Written Scheme of Investigation: Archaeological Investigations

October 2015

The Infrastructure Planning (Examination Procedure) Rules 2010
A14 Cambridge to Huntingdon improvement scheme

Written Scheme of Investigation: Archaeological Investigations

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1 Introduction

1.1 Background

1.1.1 Highways England intends to improve the A14 trunk road in Cambridgeshire between Ellington on the western outskirts of Huntingdon and Milton Junction on the Cambridge Northern Bypass. These proposals are known as the A14 Cambridge to Huntingdon improvement scheme.

1.1.2 This Written Scheme of Investigation will be formally approved by the Secretary of State as per Requirement 8 of the Development Consent Order.

1.1.3 The Design Consultant will be commissioned by Highways England to manage a programme of archaeological investigations. The archaeological investigations will comprise two phases of activity.

Phase 1

1.1.4 Phase 1 will include a programme of:

- geophysical survey, and
- trial trenching.

1.1.5 The Phase 1 surveys are to be undertaken following the requirements of the specification produced by Jacobs in 2014; A14 Cambridge to Huntingdon Improvements Geophysical Survey and Archaeological Trial Trenching (Jacobs 2014). Note: trench densities will be reduced from that shown in the WSI (Jacobs 2014) to form a spatial array that will:

- focus on any known archaeological evidence;
- test anomalies found in non-intrusive surveys instigated by this scheme and its precursor; and
- test blank areas of land within the scheme footprint within areas identified on the supporting archaeological mitigation areas maps (B2410000/ArchMit Sheets 1 to 14).

1.1.6 The Phase 1 surveys will include Borrow Pit 5 and the Flood Compensation Areas. Other areas will be identified in the WSI noted in 1.1.5. These investigations are to define areas to be included in the archaeological mitigation investigations.

Phase 2

1.1.7 Phase 2 activities comprise:

- Geoarchaeological assessment and analysis;
• Earthwork Survey;
• Photographic Survey;
• Targeted Excavation;
• Limited Strip, Map and Sample Excavation, and
• Limited Watching Brief.

1.1.8 All archaeological works shall be planned, managed and undertaken based on the guidance provided by, but not limited to the following documents:

• English Heritage, 2006a, Management of Research Projects in the Historic Environment (MoRPHE);
• English Heritage, 2006b, Understanding Historic Buildings: A guide to good practice;
• Cambridgeshire County Council, 2014, Deposition of Archaeological Archives in Cambridgeshire;
• Chartered Institute for Archaeologists, 2014a, Code of Conduct;
• Chartered Institute for Archaeologists, 2014b, Standard and guidance: Archaeological excavation;
• Chartered Institute for Archaeologists, 2014c, Standard and guidance for the collection, documentation, conservation and research of archaeological materials;
• Chartered Institute for Archaeologists, 2014d, Standard and Guidance for the creation, compilation, transfer and deposition of archaeological archives;
• Chartered Institute for Archaeologists, 2014e, Standard and Guidance for archaeological geophysical survey, and
• Chartered Institute for Archaeologists, 2014f, Standard and Guidance: archaeological watching brief.

1.2 General Information

1.2.1 The following terms are used throughout this document:

• The Employer means Highways England, who will appoint the
Principal Contractor and Contractor.

- **Design Consultant** means the Integrated Delivery Team to fulfil this role.
- **Consultant** means the individual appointed by the Design Consultant to fulfil this role.
- **Principal Contractor** means the organisation appointed by the Employer to carry out the main phase construction works.
- **The Contractor** means the archaeological organisation appointed by the Employer to carry out the work defined in this WSI.
- **The Curator** means Cambridgeshire County Council Historic Environment Team Officers, the Inspectors of Ancient Monuments and Historic Buildings (at Historic England) or their representative(s) on this project. Please consult the Curator for information regarding archives, data and event codes prior to the commencement of works.
2  Background

2.1  Scheme description

2.1.1  The scheme comprises the following elements:

- Widening of the A1 between Brampton and Alconbury over a length of approximately 5.6 km (3.5 miles) from the existing two lane dual carriageway to a three lane dual carriageway. Between Alconbury and Brampton Hut this would generally be achieved by widening on the east side of the existing road; between Brampton and Brampton Hut a new road would be constructed to the west of the existing A1 which would become the new A1. This would enable the existing carriageway over this length to form part of the new A14 Huntingdon southern bypass. A local access road approximately 2.5 km (1.6 miles) long would link the Ellington Junction with Woolley Road.

- A new Huntingdon southern bypass of approximately 20 km (12.5 miles) in length, which would provide a two lane dual carriageway between Ellington and the A1 at Brampton and a three lane dual carriageway between Brampton and Swavesey. The new bypass would cross over the river Great Ouse and the East Coast mainline railway, and would include junctions with the A1 at Brampton and with the A1198 at Godmanchester.

- Downgrading the existing A14 trunk road (by de-trunking to county road status, with ownership transferred to local government) over approximately 21 km (13 miles) between Brampton Hut and Swavesey, as well as between Alconbury and Spittals interchange.

- Huntingdon town centre improvements, including the closure and demolition of the A14 viaduct over the East Coast mainline railway and Brampton Road in Huntingdon. A new link road would be constructed to improve accessibility into Huntingdon from the south and east by connecting the old A14 directly with Huntingdon ring road near the bus station, and by constructing a new link road from Brampton Road to connect with the A14 to the west. As such, a through route for light vehicles would be maintained.

- Widening of the existing A14 over approximately 7.9 km (5 miles) to provide three lanes in each direction between Swavesey and Bar Hill, and four lanes in each direction between Bar Hill and Girton.

- Widening of a 2.5 km (1.5 mile) section of the Cambridge northern bypass between Histon and Milton.

- Improving existing A14 junctions at Swavesey, Bar Hill and Girton in order to increase the road’s capacity, ensure compatibility with adjacent proposed developments such as Northstowe, and provide improved connections for non-motorised users.
- A new local access road following the route of the A14 over a distance of approximately 8 km (5 miles), including construction of a dual carriageway link between the existing A14 near Fen Drayton and Swavesey junction and a single carriageway between Swavesey and Girton. The road would provide a route for local traffic between Cambridge and Huntingdon as well as providing access to properties and businesses along the corridor.
2.2 Archaeological background summary

2.2.1 Time periods referred to in the text are presented in Table 2.1 below:

Table 2-1: Archaeological and historical time periods

<table>
<thead>
<tr>
<th>Period</th>
<th>Dates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Palaeolithic</td>
<td>(2,500,000 – 8000 BC)</td>
</tr>
<tr>
<td>Mesolithic</td>
<td>(7000 – 4000 BC)</td>
</tr>
<tr>
<td>Neolithic</td>
<td>(4000 – 2200 BC)</td>
</tr>
<tr>
<td>Bronze Age</td>
<td>(2500 – 700 BC)</td>
</tr>
<tr>
<td>Iron Age</td>
<td>(800 BC – AD 43)</td>
</tr>
<tr>
<td>Roman</td>
<td>(AD 43 – 410)</td>
</tr>
<tr>
<td>Early Medieval</td>
<td>(AD 410 – 1066)</td>
</tr>
<tr>
<td>Medieval</td>
<td>(AD 1066 – 1540)</td>
</tr>
<tr>
<td>Post Medieval</td>
<td>(AD 1540 – 1901)</td>
</tr>
<tr>
<td>Modern</td>
<td>(AD 1901 to present)</td>
</tr>
</tbody>
</table>

Geological periods referred to are Pleistocene: 2,588,000 to 11,700 BP (Before Present (1950)) and Holocene: 11,700 BP to present. Plans showing the Superficial deposits and Bedrock geology are presented in Figure 12.2 and 12.3 of the Environmental Statement.

2.2.2 The following paragraphs summarise the archaeological background of the scheme. A full archaeological and historical background to the scheme can be found in Appendix 9.3 Cultural heritage desk-based study of the Environmental Statement (Highways England, 2014).

