trenches positioned in order to accurately locate and phase the ditch and bank earthworks before re-instatement commenced.

These investigations produced dramatic evidence of the possible function of the camp during the Iron Age. It was located at the very edge of Stonea Island in order to take full defensive advantage of the fens and adjacent roddon for transport. Large ditches varying between 1.8m (north) and 1.3m (south) deep surrounded the site. Slots through these produced wood, leaves and human bone which were C14 dated to the period from the 4th century BC to the 1st century AD. A child's skull was found to have two sword cuts in it. This is of particular significance in light of the location of the monument, which lay near the boundaries of 3 powerful tribes, the Iceni, the Catuvellauni, and the Coritani (Potter 1989). Following the Icenian revolt retribution from the Roman army followed in this region resulting in the destruction of just such tribal centres. In particular a reference by Tacitus to the storming of a "rustic earthwork" has parallels with the defended position and nature of Stonea. The inhumations recorded in the 1990 – 1992 seasons of work, might back up the theory that this description relates to a battle which took place at Stonea (Malim 1992).

Figure 11 *Site Location Map*

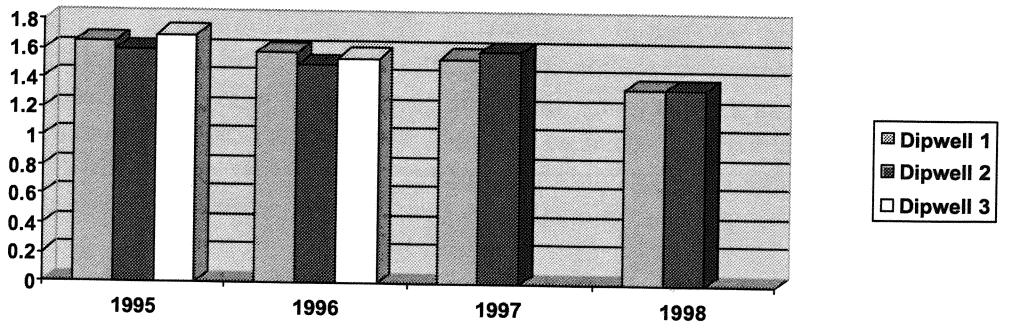
Apart from reinstatement and conversion to grazed grass management two separate measures were introduced for containing water levels within the southern part of the monument so that waterlogged deposits within the base of ditches could be preserved. These measures included the insertion of a vertical plastic membrane to 2m depth and a 2.3m deep clay bund inserted beyond this in a wide semicircle to include a reservoir (see Coles 1995 p80).

6.4 Methodology

No excavation was undertaken for this subject site. Rather a review of the recorded water depths across the dipwells on the site was undertaken. Measurements have been taken at regular intervals between 1995 and 1998; in order to monitor the water levels around the site which preserve the organic remains located here. It is important to remember that the Cambridgeshire Fens is a very specific area where the excellent organic preservation in this low lying traditionally wet environment, has been under long term threat from the increased drainage associated with modern farming and drainage techniques. The information is presented as a graph below, in order to illustrate the stability of water levels, which has been maintained by the efforts of those AFU staff managing this monument.

6.5 Agricultural Monitoring Results

The graph below presents the result of dip well measurements taken over a 4 year period during which the level of the water table on the site was shown to be stable, with even a slight increase over the period due to the careful management of the site undertaken by the Archaeological Field Unit and its partners on this project. Measurements were taken from the ground surface to the top of the water table, and recorded in meters. Each dip well is located 50m apart and range across the southern ditch of the camp.



6.5 DISCUSSION

The stability of the water table at Stonea Camp is only one of the positive aspects of the management of this site. An area of the site along the southern

edge has been enclosed within a special membrane with the effect that a flooded 'fen' type nature reserve has been created. This has the dual result of recreating the lost 'natural' state of the area, as well as raising the water table on a very localised scale.

This is the only piece of pastureland for some distance due to the location of this site in a part of the Fens, which is used for intensive arable farming. It is only regular monitoring of the site which ensures that damaging trees and smaller plants are removed as well as burrowing animals (especially rabbits) all of which see this rare piece of pastureland as an ideal home. This project more than any other discussed in this report shows how successful archaeological stewardship can be when a particularly valuable archaeological site is under threat.

7 CONCLUSION

New archaeological evidence for these sites was not the sole aim of this project as, essentially these evaluations served to provide further evidence of what was already known about these sites, apart from Isleham, Moor Farm where it is possible that a significant earthwork has been excavated and recorded for the first time. The archaeological evidence has been discussed and presented above, this concluding section will look at the different sources of information which the above sites have provided about how the presence of archaeology on working farms can be approached in a positive way.

These carefully selected locations present a special type of agricultural setting. All of the subject sites, which were evaluated for this report had also previously been investigated as part of the County Farms Survey. Previous work at all sites had looked at plough damage and recommendations had subsequently been made to protect archaeological features where this was deemed necessary. This project was designed to test whether these recommendations had been successful in protecting the archaeological features present on these sites.

The low scores recorded for each site, which were determined using the *Scoring Models* in the 'Guidelines For Use On Site' (Oxford Archaeological Unit 2001), are a powerful argument for the positive affect of prescriptive management on threatened archaeological sites. In the cases of Car Dyke Farm, Landbeach and Gallows Hill, Swaffham Prior, (which have been put under pasture as a result of earlier work), retrospective scores have been supplied to indicate the threat if no action had been taken. In both cases a significant increase in the score, which these sites generated, was recorded (see below), indicating how important the changes in the agricultural regimes of these farms have been in protecting the archaeological features they contain.

Landbeach, Car Dyke Farm – was excavated in 1996, and as a result was removed from arable use and put under pasture.

The land is currently topped for haymaking. In the past the land was used for growing sugar beet which requires deep soils and cereals, and would have involved ploughing to a depth that has now formed at the interface with archaeology. No doubt damage to the archaeology at this site was done by such ploughing, the roadside ditches certainly have no evidence of banks for example – although this may have been levelled in antiquity.

The current regime however presents no threat to the archaeology. Using the Scoring Model (see Appendix 1, tables 8,9,10 and 11) contained within the Site Package For Use On Site (Oxford Archaeological Unit 2001), this site scored 3, which is well below the 15, which would suggest that some specific management prescriptions should be taken. It should be noted that this low score is precisely because these management steps have *already* been taken; the success of them is reflected in the low score and should be regarded as evidence of the success of such prescriptive steps.

