



East Burnham Quarry, Farnham Lane, East Burnham, Buckinghamshire

Desk-based Assessment





**EAST BURNHAM QUARRY, FARNHAM LANE,
EAST BURNHAM,
BUCKINGHAMSHIRE**

Desk Based Assessment

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EAST BURNHAM,
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Desk Based Assessment

Summary

Summerleaze Limited commissioned Wessex Archaeology to undertake an archaeological desk based assessment in support of a review of Planning Conditions imposed upon Planning Consent granted in 1993 for the extraction of gravel on land to the west of East Burnham, Buckinghamshire (application area centred on NGR 495054/183788). Planning permission was granted for the extraction of aggregate in three phases of which Phase 1 has been completed. The original Phase 2 and Phase 3 have been changed around. This assessment has been produced as part of the ROMP process and covers Phase 2 (Leys Farm) previously entered in the planning process as Phase 3.

The original Planning Permission attracted no archaeological planning conditions however through the ROMP process the original conditions are to be reviewed. As part of this review David Radford, Archaeological Officer, Buckinghamshire County Council has requested a desk based assessment.

The original Environmental Statement submitted in September 2007 concluded that no archaeological sites, structures or features of significance were present within the consented area. A crop mark is located within the area and identified by the RCHME as a possible Neolithic long barrow or prehistoric enclosure however this assessment considers that the crop mark might be defining a palaeochannel leading to a swallow hole identified by the Site walkover.

The search of the SMR has established that there is a **moderate** to **high** potential for buried remains related to the Palaeolithic period, to be located within the immediate vicinity of the proposed Phase 2 extraction area.

Appendix 3 comprises a geoarchaeological assessment prepared at the request of Buckinghamshire County Council. The geological assessment exists as a stand alone detachable component of the Desk Based Assessment.

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Archaeological Desk Based Assessment

Acknowledgements

Wessex Archaeology was commissioned by Mick Lowe Esq, Director, of Summerlease Limited who funded the assessment. Wessex Archaeology would like to acknowledge the help and advice of Julia Wise, Sites and Monuments Officer, and David Radford, Archaeological Officer, Buckinghamshire County Council, and also the staff at the Buckinghamshire County Record Office for their assistance.

The geological data is in part derived from material previously supplied to the client by the British Geological Survey.

This report was researched and compiled by Peter Reeves, the geoarchaeological report was compiled by Jack Russell, and the illustrations were prepared by Kitty Brandon. The project was managed for Wessex Archaeology by Peter Reeves.

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Archaeological Desk Based Assessment

1 INTRODUCTION

1.1 Project Background

- 1.1.1 Summerleaze Limited (the Client) commissioned Wessex Archaeology to undertake a Desk Based Assessment as part of the review of Planning Conditions placed on Planning permission for the extraction of gravel at East Burnham Quarry, Farnham Lane, East Burnham, Buckinghamshire (the Site), located at NGR 495054/183788 (site centred). The review is being undertaken as part of the ROMP procedure.
- 1.1.2 The development entails the extraction of gravel from what was originally proposed as the Phase 3 extraction area. Due to a change in logistics the Phase 3, or Leys Farm area, has become the Phase 2 area.
- 1.1.3 The objective of this Assessment is to appraise the archaeological potential of the Site by the collation of known archaeological and historical information within a 1km search area centred on the Site, in order to identify potential archaeological and cultural heritage impacts and constraints.
- 1.1.4 The assessment was collated, compiled and conforms to guidelines contained within a brief supplied by David Radford, Buckinghamshire County Council.

1.2 Landscape and Geology

- 1.2.1 The Site, centred on NGR 495054/183788 consists of a series of small fields of undulating pasture used for horse grazing. A trackway following a hollow way between parallel hedges links Ley's Farm (to the north of the Site) to Allerds Road, forming the southern boundary of the Site. The trackway has been blocked off with wire fencing.
- 1.2.2 The Site is recorded, in an unpublished report undertaken for the client by the British Geological Survey (BGS. 2005. Geological maps and cross sections of East Burnham interpreted from borehole data), as located above Boyne Hill Gravel Terraces overlying a thin band of the Reading Beds (sand and clay) which in turn overlay chalk deposits belonging to the Upper Cretaceous.
- 1.2.3 The site is located to the north and west of the recently expanded settlements of Britwell (south), Farnham Royal (south east) and East Burnham (east), but sits within a quiet rural setting.

2 METHODOLOGY

2.1 Scope

- 2.1.1 The aim of this assessment is to detail the known information relating to archaeology and the historic environment and to assess the potential for the presence of previously unknown elements that may be impacted by the proposed mineral extraction within Phase 2.
- 2.1.2 The Historic Environment Resource within a 1km radius centred on the Site has been considered in order to provide a context for the discussion and interpretation of the known and potential resource. This is referred to as the Study Area (**Figure 1**).
- 2.1.3 A brief summary of the sources consulted is given below.

2.2 Research

- 2.2.1 A number of publicly accessible sources of primary and synthesised information were consulted.

Buckinghamshire Sites and Monuments Record (SMR)

- 2.2.2 Buckinghamshire County Council maintains a database of all recorded archaeological sites, findspots and archaeological events within the county including Listed Buildings, Conservation Areas and Scheduled Monuments. The database was consulted for this report and a synthesised summary of the records located within the Study Area is presented in the Gazetteer in **Appendix 1** and is illustrated on **Figure 1**. Wessex Archaeology has assigned a unique number (**WA**) to the original SMR entries.
- 2.2.3 This database is not a record of all *surviving* elements of the Historic Environment but is a record of the discovery of a wide range of archaeological and historical components of the Historic Environment. The information held within it is not complete and does not preclude the subsequent discovery of further elements of the Historic Environment that are at present unknown.
- 2.2.4 It should be noted at this point that the original search request returned 48 results within the 1km search area and 9 adjacent to the search area. However, due to duplicity of entries this has been reduced to 37 SMR entries and 10 Listed Buildings (**Appendix 1**). The original multiples at single points are shown within the table but as part of the single **WA** number that they have been allocated to. The 37 entries include 6 gravel pits and quarries, all dating to the post-medieval period. Quarries are of some interest with regard to the history of gravel extraction in the area but are considered to be of very low cultural value.
- 2.2.5 Within the proposed Phase 2 extraction area only 1 SMR entry (**WA 12**) is recorded.

Legislative and Planning Documents

- 2.2.6 Buckinghamshire County Council has statutory duties regarding the control of development. With regard to archaeological sites, Buckinghamshire County Council have taken account of central government guidelines in the

form of *Planning Policy Guidance Note 16: Archaeology and Planning (PPG 16)*, issued by the Department of the Environment in November 1990.

- 2.2.7 The results of a review of this legislation and where relevant details of any statutory designations such as Listed Buildings, Conservation Areas and Scheduled Monuments are included in **Section 3** of this report.

Documentary Sources

- 2.2.8 A search of other relevant primary and secondary sources was carried out digitally, through the Buckinghamshire Record Office and in Wessex Archaeology's own library. The sources consulted are listed in the References section below.

Cartographic Sources

- 2.2.9 A search of historic manuscripts and Ordnance Survey maps was undertaken. The study of maps and other associated historical sources helps to clarify the archaeological potential of the Study Area in two ways. Firstly, it suggests aspects of the medieval and later land-use prior to its modern development. Secondly, it pinpoints areas within the Study Area which, as a result of that development, are likely to have become archaeologically sterile. The maps relevant to the Site are listed in the References section (**Section 6**, below).

