CHIPPENHAM/KENNETT BORROW PITS, 1992

Cambridgeshire County Council

Rural Strategy

CHIPPENHAM/KENNETT BORROW PITS, 1992

TL683683 & TL682673

An Archaeological Desktop Study

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Report no. 42 Extract from Plan of Chippenham 1712 (Cambridgeshire County Record Office)

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Contents

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1.0 ABSTRACT

A proposal to extract sand and gravel led to a rapid "desk-top" evaluation of the area. The aims of the study were: firstly, to assess whether there were likely to be overriding archaeological objections to the proposal, and secondly to determine what fieldwork would be appropriate to assess adequately the survival and importance of archaeological remains in the fields in question.

The study shows that the sites are in an archaeologically sensitive area of Cambridgeshire and further field investigation is necessary before the planning application is determined, but it is not expected that sites of national importance requiring long-term preservation will be encountered. Recommendations for pre- and post planning application fieldwork are given.

2.0 INTRODUCTION

2.1 The applicants (Beazer Construction Ltd.) approached Cambridgeshire County Council Archaeology Section in December 1991 for information on archaeological constraints in two arable fields split between the parishes of Chippenham and Kennett where they proposed to extract sand and gravel to provide material for road improvements on the adjacent A11. The size of the fields in question comprises around 10.5 ha. for Field I, (centred approximately at TL682673) and 22.5 ha. for Field II (centred approximately at TL 682673)(Fig.1). The County Sites and Monuments Record (SMR) was consulted, and it was noted that many sites of importance were grouped adjacent to these fields. From this it seemed likely that there had been some prehistoric activity in the fields in question which should be detectable in the archaeological record. The applicants therefore commissioned a desk-top study, to be followed immediately by appropriate fieldwork in order to evaluate the proposed development and prepare a full archaeological statement before the County Council determined the planning application in March 1992.

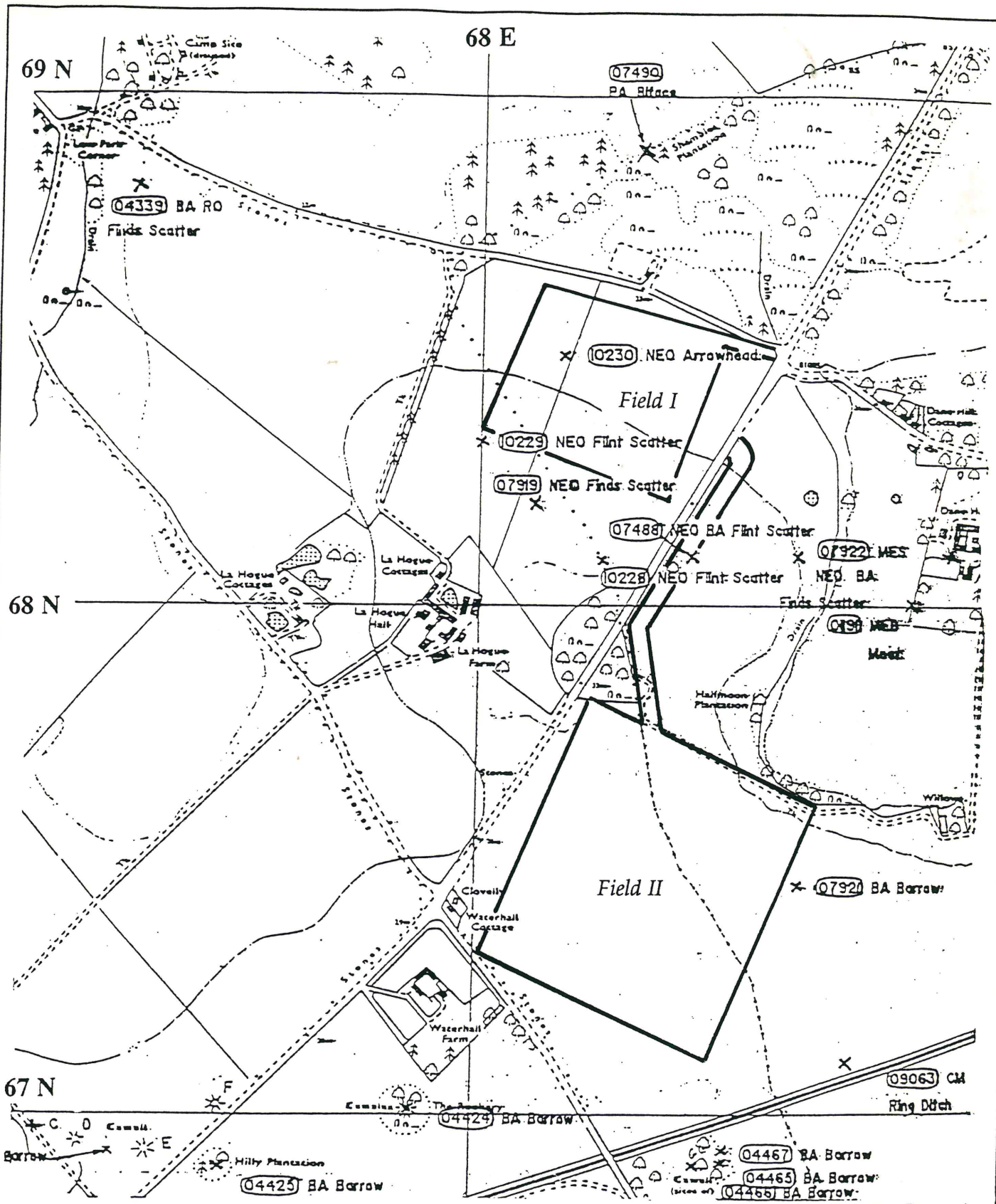
2.2 The time-scale for this report was further shortened by the observation that rapid crop growth (winter barley) on Field I was likely to make fieldwalking unproductive after January. The desk top study and recommendations for further action have therefore been completed urgently.