Using the scoring model to award a retrospective score for the site under an arable regime the site scored over double at 6.5. The reason this site does not reach a significant score using the results of Trench 5 is due to the *deep cut* nature of the archaeology at this point. The existence of *shallow features* or *soft stratigraphy* in the trench would have raised its score to 16.9, which would require that prescriptive management steps be taken. Considering the results of earlier work at this site and the extensive cropmarks visible on aerial photographs, it must be correct to recommend that the site remains under pasture.

Landbeach, Limes Farm – was excavated in 1999, and the discovery that the site was stable led to a decision that it should remain under an arable regime.

Most recently this land has been under a minimal cultivation regime, however the particularly wet weather in 2000 has delayed the implementation of this cultivation technique (Brian Abrahams – tenant farmer *pers comm.*). This site scored 15 using the Scoring Model (see Appendix 1, Tables 14 and 15) contained within the Site Package For Use On Site (Oxford Archaeological Unit 2001). This places Limes Farm at the borderline between safe and at risk sites. However, it would have scored much higher were it not for the well developed subsoil present on the site. Because of this subsoil, even if this land were to be under the normal ploughing regime necessary for certain crops, the deep subsoil on this site would provide protection for the archaeological remains present.

Swaffham Prior, Gallows Hill – has been under pasture since 1994, and the evaluation has shown that this has preserved the site very well. This is reflected in the score reached by this site using the Scoring model (Appendix 1, Tables 16 and 17). Score 12 is below the 15 which would be necessary to suggest that further steps might be required to protect the archaeology present here. The presence of shallow graves makes this site particularly sensitive, however while the current regime of pasture continues this site is in no danger.

Using the scoring model to award a retrospective score for the site under an arable regime the site scored 21, the highest score reached by any of the sites in this project. As with Landbeach, Car Dyke Farm the low score reached under its current agricultural regime, is evidence of the success of prescriptive management on such sites.

Stonea Camp – is currently under pasture, this site is a Scheduled Ancient Monument, and therefore it was not possible to trench the area, and subsequently it was not possible to use the scoring model which was applied to all the above sites.

Stonea Camp is an excellent example of the reinstatement of an archaeological site after extensive levelling and ploughing out in the 1960's. The reconstruction and subsequent management of the camp has enhanced its attractiveness as a heritage site and has even maintained and apparently raised the water table on a local basis. That a site which was levelled can be restored

so thoroughly is impressive evidence of how the damage to archaeological remains can be reversed in *some* cases. This site is currently under pasture and the livestock on the site further enhance the location as a visitor attraction as well as helping to maintain the character of the site and control the growth of destructive plants.

Fordham, Moor Farm – is different from the above sites in the sense that although it is in an area of known archaeology, until now no specific archaeological remains of any significance were known on the site. This site is currently ploughed to a normal level and is used for cereals and sugar beet. The trenches excavated scored relatively low at 6 and 6.5 on the scoring model (see appendix 1, tables 8,9,10 and 11), this may be due largely to the fact that most of the damage that can be done to this type of site by ploughing has already been done. The only features are likely to survive at this location are those protected by subsoil. Perhaps this site serves best to illustrate what can be lost if no action is taken.

8 ACKNOWLEDGEMENTS

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APPENDIX 1 – Tables and Scoring models

The following information was compiled using, the following report commissioned by the Ministry of Agriculture, Fisheries and Food: Following the structure of the above report this appendix is divided into four stages

MANAGEMENT OF ARCHAEOLOGICAL SITES IN ARABLE LANDSCAPE
Site Booklet For Site Testing OXFORD ARCHAEOLOGICAL UNIT (July 2001)

Stage 1 General

Table 1 General site details for all the subject sites

Stage 2 Pre-excavation

Table 2 Pre – excavation questions

Stage 3 During excavation

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Table 18 Feedback questions on 'Site Booklet For Site Testing' (OAU July 2001)

Stage 1 General

Table 1 – General site details for all the subject sites

Question	Comments			
	ISL MF 01	**LAN CD 01**	**LAN LF 01**	**SWP GH 01**
Time of year excavated	Autumn (September)	Autumn (September)	Autumn (September)	Autumn (September)
Duration of evaluation/excavation	2 Days	1 Day	1 Day	1 Day
Reason for excavation (eg pre-development)	Research – MAFF/OAU project	Research – MAFF/OAU project	Research – MAFF/OAU project	Research – MAFF/OAU project
County	Cambridgeshire	Cambridgeshire	Cambridgeshire	Cambridgeshire
Parish	Fordham	Landbeach	Landbeach	Swaffham Prior
Site name	Fordham, Moor Farm	Landbeach, Car Dyke Farm	Landbeach, Limes Farm	Swaffham Prior, Gallows Hill
Grid Refs (of each individual area to be tested x-referenced to sketch plan with appropriate letter code)	TL 630 723	TL 477 662	YL 482 648	TL 579 643
Has the site been identified on aerial photographs	Yes	Yes	Yes	Yes
Date of archaeology (ie Roman or multi-period etc)	Bronze Age	Roman	Iron Age/ Roman	Roman, Anglo Saxon
Type of site (ie Roman villa, iron age settlement, multi-type etc)	Sub-circular ditch feature	Road	Settlement	Temple & Burial site
Type of excavation (ie trenched evaluation, area excavation)	Trenched evaluation	Trenched evaluation	Trenched evaluation	Trenched evaluation
What are the types of cultivation over the whole site	Arable	Pasture	Arable	Pasture
Does the excavated area incorporate any upstanding visible features – if so how high are the upstanding features	Yes	No	No	No
Has the site undergone any form of field walking, metal detecting or geophysical examination – where can the results be found?	Yes, Malim *unpublished*	This site was comprehensiv ely covered in Malim 1990 – see bibliography	This site was comprehensiv ely covered in Malim 1990 – see bibliography	Yes, geophysics & metal detecting part of on-going evaluation.