Aerial Photographs

- 2.2.10 Under certain conditions sub-surface archaeological features can be visible on Aerial Photographs (AP's). Transcriptions of AP's of the Study Area were obtained from the SMR, and AP's forwarded by the client were also reviewed as part of this report. However the site has been extensively remodelled since the post-medieval period and any original landscape features had been long removed prior to the onset of aerial photography.

Site Visit

- 2.2.11 The Site has been visited to assess the general aspect, character, condition and setting of the Site and to identify any potential impacts not evident from documentary sources. The Site was accessed from Public Rights of Way, with specific attention paid to the area covered by the proposed Phase 2 extraction, for an overview of potential indirect visual impacts and to gauge potential direct impacts.

Best Practice Guidance

- 2.2.12 This assessment has been carried out in accordance with the Institute of Field Archaeologists' Standards and Guidance for Archaeological Desk-Based Assessment (IFA 1994 revised September 2001).
- 2.2.13 The assessment has been undertaken following the guidelines issued in the brief supplied by Buckinghamshire County Council (Radford 2007).

Assumptions

- 2.2.14 The SMR data consists of secondary information derived from varied sources, only some of which have been directly examined for the purposes of this assessment. The assumption is made that this data, as well as that derived from other secondary sources, is reasonably accurate.

2.3 Legislative and Planning Background

National Legislation and Planning Guidance

Archaeology

2.3.1 The main legislation concerning the protection of important archaeological sites is the *Ancient Monuments and Archaeological Areas Act 1979* (as amended). This act provides for nationally important archaeological sites to be statutorily protected as Scheduled Monuments (SMs). Under this act Scheduled Monument Consent (SMC) must be sought for any works which may affect a designated Scheduled Monument.

2.3.2 The principal national guidance on the importance, management and safeguarding of the archaeological resource within the planning process is *Planning Policy Guidance Note 16: Archaeology and Planning* (PPG 16) issued by the Department of the Environment in November 1990. The underlying principle of this guidance is that archaeological resources are non-renewable, stating that:

...Where nationally important archaeological remains, whether scheduled or not, are affected by proposed development there should be a presumption in favour of their physical preservation. (Para. 8)

Paragraph 19 states:

In their own interests...prospective developers should in all cases include as part of the research into the development of a site...an initial assessment of whether the site is known or likely to contain archaeological remains.

Paragraph 22 adds:

Local Planning Authorities can expect developers to provide the results of such assessments ...as part of their application for sites where there is good reason to believe there are remains of archaeological importance.

In addition paragraph 25 advises:

2.3.3 Paragraph 25 adds:

'Where planning authorities decide that the physical preservation in-situ of archaeological remains is not justified in the circumstances of the case and that development resulting in the destruction of the remains should proceed, it would be entirely reasonable for the planning authority to satisfy itself, before granting planning permission, that the developer has made appropriate and satisfactory provision for the excavation and recording of the remains. Such excavation and recording should be carried out before the development commences, working to a project brief prepared by the planning authority and taking advice from archaeological consultants.'

2.3.4 PPG 15 provides a full statement of Government policies for the identification and protection of historic buildings, conservation areas, and other areas of the historic environment and compliments the guidance on archaeology and planning given in PPG 16.

- 2.3.5 With specific regard to the setting of Listed Buildings paragraph 2.17, Section 2 of PPG 15 states:

'Local planning authorities are required under section 67 of the Act to publish a legal notice of all applications they receive for planning permission for any development which, in their opinion, affects the setting of a listed building. This provision should not be interpreted too narrowly: the setting of a building may be limited to obviously ancillary land, but may often include land some distance from it.'

- 2.3.6 Section 4 of PPG 15 focuses on Conservation Areas, paragraph 4.1 states:

'Section 69 of the Act imposes a duty on local planning authorities to designate as conservation areas any 'areas of special architectural or historic interest the character or appearance of which is desirable to preserve or enhance.'

- 2.3.7 Paragraph 4.4 states:

'The definition of an area's special interest should derive from an assessment of the elements that contribute to (and detract from) it. Conservation areas vary greatly, but certain aspects will almost always form the basis for a coherent assessment: the topography; thoroughfares and property boundaries and its historical development; the archaeological significance and potential; the prevalent building materials; the character and hierarchy of spaces; the quality and relationship of buildings in the area and also of trees and other green features.'

- 2.3.8 Paragraph 4.18 adds:

'Local planning authorities will often need to ask for detailed plans and drawings of proposed new development, including elevations which show the new development, including elevations which show the new development in its setting....'

3 ARCHAEOLOGICAL AND HISTORICAL BACKGROUND

Palaeolithic (500,000BC-10,000BC)

The Site

- 3.1.1 There are no known archaeological remains of this period within the Site and none were recorded from the Phase 1 extraction area.

Study Area

- 3.1.2 There are eight findspots dating to this period recorded within the Study Area and a further two are located immediately to the south of the 1km radius, most of these reference artefacts that were retrieved during extraction of gravel from post-medieval quarries or by members of the public subsequently walking through the redundant pits. None of these finds have been retrieved through scientific investigation and their precise positions within the locations in which they were found are not known.

- 3.1.3 **WA 1** references a small but well made Acheulian type handaxe found at Swillys Pond. No further details are known however the pond is in the base of a former gravel pit on the opposite side of the road to Deverill's Pit (**WA 25**), also a former gravel pit.
- 3.1.4 **WA 2**, **WA 6** and **WA 10** refer to Palaeolithic artefacts that have been found within Burnham Beeches. **WA 2** refers specifically to a broken handaxe retrieved from a stream flowing through Burnham Beeches, however the SMR Record Card also records further Palaeolithic artefacts from the same area (**WA 6**) that have been handed in by private collectors. A further 8 Palaeolithic handaxes are recorded separately (**WA 10**).
- 3.1.5 **WA 3** records a wealth of Palaeolithic material from the former gravel pit known as Cooper's, Bond's or East Burnham Pit. The pit has since been filled. The collection of axes, flakes and cores form the largest assemblage of material to be retrieved from the Boyne Hill gravels.
- 3.1.6 **WA 4**, **WA 7**, **WA 8** and **WA 9** are slightly misleading in their presentation within the record, although located at four different map references all records relate to flint artefacts of Acheulian Lavalloisian and Clactonian date, retrieved during construction of a sewer pipe in the 1950's. Although it is accepted that the flint implements were found their exact location must be open to speculation. **WA 4** and **WA 7**, although falling outside the search area are included as they form a concentration of Palaeolithic artefacts that were discovered as a result of the expansion of Britwell during the 1950's.
- 3.1.7 **WA 5** refers to the large number of Palaeolithic flint artefacts that have been retrieved from Deverill's Pit, also known as Pusey's Pit and Burnham Beeches Pit. The artefact assemblage consists of axes, cores and large numbers of flakes. The artefacts appear to have been collected between 1926 and 1954 and, along with the artefacts retrieved from Coopers Pit (**WA 3**), form the largest collection of Palaeolithic material from the Boyne Hill Gravels.

Mesolithic (10,000-4,000BC)

The Site

- 3.1.8 There are no known archaeological remains of this period within the Site.

Study Area

- 3.1.9 A single entry (**WA 11**) is recorded to the north west of the Site on the margin of the search area. The record notes uncertainty that the flint blade is of Mesolithic date.
- 3.1.10 No further Mesolithic artefacts have been identified in the area.

Neolithic (4000BC-2400BC)

The Site

- 3.1.11 A single entry (**WA 12**) is inferred from the SMR. The potential site is referred to as a possible enclosure or a long barrow observed as a crop mark in aerial photographs. The relevant photograph has been reproduced as **Plate 1** and the crop mark transcribed onto **Figure 1**.