3.0 IMPACT OF DEVELOPMENT PROPOSALS

3.1 The proposal for these two sites is total extraction of sand and gravel, which will remove all archaeological deposits and finds. Extraction will follow removal of topsoil which, if carried out carefully and under direction of an archaeologist will enable features that are cut into the sub-soil to be recorded.

4.0 PLANNING POLICIES AFFECTING ARCHAEOLOGICALLY SENSITIVE AREAS

4.1 Department of the Environment, Planning Policy Guidance16 "Archaeology and Planning" 1990, requires local planning authorities to request a prospective developer to arrange for an archaeological field evaluation before deciding upon a planning application on any site where important archaeological remains may exist. This evaluation may lead to requirements for preservation of all or parts of the site, or for further archaeological work.



Based on Ordnance Survey Map with the sanction of the Controller of H.M.S.O [Licence No LA 07649 X]

BA =Bronze Age
Neo=Neolithic

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Figure 1

Chippenham/Kennett
Location of proposed borrow pits in relation to archaeological sites.

Scale 1;10,000

Initials	Date
SNK	16/01/92

4.2 Cambridgeshire County Council Structure Plan requires that, where there is no overriding case for preservation of an archaeological site, opportunities will be sought, prior to the granting of planning permission, for excavation and recording of the site.

4.3 Cambridgeshire Aggregates (minerals) Local Plan 1989 states that an applicant will be expected to investigate the archaeological potential of any area under consideration.

5.0 GEOLOGICAL AND TOPOGRAPHICAL BACKGROUND

5.1 The general character of this area is dominated by a broad band of Middle Chalk running south-west to north-east, dividing the Lower Chalk and fens to the north, from heavy clays soils to the south.

5.2 The two fields in question, although falling within this band of Middle Chalk, both contain more complex geology (Fig.2). Field I is mainly 3rd terrace gravel, with bands of Middle Chalk and Boulder Clay. Field II is mainly Middle Chalk, with small segments of 3rd and 4th Terrace and Head gravels (Geological Survey sheet 188, 1979). Therefore, they have the capacity for varied land use. In both cases the overlying geology is well-drained sandy soil. Their nearest water supply to-day is the River Kennett, just over one mile to the east but there may have been streams nearer than this in prehistoric times.

5.3 They both lie on very gentle slopes, Field I rising from 23 metres in the north to 28 metres OD in the south over 300 metres. Field II rises 28 metres in the north to 33 metres in the south over 500 metres.