Stage 2 Pre-excavation

Table 2 - Pre – excavation questions

Questions	Yes/No - & comment			
	ISL MF 01	**LAN CD 01**	**LAN LF 01**	**SWP GH 01**
Prior to excavation can evidence of fresh/recent plough damage be seen on the surface of the site – i.e. presence of newly exposed subsoil or lumps of bedrock, presence of fragile materials e.g. oyster shells, daub, charcoal, bone etc?	No - However, large amounts of non-fragile burnt and worked flint in defined areas was visible	No	No	No

Stage 3 During excavation

Table 3 - Cultivation Questions

Questions	Comments			
	ISL MF 01	LAN CD 01	LAN LF 01	SWP GH 01
Type of cultivation visible on site if applicable (ie harrowed, ploughed, rolled)?	Rolled	Grass	Disc Harrowed	Pasture
Depth of current cultivation?	25 cm	N/A	10 cm	N/A
Is there any evidence of ridge and furrow on the site – have the ridges and furrows caused differential survival of archaeological remains on the site?	No	No	Furrows were observed during a previous excavation, and these had damaged some features	No
If potatoes have been grown in the field – is there any evidence that a de-stoning machine or soil sorter has been used on the site (a de-stoner removes all stones and debris, a soil sorter grades the soil leaving a fine tilth on the surface as a seed bed). If so, what kind of damage has this caused to the archaeological finds and deposits?	No	No	No	No
Is there any evidence that the site has been subject to deeper cultivation in the past, eg is there a buffer between the base of the current cultivation and the top of the archaeology?	No	No	No	Yes
Has any of the site been protected by lynchets or headlands?	No	No	No	No
Has the area been subject to subsoiling: How often? How deep? Do the furrows run in just one direction? Where more than one episode, do the furrows run at right angles to each other?	Yes unknown unknown yes unknown	Yes unknown >0.40m unknown unknown	Yes unknown >0.40+ unknown unknown	No
Where subsoiling is seen, what type of damage has this done to the archaeological features/deposits?	Plough scars and entirely removing features	Destroyed *agger*, truncated banks.	Penetrated subsoil buffer damage upper fills	N/A
What is the crop if in process of growing (cereals, potatoes, fallow etc)?	None	Grass for haymaking	None	Pasture
Height of crop (or state if bare soil)?	Un-even bare soil	60 cm	Weeds, thistles, bare soil	5 cm
If crop has been harvested what crop was grown prior to harvest (ie can stubble be seen on site or evidence of root crops having been removed)?	Spring Barley	N/A	Barley, Cereals	N/A

Table 3 - Cultivation Questions (continued)

Questions	Comments			
	ISL MF 01	LAN CD 01	LAN LF 01	SWP GH 01
Are there any areas which are badly compacted – if so how badly? – is the difference measurable?	No	No	No	No
How many years has the area been under cultivation?	For the modern period, and before	For the modern period, and before	For the modern period, and before	For the modern period, and before
What types of crop have been cultivated on the site in the past eg cereals, root crops, rape etc?	Cereals, Sugar Beet	Cereals, Sugar Beet, Rape	Cereals, Sugar Beet	Cereals, Rape
Have minimal cultivation techniques ever been used – how successful were they?	No	N/A	Yes – this was unsuccessful due to the exceptionally wet weather in 2000	No
Does the farmer get contractors to do his cultivation?	No	No	Sometimes	No
Did the farmer notice that there may have been an archaeological site in the field from artefacts or lumps of stone brought up by the plough, or from metal detecting finds, etc?	Yes – large patches of burnt flint	No	Yes – occasional stray finds of pottery	Yes – some finds have been noticed when the field was under the plough

Stage 4 Post-excavation

Table 4 - Soil type and characteristics

Questions	Comments			
	ISL MF 01	LAN CD 01	LAN LF 01	SWP GH 01
What is the underlying geology of the site?	Sand and gravel (2nd terrace)	Sand and gravel (2nd terrace)	Sand and gravel (2nd terrace)	Middle chalk
Type of plough soil: is the major component clay silt or sand?	Silt	Silt	Silt	Silt
Depth of topsoil/plough soil	0.30m – 0.50m	0.30m	0.28m	0.30m
Can you roughly quantify the amount of pottery noticed?				
- More than 10 sherds per square metre?	None	None	None	None
- Less than 10 sherds per square metre?	None	None	None	None
What was the condition of the pottery? Was it very abraded, or did it have fresh breaks	N/A	N/A	N/A	N/A
Can you see fresh lumps of subsoil ie major component clay, silt, sand, chalk, limestone etc	No	No	No	No
Depth of subsoil (where found)	0.20m	0.10m	0.35m	None
Can any evidence of soil panning (compacted layer) be seen below the plough soil, if so at what depth and how thick	No	No	No	No
Is there alluvium below the plough soil? Is there archaeology under alluvium? Has this archaeology been damaged by arable activity	No	No	No	No
Is there evidence of wind blown loess deposited on the site (eg in sandy soil areas)? • Below the plough soil? • Above the plough soil? • How deep is the loess? • Has the build up of loess protected the archaeology? • Has the blowing away of the soil exposed archaeology to cultivation damage?	No	No	No	No

Table 5 – Slope and erosion

Erosion and rainfall questions can provide information about soil erosion on the site. It may thin the soil cover and lead to progressively more damage by ploughing				
Questions	**Comments**			
	ISL MF 01	**LAN CD 01**	**LAN LF 01**	**SWP GH 01**
Is site on top, bottom or mid slope (or any variation on these 3)	N/A	N/A	N/A	N/A
What is the approximate angle of slope (in degrees if possible)	Flat	Flat	Flat	Site located at relatively flat brow of hill.
Are there any changes in slope – describe here and make sure noted on sketch plan	N/A	N/A	N/A	N/A
Was there any evidence of wind erosion seen on the site (ie was soil blowing around, or could loess deposits be identified, & see previous)	No	No	No	No – however this site is very exposed and would be subject to wind erosion if ploughed
If wind erosion is occurring how big approximately is the field (ie lack of field boundaries enhances wind erosion)	N/A	N/A	N/A	N/A
Was there any evidence of water erosion seen on site? What form does this evidence of erosion take, ie water rills, sheet wash etc	No	No	No	No
If the site is on a slope – is the field drilled or cultivated (depending on what time of year it is) down slope or across the slope	N/A	N/A	N/A	N/A

Table 6 – Type of drainage seen during excavation

What type of drainage exists on site	Tick or comment as appropriate			
	ISL MF 01	LAN CD 01	LAN LF 01	SWP GH 01
Was drainage activity seen	Yes, 1m deep ditches bordering the site	Yes, 2m deep ditches bordering the site	Yes, 2m deep ditches bordering the site	None – drainage activity seen at top of hill
Mole drains (ie those implanted by subsoil machine which opens up the soil to allow the pipe to be laid and where the soil falls back into place)	No	No	No	No
Pipe drains (ie those implanted in trenches dug from the surface)	Yes – especially in the south-east part of the field, on the course of the old river	No	No	No
At what depth do these drains lie	0.40m	No	No	No
Have these drains caused damage to archaeological features – if so describe	Very likely	N/A	N/A	N/A
Is there evidence for panning (a thin layer of hard soil below the plough soil)	No	No	No	No