- 3.1.12 There appears to be confusion in the records with **WA 37**, an undated cropmark transcribed from an aerial photograph. The aerial photograph (ref CPE.\UK\1986 18 JAN '47 F\20' \ M) clearly shows the undated enclosure to be located in the position of **WA 12**, the crop mark does not resemble a long barrow but more of a rectilinear single ditched enclosure. The suggestion of the feature being a potential long barrow was put forward by the RCHM(E) in 1995.

- 3.1.13 The Site walkover could discern no obvious earthwork feature at this location; however, it would appear that a palaeochannel does run through the area (**Plate 2**). The palaeochannel can be observed running from left to right through the centre of the photograph.

Study Area

- 3.1.14 There are no additional entries within the SMR for either sites or artefacts belonging to this period.

Bronze Age (2400BC-700BC)

The Site

- 3.1.15 There are no known archaeological remains of this period within the Site.

Study Area

- 3.1.16 No remains belonging to this period have been noted in the SMR within the Study Area.

Iron Age (700BC- AD43) and Romano-British (AD43-410)

The Site

- 3.1.17 There are no known archaeological remains dating to either of these periods within the Site.

Study Area

- 3.1.18 There is a single entry relating to the Iron Age hillfort (**WA 13**) within Burnham Beeches. The hillfort is a Scheduled Monument (SM 27136). In the Schedule the fort is described as roughly oval in plan measuring c. 140 m north to south and 100 m east to west, enclosed by a ditch measuring at its maximum 10 m in width. Traces of an internal bank remain and there is some evidence for a smaller external bank. The north east corner of the site has been truncated by post-medieval quarrying.
- 3.1.19 Two findspots of Romano-British material are recorded within the SMR (**WA 14** and **WA 15**). **WA 14** is actually located outside the search area toward the centre of Farnham Royal and interestingly describes water or drain pipes belonging to this period. **WA 15** refers to fragments of Roman tile and Romano-British pottery found during construction of house along Kidderminster Road. Interestingly, both entries lie immediately to the south of Farnham Lane, which may have formed a transport route during this period.

Saxon (AD 410 – 1066) and Medieval (AD 1066 -1499)

The Site

- 3.1.20 There are no known archaeological remains dating to either of these periods located within the Site.

Study Area

- 3.1.21 The two entries recorded within the SMR reference centres of Medieval settlement recorded in the Domesday Book. **WA 16** marks the approximate centre of East Burnham, located within the search area. **WA 17** marks the approximate centre of Farnham Royal located immediately adjacent to the south east arc of the search area. Both these manors are recorded as being held by Saxons prior to the conquest, however, no physical evidence relating to this period has been retrieved from the area.
- 3.1.22 It is probable that much of the area was either farmed or existed as common during this period, as suggested by the later cartographic evidence (refer to sections below).

Post-Medieval (AD 1500 – 1799) to Modern

The Site

- 3.1.23 The SMR records no sites or artefacts from within the proposed Phase II extraction area. It should be noted however that the agricultural fields probably had their boundaries set out in the nineteenth century.

Study Area

- 3.1.24 Twenty five entries are recorded within the SMR as falling within the Search Area, a further five are located immediately adjacent to the search areas perimeter.
- 3.1.25 Within these entries seven refer to quarries, five to gardens or various parts of and ten are Listed Buildings. The quarries are themselves of very minor importance and provide little contribution to the cultural history of the area; the Palaeolithic contents of some of these quarries (described above) are, however of value.
- 3.1.26 **WA 22, 23 and 24** define an area of post medieval industrial activity centred round the junction of Pumpkin Hill, Hawthorn Lane and Grove Road in the north west section of the search area. **WA 22** refers to the former Burnham Beeches Brickworks, **WA 23** refers to the Kiln Woods former Brickworks, Quarry and Tile Works, and **WA 24** refers to Burnham Beeches Pottery Kiln. No structural remains are evident on the Site and a house is constructed over the site of the pottery kiln. **WA 18** references fragments of vitrified brick that were retrieved from **WA 23**.
- 3.1.27 **WA 25** references the former gravel extraction site Deverill's Pit (contained a substantial Palaeolithic tool assemblage (**WA 5** above). **WA 26** marks the former location of Cooper's Pit, a gravel pit which contained **WA 3**. **WA 27** marks the site of a small redundant quarry located to the south of Swillys Farm. **WA 29** marks the site of a small gravel pit on East Burnham Common, **WA 31** marks the site of Bottom Waltons gravel pit. **WA 32** marks the site of a small quarry to the north of Hunts Wood Farm.
- 3.1.28 **WA 19** references the garden attached to Caldicott School formerly the East Burnham Lodge. The majority of the garden area has been destroyed by

subsequent expansion of the school buildings. Its position within **Figure 1** is as indicated on the SMR.

- 3.1.29 **WA 20** and **WA 21** both refer to elements of the former gardens that were ancillary to East Burnham House. **WA 20** is specific to the formal garden, the tree avenue and a walled garden, **WA 21** to the kitchen garden and the orangery. Most of the nineteenth century park (Popple's Park) has been removed by subsequent mineral extraction and this is noted in the review of the Historic Park and Gardens Register (1998).
- 3.1.30 **WA 28** and **WA 33** both refer to the former location of Allards Manor. Allards or East Burnham Manor, which appeared to have a sixteenth century origin was demolished by Lady Grenville and was replaced by a market garden c. 1837.
- 3.1.31 **WA 30** refers to an enclosure of unknown function however the point is actually located on a small redundant quarry. The site appears as a former gravel pit on nineteenth and twentieth century maps.
- 3.1.32 **WA 34** and **WA 35** both refer to modern walled gardens, the former at East Burnham Grove and the later at East Burnham End.
- 3.1.33 **WA 36** makes reference to the interior of the Iron Age hillfort (**WA 13**) being used as an army camp for a motorised division during the Second World War.
- 3.1.34 Within this period twelve Listed Buildings are recorded on the SMR, none of these buildings occur in the Phase II area (or Site) and three are located beyond the perimeter of the search area. These buildings have been allocated **LB** numbers and are illustrated on **Figure 1**.
- 3.1.35 None of these buildings are of outstanding importance as all are Grade II Listed Buildings. The exception being **LB 2** which is also a Scheduled Monument (SM 27139).
- 3.1.36 **LB 2** is described in the Schedule as a rectangular brick built walled enclosure measuring c. 8.5 m by 5 m. The present structure was constructed in the latter part of the eighteenth century and extensively restored in the twentieth. It is possible that the current structure may overlie an original structure, a pound being recorded here since the thirteenth century.

Unknown

- 3.1.37 Confusion exists in the SMR with regard to **WA 37** it is recorded as an undated enclosure observed on an aerial photograph (**Plate 1**) however transcription onto a base map (**Figure 1**) indicates the feature exists at the location ascribed for the possible long barrow (**WA 12**). The shape and form of the enclosure would suggest a prehistoric date.

4 EXISTING AND POTENTIAL ARCHAEOLOGICAL IMPACTS

4.1 Potential Impacts

- 4.1.1 The potential impacts of the extraction of mineral from the Phase II area, and the construction of any associated infrastructure that could result in effects on the Historic Environment resource, are:
- Temporary land take;
 - Permanent severance of sites/monuments;
 - Excavation, ground disturbance and compaction; or
 - Areas used for stockpiling.
- 4.1.2 These impacts could lead to the following effects on the Historic Environment resource:
- Complete or partial loss of an archaeological feature or deposit;
 - Loss of the physical and/or visual integrity of a feature, monument or group of monuments;
 - Damage to resources due to compaction, desiccation or water-logging; or
 - Damage or loss due to excavation.