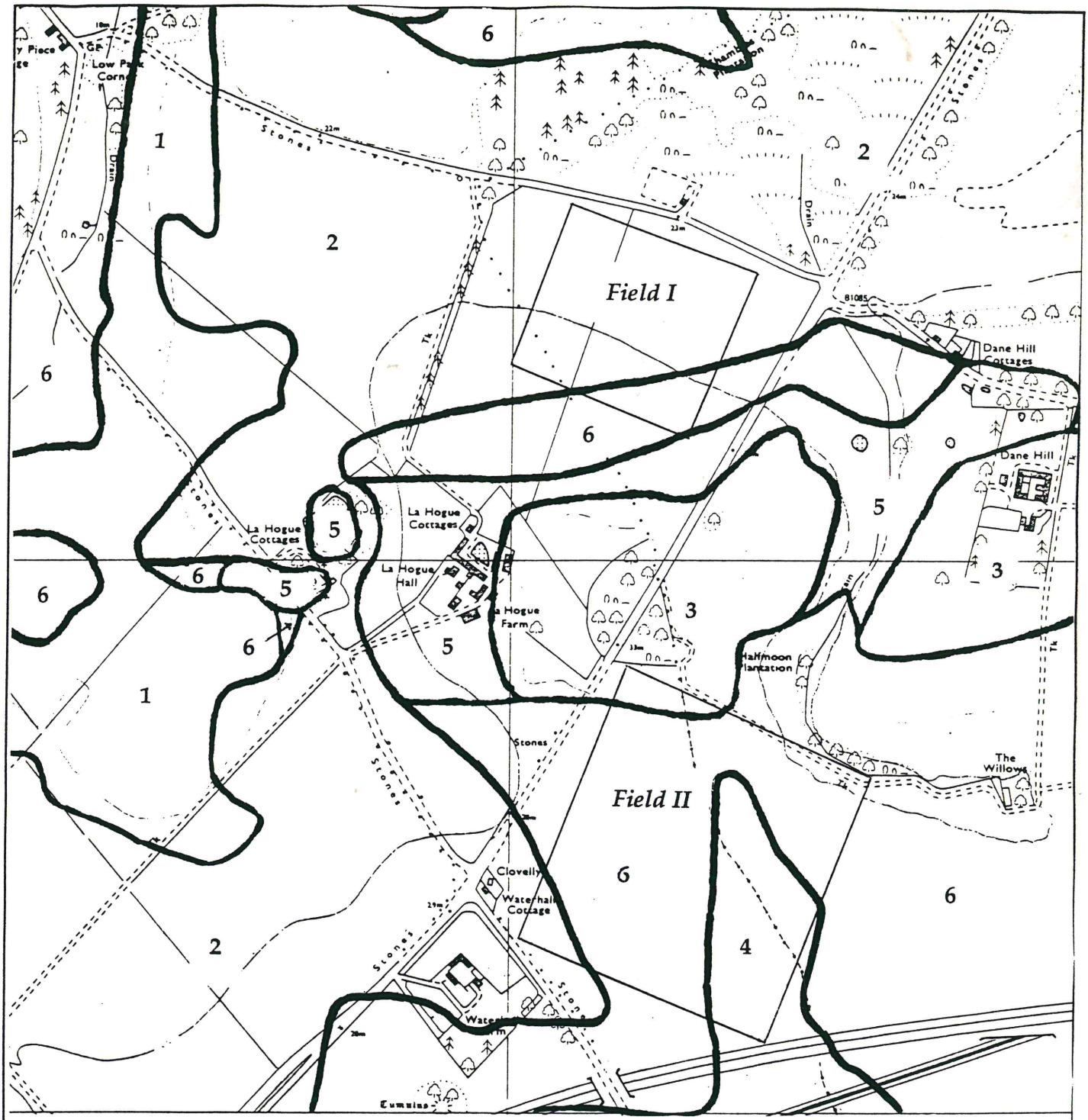
6.0 ARCHAEOLOGICAL BACKGROUND

6.1 The Middle Chalk band running across south Cambridgeshire was only lightly wooded in prehistoric times and therefore allowed easy communications via the Icknield Way. It provided good grazing for sheep but was generally unsuitable for settlement except where springs or streams occurred. This pattern of land use generally continued through Roman, Saxon and Medieval times, with settlements overwhelmingly favouring locations near the fen-edge. By Late Saxon times the settlement pattern was fossilised by formal parish boundaries, and parishes in these areas are characterised by being long and narrow, so that each could be allocated a share of the various subsoils (and hence resources in terms of woodland, grazing, arable land and fishing) and a water supply (Taylor, 1973). Lack of settlement does not mean that land was under-used: communications, grazing, woodland management, burials sites, ritual monuments, industrial processes and military structures are other human activities that can be detected in the archaeological record. SMR records (below) show that this area is characterised by numerous Bronze Age burial sites and scatters of early prehistoric settlement remains, with very few finds from later periods.