Table 7 – Details of archaeological damage occurring from cultivation

Type of archaeological damage occurring	Comments			
	ISL MF 01	LAN CD 01	LAN LF 01	SWP GH 01
Summarise type of archaeology on site eg poor and truncated, standing walls, shallow, horizontal stratigraphy, deep cut features etc	Deep cut ditch feature	Deep cut ditch feature	Shallow pit	Ditch feature and several shallow graves
Comment on previous plough damage if previous cultivation was deeper – should be able to tell from old plough soil buffer below present and former plough soil scouring marks/disturbance across the site	Current plough depth is c25cm. Plough scars were recorded scouring the subsoil and natural where no subsoil was present. (See Fig. 2)	Current cultivation does not require ploughing. However plough scars were recorded scouring the natural. (See Fig. 6)	Current cultivation is minimal disturbance. However plough scars from previous years were observed cutting the subsoil. (See Fig. 8)	Currently used for pasture. When the land was ploughed it is very likely that ploughing would have been at the interface with archaeology.
Is there any evidence of current plough furrows etc extending into the tops of archaeological features or subsoil – if so what is the extent and depth of disturbance	Yes – the farmer described using a pan-buster during 2000 due to the extremely wet weather. The depth of this would have been at the level of subsoil and natural.	No	No	No
Is there any other evidence for archaeological features/deposits being damaged by cultivation – describe.	No	No	No	No
Are there any differences in preservation around the headlands or close to hedges/boundaries of the fields caused by the build up of lynchets (or soil at the base of the hedge, or where hedges were recently removed)	No	No	No	No
Are different features being affected differently – eg deep pits may have their surface scoured, walls may have their stones totally displaced (or plough may have bounced off walls leaving them in place – but where plough may have cut into softer deposits either side of wall)	No	No	No	No
Have small differentials in slope caused differential damage, ie plough may have cut deeper into steep slope to act as break to tractor	No	No	No	No

Has the micro-topography of the site caused differential damage, ie has the presence of upstanding earthworks caused protection to features where erosion of the earthwork has caused soil to bank up over buried features. Or where ploughing of earthworks may have caused fill to be deposited in hollows therefore protecting below ground archaeology within these hollows.	Yes the topsoil over the ditch feature in Trench 1 was 0.50m deep whereas on the site as a whole it was 0.30m deep. This is due to the ditch being in a slightly low-lying part of the field.	No	No	No
If the site has been plotted on Aerial Photo's, do the sub-surface features correspond to the Aerial photos? Note – there have been some cases where recent AP's have shown features but the site/features no longer exists below ground. There have also been cases where the position of features no longer coincides with the AP plot.	Yes the site was plotted. And trenches 1/2/3/4 were located to test the crop mark. This revealed differential preservation of an apparently circular feature. The circular ditch was only recorded in the low lying southern trench 1	Yes the site was plotted. The sub surface features did correspond with the aerial photographs	Yes the site was plotted. The crop marks did broadly correspond but the complexity of the subsurface features meant that this was not an exact correspondence.	Yes the site was plotted. The sub surface features did correspond with the aerial photographs

Stage 4 – Post excavation

Table 8 – Scoring Model – Site intrinsic factors and Site Management factors, Isleham, Moor Farm, Trenches 1,3 and 4

SITE INTRINSIC FACTORS						Sites code of project involved	
LIKELIHOOD OF IMPACT	**SERIOUS Score 4**	**High Score 3**	**Medium Score 2**	**Low Score 1**	**Minimum** ***Score 0***	**Score ***	**ISL MH 01- Trenches1/3/4**
Buffer zones: previous cultivation depth/ extent in relation to archaeology	Cultivation of areas or encroachment on parts of sites not previously in cultivation, Evidence of new disturbance	Present likely to be at interface with archaeology	**Shallow buffer (eg10-20cms); previous cultivation has left differential cut and fill**	Consistent moderate undisturbed buffer (eg 20-75cm) of old colluvium or alluvium	Deeply buried (eg>75cm	**A**	**2**
						B	
						C	
Soils		Light soils subject to rapid erosion; heavy clay soils subject to deep cultivation, compaction, drainage	**Medium soils with some difficulties**	Medium well drained, well structured soils with no difficulties		**A**	
						B	**2**
						C	
Micro-topography and slopes		Top of slope; Steep to moderate slopes	Mid slope; variable slope; Moderate to shallow slopes	**Slope bottom; Flat ground**		**A**	
						B	
						C	**1**
SITE MANAGEMENT FACTORS							
Cultivation method and depth	New significantly deeper ploughing with clear fresh disturbance	Regular deep ploughing, deep rotovating, stone cleaning etc	**Normal ploughing, chisel ploughing**	Shallow minimum cultivation methods	Continuous direct drilling with no subsoiling	**A**	**2**
						B	
						C	
Cropping regime		**Cropping includes sugar beet, potatoes, etc needing deep soils**	Cropping includes cereals, non-root crops	Cropping includes long term grass ley (or set aside) > 5yrs		**A**	**3**
						B	
						C	
Compaction & Drainage	New regular subsoiling <3yrs old	Regular or occasional subsoiling required; Wetland water table lowering	**Rare subsoiling required; Moling and drains**	Subsoiling unlikely; Irrigation [No risk scores 0]		**A**	**2**
						B	
						C	
Initial score (in box to Right)							
Initial (site intrinsic factors) Weighting	Any of the above = Total score x3	Any of the above = total score x 0			**Any of the above = Total score x 0.5**		**12**
Total Weighted Score: ***Initial Score multiplied by any weighting derived from "Serious" and/or "Minimum" columns as applicable (Sites not weighted at this stage if no 'serious' or 'minimum' risk issues raised)***			**Score above x Weightings:** **12 X 0**			**Final score**	**Final Score**
						A	**12**
						B	
						C	

Scores to be given by quality of supporting evidence: A = Good evidence; B = Some evidence; C = Poor evidence, mainly assumptio

Table 9 – Scoring Model – Archaeological weighting factors, Isleham, Moor Farm, Trenches 1,3 and 4