2.2.3 The earliest known prehistoric activity in the study area dates to the Upper Palaeolithic (45,000-10,000 BP), Mesolithic (7,000 BC – 4,000 BC) and Neolithic (4,000 - 2,200 BC) periods and comprises small quantities of worked flint tools. Later prehistoric activity is represented by enclosures and linear features, thought to be the remains of field systems, identified through analysis of aerial photographs. These are likely to date to the Bronze Age (2500-700 BC) or Iron Age (800 BC – AD 43) periods. Enclosures are a common feature of the Iron Age and Roman period (AD 43 – 410) Cambridgeshire landscape; enclosures generally comprise a bank and ditch enclosing an area that contained roundhouses and pens for animals. The area is crossed by a number of Roman roads notably Ermine Street.

2.2.4 Spreads of worked flints and pottery from these periods have been identified at a number of locations throughout the study area and while these indicate activity, they do not appear to be directly associated with settlement.

2.2.5 Medieval activity (AD 410 – 1540) is largely focussed on Huntingdon with an Anglo-Saxon (AD 410 – 1066) settlement being developed as a Danish burh (asset 437), and after the Norman invasion construction of a motte and bailey castle in AD 1068 (asset 250). Some of the villages outside Huntingdon have their origins in the medieval period and two were deserted. Remains of fields dating to the medieval period have also been identified. Later medieval (AD 1066 – 1540) and post medieval (1540 – 1901) activity is largely...
represented by the urban development of Huntingdon, surrounding villages, along with the development of agriculture landscape through enclosure and later large scale arable farming. Activity dating to the modern period is represented by military sites including the former RAF Brampton (asset 181) and other World War II civil defences.

2.2.6 In the study area, buried archaeological remains predominate, usually with no visible above-ground remains. The setting\(^1\) of these assets is primarily open and rural characterised by large-scale farming, but there was also industrial development and housing during the 20th century. While function and inter-relationships can be inferred from their locations, the importance of these assets derives from the information that can be retrieved from their physical remains, rather than their setting.

\(^1\) Setting is the surroundings in which an asset is appreciated (English Heritage, 2011).
3 Aims and Objectives

3.1 General Aims

3.1.1 In general the purpose of an archaeological investigation is to determine and understand the nature, function, and character of an archaeological site in its cultural and environmental setting.

3.1.2 The general aim of the archaeological investigations is to ensure that archaeological remains are identified, and to mitigate the impact of the development on any such remains by making a record of them.

3.1.3 More specific aims and objectives are as follows:

- to identify, investigate and record any such archaeological remains to the extent possible by the methods put forward in this Specification;
- to determine (so far as possible) the stratigraphic sequence and dating of the deposits or features identified;
- to undertake a programme of analysis and synthesis of the investigations; and
- to disseminate the results of the investigations through deposition of an ordered archive at the suitable repositories for both physical and digital material, the deposition of a series of detailed reports and GIS data at the Historic Environment Record and publication(s) at a level of detail appropriate to the significance of the results.

Geophysical Survey

3.1.4 The aims of the geophysical survey are:

- to identify (so far as possible) the presence of buried archaeological remains or suspect anomalies in the survey area, in order to assist with the determination of the limits of targeted excavations areas (see below);
- to clarify the extent and layout of known sites of archaeological interest within or adjacent to the study area;
- to clarify the extent and layout of previously unknown buried remains within the survey area; and
- to interpret any geophysical anomalies identified by the survey.

Trial Trenching

3.1.5 The aims of the trial trenching are:

- To identify the presence or absence of any buried archaeological
remains along sections of the scheme in order to determine the limits of targeted excavations areas (see below);

- To identify, investigate and record any such archaeological remains to the extent possible by the methods put forward in this Specification;
- To establish the level of preservation of any buried remains and provide a chronology of the archaeological phasing; and
- To disseminate the results through reporting that will inform the requirement for further work.

**Geoarchaeological Assessment and Analysis**

3.1.6 The aims of the specialist geoarchaeological assessment and analysis are to identify potential remains within or below deposition sequences present within the Great Ouse river valley or derived from palaeo-fluvial activity, and to extend understanding of the palaeoenvironment where this is associated with archaeological activity. Geoarchaeological assessment will establish the requirement for further analysis and absolute dating of appropriate samples and may also refine excavation strategies in the field.

**Earthwork Survey**

3.1.7 The aims of the earthwork survey are to record and characterise the topographic detail of upstanding archaeological remains prior to their removal and subsequent excavation of any underlying archaeological remains.

**Photographic Survey**

3.1.8 The aims of the photographic survey are to mitigate the impact of the construction of the scheme on the setting of assets with upstanding remains by ensuring that a record is made of their setting before commencement of construction.

**Targeted Excavation**

3.1.9 The aims of the targeted excavation are to mitigate the impact of construction of the scheme on known archaeological remains, by ensuring that they are fully investigated, recorded and interpreted. More detailed aims and objectives are:

- to identify, fully investigate and record any such archaeological remains to the extent possible by the methods put forward in this WSI;
- to determine (so far as possible) the stratigraphic sequence and dating of the deposits or features identified;
- to establish the economic and environmental context and content of investigated archaeological deposits and features, and
• to disseminate the analysed results through deposition of an ordered archive with Cambridgeshire County Council’s Historic Environment Team (see Appendix B), the deposition of a detailed report(s) at the Historic Environment Record, and through the production of reports and publication at a level of detail appropriate to the significance of the results.

Strip, Map and Sample Excavation

3.1.10 The aims of the strip, map and sample excavation are to assist in defining the extent of archaeological remains that will be subject to targeted excavation strategies in order to mitigate the impact of construction of the scheme on potential archaeological remains, by ensuring that such remains are not subject to unrecorded loss. More detailed aims and objectives are:

• to identify, investigate and record any such archaeological remains that may extend in a buffered area beyond the targeted excavation zone to the extent possible by the methods put forward in this WSI;

• to incorporate the results of areas subject to this method of examination into the main post-excavation programmes designed for areas subject to targeted excavation.

Watching Brief

3.1.11 The aims of the archaeological watching brief minor works programme are to ensure that any archaeological remains are identified during the course of construction in specific areas (see below), and to mitigate the impact of the construction of the scheme on any such remains by their investigation and making a record of them. More specific aims and objectives are:

• to identify, investigate and record any such archaeological remains to the extent possible by the methods put forward in this WSI;

• to determine (so far as possible) the stratigraphic sequence and dating of the deposits or features identified;

• to establish any economic and environmental potential of archaeological deposits and features, and

• to disseminate the results through deposition of an ordered archive with Cambridgeshire County Council’s Historic Environment Team,(see Appendix B), the deposition of a detailed report(s) at the Historic Environment Record, and reporting at a level of detail appropriate to the significance of the results.
3.2 Specific Aims

Following the Chartered Institute of Archaeologists Standard and Guidance for Archaeological Excavation (2014) the areas where mitigation is proposed have been identified and selected on the basis of specific aspects or themes relating to defined research interests. The specific research aims are presented in Table 3.1 and are based on the Research and Archaeology: A Framework for the Eastern Counties, 2. research agenda and strategy (eds Brown, N and Glazebrook, J 2000) and Research and Archaeology Revisited: a revised framework for the East of England (Medlycott, M 2011), and the results of work undertaken to date to inform the Environmental Statement (Highways England 2014a and b). These aims are intended to inform the Site-Specific Written Scheme of Investigation that will be produced for each mitigation area; these documents will develop these aims further. Based on the results of the investigations, some aims may not be achievable to preservation of environmental material, lack of artefacts or absence of activity dating to a specific/identifiable time period. The aims will be reviewed during fieldwork and revised where practicable; all revised aims will be presented in the Post-excavation Assessment and Updated Research Design.