6.2 The SMR contains information from the following sources:

i. Published excavations.
ii. Sites discovered on aerial photographs taken by Cambridge University Committee for Aerial Photography, the National Monuments Record, Royal Air Force, Ministry of Agriculture Fisheries and Food and private sources.
iii. Artefacts that have been reported to museums or the County Council or which have been published.
iv. Results of surveys by professional and amateur archaeologists.

6.3 South Cambridgeshire has been relatively well recorded by archaeologists over the last seventy years (see below) and it is unlikely that many upstanding monuments or formal excavations have gone unrecorded. However sites revealed by stray finds or artefact scatters including the majority of early prehistoric occupation sites, are likely to be under-represented.



KEY:

1 2nd Terrace Deposits	2 3rd Terrace Deposits
3 4th Terrace Deposits	4 Head Gravels
5 Boulder Clay	6 Middle Chalk

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Chippenham/Kennett borrow pits Figure 2

Regional Geology Map
(From British Geological Survey Sheet 188)

Scale 1 :10,000

Initials	Date
G H	21 / 1 / 91

The following sites have been recorded as being within approximately one kilometre of the two fields, from Cambridgeshire's SMR. (SAM = Scheduled Ancient Monument)

PERIOD	SMR No.	NGR	DESCRIPTION
PALAEOLITHIC	07490	TL683689	Acheulean hand-axe
	08098	TL689681	Acheulean hand-axe
MESOLITHIC	07922	TL68606810	Flints noted by D.N.Hall, 1981
NEOLITHIC	07487	TL686665	Polished stone axe 1958
	07477	TL670680	Flaked flint axe, 1959
	07488	TL684681	Dense,wide spread scatter of worked & struck flakes, 1981
	07919	TL68106820	Finds scatter
	07922	TL68606810	Flints noted by D.N.Hall, 1981
	10228	TL68226809	Flint scatter
	10229	TL68006832	Flint scatter
	10230	TL68156848	Leaf arrowhead
BRONZE AGE	04339	TL67386882	"Settlement", D.N.Hall, 1980
	09076	TL678659	Ring-ditch (burial site?)
BRONZE AGE	07453	TL6766	Stone battle-axe
	07476	TL670668	Flaked flint axe
	07448b	TL67276677	6 round-barrows recorded as upstanding monuments. [A] proved to be a natural tumulus, but contained 5 inhumations & 1 cremation.
	04338	TL67366693	Round-barrow, 1m high, recorded by D.N.Hall in 1980
	09075	TL675660	Ring-ditch
	04425	TL67546690	Round-barrow,partly destroyed by bypass in 1973
	04424	TL67896700	Round-barrow
	07478	TL670684	Beaker burial,1941
	07488	TL684681	Dense widespread scatter of worked/struck flints, 1981
	04464	TL68376681	Round-barrow, excavated 1940, no finds
	04465	TL68466690	"
	04466	TL68426690	Round-barrow excavated,1940, 2 groups of cremated bone & rim of beaker. SAM no 59
BRONZE AGE	07921	TL68656745	Round-barrow, D.N.Hall 1981
	09063	TL687671	Ring-ditch
	07922	TL68606810	Finds scatter, D.N.Hall 1981

PERIOD	SMR No.	NGR	DESCRIPTION
BRONZE AGE	07447	TL69536821	Howe Hill round barrow SAM no 54
	07486	TL68376604	Flint implements found in 1923
MEDIEVAL	01191	TL688680	Remains of moat
UNDATED	07479	TL67096860	Human remains found 1890
	07572	TL69456814	Flint implements found

7.0 HISTORICAL RECORDS

7.1 Nineteenth century maps of these areas are disappointing, showing the fields much as they are today with no features other than a very small quarry in each field. A survey drawn for Chippenham Park in 1712, however, contains water-coloured plans which cover the Chippenham portions of both fields. These plans are valuable for their depiction of fields which survived as heathland grazed by sheep at this date (illustrated with very rural drawings of shepherds playing pipes to their sheep). In addition mounds are shown which seem to be located as sites which are now recognised as ring-ditches or low barrows. The fields are shown as featureless heath in this pre-enclosure landscape. It is assumed they were not ploughed in Medieval times as they were not part of the open field system, although there had been unsuccessful attempts to cultivate the heath in the 12th century (Spufford,1974). This assumption is supported by the survival of round barrows as mounds well into the 19th century. It will be interesting to see whether fieldwalking produces any evidence of Medieval manuring, or whether negative evidence re-inforces the premise of virgin heath until enclosure in 1791. A map of Chippenham in 1554, compiled by M. Spufford, and based on documentary records, shows that at this date Field I is part of a rabbit warren, and Field II is "common heath" (Spufford, 1974). It was only in the 18th century that improvements in farming methods made it economical to plough these chalk soils.