ARCHAEOLOGICAL WEIGHTING FACTORS						Sites code of project involved	
SCALE OF ARCHAEOLOGICAL HAZARD	**SERIOUS Score 4**	**High Score 3**	**Medium Score 2**	**Low Score 1**	**Minimum Score 0**	**Score***	**ISL MH 01 – Trenches 1/3/4**
Archaeological survival and vulnerability	Clear upstanding earthworks Diminished earthworks etc where there is a specific risk of significant "threshold" vulnerability (eg for buried ground surface, floor & occupation surfaces)	Low earthworks Soft stratigraphy; Occupation horizons and structures; Shallow negative features with important contents (eg shallow graves)	Very incomplete and damaged upstanding archaeology or stratigraphy; Shallow negative features; Surface scatters likely to represent evidence not reflected in underlying archaeology	**Site already substantially damaged;** **Only deep negative features likely to survive.**	Site largely destroyed leaving very little potential	**A**	**1**
						B	
						C	
Archaeological significance	SAM/ national significance	Regional or county significance	**County or regional significance**	Clear local significance	No obvious significance	**A**	**2**
						B	
						C	
Archaeological Hazard score							**3**
Weighting	For score of **7-8** use weighting factor = 3; For score of **6** use weighting factor =1.5; For score of **5** use weighting factor= 1.3; For score of **4** use weighting factor = 1; For score of **2-3** use weighting factor =0.5				Any of the above = weighting x 0.5		**0.5**
TOTAL WEIGHTED SCORE: Initial score (from intrinsic Site and Management Factors, multiplied by overall weighting			Score from page 1 x Final Archaeological Weighting: **12 X 0.5**			Final score	Final Score
						A	**6**
						B	
						C	

*Scores to be given by quality of supporting evidence: A = Good evidence; B = Some evidence; C = Poor evidence, mainly assumption

* = Put final risk score in this box against whichever letter (either A, B or C) represents the best overall assessment of reliability of the assessment.
Final Scores over 15 may warrant specific management prescriptions, and over 20 will very likely do so. B and C scores under (or over) 15 may warrant further investigation to confirm or clarify any critical assumptions (especially if these affect the weighting used)

Table 10 – Scoring Model – Site intrinsic factors and Site Management factors, Isleham, Moor Farm, Trench 2

SITE INTRINSIC FACTORS						Sites code of project involved	
LIKELIHOOD OF IMPACT	**SERIOUS Score 4**	**High Score 3**	**Medium Score 2**	**Low Score 1**	**Minimum *Score 0***	**Score ***	**ISL MF 01- Tr ench 2**
Buffer zones: previous cultivation depth/ extent in relation to archaeology	Cultivation of areas or encroachment on parts of sites not previously in cultivation, Evidence of new disturbance	**Present likely to be at interface with archaeology**	Shallow buffer (eg10-20cms); previous cultivation has left differential cut and fill	Consistent moderate undisturbed buffer (eg 20-75cm) of old colluvium or alluvium	Deeply buried (eg>75cm	*A*	3
						B	
						C	
Soils		Light soils subject to rapid erosion; heavy clay soils subject to deep cultivation, compaction, drainage	**Medium soils with some difficulties**	Medium well drained, well structured soils with no difficulties		A	2
						B	
						C	
Micro-topography and slopes		Top of slope; Steep to moderate slopes	Mid slope; variable slope; Moderate to shallow slopes	**Slope bottom; Flat ground**		A	1
						B	
						C	
SITE MANAGEMENT FACTORS							
Cultivation method and depth	New significantly deeper ploughing with clear fresh disturbance	Regular deep ploughing, deep rotovating, stone cleaning etc	**Normal ploughing, chisel ploughing**	Shallow minimum cultivation methods	Continuous direct drilling with no subsoiling	A	2
						B	
						C	
Cropping regime		**Cropping includes sugar beet, potatoes, etc needing deep soils**	Cropping includes cereals, non-root crops	Croppin g includes long term grass ley (or set aside) > 5yrs		A	3
						B	
						C	
Compaction & Drainage	New regular subsoiling <3yrs old	Regular or occasional subsoiling required; Wetland water table lowering	**Rare subsoiling required; Moling and drains**	Subsoiling unlikely; Irrigation [No risk scores 0]		A	2
						B	
						C	
Initial score **(in box to Right)**							
Initial (site intrinsic factors) Weighting	Any of the above = Total score x3	Any of the above = total score x 0			**Any of the above = Total score x 0.5**		13
Total Weighted Score: ***Initial Score multiplied by any weighting derived from "Serious" and/or "Minimum" columns as applicable (Sites not weighted at this stage if no 'serious' or 'minimum' risk issues raised)***			**Score above x Weightings:** **13 X 0**			**Final score**	**Final Score**
						A	13
						B	
						C	

****Scores to be given by quality of supporting evidence: A = Good evidence; B = Some evidence; C = Poor evidence, mainly assumption***

Table 11 – Scoring Model – Archaeological weighting factors, Isleham, Moor Farm, Trench 2

ARCHAEOLOGICAL WEIGHTING FACTORS						Sites code of project involved	
SCALE OF ARCHAEOLOGICAL HAZARD	**SERIOUS Score 4**	**High Score 3**	**Medium Score 2**	**Low Score 1**	**Minimum Score 0**	**Score***	**ISL MF 01 – Trench 2**
Archaeological survival and vulnerability	Clear upstanding earthworks Diminished earthworks etc where there is a specific risk of significant "threshold" vulnerability (eg for buried ground surface, floor & occupation surfaces)	Low earthworks Soft stratigraphy; Occupation horizons and structures; Shallow negative features with important contents (eg shallow graves)	Very incomplete and damaged upstanding archaeology or stratigraphy; Shallow negative features; Surface scatters likely to represent evidence not reflected in underlying archaeology	**Site already substantially damaged;** **Only deep negative features likely to survive.**	Site largely destroyed leaving very little potential	**A**	**1**
						B	
						C	
Archaeological significance	SAM/ national significance	Regional or county significance	**County or regional significance**	Clear local significance	No obvious significance	**A**	**2**
						B	
						C	
Archaeological Hazard score							**3**
Weighting	For score of **7-8** use weighting factor = 3; For score of **6** use weighting factor =1.5; For score of **5** use weighting factor= 1.3; For score of **4** use weighting factor = 1; For score of **2-3** use weighting factor =0.5				Any of the above = weighting x 0.5		**0.5**
TOTAL WEIGHTED SCORE: Initial score (from intrinsic Site and Management Factors, multiplied by overall weighting			Score from page 1 x Final Archaeological Weighting: **13 X 0.5**			Final score	Final Score
						A	**6.5**
						B	
						C	

*Scores to be given by quality of supporting evidence: A = Good evidence; B = Some evidence; C = Poor evidence, mainly assumption

* = put final risk score in this box against whichever letter (either A, B or C) represents the best overall assessment of reliability of the assessment.
Final Scores over 15 may warrant specific management prescriptions, and over 20 will very likely do so. B and C scores under (or over) 15 may warrant further investigation to confirm or clarify any critical assumptions (especially if these affect the weighting used)