Comparative schemes in Cambridgeshire, such as the A428 Caxton Common to Hardwick Improvement Scheme, and the Cambourne new town development area (Wright et al. 2009), produced results similar to those identified by the evaluations in 2009/10 and 2014. The evidence from the Late Iron Age and Roman settlements that were off-set from the Cambridge to St Neots Roman Road indicated that the enclosures and field systems were seemingly basic in form, comprising relatively small number of ditches and associated features such as pits and watering holes. However, noteworthy artefact and environmental assemblages, which in the case of the A428 included coin hoards, metal objects and significant quantities of pottery, including cheese presses, combined with cemetery evidence to provide a detailed picture of the livelihoods and character of the inhabitants of these clayland farmsteads known to occur at 500m intervals (Abrahams and Ingham 2008). Examples of intensive multi-period settlements and farmsteads (Middle Bronze Age to Saxon) have been excavated at Girton (the 'NW Cambridge’ development area) and at Northstowe, which were off-set from the more Via Devana Roman Road (the current A14 and Huntingdon Roads broadly follow its route) in this section between the small Roman towns at Cambridge and Godmanchester (Evans et al. 2008).

Strategies to deal with various site morphologies of differing complexities, along with the potential recovery of large and/or complex artefact assemblages shall be addressed in the Site-specific Written Schemes of Investigation.
Table 3-1: Table title [A14 Caption for tables and figures]

<table>
<thead>
<tr>
<th>Area Name/Ref</th>
<th>Archaeological Background</th>
<th>Proposed Works</th>
<th>Research Objectives</th>
</tr>
</thead>
<tbody>
<tr>
<td>Borrow Pit 1 (north area, to the south of Brampton Services)</td>
<td>The geology of this area is river terrace gravels, with a band of alluvium at Brampton Services. Air photographic analysis, geophysical survey and trial trenching in this area has identified a series of possible enclosures indicating multi-period occupation of the site (Highways England 2014a and b). The archaeological features include a ring ditch measuring 45m in diameter that may be a Bronze Age barrow. Later features include sub-circular enclosures and straight linear features, which in a number of cases appear to intercut, indicating more than one period of use. These types of feature have been interpreted as evidence of settlement dating from the mid-Iron Age through the Roman period; the enclosures potentially represent domestic settlement and pastoral agricultural activity (Highways England 2014a). Trial trenching in the area produced scant dating evidence, however, a kiln was identified which could provide further detail on the development of local pottery. The dates of the features in this area are based on the character and form, which indicate an Iron Age to Roman date. Examples of the types of site noted above were excavated along the A428 Caxton Common to Hardwick Improvement Scheme to the south of the A14 Improvements (Abrams and Ingham 2008).</td>
<td>Targeted archaeological excavation</td>
<td>The research objectives for the excavation of this area are linked to: Bronze Age • Funerary practice; in particular what is the evidence for the relationship between settlements sites and burial, and the development of and use of monuments? (Medlycott (ed) 2011, 20-21); Research theme of landscape and settlement; this focuses on the development of the character and form of the agricultural landscape of the in the Iron Age and Romano-British period (Medlycott (ed) 2011, 25-26 33-37, and 84). Iron Age • Development of the agricultural systems and economy – what is evident in the landscape, does field morphology offer any information, potential of faunal remains to inform study (animal bone and charcoal were recovered in these areas indicating that the is the potential for preservation of these materials)?; • Settlement chronologies and dynamics - activity in this area dates from the Late Iron Age to 4th century AD has</td>
</tr>
</tbody>
</table>
### Area Name/Ref

### Archaeological Background

### Proposed Works

### Research Objectives

been identified indicating the possibility of continued development and use of settlements – is there evidence for abandonment/reuse/continuity?
- Settlement types - spatial use within settlement; are there clear working and living areas/zoning?; and
- Social organisation – what evidence is there to indicate this?

Roman
- Agriculture – consumption and production; what is being produced where?
- Rural settlements and landscapes – how did their morphology develop and what is the inter-relationship between settlement and agricultural land?; and
- Romanisation - what were the processes of Romanisation of the indigenous population?

The research theme of Late Iron Age/Roman transition (Medlycott ed) 2011, 26-28) applies to this area – this would include the examination of artefact collections, specifically the development of ceramic typology to add to the chronological sequence. Although the evaluation collected small quantities of material the presence of a kiln and the density of archaeological features in the area indicate there is a medium potential to provide sufficient material to address this aim.
### Borrow Pit 2

**Archaeological Background**

The geology of this area is river terrace gravels. Air photographic analysis, geophysical survey and trial trenching in this area has identified a series of ditches and pits indicating multi-period occupation of the site (Highways England 2014a and 2014b). Features identified comprise straight linear ditches, which in a number of cases appear to intercut; this indicates more than one period of use. A number of pits were also identified. These feature types have been interpreted as possible evidence of settlement dating from the mid-Iron Age through the Roman period; the enclosures represent domestic settlement and pastoral agricultural activity.

Pottery dating to the Iron Age and Roman periods, along with animal bone and a copper alloy armlet was recovered during trial trenching.

Examples of the types of site noted above were excavated along the A428 Caxton to Hardwick Improvement Scheme to the south of the A14 Improvements (Abrahams and Ingham, 2008).

**Proposed Works**

Targeted archaeological excavation

**Research Objectives**

Targeted archaeological excavation at Borrow Pit 1 would also potentially provide information on the topic of processes of economic and social change and development during the late Iron Age and Iron Age/Roman transition (Medlycott (ed) 2011, 29).

The research objectives for the excavation of this area are linked to:

- The theme of landscape and settlement; this is development of the character and form of the agricultural landscape of the in the Iron Age and Romano-British period (Medlycott (ed) 2011, 25-26, 33-37, and 84).

- Iron Age
  - Development of the agricultural systems and economy – what is evident in the landscape, does field morphology offer any information, potential of faunal remains to inform study?
  - Settlement chronologies and dynamics – activity dating from the Middle Iron Age to late Roman period has been identified indicating the possibility of continued development and use of settlements;
  - Settlement types - spatial use within settlement; are there clear working and living areas/zoning? and
  - Social organisation – what evidence is
<table>
<thead>
<tr>
<th>Area Name/Ref</th>
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<th>Proposed Works</th>
<th>Research Objectives</th>
</tr>
</thead>
<tbody>
<tr>
<td>Offline route south of Borrow Pit 1 to Buckden Marina</td>
<td>The geology of this area is river terrace gravels, with an area of alluvium running along the course of the river Great Ouse. Air photographic analysis, geophysical survey and trial trenching in this area has identified Bronze Age and Iron Age/Roman activity (Highways England 2014a and 2014b). Trial trenching in 2009/10 identified the presence of an Early Bronze Age barrow located on a ridge overlooking the Ouse basin. The evidence indicates two phases of development of</td>
<td>Targeted archaeological excavation</td>
<td>The research objectives for the excavation of this area are linked to: Research theme of landscape and settlement; this is development of the character and form of the agricultural landscape from the Neolithic to the end of the Romano-British period (Brown and Murphy 2001, 10 and Medlycott (ed) 2011, 25-26, &amp; 33-37, and 84).</td>
</tr>
</tbody>
</table>

There to indicate this?
- Roman
  - Agriculture – consumption and production; what is being produced where (this is dependent on the survival of pollen and other ecofactual materials)?
  - Rural settlements and landscapes – how did their morphology develop?
  - Romanisation – what were the processes of Romanisation of the indigenous population?