4.2 Existing Impacts

- 4.2.1 Under its present land use, horse grazing, there are no impacts upon the cultural resource.

5 RESULTS

5.1 Introduction

- 5.1.1 This section of the report details the archaeological constraints in terms of the proposed development and is based on information derived from the sources listed in the **Methodology**, taking into account the likely effects of previous land use on the preservation of potential remains.

5.2 Legislative and Planning Constraints

- 5.2.1 For ease of reference details of any statutory and/or local planning designations are detailed separately below.

Scheduled Monuments

- 5.2.2 There are no Scheduled Monuments within the Site. Although two Scheduled Monuments are recorded within the Search Area these are so remote from the Site that they are neither indirectly or directly impacted upon by the proposed mineral extraction.

Listed Buildings

- 5.2.3 Ley's Farmhouse and Ley's Barn, both Listed Buildings (**LB 5** and **LB 6** respectively), are located to the north of the proposed extraction area. Neither of these buildings will be directly impacted upon. Throughout the duration of mineral workings an indirect visual impact will result in a change in view from the south, however as access to the public is already restricted this is regarded as minor.
- 5.2.4 There are no visual impacts on any of the other Listed Buildings contained within **Appendix 2**.

- 5.2.5 There are no direct impacts on any of the Listed Buildings identified within the search area.

Conservation Areas, Historic Parks and Gardens and Historic Battlefields

- 5.2.6 No Conservation Areas, Historic Parks and Gardens or Historic Battlefields are recorded within the Site.
- 5.2.7 The mineral extraction is within a confined area and will have no visual impact on any of the above.

5.3 Map Regression

- 5.3.1 The Site actually falls on the junction of several maps and therefore complete map coverage is very poor. However, observations of the Tithe Map and the late nineteenth and twentieth centuries Ordnance Survey map coverage show the area to have retained its rural character with the plot of land remaining unchanged.
- 5.3.2 The Tithe Map for Britwell, surveyed in 1841, is scarce in detail (**Figure 2 A**). The Site area contains seven fields of variable size. The Buckinghamshire Landscape Characterisation data categorizes all the fields as belonging to pre-eighteenth century co-axial enclosure. Two small dwellings and associated gardens are located adjacent to Crow Piece Lane (western boundary).
- 5.3.3 The 1876 1:2500 Map shows the same arrangement of fields although the two properties noted in the Tithe Map have gone. The field boundaries are clearly defined as vegetated but whether as continuous hedgelines or irregular spaced tree growth cannot be discerned (**Figure 2 B**).
- 5.3.4 The 1932 6" Map (originally surveyed in 1874) and the 1933 1:2,500 Map (**Figure 2 C and D**) shows a reduction to five fields.
- 5.3.5 Throughout the historical mapping the layout of the roads and fields remains consistent. Within the proposed Phase II extraction area there is an apparent reduction in development (the removal of two dwellings) rather than expansion. The footpath shown traversing the north west corner of the Site has been in existence since prior to the surveying of the Tithe Map in 1841. The trackway linking Ley's Farm to Allerds Road would also appear to have existed prior to 1841.
- 5.3.6 Of particular interest is the field boundary, observed on the Tithe Map, the OS Map dated 1876 and observed today meandering from west to east across the Site. This boundary would appear to be following an underlying feature in the landscape, a possible palaeochannel, observable as a c.20 m wide linear gully (**Plate 2**) which appears to end in a swallow hole (**Plate 3**) on the Site's eastern boundary.

5.4 Site Walkover

- 5.4.1 The site visit was undertaken in clear dry sunny weather.

- 5.4.2 The Site was accessed via public rights of way and through access granted by Summerleaze Limited. The Site consists of gentle undulating fields that are circumvented by small roads or lanes that are paralleled by well established hedgerows. The routes of the roads were walked in an anticlockwise direction starting at the south east corner of the Site.
- 5.4.3 The Listed Buildings (**LB 5** and **LB 6**) are visible from the Site although they have undergone much recent renovation. During the summer months the views toward these buildings would be significantly reduced by tree growth and leaf cover.
- 5.4.4 Many of the gravel pits that previously existed and that have been noted on the SMR have been infilled, however Deverill's Pit has been left largely intact although a private dwelling is built within its footprint (**Plate 4**).
- 5.4.5 Within the area of the supposed Long Barrow (**WA 12**) the road, Crow Piece Lane, has a pronounced dip, this dip can be observed as a channel continuing to the west of the road and then turning south west toward the former Lock's Bottom Amenity Tip. The channel continues to the east of the road (**Plate 2**) concluding at a possible swallow hole on the eastern boundary of the Phase II area (**Plate 3**).
- 5.4.6 The trackway passing north to south and linking Ley's Farm with Allerds Road has been blocked off (**Plate 5**). The track appears to be of greater antiquity than that suggested by the post-medieval buildings presently observable at Ley's Farm. The bed of the route is set between significant tree topped banks with oak trees within close association of the east bank, the track should be regarded as a hollow way.

5.5 Hedgerows

- 5.5.1 The hedgerow boundaries within the Site might warrant consideration under the Hedgerow Regulations 1997 as they may be considered important due to their appearance on maps prior to 1845.
- 5.5.2 The parallel hedges (less than 15 m apart) lining the track leading to Ley's Farm may be considered important under the landscape criteria.

6 CONCLUSIONS AND RECOMMENDATIONS

6.1 Summary of Archaeological Constraints

- 6.1.1 A single archaeological feature (**WA 12**) of dubious nature is recorded within the Site area. The Site is interpreted by the RCHME as a possible long barrow or enclosure, an aerial photograph taken in 1947 indicates an enclosure, the site walkover suggests that with out doubt the feature is an underlying palaeochannel, and no evidence for an earthwork either a long barrow or enclosure was observed anywhere within the proposed Phase 2 extraction area.
- 6.1.2 Although no artefacts have been recovered from the Site the surrounding area, from former gravel pits has yielded a high number of Palaeolithic artefacts from the Boyne Hill gravel deposits (**WA 1 -10**). There is therefore a **very high** probability that further examples will be found within the Phase

2 area although this probability should be balanced by the lack of any material from Phase I.

6.1.3 The archaeological assessment indicates a **high** potential for deposits relating to **WA 12**, whatever this feature may prove to be, to be encountered during extraction in the Phase 2 area.

6.1.4 The archaeological statement indicates a **low** to **zero** potential for deposits containing archaeological remains dating to any period other than the Palaeolithic to be present within the Phase 2 area.

6.2 Recommended Further Works and Mitigation

6.2.1 A limited archaeological trial trench evaluation is recommended across the site of **WA 12** to establish whether an archaeological monument exists in this location. Planning permission has previously been granted for the extraction of minerals within the Phase 2 area an evaluation is recommended prior to the commencement of working.

6.2.2 The results of the evaluation would establish whether the feature observed on the aerial photograph is a long barrow, an enclosure or, as observed in the field, a palaeochannel.

6.2.3 Palaeolithic deposits, if present, due to their depth within the gravel sequence are very unlikely to be detected through archaeological trial trenching or test pitting. It is therefore recommended that a programme of monitoring works is established as a condition attached to planning permission. The monitoring should take the form of the archaeological geological recording that is currently set up for the nearby Berry Hill Farm Quarry at Taplow.