Table 12 – Scoring Model – Site intrinsic factors and Site Management factors, Landbeach, Car Dyke Farm, Trench 5

SITE INTRINSIC FACTORS						Sites code of project involved	
LIKELIHOOD OF IMPACT	**SERIOUS Score 4**	**High Score 3**	**Medium Score 2**	**Low Score 1**	**Minimum** ***Score 0***	**Score***	**LAN CD 01 Trench 5**
Buffer zones: previous cultivation depth/ extent in relation to archaeology	Cultivation of areas or encroachment on parts of sites not previously in cultivation,. Evidence of new disturbance	**Present likely to be at interface with archaeology**	Shallow buffer (eg10-20cms); previous cultivation has left differential cut and fill	Consistent moderate undisturbed buffer (eg 20-75cm) of old colluvium or alluvium	Deeply buried (eg>75cm	*A*	3
						B	
						C	
Soils		Light soils subject to rapid erosion; heavy clay soils subject to deep cultivation, compaction, drainage	Medium soils with some difficulties	**Medium well drained, well structured soils with no difficulties**		**A**	1
						B	
						C	
Micro-topography and slopes		Top of slope; Steep to moderate slopes	Mid slope; variable slope; Moderate to shallow slopes	**Slope bottom; Flat ground**		**A**	1
						B	
						C	
SITE MANAGEMENT FACTORS							
Cultivation method and depth	New significantly deeper ploughing with clear fresh disturbance	Regular deep ploughing, deep rotovating, stone cleaning etc	Normal ploughing, chisel ploughing	**Shallow minimum cultivation methods**	Continuous direct drilling with no subsoiling	**A**	1
						B	
						C	
Cropping regime		Cropping includes sugar beet, potatoes, etc needing deep soils	Cropping includes cereals, non-root crops	**Cropping includes long term grass ley (or set aside) > 5yrs**		**A**	1
						B	
						C	
Compaction & Drainage	New regular subsoiling <3yrs old	Regular or occasional subsoiling required; Wetland water table lowering	Rare subsoiling required; Moling and drains	**Subsoiling unlikely; Irrigation [No risk scores 0]**		**A**	1
						B	
						C	
Initial score (in box to Right)							
Initial (site intrinsic factors) Weighting	Any of the above = Total score x3	Any of the above = total score x 0			**Any of the above = Total score x 0.5**		**6**
Total Weighted Score: ***Initial Score multiplied by any weighting derived from "Serious" and/or "Minimum" columns as applicable (Sites not weighted at this stage if no 'serious' or 'minimum' risk issues raised)***			**Score above x Weightings:** **6 X 0**			**Final score**	**Final Score**
						A	**6**
						B	
						C	

Scores to be given by quality of supporting evidence: A = Good evidence; B = Some evidence; C = Poor evidence, mainly assumption

Table 13 – Scoring Model – Archaeological weighting factors, Landbeach, Car Dyke Farm, Trench 5

ARCHAEOLOGICAL WEIGHTING FACTORS						**Sites code of project involved**	
SCALE OF ARCHAEOLOGICAL HAZARD	**SERIOUS Score 4**	**High Score 3**	**Medium Score 2**	**Low Score 1**	**Minimum Score 0**	**Score***	**LAN CD 01 Trench 5**
Archaeological survival and vulnerability	Clear upstanding earthworks Diminished earthworks etc where there is a specific risk of significant "threshold" vulnerability (eg for buried ground surface, floor & occupation surfaces)	Low earthworks Soft stratigraphy; Occupation horizons and structures; Shallow negative features with important contents (eg shallow graves)	Very incomplete and damaged upstanding archaeology or stratigraphy; Shallow negative features; Surface scatters likely to represent evidence not reflected in underlying archaeology	**Site already substantially damaged;** **Only deep negative features likely to survive.**	Site largely destroyed leaving very little potential	**A**	**1**
						B	
						C	
Archaeological significance	SAM/ national significance	Regional or county significance	**County or regional significance**	Clear local significance	No obvious significance	**A**	**2**
						B	
						C	
Archaeological Hazard score							**3**
Weighting	For score of **7-8** use weighting factor = 3; For score of **6** use weighting factor =1.5; For score of **5** use weighting factor= 1.3; For score of **4** use weighting factor = 1; For score of **2-3** use weighting factor =0.5				Any of the above = weighting x 0.5		**0.5**
TOTAL WEIGHTED SCORE: Initial score (from intrinsic Site and Management Factors, multiplied by overall weighting			Score from page 1 x Final Archaeological Weighting: **6 X 0.5**			**Final score** **A** **B** **C**	**Final Score** **3**

*Scores to be given by quality of supporting evidence: A = Good evidence; B = Some evidence; C = Poor evidence, mainly assumption

* = put final risk score in this box against whichever letter (either A, B or C) represents the best overall assessment of reliability of the assessment.
Final Scores over 15 may warrant specific management prescriptions, and over 20 will very likely do so. B and C scores under (or over) 15 may warrant further investigation to confirm or clarify any critical assumptions (especially if these affect the weighting used)

Table 14 – Scoring Model – Site intrinsic factors and Site Management factors, Landbeach Limes Farm, Trenches 6,7,8 and 9

SITE INTRINSIC FACTORS						Sites code of project involved	
LIKELIHOOD OF IMPACT	**SERIOUS Score 4**	**High Score 3**	**Medium Score 2**	**Low Score 1**	**Minimum Score 0**	**Score ***	**LAN LF 01 - Trenches 6and 7**
Buffer zones: previous cultivation depth/ extent in relation to archaeology	Cultivation of areas or encroachment on parts of sites not previously in cultivation,. Evidence of new disturbance	Present likely to be at interface with archaeology	Shallow buffer (eg10-20cms); previous cultivation has left differential cut and fill	**Consistent moderate undisturbed buffer (eg 20-75cm) of old colluvium or alluvium**	Deeply buried (eg>75cm	A	1
						B	
						C	
Soils		Light soils subject to rapid erosion; heavy clay soils subject to deep cultivation, compaction, drainage	Medium soils with some difficulties	**Medium well drained, well structured soils with no difficulties**		A	
						B	1
						C	
Micro-topography and slopes		Top of slope; Steep to moderate slopes	Mid slope; variable slope; Moderate to shallow slopes	**Slope bottom; Flat ground**		A	1
						B	
						C	
SITE MANAGEMENT FACTORS							
Cultivation method and depth	New significantly deeper ploughing with clear fresh disturbance	Regular deep ploughing, deep rotovating, stone cleaning etc	**Normal ploughing, chisel ploughing**	Shallow minimum cultivation methods	Continuous direct drilling with no subsoiling	A	2
						B	
						C	
Cropping regime		Cropping includes sugar beet, potatoes, etc needing deep soils	**Cropping includes cereals, non-root crops**	Cropping includes long term grass ley (or set aside) > 5yrs		A	2
						B	
						C	
Compaction & Drainage	New regular subsoiling <3yrs old	Regular or occasional subsoiling required; Wetland water table lowering	Rare subsoiling required; Moling and drains	**Subsoiling unlikely; Irrigation [No risk scores 0]**		A	1
						B	
						C	
Initial score (in box to Right)							
Initial (site intrinsic factors) Weighting	Any of the above = Total score x3	Any of the above = total score x 0			**Any of the above = Total score x 0.5**		**8**
Total Weighted Score: **Initial Score multiplied by any weighting derived from "Serious" and/or "Minimum" columns as applicable (Sites not weighted at this stage if no 'serious' or 'minimum' risk issues raised)**			**Score above x Weightings:** **8 x 0**			Final score	**Final Score**
						A	**8**
						B	
						C	