The following historic maps were consulted at the County Record Office:

DESCRIPTION OF MAP	DATE OF MAP	DESCRIPTION OF ANY ARCHAEOLOGICAL FEATURES
"A survey of part of the mannor or Lordship of Chippenham in the parish of Chippenham in the County of Cambridge belonging to the Right Honorable Edward, Earl of Orford, Viscount Barfleur and Barron of Shingay, by Heber Lands"	1712	Fields shown as heath. Modern roads already in existence, plus many others, now lost. (Cover illustration)
Plan of Kennett	1820	No features
1st Ed. Ordnance Survey	1820	"Kennett Field" and "Chippenham Field" marked.
Kennett Tithe Apportionment	1838	Very small quarry shown as on the last edition of 1:10560 O.S maps.
Plan of Chippenham parish	1842	No features. Woodland north of Field II is shown as it is today.
Chippenham Tithe Apportionment Map	1843	
Ordnance Survey 1:2500	1885	Very small quarry shown in each field.

8.0 RAPID FIELD ASSESSMENT

8.1 The two sites were visited by Alison Taylor and Tim Malim on the 3rd January 1992. Thirty minutes were spent walking each field to assess their potential for systematic fieldwalking, to note possible survival of unexcavated earthwork features and soil marks and to record topographic features. Current land-use of the fields and adjacent fields was recorded.

8.2 On Field I nine worked flints, mainly blades from prepared cores, and three fire-cracked flints were collected. There was a slight increase in finds in the highest point of the field.On Field II nine worked flints, including one core were collected (Fig.3).This rate of recovery in such a short time clearly indicates early prehistoric activity, although no specific sites were detected.

8.3 In Field I an area of higher ground was detected, on which there appeared to be a slight concentration of worked flint, but no surviving earthworks were noticed in either field. No soil differences or patches of dark earth were noted. Difficulties with crop growth, however, made this observation a little unreliable.

8.4 A field to the north of Field I has been quarried over the last fifty years. Discussions with the owner revealed no new finds, although a Palaeolithic hand-axe is recorded in the SMR. The quarry is filled and used for motor bike scrambling, so further observations were useless.

8.5 At Field II a small area of woodland to the north was examined for earthwork features and for finds in the roots of uprooted trees. Nothing was noted.

9.0 ARCHAEOLOGICAL POTENTIAL

9.1 Consultation of the SMR and the results of rapid assessment indicate the potential of these sites for further discoveries. However, the thin, heavily ploughed soil, lack of alluvial cover or waterlogged remains and absence of earthworks, cropmarks or soil variations all suggest that archaeological remains are likely to be truncated and may even be so ephemeral that they survive only in the topsoil. Very careful consideration of this topsoil is therefore recommended (see below).

9.2 It is unlikely that sites of Iron Age or Roman date would have avoided detection so far in this landscape, but signs of early prehistoric settlement (e.g. post-holes, quarries, middens, ard-ploughing, eaves-drip gullies or graves) may well have been undetected and have left some trace in the subsoil. In theory, these should be detected by fieldwalking, but not all human activities leave deposits of pottery or worked flints, and therefore examination of the quarry after soil stripping is recommended.

9.3 Subsoil on these sites is free draining. No waterlogged deposits are envisaged and conditions for survival of environmental evidence, e.g. seeds and pollen, are not good. If any buried soils survive they should be tested for molluscan evidence. However, lack of alluvial and colluvial cover suggests that buried soils are unlikely to occur.

9.4 The clusters of well recorded burial sites in this area enhance the value of evidence from these fields because they give an opportunity to find sites that relate ritual and burial practices with other typical human activities. A Bronze Age settlement site would be especially significant.

9.5 Even after archaeological work during topsoiling the possibility of Palaeolithic remains must not be overlooked during extraction. Axes of this date have been recovered 300 metres north of Field I, and 3rd Terrace gravels are a likely source for further discoveries. Finds could include bones of extinct mammals and stone tools. Such finds could occur at considerable depths within apparently sterile gravel. Machine operators should be aware of this possibility, and there should be routine visits by archaeologists while extraction is in progress.