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APPENDIX

Appendix 1: Table of Buckinghamshire Historic Environment Records within the Study Area

WA No.	NGR	Parish	NMR/SMR No	Period(s)	Description
1	494780 184230	Burnham	0157100000	Palaeolithic	Swilley Pond, Findspot
2	495000 184400	Burnham	0157200000	Palaeolithic	Burnham Beeches, Artefact Scatter
3	494600 184220	Burnham	0155001000 0155001001 0155001002	Palaeolithic	Coopers Pit, Findspot
4	495430 182820	Burnham	0161900000	Palaeolithic	Dodsfield Road, Findspot
5	494700 184000	Burnham	0202501000 0202501001 0202501002	Palaeolithic	Deverills Pit, Findspot
6	495000 184400	Burnham	0157201000	Palaeolithic	Burnham Beeches, Findspot
7	495550 182890	Burnham	0161800000	Palaeolithic	Long Readings Lane, Findspot
8	495150 182970	Burnham	0161700000	Palaeolithic	Kidderminster Road, Findspot
9	495080 182860	Burnham	0161600000	Palaeolithic	Wentworth Avenue, Findspot
10	495000 184400	Burnham	0157202000 0157202001 0157202002	Palaeolithic	Burnham Beeches, Findspot
11	494340 184420	Burnham	0473900000	Mesolithic	Kiln Wood, Findspot
12	494820 183700	Burnham	0625600000	Neolithic	Locks Bottom, Longbarrow? Enclosure?
13	495280 182990	Burnham	0155800000	Iron Age	Seven Ways Plain, Iron Age Hillfort (SM 27136)
14	496050 182980	Burnham	0162900000	Romano-British	Farnham Royal Village, Findspot
15	495280 182990	Burnham	0161000000 0161001000	Romano-British	Kidderminster Road, Findspot
16	495500 183900	Burnham	0855600000	Medieval	East Burnham Village
17	495900 182900	Farnham Royal	0858800000	Medieval	Farnham Royal Village
18	494610 184460	Burnham	0474000001	Post-Medieval	Burnham Beeches, Findspot
19	494500 183790	Burnham	0653300000	Post-Medieval	Calcott School (formerly East Burnham Lodge), Garden
20	495200 183350	Burnham	0653701000	Post-Medieval	East Burnham Park, Formal Garden, Park, Tree Avenue and walled Garden
21	495150 184150	Burnham	0653700000	Post-Medieval	East Burnham House, Kitchen Garden, Orangery, Park
22	494450 184490	Burnham	0474001000	Post-medieval	Burnham Beeches, Brickworks
23	494320 184500	Burnham	0474100000	Post-Medieval	Kiln Wood, Brickworks, Quarry and Tile works
24	494450 184490	Burnham	0474000000	Post-Medieval	Burnham Beeches, Pottery Kiln
25	494700 184000	Burnham	0202500000	Post-Medieval	Deverills Pit, Gravel Pit
26	494600 184220	Burnham	0155000000	Post-Medieval	Coopers Pit, Gravel Pit
27	494714 184146	Burnham	0894000000	Post-Medieval	Swilly Farm (south of), Quarry
28	495500 183800	Burnham	0150600000	Post-Medieval	East Burnham/Allards Manor
29	495080 184330	Burnham	0894100000	Post-Medieval	East Burnham Common, Gravel Pit
30	494461 183610	Burnham	0893900000	Post-Medieval	North Bottom Waltons, Enclosure
31	494429 183188	Burnham	0893800000	Post-medieval	Bottom Waltons, Gravel Pit

32	494187 184374	Burnham	0893700000	Post-Medieval	North of Hunts Wood Farm, Quarry
33	495500 183800	Burnham	0150601000	Post-Medieval	Allards, Manor house
34	495470 183870	Burnham	0653500000	Modern	East Burnham Grove, Tree Avenue, woodland garden
35	495500 184370	Burnham	0653600000	Modern	East Burnham End, Walled Garden, woodland garden
36	494710 184660	Burnham	0155801000	Modern	Seven Ways Plain, Army Camp, motor transport camp
37	494640 183200	Burnham	0455000000	Unknown	Waltons Lane/Bottom Walton, Enclosure
Listed Buildings					
LB1	494717 184248	Burnham	1215000000	Post-Medieval	Swilley Farnhouse
LB2	495518 183924	Burnham	0573100000	Post-Medieval	East Cattle Pound (SM 27139)
LB3	495500 183980	Burnham	1214900000	Post-Medieval	The Crown (Public House)
LB4	494729 184272	Burnham	1215001000	Post-Medieval	Swilley Farnhouse, the outbuildings
LB5	495026 183930	Burnham	1217600000	Post-Medieval	Ley's Farnhouse
LB6	495077 183963	Burnham	1217601000	Post-medieval	Barn at Ley's Farnhouse
LB7	495315 184107	Burnham	1217700000	Post-Medieval	Malt Cottage
LB8	496015 182942	Farnham Royal	1223300000	Post-Medieval	The Crown (Public House)
LB9	495984 182912	Farnham Royal	1223400000	Post-Medieval	The Dukes Head (Public House)
LB10	495980 182840	Farnham Royal	1340100000	Modern	War memorial at the junction of Church Road and Farnham Road

Appendix 2 – Cartographic sources

BRO refers to maps held by Buckinghamshire Records Office (Aylesbury)

Plan of the Estate of Henry Sayer Esq, 1796 (BRO M&R/17)

Britwell Tithe Map, 1841 with Apportionments (BRO).

Ordnance Survey, 1:2500, Bucks Sheet 53.9, 1876.

Ordnance Survey, 1:2500, Bucks Sheet 53.9, 1899

Ordnance Survey, 1:2500, Bucks Sheet 53.9, 1925

Ordnance Survey, 6 inch map, Bucks 53 SW, 1938 (surveyed 1874).

Ordnance Survey, 1:2500, Bucks Sheet 53.9, 1933

Ordnance Survey, 6 inch map, Bucks 53 NW, 1938 (surveyed 1874)

Ordnance Survey, 6 inch map, Bucks SU 98 SE, 1961

Ordnance Survey, 6 inch map, Bucks SU 98 SW, 1961

Ordnance Survey, 1:2500, Bucks Sheet SU 9483/9583, 1972

Ordnance Survey, 1:10,000, Bucks SU 98 SE, 1975

Ordnance Survey, 1:10,000, Bucks SU 98 SW, 1976

Ordnance Survey, 1:10,000, Bucks SU 98 SE, 1987

Ordnance Survey, 1:10,000, Bucks SU 98 SW, 1988

Ordnance Survey, 1:2,500, Bucks SU 9583, 1987

Ordnance Survey, 1:2,500, Bucks SU 9583, 1993

Ordnance Survey, 1:2,500, Bucks SU 9483, 1997

Appendix 3: East Burnham Geoarchaeological Assessment.

Jack Russell, Wessex Archaeology.

INTRODUCTION

Project Background

Wessex Archaeology has been commissioned by Summerleaze Ltd. to undertake a geoarchaeological assessment of the proposed aggregate extraction quarry at east Burnham, Buckinghamshire (**Figure 1**). The instructions of Buckinghamshire County Archaeology Service (Radford 2007) set the parameters of this geoarchaeological assessment to include the following :

- *“Undertake a geo-archaeological specialist assessment to create an graphically illustrated 3d topographical predictive model of this area of the gravel terrace by considering evidence such as topography, geology, bore-hole, augering data and any relevant data from the exiting quarried area. Identify any areas of sedimentary deposition (fine gravel deposits indicating bedding layers or channels) that may have the potential to preserve in-situ deposit*
- *Provide a preliminary interpretation of site formation processes on this site and provide a judgement on the potential quality and relative importance of the site in terms of the Boyn Hill Gravels*
- *Depending on the outcome of this assessment, propose a strategy for field evaluation or mitigation” (Radford 2007)*

Geoarchaeological Background

Throughout the Pleistocene epoch the study area has been affected by interglacial and glacial periods which have shaped the landscape. Generally, the geology of the area comprises pre-Tertiary rocks (Upper Cretaceous Chalk) underlying a thickness of Tertiary sands and clays (Reading Beds) which in turn underlies Pleistocene sands and gravels (Thames terrace gravels). Some Pleistocene Head or drift deposits are known in the area (Sumbler 1996).