The research theme of Late Iron Age/Roman transition (Medlycott (ed) 2011, 26-28) would also apply to this area – this would include artefact collections, specifically the development of ceramic typology. Excavation may also provide information on the topic of processes of economic and social change and development during the late Iron Age and Iron Age/Roman transition (Medlycott (ed) 2011, 29).
<table>
<thead>
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</thead>
</table>
|              | the barrow. The first phase was a shallow ring-ditch c. 20m in diameter, the second phase was represented by larger deeper ditch c. 40m in diameter. Twelve cremations were found within the second barrow, including two in Deverel-Rimbury vessels indicating a Middle Bronze Age date (1500-100 BC) for the later barrow. A possible fieldsystem of the same date was also identified in the area (Evans and Standring 2012, 91). Iron Age and Roman activity comprised a series of small rectilinear enclosures and pits; quarrying activity in this area has been dated to the Roman period. The enclosures are likely to be associated with pastoral agriculture practices. | | Bronze Age  
• Funerary practice; in particular the relationship between settlements sites and burial, and the development of and use of monuments (Medlycott (ed) 2011, 20-21);  
• Regional variations – what evidence is there for the development of fieldsystems and land division in the 2nd millennium BC. This would be based on comparative studies including the work done on Bronze Age fieldsystems by by Yates (2007); and  
• Development of agricultural landscapes in the Bronze Age – what is the evidence for the interdependency of settlement, funerary elements and agricultural land (Brown and Murphy 20001, 10)?; as above this would draw on work done by Yates (2007). |  
|              |                           | | Iron Age  
• What is evident in the landscape, does field morphology offer any information, what is the potential of faunal remains to inform study (animal bone and charcoal were recovered in these areas indicating that the is the potential for preservation of these materials)?; and  
• Social organisation – what evidence is there to indicate this? |
<table>
<thead>
<tr>
<th>Area Name/Ref</th>
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<th>Research Objectives</th>
</tr>
</thead>
<tbody>
<tr>
<td>East of Buckden Marina to the B1043</td>
<td>The geology of this area is Diamicton, which is usually a sandy, silty-clay that can contain gravel rich, or laminated sand layers. There is also an area of alluvium running along the course of the river Great Ouse. Air photographic analysis, geophysical survey and trial trenching in this area has identified Late Neolithic/Bronze Age, Middle Iron Age and Iron Age/Roman activity. The following is a summary of Evans and Standring (2012, 91-93):</td>
<td>Targeted archaeological excavation; geoarchaeological assessment and analysis (to include possibility of mapping the prehistoric riverine landscape)</td>
<td>The research objectives for the excavation of this area are linked to: The research theme of landscape and settlement; this is the development of the landscape in the late Pleistocene and early Holocene periods, and the development of the character and form of the agricultural landscape.</td>
</tr>
<tr>
<td>Area Name/Ref</td>
<td>Archaeological Background</td>
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<tr>
<td></td>
<td>A small area of late Neolithic/Bronze Age activity was identified in the Ouse Valley area in the area adjacent to the viaduct pier on the east bank of the River Great Ouse. This comprised a burnt flint and a wooden post sealed by an alluvial sequence, suggesting the area was waterlogged, possibly on a seasonal basis. The presence of a palaeochannel suggests that the River Great Ouse was made up of a series of braided channels during the early prehistoric period.</td>
<td>from the Neolithic to the end of the Romano-British period (Brown and Murphy 2000, 10 and Medlycott (ed) 2011, 25-26, &amp; 33-37, and 84). Early prehistoric • Riverine landscape – development of the landscape, possibility of identifying events such as seasonal flooding, and date sequences; and • Utilisation of marginal land – what evidence of use, activity specific?</td>
<td>Neolithic and Bronze Age • Regional variations – what evidence is there for the development of fieldsystems and land division in the 2nd millennium BC. This would be based on comparative studies including the work done on Bronze Age fieldsystems by Yates (2007); and • Development of agricultural landscapes in the Neolithic and Bronze Age – concepts of interdependency of settlement, funerary elements and agricultural land (Brown and Murphy 2000, 10). As above this would draw on work done by Yates (2007).</td>
</tr>
</tbody>
</table>
### Archaeological Background

**Area Name/Ref**: East of Offord Hill Farm to Ermine Street

The geology of this area is Diamicton, which is usually a sandy, silty-clay that can contain gravel rich, or laminated sand layers.

Air photographic analysis, geophysical survey and trial trenching in this area has identified a series of ditches and pits in this area, most of which did not contain any dating material. (animal bone and charcoal were recovered in these areas indicating that there is the potential for preservation of these materials); and

#### Research Objectives

- **Roman**: Agriculture – consumption and production; what is being produced where?
- **Rural settlements and landscapes (field morphology)** – how far can the size and shapes of fields be used to identify agricultural regimes?
- **Romanisation**: is there evidence of Romanisation on agricultural practice?

The research theme of Late Iron Age/Roman transition (Medlycott (ed) 2011, 26-28) would apply to this area – this would include artefact collections, specifically the development of ceramic typology. Excavation may also provide information on the topic of processes of economic and social change and development during the late Iron Age and Iron Age/Roman transition (Medlycott (ed) 2011, 29).

#### Proposed Works

**Targeted archaeological excavation**

Due to the lack of dated features the research aims for this area are based on the premise of an open agricultural landscape. As a result the aims are:

- **Iron Age**: Development of the agricultural landscape

#### Targeted archaeological excavation

<table>
<thead>
<tr>
<th>Area Name/Ref</th>
<th>Archaeological Background</th>
<th>Proposed Works</th>
<th>Research Objectives</th>
</tr>
</thead>
<tbody>
<tr>
<td>East of Offord Hill Farm</td>
<td>The geology of this area</td>
<td>Targeted archaeological excavation</td>
<td>study (animal bone and charcoal were recovered in these areas indicating that there is the potential for preservation of these materials); and</td>
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<tr>
<td>to Ermine Street</td>
<td>is Diamicton, which is</td>
<td></td>
<td><strong>Social organisation</strong> – what evidence is there to indicate this?</td>
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<tr>
<td></td>
<td>usually a sandy, silty-clay that can contain gravel rich, or laminated sand layers.</td>
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<td><strong>Roman</strong>: Agriculture – consumption and production; what is being produced where?</td>
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<tr>
<td></td>
<td>Air photographic analysis, geophysical survey and trial trenching in this area has identified a series of ditches and pits in this area, most of which did not contain any dating material. (animal bone and charcoal were recovered in these areas indicating that there is the potential for preservation of these materials); and</td>
<td></td>
<td><strong>Rural settlements and landscapes (field morphology)</strong> – how far can the size and shapes of fields be used to identify agricultural regimes?</td>
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<td><strong>Romanisation</strong>: is there evidence of Romanisation on agricultural practice?</td>
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<tr>
<td>Area Name/Ref</td>
<td>Archaeological Background</td>
<td>Proposed Works</td>
<td>Research Objectives</td>
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<tr>
<td>East of Ermine Street to Borrow Pit 3.</td>
<td>The geology of this area is mixed, and comprises Diamicton, Oxford Clay formation and River Terrace gravels (Borrow Pit 3 is situated on the gravel deposits). Air photographic analysis, geophysical survey and trial trenching in this area has identified Romano-British activity. Evidence for Pleistocene was identified at the nearby site of Woolpack Farm. No evidence of the Roman Ermine Street was identified during trial trenching in 2009 (Highways England 2014a and 2014b). A series of ditches of variable sizes were identified spread across this area, along with a waterhole. Although little dating material. A small quantity of pottery of Iron Age or Roman origin was recovered from two of the ditches.</td>
<td>Targeted archaeological excavation; Specialist strategy required to monitor the excavation of the gravel units in order to understand the context/find further evidence of Palaeolithic remains. Geoarchaeological assessment and analysis possibly required, should peats and interbedded systems and economy – what is evident in the landscape, does field morphology offer any information, potential of faunal remains to inform study (animal bone and charcoal were recovered in these areas indicating that the is the potential for preservation of these materials)?; and • Social organisation – what evidence is there to indicate this? Roman • Agriculture – consumption and production; what is being produced where?; • Rural settlements and landscapes; and • Romanisation – is there evidence of Romanisation on agricultural practice?</td>
<td>The research theme of landscape and settlement; this is development of the character and form of the agricultural landscape from during Romano-British period (Brown and Murphy 2001, 21 and Medlycott (ed) 2011, 47-48 and 84). Early prehistoric • Riverine landscape – development of the landscape, possibility of identifying events such as seasonal flooding and date sequences; and • Utilisation of marginal land – what evidence of use, activity specific? Roman</td>
</tr>
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</table>
### Area Name/Ref
- Borrow Pit 3 and eastern junction