10.0 RECOMMENDATIONS

PRE-PLANNING PERMISSION

10.1 Both areas should be fieldwalked in 25 metre transects with finds bagged at 25 metre intervals. More detailed fieldwalking on a grid collection unit of 10 metre intervals should be implemented over any areas found to have worked flint concentrations, and over four, 50 metre square areas randomly selected over some of the apparently blank areas.

10.2 Optimum conditions are essential for this work to be worth while. Field I should be walked at the earliest opportunity due to the fast growing crop (05/01/92). It should be completed by late January. Field II still contains areas of unharvested sugar beet. These areas must be cleared before fieldwalking can be organised.

10.3 A rapid geophysical survey using Magnetic Susceptibility to locate sub-surface features, and those remaining only within the topsoil, should be carried out.

10.4 Test pits should be excavated by hand in order to record a representative sample of artefacts in the topsoil, and if any features survive in the subsoil. Pits should be 1 metre square. They should be excavated wherever flint scatters are identified, in addition to1 pit per hectare, at random locations. Ten percent of each test pit should be sieved, to indicate the reliability of individual excavators recovery rates. If it is found that significant numbers of flints are missed by normal excavation methods then all the removed soil should be sieved. In areas where adverse conditions make fieldwalking unreliable, four test pits per hectare should be excavated.

POST-PLANNING PERMISSION

10.5 Sites which are nationally important should be preserved.

10.6 Sites which are recognised as regionally important should be archaeologically excavated.

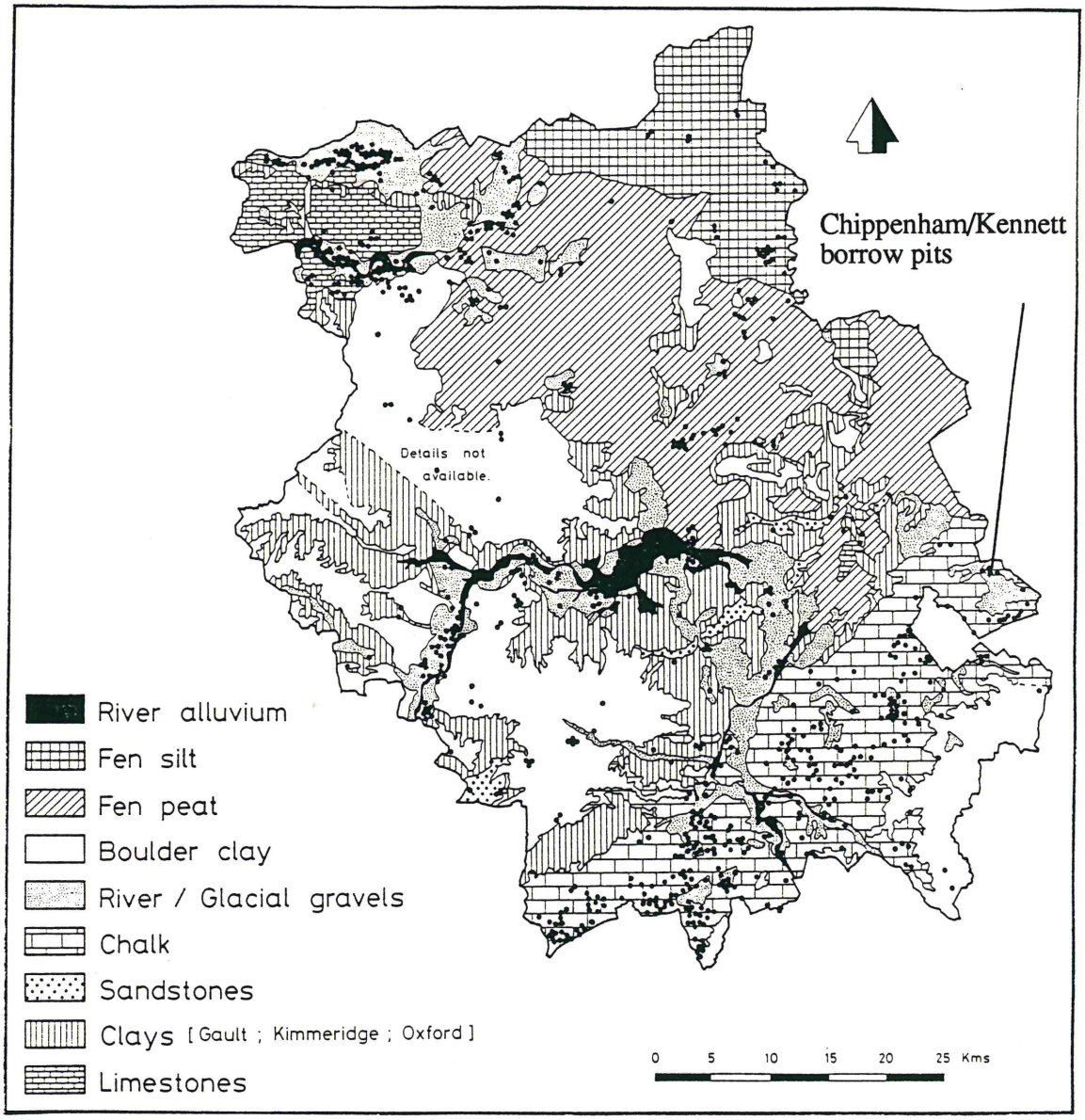
10.7 Topsoil should be removed under the direction of an archaeologist. Provision should be made for time and funds to excavate and record all features and finds encountered.