Wessex 1:50,000 scale British Geological Survey map (Cook 1990) indicates that Phases 1, 2 and 3 of the Quarry are situated on the Boyn Hill Terrace. This terrace is thought to date to the Hoxnian period, Oxygen Isotope Stage (OIS) 10. Its downstream equivalent, the Orsett Heath Gravel also contains interglacial sediments dating to OIS 9 known more widely for its archaeological content of human bone and tools at Swanscombe (Sumbler 1996).

For this study, other than the literary sources listed in the final section of this report, the following data was available for review:

- An interpreted 3D model or “fence diagram” of the interpreted geological sequence (BGS 2005)
- Interpreted sections across Phases 1, 2 and 3 detailing the interpreted geological composition of borehole data in the Phase 1, 2 and 3 areas (BGS 2005)
- Detailed geological mapping based upon borehole data was available (BGS 2005).
- Four borehole logs (BB49, BB50, BB51 and BB52) from an area east of Phases 1 and 2 and an accompanying hydrogeological investigation report (Dixon 2004)
- 1:50,000 geological map British Geological Survey (Cook 1990)

METHOD

Geoarchaeological Assessment

A 3D model or fence diagram, which includes the proposed aggregate extraction area has been prepared by the British Geological survey based on the interpretation of borehole logs across the area (BGS 2005). These boreholes were drilled to monitor water table levels and not for interpreting Pleistocene depositional processes or for archaeological purposes. This model has been created using GSI3D Version 1.5 and a movie version was available for this study. The well known gravel terraces named Winter Hill and Boyn Hill are clearly visible. Within the proposed aggregate extraction area Chalk is overlain by Reading beds, the Boyn Hill gravel, Head deposits and more recent disturbance by quarrying is seen. The data upon which this interpretation was based was not available for study. This 3D fence diagram has been created using six east to west and seven north to south delineated sections. **Figure 4; Sections a b, c, d and e** are 2D sections (suitable for a paper report format) of the interpreted sediments in the 3D fence diagram (**Figure 5**). The interpreted stratigraphic model is summarised in the next section of this report.

Attempts to predictively model potential *in situ* Palaeolithic archaeology at anything but a very broad scale by using extrapolated and interpreted water table monitoring borehole data is not attempted here. As demonstrated by the prolific palaeolithic finds from the area (see **Appendix 1**, Roe 1968 and Wymer 1999) it would appear that the Boyn Hill gravels contain abundant archaeological material. As with most fluvial terraces, the archaeology they contain is not generally *in situ* but derived. However, as mentioned above the downstream equivalent of the Boyn Hill Terrace, the Orsett Heath Gravel does contain *in situ* palaeolithic material. No sedimentary information – other than the interpretation of the British Geological Survey was made available from the proposed extraction area. Logs from four boreholes from an area north and east of the proposed extraction area were reviewed (Dixon 2004). Comparing these logs to the interpreted data from their respective areas supports the interpretation given.

RESULTS AND INTERPRETATION

Geotechnical Data

Within the proposed aggregate extraction area four major sedimentary units have been identified and interpreted by the British Geological Survey (**Figure 3** and **Figure 4; Sections a b, c, d and e**).

Chalk c.47 to 32m above OD

This deposit is recorded across the survey area generally dipping in a north to south direction (**Figure 4; Sections a, b, c, d and e**). The chalk outcrops close to the southeast corner of the Phase 3 area (**Figure 3**). The thickness of this deposit has not been interpreted by the data provided which gives the chalk unit an arbitrary basal level of 12.5m above OD.

Reading Beds c.52 to 32m above OD

This deposit is recorded across the proposed areas (**Figure 3**). It ranges from between 3 and 16 metres in thickness. **Figure 4; Sections a, b, d and e** show an interpreted division within these Reading beds. This unit outcrops within the Phase 1 and 3 areas (**Figure 3**).

Boyn Hill gravels c.56 to 42m above OD

This deposit is recorded across the proposed aggregate extraction areas (**Figure 3** and **Figure 4; Sections a, b, c, d and e**). It has a maximum thickness of approximately 8 metres (**Figure 4; Section a**). The Boyn Hill gravels appear to be thickest above depressions noted in the underlying Chalk and Reading beds. These depressions may be the result of natural folding and/or erosion of the underlying bedrock.

Head c.54 to 34m above OD

This deposit is recorded in the Phase 2 and 3 areas only where it outcrops. The deposit is up to 17metres in thickness (**Figure 4; Section d**). The deposit sits within depressions in the underlying bedrock which appear to have been enhanced, possibly by Pleistocene ?glaciofluvial activity. In the Phase 3 area, the deposit sits within a clearly defined NE to SW delineated valley. The geomorphology of these interpreted head filled depressions are concurrent with so called “dry valleys” filled with solifluction deposits during the last glaciation (Sumbler 1996).

Landfill

These areas are presumably previous aggregate extraction pits and are seen in **Figure 4; Sections b, c and e**.

STRATEGY FOR FIELD EVALUATION/MITIGATION

Geoarchaeological Interpretation

The interpreted sequence fits with the known stratigraphic sequence of the area (Sumbler 1996). The greater detail provided by the borehole data has indicated the presence of Head deposits not mapped on the British Geological Survey 1:50,000 map (Cook 1990) although this is at a considerably larger scale. In the Phase 3 area the Gravel and Head deposits sit within shallow depressions in the Chalk and Reading beds. At a broader scale these Pleistocene deposits (Boyn Hill and Head) are part of sedimentation within the Thames Valley.

As mentioned above, detailed interpretation of the stratigraphy and therefore prediction of *in situ* Palaeolithic archaeology cannot be done with any confidence based upon the data reviewed. At a broader scale it is however possible to identify areas of archaeological potential and strategies for evaluation and mitigation.

Evaluation/Mitigation

The interpreted results given by the British Geological Survey are of a level sufficient to generate a stratigraphic framework for the site. From this geoarchaeological mitigation and evaluation strategies can be proposed. The Boyn Hill terrace is known to contain numerous Palaeolithic artefacts (**Appendix 1**, Roe 1968 and Wymer 1999) and is also the aggregate resource being proposed to be extracted. This deposit should therefore be systematically investigated prior to its extraction and monitored during its extraction. This report clearly identifies the levels at which the Boyn Hill terrace exists across the Phase 1, 2 and 3 areas (illustrated as a 3D model in **Figure 5**). Clearly attention should be paid to extraction areas close to the known archaeologically interesting areas of Coopers and Deverill's pits.