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<tr>
<th>Archaeological Background</th>
<th>Proposed Works</th>
<th>Research Objectives</th>
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</table>
| evidence was recovered the character of the features indicates a Romano-British date. The number of linear ditches and the waterhole suggest that the area was used for pastoral agricultural practices. | river deposits be present in the gravel body. | - Agriculture – consumption and production; what is being produced where?;  
- Rural settlements and landscapes (fieldmorphology) – how far can the size and shapes of fields be used to identify agricultural regimes?;  
- Romanisation – is there evidence of Romanisation on agricultural practice?; and  
- Infrastructure – How correct is the hypothesised location of Ermine Street? What structural evidence exists? Are minor roads evident in the immediate landscape? |

The geology of this area comprises Oxford Clay formation and River Terrace gravels (Borrow Pit 3 is situated on the gravel deposits). An area of alluvium (peat) has been identified by TEA 33.

Geophysical survey and Unmanned Aerial Vehicle (UAV) survey identified evidence of three basic phases of activity. The earliest comprised a series of palaeochannels cut into the superficial geology; these are likely to date to the late Pleistocene and early Holocene periods. The second phases consist of a small number of linear ditches and possible enclosures. The date of these is uncertain, but as they appear to pre-date ridge and furrow then the *terminus ante quem* would be the medieval period. The third phase comprises evidence of agricultural activity in the form of ridge and furrow deposits.

Targeted archaeological excavation

The theme of landscape and settlement; this is the development of the landscape in the late Pleistocene and early Holocene periods, and the development of the character and form of the agricultural landscape from the Neolithic to the end of the Romano-British period (Brown and Murphy 2001, 10 and Medlycott (ed) 2011, 25-26, & 33-37, and 84).

**Early prehistoric**
- Riverine landscape – development of the landscape, possibility of identifying events such as seasonal flooding and the date of any alluvial sequences; and  
- Utilisation of marginal land – what evidence is there of use, is any activity specific?
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<th>Area Name/Ref</th>
<th>Archaeological Background</th>
<th>Proposed Works</th>
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<tbody>
<tr>
<td></td>
<td>and furrow ploughing, ploughing and field boundaries marked as banks (Highways England 2014b).</td>
<td></td>
<td>Iron Age</td>
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</table>
|              |                           |               | • Development of the agricultural systems and economy – what is evident in the landscape, does field morphology offer any information, potential of faunal remains to inform study (animal bone and charcoal were recovered in these areas indicating that the is the potential for preservation of these materials)?;  
• Settlement chronologies and dynamics;  
• Settlement types - spatial use within settlement; are there clear working and living areas/zoning?; and  
• Social organisation – what evidence is there to indicate this? |
|              |                           |               | Roman             |
|              |                           |               | • Agriculture – consumption and production; what is being produced where?;  
• Rural settlements and landscapes – how did their morphology develop and what is the inter-relationship between settlement and agricultural land?; and  
• Romanisation - what were the processes of Romanisation of the indigenous population? |

The research theme of Late Iron Age/Roman transition (Medlycott (ed) 2011, 26-28) would also apply to this area – this would include the examination of artefact collections, specifically
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<th>Area Name/Ref</th>
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<th>Research Objectives</th>
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</table>
| Connington Road (south of Fenstanton), Cambridge Services | The geology of this area is Ampthill Clay and Kimmeridge Clay formation. Geophysical and survey identified evidence of multi-period settlement including an early Saxon burial; radiocarbon dated to AD 540-640. Features identified included linear ditches, pits and possible evidence of a penannular gully. Artefactual evidence includes worked flints, iron objects and pottery from the Iron Age, Roman and Saxon period (Highways England 2014b). | Targeted archaeological excavation | The research objectives for the excavation of this area are linked to:  
- The research theme of landscape and settlement; this is development of the character and form of the agricultural landscape in the Iron Age and Romano-British period (Medlycott (ed) 2011, 25-26, & 33-37, and 84). Themes of burial and the Roman/Anglo-Saxon transition also apply to his area (Medlycott (ed) 2011, 57-59).  
- Bronze Age  
  • Regional variations – what evidence is there for the development of fieldsystems and land division in the 2nd millennium BC. This would be based on comparative studies including the work done on Bronze Age fieldsystems by Yates (2007); and  
  • Development of agricultural landscapes in the Neolithic and Bronze Age – concepts of interdependency of settlement, funerary elements and agricultural land (Brown and Murphy 2000, 10). As above this would draw on work done by Yates (2007). |
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<td>Iron Age</td>
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<td>• Development of the agricultural systems and economy – what is evident in the landscape, does field morphology offer any information, potential of faunal remains to inform study (animal bone and charcoal were recovered in these areas indicating that there is potential for preservation of these materials)?;</td>
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<td>• Settlement chronologies and dynamics - activity in this area dates from the Late Iron Age to early Anglo-Saxon (early medieval) period has been identified indicating the possibility of continued development and use of settlements; – is there evidence for abandonment/reuse/continuity?;</td>
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<td></td>
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<td>• Settlement types - spatial use within settlement; are there clear working and living areas/zoning?; and</td>
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<td>• Social organisation – what evidence is there to indicate this?</td>
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<td>Roman</td>
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<td>• Agriculture – consumption and production; what is being produced where?;</td>
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<td>• Rural settlements and landscapes (field morphology) – how far can the size and shapes of fields be used to identify agricultural regimes?; and</td>
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<td>• Romanisation – is there evidence of</td>
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</table>
### Area Name/Ref
- Barhill North including soil storage area

### Archaeological Background
- The geology of this area is Ampthill Clay and Kimmeridge Clay formation and Woburn Sand formation.

- Air photographic analysis was undertaken in 2004 as part of the A14 Ellington to Fen Drayton scheme. Geophysical survey and trial trenching were undertaken to inform the environmental impact assessment for the Northstowe Development (Evans *et al.* 2007).

- Investigations at Northstowe identified possible Middle Bronze Age funerary or ritual monuments. Further evidence of Anglo-Saxon settlement activity was also identified (English Partnerships and Gallagher Longstanton Ltd 2007).

- At least two phases of settlement were identified in the trial trenching (Evans *et al.* 2007). The earliest phase comprised a

### Proposed Works
- Targeted archaeological excavation

### Research Objectives

<table>
<thead>
<tr>
<th>Romanisation on agricultural practice?</th>
</tr>
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<tbody>
<tr>
<td>- Ritual and religion – how does the archaeological evidence contribute to the understanding of the burial practices and treatment of the dead.</td>
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<tr>
<th>Medieval</th>
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<tbody>
<tr>
<td>- Roman/Anglo-Saxon transition – what is the evidence for continuation of Roman forms of settlement or introduction of new practices; and</td>
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<tr>
<td>- Ritual and religion – is there evidence for a change in burial practice or other ritual practices?.</td>
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<th>Iron Age</th>
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<tbody>
<tr>
<td>- Settlement chronologies and dynamics - activity in this area dates from the Late Iron Age to 4th century AD has been identified indicating the possibility of continued development and use of settlements; – is there evidence for abandonment/reuse/continuity?;</td>
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<td>- Settlement types - spatial use within</td>
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<td>Borrow Pit 6</td>
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<td>Area Name/Ref</td>
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<td>Area 1</td>
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### Mill Common

#### Archaeological Background

The geology of this area is predominantly River Terrace gravels with small areas of Oxford Clay formation and Alluvium by the river Great Ouse.

A number of surveys have been undertaken on Mill Common including earthwork survey; a trenching exercise as part of a community archaeology project; geophysical survey and walkover survey (Highways England 2014).