108 All finds shall be washed, boxed, labelled and conserved (if necessary) and deposited in an approved archaeological store.

10.9 Results of all fieldwork should be published, including an appropriate report in the Proceedings of Cambridge Antiquarian Society and should be entered in the County's SMR.

APPENDIX I : PUBLISHED ARCHAEOLOGICAL SOURCES

C. Fox, 1923	Archaeology of the Cambridge Region	Detailed overview and finds of all periods in South Cambridgeshire. He characterises the area as open heathland, featuring burial mounds & hoards of Bronze Age date.
C. C. Taylor, 1973	The Cambridgeshire Landscape	Descriptive overview of archaeological sites and changing landscapes from Prehistoric times. Detailed references to Chippenham discusses open fields, enclosure & emparkment, & their effects in this parish.
M. Spufford, 1974	Contrasting Communities	A detailed analysis of evidence for medieval life up to the 17th century in the parish of Chippenham, drawn from original records. The importance of sheep in the economy is documented, with, for example, a farmer in 1544 running 2000 sheep & trying to prevent tenants pasturing even more.
A. Taylor, 1981	in Barrows of East Anglia	Detailed description of all barrows in Cambridgeshire with discussion of their survival and significance. 262 barrows & 1207 ring-ditches are recorded (Fig 3). The importance of chalk uplands in Bronze Age times is discussed & also the effect of pre-enclosure heathland on survival of barrows.
M. Edmonds, 1991	The Kennett Village Development Scheme	A desktop assessment of neighbouring area with emphasis on the importance of early prehistoric sites and the importance of locating flint scatters.
S. Bray, 1991	Chippenham Park and Fen Pipeline	Watching brief on a pipe-line for Chippenham Park to Waterhall Farm pipeline which provided negative evidence for settlement over a 10m wide ease-ment stripped for the pipeline.



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Distribution of barrows and ring-ditches related to geology in Cambridgeshire. (A.Taylor; figure 47, in "Barrows of East Anglia". Lawson et al 1981)

Figure 3

Scale 1 : 600,000

Initials	Date
G H	22 / 1 / 91

Prehistoric Worked Flints : Field I

Figure 4a

Prehistoric Worked Flints : Field II

Figure 4 b

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Martin E.A.	1976	The Excavation of Two Tumuli on Waterhall Farm, Chippenham, Cambs	*Proc. Cambridge.* Antiq. Soc. 64
Spufford.M.	1974	Contrasting Communities	*Cambridge Univ.Press*
Taylor A. in Lawson *et al*	1981	Barrows of East Anglia	*East Anglian Archaeology No. 12*
Taylor C.C.	1973	The Cambridgeshire Landscape	*Hodder & Stoughton*

Glossary of Archaeological Terms

Artefact: Any object made by people. Generally this word is used for finds such as pottery, stone tools, or metal objects, but it can be used in a much wider context in that the landscape we have today is a product of human activity and is thus an artefact itself. Artefact scatters (finds scatters) are collections of artefacts found together at one location.