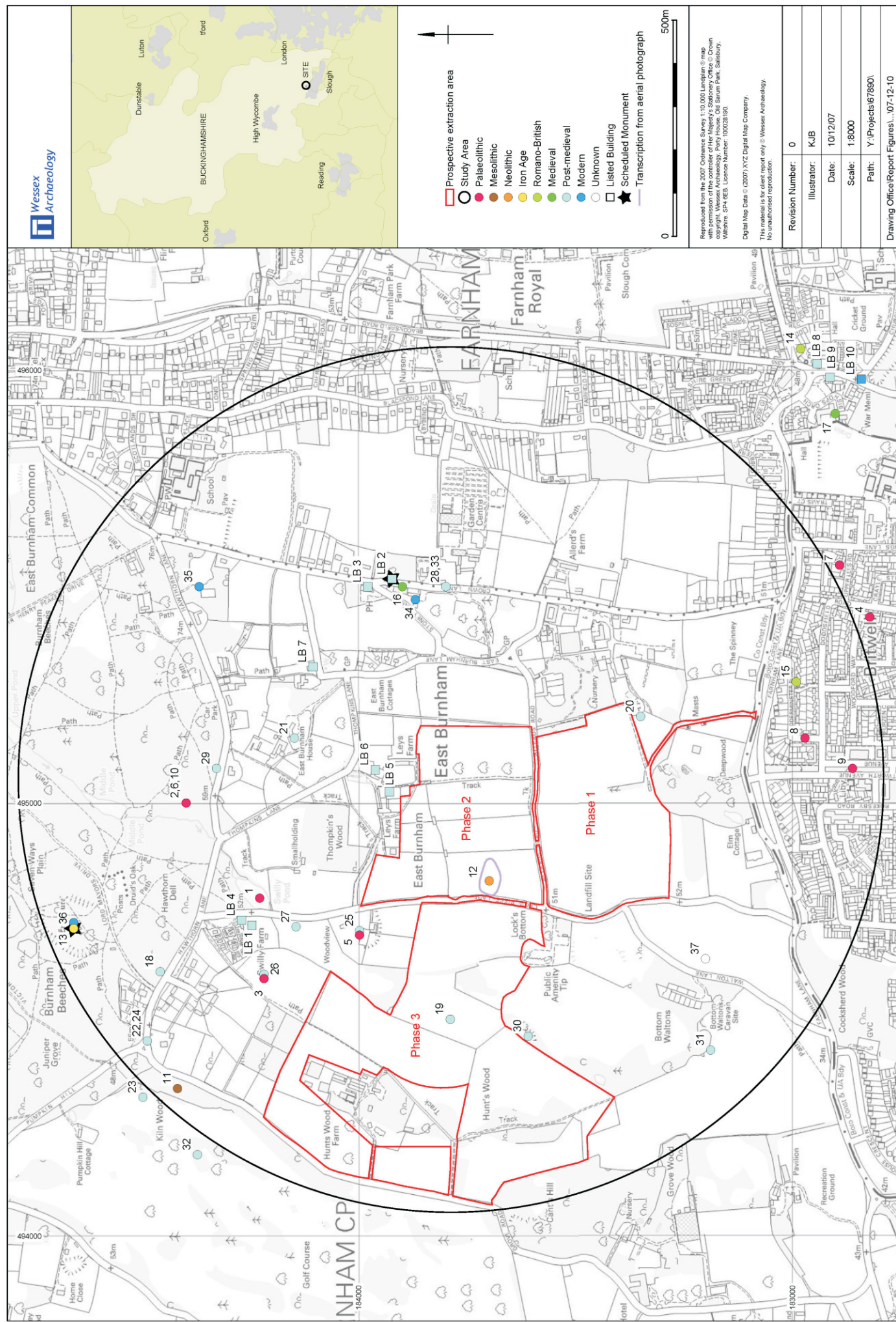
Any sections of Pleistocene sediments available within the Phase 1 area should be geoarchaeologically recorded and the results of this, integrated with any original borehole data from the site, should enhance any proposed evaluation and mitigation within the Phase 2 and 3 areas.

The Head deposits recorded by the British Geological Survey are somewhat enigmatic and in investigating the geoarchaeological content of the Boyn Hill gravels some consideration should be given to these Head deposits. Field description, sampling and dating of these deposits would aid in the understanding of their potential archaeological content.

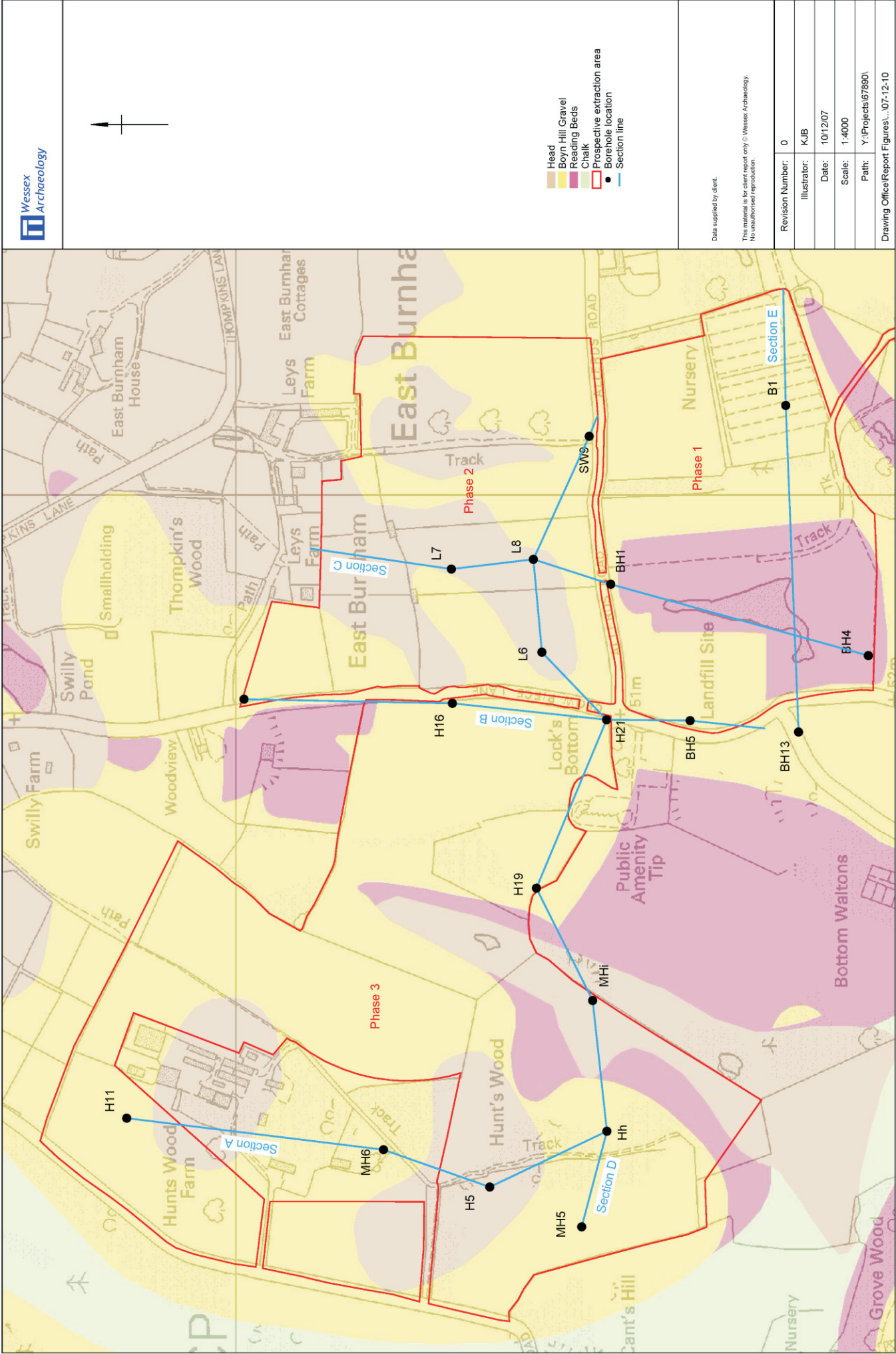
Systematic investigation of these deposits should occur subsequent to or potentially during any surface archaeological investigations and prior to aggregate extraction in these areas. Some provision for monitoring the extraction works should be provided given the high potential for Palaeolithic archaeology in this area. The systematic investigation would follow a brief provided by Buckinghamshire County Council and follow a Written Scheme of Investigation approved by the Regional Scientific Advisor, English Heritage. An identical process exists for the recording of the geological sequence at Berry Hill Farm Quarry.