Roman riverside activity has been identified in earlier surveys including evidence for mills and management of the water course.

#### Proposed Works

- Earthwork survey, targeted excavation and watching brief.

#### Research Objectives

| Roman |  
| --- | --- |
| Agriculture – consumption and production; what is being produced where?; | Social organisation – what evidence is there to indicate this? |
| Rural settlements and landscapes (field morphology) – how far can the size and shapes of fields be used to identify agricultural regimes?; and | Romanisation – is there evidence of Romanisation on agricultural practice? |
| Romanisation – is there evidence of | | }
### Archaeological Background

<table>
<thead>
<tr>
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<th>Proposed Works</th>
<th>Research Objectives</th>
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</table>
|               | The earliest documentary reference for Mill Common is in the Domesday survey; however, evidence of Roman activity has been identified to the south of the A14 which was historically part of Mill Common. Further evidence for medieval activity is evidence was found under the Civil War earthwork known as Bar Dyke; two phases of linear ditches were recorded under the earthwork. Later activity includes evidence for agriculture (ridge and furrow) and evidence for mineral extraction and subsequent use as rubbish dumps. The potential archaeological features within the scheme area comprise an area of quarrying, which was then used as a rubbish dump; and a possible WWI earthen embankment formed to create a crude runway. | Romanisation on agricultural practice? Medieval The research theme of urban settlement in the medieval period (Medlycott (ed.) 2011, 62-64) applies to Mill Common in view of its relationship with the historic core of Huntingdon. Sub-topics of this would include:  
• Danish occupation – is there any evidence to elucidate the discrepancy between archaeological evidence and the Anglo-Saxon Chronicle account of the description of the destruction during the 9th century occupation;  
• Settlement and social organisation – relationship with the extent of Huntingdon Castle; is it possible plot the changing boundaries of Mill Common – evidence indicates it has not been in stasis since founding;  
• Economy – use of the area by the Freemen; animal husbandry and mineral extraction;  
• Land use changes/industry – the presence of ridge and furrow across areas of Mill Common indicates arable agricultural practice, how does this relate to grazing rights? The reuse for waste disposal indicates defined zones of use for agricultural and town |
<table>
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<tr>
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<td>activities, how are these defined?; and</td>
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<td>• Core and periphery – what is the relationship to the area to the core of Huntingdon</td>
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<td>Post-medieval and modern.</td>
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<td>• Military – what evidence exists of the Civil War defences?</td>
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<td>• Military – what evidence is there of a WW1 runway and how does this compare with other examples?</td>
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4 Outreach

4.1.1 Following discussion with Cambridgeshire County Council, it is agreed that a programme of community outreach would be undertaken. The practical aspects of this programme will be developed during the ongoing detailed design phase by the Design Consultant. Possible activities are presented below:

- **Public open days** – comprising visits to ongoing excavations where possible and may include arranged visits by local schools;
- **Visits to schools** – opportunities for students to understand what archaeology involves and to handle artefacts (to be arranged on completion of the construction programme and if possible tied into National Curriculum);
- **Temporary displays/’pop-up’ museums** – hosted by local institutions, possibly comprising a mixture of display panels and artefactual/eco-factual material;
- **Newsletter** – monthly issue during main excavations. Possibly hosted on a project website or sent to those who have registered an interest;
- **Social media** – updates of the results of the archaeological investigations on Twitter and Facebook, possibility of a dedicated webpage regularly updated with results of investigations;
- **Public talks** – likely to be undertaken toward the end of the programme when results are available; and
- **Popular publication** – results of the work presented in a form to be determined, but easily available to the public such as digital format with a limited print run issued those who have registered for a copy.
- **Long-term displays** – to be hosted in places relevant to the scheme, and comprise information panels and displays.

4.1.2 An outreach officer/project archaeologist or community archaeologist will be employed to deliver the programme of outreach. Any outreach activities need to be undertaken as part of the project outreach programme coordinated by Highways England. Consultation on content and location will be undertaken with Cambridgeshire County Council and Historic England.
5 Earthwork Survey Methodology

5.1 Areas for earthwork survey

5.1.1 Three areas have been identified for earthwork survey (CH39, CH40 and CH41) with a total area of 17,733m² (see drawings B241000/3/D/R/0007-20 and 21).

5.1.2 Earthwork Survey Area 1 (ESA 1) covers 7,436m² and is located west of the proposed roundabout at Views Common, Hinchingbrooke (Asset 460) and is positioned to record ridge and furrow earthworks.

5.1.3 Earthwork Survey Area 2 (ESA 2) covers 1,342m² and is located east of the existing A14 and south of Midfield Park Hotel, Huntingdon. It is positioned to record the earthwork remains of Bar Dyke (Asset 442).

5.1.4 Earthwork Survey Area 3 (ESA 3) covers 8,955m², and is located north of the existing A14 at the eastern edge of Mill Common. It is positioned to record the earthworks in this area of Mill Common. The actual location of the remains of what is believed to be a crude runway constructed during World War I (Asset 344) is uncertain. The HER records the asset on Mill Common, but this may be a mislocation as other sources suggest the runway was on Portholme.

5.1.5 Earthwork Survey Area 4 (ESA 4) (marked as TEA 12) is located south of Borrow Pit 1 to the west of the barrow identified in 2009. This has been positioned to record ridge and furrow earthworks.

5.2 Earthwork Survey

5.2.1 Earthwork survey shall provide a complete record and interpretation of upstanding features. The results of the survey will also be used to inform the excavation strategy for each area. The survey shall be undertaken to Level 2, as defined in Understanding the Archaeology of Landscapes: A guide to good recording practice (English Heritage, 2007, 23), and shall consist of a written description, a metrically accurate interpretative site plan supplemented by a photographic record. The earthwork survey shall provide as complete as possible record and interpretation of the upstanding and other surviving features. General requirements are detailed below.

Survey Control

5.2.2 Any control points must be located to ±0.01m in the horizontal axis and accurate to ±0.03m in the vertical axis.

Detailed Survey

5.2.3 The survey shall be carried out using either a total station theodolite
or a GPS, or combination of the two (accurate to ±0.01m relative to established control).

5.2.4 Detailed survey shall record as a minimum the inner and outer edges and entrance positions of any wall, building or structure; and the top, bottom and break of slope for all earthwork features. For rig and furrow the centreline of each furrow shall be surveyed. Additional 3D points shall be recorded to enable the generation of accurate contours or digital terrain/ground models as necessary. Additional detail (fences, hedges and modern ditches etc.) shall be recorded to provide a check on the detail depicted by the Ordnance Survey.

5.2.5 Data from the survey shall be downloaded from the data-logger into a separate computer at appropriate intervals, and at least daily, to ensure security of the data.

5.2.6 A written descriptive and interpretative account of the remains, accompanied by a sketch plan shall be recorded on pro-forma recording sheets during the survey. This field record shall include:

- The type (classification) of the archaeological field monument being investigated, and its period;
- The location of the site;
- The name of the compiler, the date of the investigation and reason(s) for the survey, with details of site ownership and present land use;
- A summary of the salient features;
- A concise description of the site, including information on plan, form, dimensions and area, function, age, developmental sequence and past land use, and
- Consideration of the topographical setting of the monument and its relationship to other sites and landscapes, and to historic buildings in the immediate vicinity.

5.2.7 A photographic record shall be made of the site and its surroundings to illustrate its broader context and its place in the landscape. Photographs shall be taken using digital photography and care shall be taken to ensure that they are well exposed in good natural light and where possible, that advantage is taken of variations in light conditions that may enhance the definition of the site against its surroundings. A record shall be kept of the subject, orientation, the date taken and any other relevant information. Photographs shall include landscape setting as well as detailed images of individual features.