Barrow: Burial mound. Barrows can be long, round, or even square, and were generally surrounded by at least one ditch. Barrows are further subdivided by form into various types belonging to these general categories. As a means for burying selected individuals they were used in Prehistoric, Roman and Saxon periods.

Beaker: Prehistoric period c.2000-1500 BC covering the transition from the Neolithic to the Bronze Age, when a type of highly decorated pottery called beakers became evident.

Bronze Age: Prehistoric period c.2000-700 BC when bronze was used for many types of tool and weapon.

Cropmarks: Archaeological features below the ploughsoil can affect the growth of sensitive crops through moisture retention or loss. For example the growth of cereal crops over buried ditches and pits will encourage rapid growth leading to tall, dark coloured plants, whereas walls and roads will lead to stunting and faster yellowing of the crop. These discrepancies in crop growth can be detected easily from the air, and by taking photographs the cropmark patterns can be plotted onto maps and given provisional interpretation.

DMV: Deserted Medieval Village. For various reasons Medieval settlements were sometimes abandoned or their location was shifted. Earthworks of the old village can often be seen showing the position of house platforms, crofts, lanes and ponds.

Earthworks: Archaeological features that are still extant above ground as banks and ditches, platforms, roads, ponds, canals, etc. They were either constructed of soil or became covered by it at a later date, leaving the archaeology showing in relief.

Enclosures: An area defined by a continuous surrounding ditch. These may be enclosures around human settlement, fields, or paddocks for stock. Rectilinear enclosures are ones with straight sides and corners, whilst curvilinear enclosures are ones with rounded sides.

Field system: An area with ditches or banks that show a systematic pattern of enclosures, trackways, and features that can be seen to run parallel to one another, or lead off from one another to form an intelligible pattern.

Fieldwalking: Technique of archaeological survey. Walking over ploughed and weathered soil an experienced observer can collect many ancient artefacts, and by plotting the distribution of such find spots on maps an idea of the occupation and use of the landscape can be built up for each period of the past.

Finds scatter: Finds are artefacts, or other objects associated with human activity, for example bones or fire-cracked flint. A finds scatter is a localised collection of such objects.

Stone tools of fine workmanship were produced and exchanged over long distances, whilst metal was not used.

Palaeolithic: Prehistoric period before c.7500 BC spanning the early development of mankind from hominid species through to modern humans. Stone and bone tools were made and a hunting-gathering lifestyle was followed.

Pollen: Plant grains with outer skins remarkably resistant to decay, especially in buried or wet conditions. The study of pollen from archaeological contexts can tell us about ancient environments through identifying which communities of plants lived in the area at a given time.

Ridge & furrow:Medieval cultivation techniques led to a phenomenon of corrugated fields. Strips of land were allotted to individuals and a furrow was left between one person's strip and the next, leading to the corrugated ridge & furrow effect. An area of land with all these strips running parallel was called a furlong. These strips usually followed a slightly sinuous course, an elongated reversed **S** shape to help in turning the plough at the end. Where the strips ended and the ploughs turned soil would be deposited and a "head" would be created. After a time these may form a boundary in their own right and are called headland boundaries. Ridge and furrow shows up as cropmarks on air photographs, and more rarely as earthworks in pasture fields.

Ring ditch: A continuous circular ditch which is all that remains of a ploughed out round barrow, or the drainage ditch (eavesdrip gully) that surrounded a round-house.

Roddon: Dried out waterway. The silts laid down by the water in the original creek remain when peat wastage occurs, and thus they stand above the surrounding ground level.

Roman: Historic period 43-410 AD when most of Britain was part of the Roman empire. The term Romano-British is now widely used to describe the people of this period as few were Roman themselves, but they were a provincial manifestation of the empire developing in a unique way. The legions were withdrawn c. 410 AD, but Romano-British culture continued for some time into the 5th century in tandem with Anglo-Saxon migration.

SMV: Shrunken (shifted) Medieval Village. (see DMV).

Soilmarks: Archaeological remains often show in ploughed fields by reason of the different soil of which they consist. They can be visible at ground level but like cropmarks they are most clearly seen and interpreted from the air.

Stratigraphy: Order and relative position of strata. Deposits in archaeological sites will be layered one on top of another, with the highest layer being the latest deposit, thus giving a chronological relationship to the layers and the artefacts within them. Features (such as ditches, pits, or walls) cut through these layers will obviously date to later events, and will in turn contain their own discrete sequence of deposits. On the other hand features that have been covered by layers are obviously earlier than the deposition of those layers that seal them.

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