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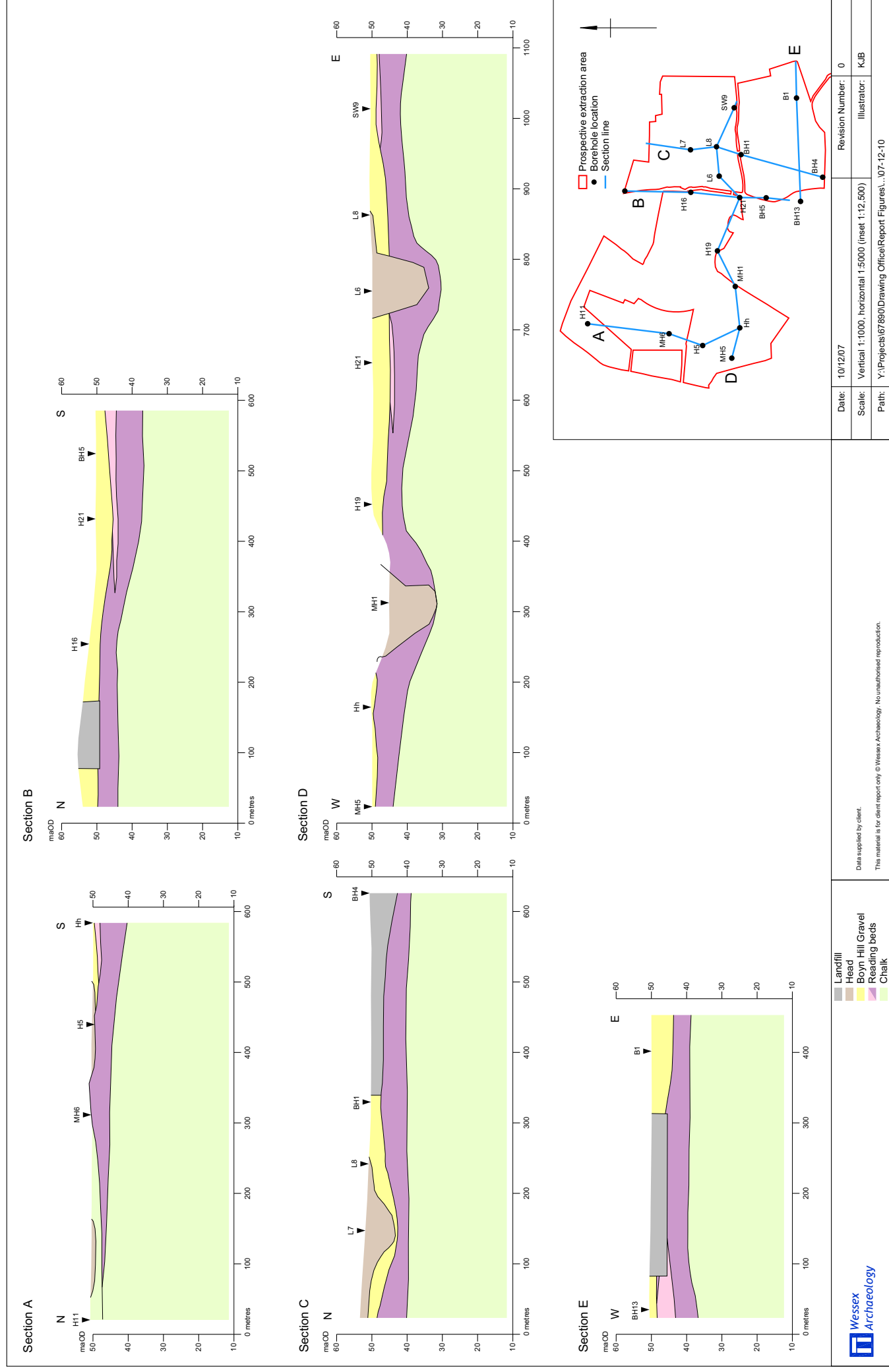


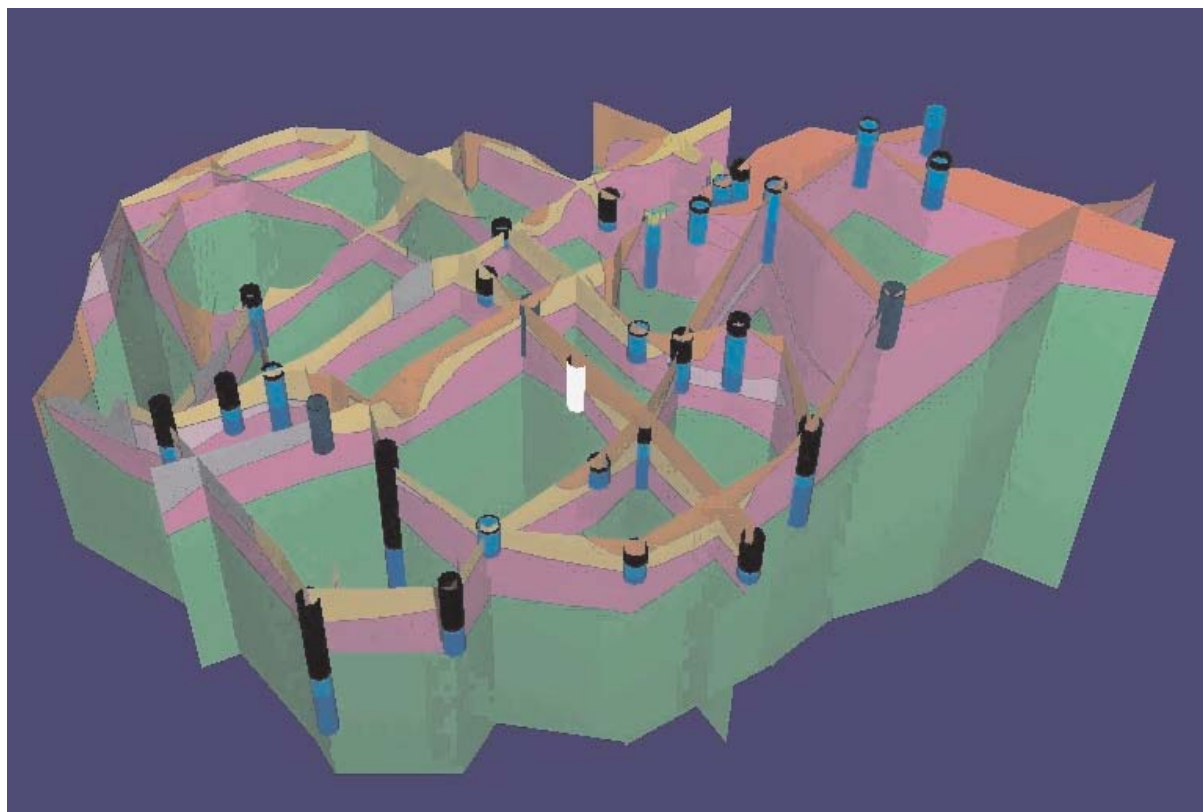
Site Location and Study Area showing Buckinghamshire County Council Historic Environment Records



Borehole and section locations with surface geology

Figure 3





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Plate 2: Palaeochannel



Plate 3: Swallow hole

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Plate 4: Devrills Pit



Plate 5: Trackway

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