5.2.8 Adequate resources shall be provided during fieldwork to ensure that all records are checked and internally consistent.
6 Photographic Survey Methodology

6.1 Areas for Photographic Survey

6.1.1 Photographic recording of the common land historic landscape type (HLC11) forming parts of Mill Common (PSA 1) and Views Common (PSA 2) shall be conducted to record their condition prior to construction of the scheme. The locations of the areas are described in the following paragraphs and shown on drawings B241000/3/D/R/0007-17 and 18.

6.2 Photographic survey methodology

6.2.1 The photographic survey shall be based on the guidance provided in Understanding the Archaeology of Landscapes: A guide to good recording practice (English Heritage 2007, 14), and shall be undertaken to record those parts of Mill Common and Views Common in their extant form before the start of construction works.

6.2.2 A full photographic record shall be made of the sites using a 35 mm analogue Single Lens Reflex camera for the production of black-and-white photographs, and a high resolution digital camera for the production of colour images. The resultant negatives and prints from the film-type camera shall provide a longer lasting and a more stable photographic output for archival purposes.

6.2.3 Digital images shall be supplied in a suitable digital format for long-term storage and accessibility, e.g. uncompressed TIFF format. An illustrative selection of digital images shall be provided in hard copy as part of the project archive.

6.2.4 As a minimum the photographic record shall include black and white prints and digital photographs showing:

- General views of the site in its setting;
- The external appearance of the site, including oblique and parallel shots; and
- Any detail relevant to the site’s design, development, or use which does not show up adequately on general photographs.
7 Targeted Excavation Methodology

7.1 Areas for excavation

7.1.1 A total of 42 areas been identified for excavation; the locations of the areas are described in the following paragraphs and shown on drawings B241000/3/D/R/0007-1 to B241000/3/D/R/0007-21.

7.1.2 The areas are extensive and will be subject to preliminary trial trench evaluation that will seek to refine the focus of targeted excavation areas, identify any phased stripping needs (should soils of buried land surfaces be discovered), and omit areas of low archaeological potential as confirmed by the trenching exercise. The methodology for trial trenching will be in the WSI as noted in 1.1.5.

7.1.3 These excavation targets will be developed to investigate significant archaeological features identified in the Environmental Statement or through further physical evaluation.

7.2 Surveying and setting out of excavation areas

7.2.1 The locations of all excavation areas shall be accurately set out, surveyed as excavated and tied in to the Ordnance Survey National Grid and Ordnance datum. Any control points used to locate excavation areas relative to base mapping and/or absolute position on the Earth’s surface must be located to survey-grade accuracy (±0.01m).

7.2.2 Additional survey control will be integrated with that for the overall scheme survey. Any additional control points must be located to ±0.01m in the horizontal plane and accurate to ±0.03mm in the vertical plane.

7.2.3 In the event that physical obstacles or other factors prevent excavation within an excavation area, the Contractor will advise the Consultant. Changes to archaeological excavation areas will be undertaken only with the permission of the Consultant and the agreement of the Curator.

7.3 Mechanical stripping of excavation areas

7.3.1 The Contractor shall supply all suitable plant for the excavation of the archaeological excavation areas.

7.3.2 Stripping of topsoil and other overburden shall be undertaken using a back-acting or 360° mechanical excavator equipped with a flat-bladed ditching bucket, operating under the continuous supervision and control of a member of the Contractor’s archaeological staff. The full depth of the topsoil, including any subsoil or other overburden that
may obscure archaeological remains shall be stripped. Mechanical excavation shall cease at the top of the first archaeologically significant horizon, or when the absence of any such horizon has been adequately demonstrated. Buried soils/occupation surface will be left in situ for characterisation purposes prior to being stripped off en bloc. Any further use of mechanical excavation, or any change to this methodology, shall not be undertaken without the specific permission of the Consultant in consultation with the Curator.

7.3.3 No plant, vehicles or machinery shall run on any part of the stripped surface. The excavation area shall be identified by fencing/hazard taped cordons.

7.3.4 Spoil from the stripping operations shall be safely stockpiled in bunds adjacent to the excavation area. Topsoil and subsoil shall be stored separately in bunds, the location of which shall be agreed on site with the Consultant and the Employer prior to works commencing and shall not be intermixed. The Contractor shall take measures to prevent cross contamination of excavated topsoil and/or subsoil with the existing topsoil surface level, and to ensure that areas outside the limit of investigation are not damaged during excavation, storage or reinstatement operations.

7.3.5 Unstratified artefacts or small finds exposed during the site stripping shall be collected. Spoil from the site stripping shall be subject to the use of metal detectors, under archaeological supervision, for the collection of metal objects.

7.3.6 During the removal of the topsoil and any other overburden in any excavation area, the whole area stripped shall be inspected for archaeological features. All areas containing significant concentrations of features, particularly small non-linear features, or where the presence of such groups of features is suspected, shall be manually cleaned. All spoil from the cleaning operation shall be removed outside the excavation area. The stripped area will also be metal detected and tagged (marked with a ‘finds tag’).

7.3.7 A pre-excavation plan of all visible features shall be prepared. If the plan is prepared in the first instance by instrument survey it must be printed out and brought to site to be checked and enhanced by hand planning. The plan shall also show any areas of visible damage or destruction of the archaeological remains caused by recent activity e.g. service trenches, quarry pits etc. The survey data and any hand-drawn plans shall be accurately tied in to the Ordnance Survey National Grid and Ordnance Datum by instrument survey. The pre-excavation plan will then be used to refine the excavation strategy for each area.

7.4 Excavation of archaeological features

7.4.1 Unstratified artefacts or small finds exposed during the cleaning shall
be collected. All hand-cleaned surfaces, features and archaeological layers shall be scanned for metal object signals, and excavation priorities assessed taking these signals into account. Metal objects shall be recovered from the surface of in situ deposits before the end of each day, subject to archaeological supervision such that finds are properly recorded and conserved. All metal detection should be carried out following the Treasure Act 1996 Code of Practice (DCMS 1996, Second Revision 2002). Metal detecting, including the scanning of topsoil and spoil heaps, shall be carried out under archaeological supervision and recording so that metal finds are properly located, identified, and conserved.

7.4.2 The Contractor shall undertake archaeological excavation by hand of any archaeological remains identified in accordance with the following strategy. Subject to any particular requirements, any archaeological features identified during the investigation shall be excavated as detailed below:

- 100% of all positive features likely to obscure earlier archaeological features (it is anticipated that there shall be few if any such features);

- discrete negative features (less than 1m diameter): at least 50% by area in addition to all stratigraphic relationships (usually half section);

- discrete negative features (more than 1m diameter): at least 50% by area in addition to all stratigraphic relationships (consider two diagonally opposite two quarter-sections where appropriate and feasible) – these may require 100% excavation (to be agreed during excavation);

- discrete negative features containing good artefact assemblages: 100%

- non-structural linear negative features: at least x1 intervention per 10m interval (to measure at least 1m in width) in addition to all stratigraphic relationships and termini;

- structural negative features: 100%, unless otherwise agreed with the Consultant and the Curator;

- hearths: 100%;

- graves and cremations: 100%;

- in addition to the above, all intersections between features and all terminals of linear features; 100%;

- other features: 25%, unless otherwise agreed with the Consultant and the Curator, and
• 100% of soil from the excavation of archaeological features shall be metal detected.

7.5 Recording

NOTE: The manager of Cambridgeshire County Council's Historic Environment Record should be consulted at the outset of the scheme to ensure that appropriate event codes are obtained prior to entry to the field, and to discuss archive requirements.

Written records

7.5.1 All excavated contexts shall be fully recorded by detailed written context records giving details of location, composition, shape, dimensions, relationships, finds, samples, cross-references to other elements of the record and other relevant contexts, etc.