Scores to be given by quality of supporting evidence: A = Good evidence; B = Some evidence; C = Poor evidence, mainly assumption

Table 15 – Scoring Model – Archaeological weighting factors Landbeach Limes Farm, Trenches 6,7,8 and 9

ARCHAEOLOGICAL WEIGHTING FACTORS						Sites code of project involved	
SCALE OF ARCHAEOLOGICAL HAZARD	**SERIOUS Score 4**	**High Score 3**	**Medium Score 2**	**Low Score 1**	**Minimum Score 0**	**Score***	**Lan If 01 – Trenches 6 and 7**
Archaeological survival and vulnerability	Clear upstanding earthworks Diminished earthworks etc where there is a specific risk of significant "threshold" vulnerability (eg for buried ground surface, floor & occupation surfaces)	**Low earthworks** **Soft stratigraphy;** **Occupation horizons and structures;** **Shallow negative features with important contents (eg shallow graves)**	Very incomplete and damaged upstanding archaeology or stratigraphy; Shallow negative features; Surface scatters likely to represent evidence not reflected in underlying archaeology	Site already substantially damaged; Only deep negative features likely to survive.	Site largely destroyed leaving very little potential	**A**	**3**
						B	
						C	
Archaeological significance	SAM/ national significance	**Regional or county significance**	County or regional significance	Clear local significance	No obvious significance	**A**	
						B	**3**
						C	
Archaeological Hazard score							**6**
Weighting	For score of **7-8** use weighting factor = 3; For score of **6** use weighting factor =1.5; For score of **5** use weighting factor= 1.3; For score of **4** use weighting factor = 1; For score of **2-3** use weighting factor =0.5				Any of the above = weighting x 0.5		**1.5**
TOTAL WEIGHTED SCORE: Initial score (from intrinsic Site and Management Factors, multiplied by overall weighting			Score from page 1 x Final Archaeological Weighting: **10 X 1.5**			Final score	Final Score
						A	**15**
						B	
						C	

*Scores to be given by quality of supporting evidence: A = Good evidence; B = Some evidence; C = Poor evidence, mainly assumption

* = put final risk score in this box against whichever letter (either A, B or C) represents the best overall assessment of reliability of the assessment.
Final Scores over 15 may warrant specific management prescriptions, and over 20 will very likely do so. B and C scores under (or over) 15 may warrant further investigation to confirm or clarify any critical assumptions (especially if these affect the weighting used)

Table 16 – Scoring Model – Site intrinsic factors and Site Management factors, Swaffham Prior, Gallows Hill, Trench 10

SITE INTRINSIC FACTORS						Sites code of project involved	
LIKELIHOOD OF IMPACT	**SERIOUS Score 4**	**High Score 3**	**Medium Score 2**	**Low Score 1**	**Minimum Score 0**	**Score ***	**LAN LF 01 Trenches 8 and 9**
Buffer zones: previous cultivation depth/ extent in relation to archaeology	Cultivation of areas or encroachment on parts of sites not previously in cultivation,. Evidence of new disturbance	**Present likely to be at interface with archaeology**	Shallow buffer (eg10-20cms); previous cultivation has left differential cut and fill	Consistent moderate undisturbed buffer (eg 20-75cm) of old colluvium or alluvium	Deeply buried (eg>75cm	A	3
						B	
						C	
Soils		Light soils subject to rapid erosion; heavy clay soils subject to deep cultivation, compaction, drainage	Medium soils with some difficulties	**Medium well drained, well structured soils with no difficulties**		A	1
						B	
						C	
Micro-topography and slopes		**Top of slope; Steep to moderate slopes**	Mid slope; variable slope; Moderate to shallow slopes	Slope bottom; Flat ground		A	3
						B	
						C	
SITE MANAGEMENT FACTORS							
Cultivation method and depth	New significantly deeper ploughing with clear fresh disturbance	Regular deep ploughing, deep rotovating, stone cleaning etc	Normal ploughing, chisel ploughing	Shallow minimum cultivation methods	**Continuous direct drilling with no subsoiling. Pasture – no cultivation**	A	0
						B	
						C	
Cropping regime		Cropping includes sugar beet, potatoes, etc needing deep soils	Cropping includes cereals, non-root crops	**Cropping includes long term grass ley (or set aside) > 5yrs**		A	1
						B	
						C	
Compaction & Drainage	New regular subsoiling <3yrs old	Regular or occasional subsoiling required; Wetland water table lowering	Rare subsoiling required; Moling and drains	**Subsoiling unlikely; Irrigation [No risk scores 0]**		A	0
						B	
						C	
Initial score **(in box to Right)**							
Initial (site intrinsic factors) Weighting	Any of the above = Total score x3	Any of the above = total score x 0			**Any of the above = Total score x 0.5**		8
Total Weighted Score: **Initial Score multiplied by any weighting derived from "Serious" and/or "Minimum" columns as applicable (Sites not weighted at this stage if no 'serious' or 'minimum' risk issues raised)**			**Score above x Weightings: 8 X 0**			**Final score**	**Final Score**
						A	8
						B	
						C	

Scores to be given by quality of supporting evidence: A = Good evidence; B = Some evidence; C = Poor evidence, mainly assumption

Table 17 – Scoring Model – Archaeological weighting factors Swaffham Prior, Gallows Hill, Trench 10

ARCHAEOLOGICAL WEIGHTING FACTORS						Sites code of project involved	
SCALE OF ARCHAEOLOGICAL HAZARD	**SERIOUS Score 4**	**High Score 3**	**Medium Score 2**	**Low Score 1**	**Minimum Score 0**	**Score***	**LAN LF 01 Trenches 8 and 9**
Archaeological survival and vulnerability	Clear upstanding earthworks Diminished earthworks etc where there is a specific risk of significant "threshold" vulnerability (eg for buried ground surface, floor & occupation surfaces)	**Low earthworks** **Soft stratigraphy;** **Occupation horizons and structures;** **Shallow negative features with important contents (eg shallow graves)**	Very incomplete and damaged upstanding archaeology or stratigraphy; Shallow negative features; Surface scatters likely to represent evidence not reflected in underlying archaeology	Site already substantially damaged; Only deep negative features likely to survive.	Site largely destroyed leaving very little potential	**A**	**3**
						B	
						C	
Archaeological significance	SAM/ national significance	**Regional or county significance**	County or regional significance	Clear local significance	No obvious significance	**A**	**3**
						B	
						C	
Archaeological Hazard score							**6**
Weighting	For score of **7-8** use weighting factor = 3; For score of **6** use weighting factor =1.5; For score of **5** use weighting factor= 1.3; For score of **4** use weighting factor = 1; For score of **2-3** use weighting factor =0.5				Any of the above = weighting x 0.5		**1.5**
TOTAL WEIGHTED SCORE: Initial score (from intrinsic Site and Management Factors, multiplied by overall weighting			Score from page 1 x Final Archaeological Weighting: **8 X 1.5**			Final score	Final Score
						A	**12**
						B	
						C	

*Scores to be given by quality of supporting evidence: A = Good evidence; B = Some evidence; C = Poor evidence, mainly assumption

* = put final risk score in this box against whichever letter (either A, B or C) represents the best overall assessment of reliability of the assessment.
Final Scores over 15 may warrant specific management prescriptions, and over 20 will very likely do so. B and C scores under (or over) 15 may warrant further investigation to confirm or clarify any critical assumptions (especially if these affect the weighting used)

Table 18– Feedback questions on 'Site Booklet For Site Testing' (OAU July 2001)

Feedback questions	Answers
How easy was it to understand the whole process and apply it on the first site tested?	This required willingness to learn agricultural terms and the calculation system involved in the scoring models
How long did it take to fill in the models and questionnaire on the first site tested?	Two Hours
How easy was it to understand and use by the end – ie the last site tested?	Much easier – a similar learning curve to filling in context sheets, with far more categories of course.
How long did it take to fill in the models and questionnaire on the last site tested?	1.5 hours

Appendix 2 - Context List

SITE CODE	Trench No	Context No	Fill of	Filled by	Context type
ISL MF 01	1,2,3,4	100			Topsoil layer
ISL MF 01	1,2,3	101			Subsoil layer
ISL MF 01	N/A	102			Cancelled
ISL MF 01	N/A	103			Cancelled
ISL MF 01	1	104	105	-	Pit fill
ISL MF 01	1	**105**	-	104	Pit cut
ISL MF 01	1	106	107	-	Ditch fill
ISL MF 01	1	**107**	-	106	Ditch cut
ISL MF 01	1	108	-	-	Layer
ISL MF 01	1	109	110	-	Ditch fill
ISL MF 01	1	**110**	-	109	Ditch cut
ISL MF 01	1	111	112	-	Ditch fill
ISL MF 01	1	**112**	-	111	Ditch cut
ISL MF 01	1	113	114	-	Ditch fill
ISL MF 01	1	**114**	-	113	Ditch cut
ISL MF 01	1	115	116	-	Ditch fill
ISL MF 01	1	**116**	-	115	Ditch cut
ISL MF 01	1	117	119	-	Ditch fill
ISL MF 01	1	118	119	-	Ditch fill
ISL MF 01	1	**119**	-	117, 118	Ditch cut
ISL MF 01	1	120	121	-	Ditch fill
ISL MF 01	1	**121**	-	120	Ditch cut
ISL MF 01	1,2	122	-	-	Natural geology
LAN CD 01	5	200	-	-	Topsoil layer
LAN CD 01	5	201	-	-	Subsoil layer
LAN CD 01	5	202	204	-	Ditch fill
LAN CD 01	5	203	204	-	Ditch fill
LAN CD 01	5	**204**	-	202,203,205	Ditch cut
LAN CD 01	5	205	204	-	Ditch fill
LAN LF 01	6,7,8,9	300	-	-	Topsoil layer
LAN LF 01	6,7	301	-	-	Subsoil layer
LAN LF 01	6,7	302	-	-	Natural geology
LAN LF 01	8,9	303	-	-	Topsoil layer
LAN LF 01	8,9	304	-	-	Subsoil layer
LAN LF 01	8,9	305	306	-	Pit fill
LAN LF 01	8,9	**306**	-	305	Pit cut
LAN LF 01	8,9	307	-	-	Natural geology
SWP GH 01	10	400	-	-	Topsoil layer
SWP GH 01	10	401	-	-	Natural geology - surface layer
SWP GH 01	10	402	403	-	Ditch fill
SWP GH 01	10	**403**	-	402	Ditch cut
SWP GH 01	10	404	405	-	Pit/Grave fill (un-ex)
SWP GH 01	10	**405**	-	404	Pit/Grave cut (un-ex)
SWP GH 01	10	406	407	-	Pit/Grave fill (un-ex)
SWP GH 01	10	**407**	-	406	Pit/Grave cut (un-ex)
SWP GH 01	10	408	409	-	Grave fill (un-ex)
SWP GH 01	10	**409**	-	408	Grave cut (un-ex)
SWP GH 01	10	410	411	-	Pit fill (un-ex)
SWP GH 01	10	**411**	-	410	Pit cut (un-ex)
SWP GH 01	10	412	-	-	Natural geology

Appendix 3 - Finds List

Context	Site	Finds category	Date/description	Weight
111	FOR MF 01	Horn	Cattle	96g
111	FOR MF 01	Bone	Faunal	1222g
111	FOR MF 01	Pot	Bronze Age	36g
111	FOR MF 01	Flint	Neolithic/Bronze Age	61g
100	FOR MF 01	Flint	Neolithic/Bronze Age	97g
202	LAN CD 01	Pot	Roman	46g
305	LAN LF 01	Bone	Faunal	158g
402	SWP GH 01	Pot	Roman	683g
402	SWP GH 01	Bone	Faunal	238g
402	SWP GH 01	Mortar	Roman	11g

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