Drawn records

7.5.2 All excavated features and, where possible, all deposits shall be recorded on at least one hand-drawn plan at 1:20 scale, and at least one section drawing at 1:10 scale. During or immediately after the completion of hand excavation, the overall site plan shall be updated to show all features identified and all excavated sections. All hand-drawn plans and sections shall show at least two reference points which shall be tied-in by instrument survey and whose co-ordinates shall be marked on the drawing. All hand-drawn plans and sections shall show spot-heights related to the Ordnance Survey Datum and accurate to two decimal places. The elevation in metres above Ordnance Datum of underlying subsoil shall be recorded.

Photography

7.5.3 All excavated, and all cleaned and unexcavated features and deposits shall be recorded photographically in both black-and-white and colour.

7.5.4 Black and white photography may use 35mm or medium format as appropriate. All black and white record photographs should be taken using silver-based negative film only (such as Ilford FP4, HP5 or Delta 400 Pro). Chromogenic (dye-based) films are not acceptable because they are not archivally stable. Black and white film shall be processed to British Standard 5699 as this is recognised as being suitable for long-term storage.

7.5.5 A high resolution digital camera with a minimum resolution of ten megapixels shall be used for the production of colour images. Digital images shall be saved in both uncompressed TIFF format and RAW format for long-term storage and accessibility. The Contractor shall demonstrate in advance of the works that an appropriate approach to digital archiving is in place.
7.5.6 Additional illustrative photographs shall be taken as appropriate using colour slide and/or print film and colour digital photography.

Finds recording

7.5.7 All finds-related work, whether in the field or at post-exavation stage, shall be undertaken in accordance with the Chartered Institute for Archaeologist’s Standard and Guidance for the collection, documentation, conservation and research of archaeological materials (CIfA, 2014c).

7.5.8 All finds shall be recorded by context; individually significant finds (“special finds”) shall also be recorded in three-dimensions using a sequence of unique numbers. All artefacts recovered shall be retained and removed from site for conservation (if necessary) and specialist examination/analysis. In general, sensitive artefacts shall be lifted in a block of soil and sent for detailed excavation during conservation, but some artefacts may require conservation in the field. All lifts will be undertaken by suitably qualified and experienced staff. All finds shall be stabilised and packaged in accordance with the receiving museum’s guidelines. As a guiding principle, only artefacts of ‘displayable’ quality would warrant full conservation. All work is to be undertaken on the advice of a suitably qualified conservation specialist.

7.5.9 If necessary to meet the aims and objectives of this WSI, assessment of artefacts should include x-radiography of all iron objects, (after initial screening to separate obviously modern debris), and a selection of non-ferrous artefacts (including all coins and a sample of any industrial debris relating to metallurgy). An assessment of all excavated material should be undertaken by conservators and finds researchers in collaboration. Where necessary, active stabilisation/consolidation will be carried out to ensure long term survival of the material, but with due consideration to possible future investigation.

7.6 On-site sampling strategy

7.6.1 Provision shall be made for the removal of soil samples from all securely stratified deposits which shall be sampled for retrieval and assessment of all biological remains. A sampling strategy shall be submitted to the Curator and Consultant before fieldwork and shall only be implemented when it has been agreed in writing by the Consultant. The strategy shall be iterative and under continuous review to enable modifications to be made as fieldwork proceeds, all modifications to be confirmed in writing by the Consultant before they shall be implemented. All aspects of the collection, selection, processing, assessment and reporting on the environmental archaeology component of the sample excavations shall be undertaken in accordance with the principles set out in Environmental Archaeology: a guide to the theory and practice of methods, from
sampling and recovery to post-excavation (English Heritage 2011), and Centre for Archaeology Guidelines: Archaeometallurgy (English Heritage 2001).

7.6.2 Subject to this strategy deposits shall be selected for sampling in line with the following guidelines:

7.6.3 Where specific strategies are not required and subject to the main strategy then deposits shall be selected for sampling in line with the following guidelines:

- samples comprising at least 40 litres per context or 100% of smaller contexts for the recovery of charred plant remains, small bones and finds shall be taken from appropriate contexts and shall be recovered based on the following:
  - basal/primary fills of at least 50% of all cut archaeological features;
  - 50% of all positive features i.e. anthropogenic soil deposits not contained within a cut feature;
  - 10% of all buried soils/old ground surfaces;
  - 50% of organic rich deposits, and
  - all other anthropogenic soil deposits (secondary fills etc), including all deposits containing any substantial deposits or lenses of charcoal or other carbonised material and all deposits considered to be of particular interest on the basis of the artefact content or other characteristics, or which are considered to meet the aims and objectives of the Archaeological Investigations.

- Samples shall not be taken from the intersection of features.

- Where good conditions for the preservation of bone have been identified, all large bones (long bones and flat bones) shall be collected by hand and sieving of soil samples up to 100 litres shall be undertaken as appropriate (English Heritage 2011, 12). Entire contexts shall be sampled if the volume is low.

- The sampling strategy shall also take account of the potential for calcined/cremated bone which may survive in less favourable conditions.

7.6.4 Soil samples shall be processed during fieldwork to allow the continuous reassessment and refinement of sampling strategies. Samples from waterlogged and anoxic deposits, which might contain plant macros and entomological evidence shall be 20 litres in size (occasionally referred to as GBA – General Biological Analysis – samples). The English Heritage (2011) guidance shall be consulted
for details of sample size for other specialist samples, which may be required.

7.6.5 Processing of soil samples shall be undertaken in line with the agreed strategy for the recovery and sampling of environmental remains and Environmental Archaeology: a guide to the theory and practice of methods, from sampling and recovery to post-exCAvation (English Heritage 2011). Subject to variations agreed in writing based on this, samples shall be processed and assessed under the supervision of the Consultant’s Palaeoenvironmental Specialist in line with the following guidelines:

- soil samples selected for processing shall be wet-sieved/floated and washed over a mesh size of 250 microns for the recovery of palaeobotanical and other organic remains, and refloated to maximize recovery;
- both organic and non-organic residues shall be dried under controlled conditions;
- the dried inorganic fractions shall be sorted for small finds or any non-buoyant palaeoenvironmental remains, and scanned with a magnet to pick up ferrous debris such as hammerscale;
- the dried organic fractions shall be sorted under a light microscope to identify the range of species or other material on a presence/absence basis, the degree of preservation of the bio-archaeological material and the rough proportions of different categories of material present;
- in the event that waterlogged deposits are identified and sampled, further processing shall be undertaken as appropriate and agreed, including paraffin flotation to recover insect remains. Any such remains shall be scanned to identify and assess their potential; and
- selection of other types of sample for processing and the methods to be used for processing and assessment shall be undertaken on the advice of the relevant specialist and shall be agreed with the Consultant before implementation.

7.6.6 A soil monolith shall be collected, using a Kubiena tin or similar approved equipment, through all buried soils/old ground surfaces or other surfaces. This monolith shall include the whole relevant soil profile as advised by the relevant specialist, including part of the overlying and underlying deposits. At least two radiocarbon samples shall be taken from each monolith, where suitable material is present.

7.7 Human remains

7.7.1 In order to minimise the risk of delays during the course of the mitigation, the Contractor shall obtain an appropriate licence from the
Ministry of Justice to cover the excavation and removal of any human remains that may be identified prior to the start of any fieldwork, and no such remains shall be excavated or removed in the absence of such a license.

7.7.2 Should human remains be encountered, the Contractor shall ensure that the process of exhumation complies with the statutory provisions of the Burial Act 1857 and any other Ministry of Justice (MoJ) and environmental health regulations. Before disturbing the remains, the Contractor shall inform the Consultant, the Coroner and the police.

7.7.3 A suitably qualified human osteologist shall be engaged to provide advice on the excavation, recording and sampling strategy to be employed during the exhumation of burials, particularly with regards to the collection of special samples for scientific analysis, including stable isotope and any other relevant techniques. The osteologist's role shall include sufficient visits to site to allow for the provision of appropriate advice and guidance as the works progress.

7.7.4 Processing and assessment of human remains shall be undertaken in line with guidance given in Excavation and post-excavation treatment of cremated and inhumed human remains (McKinley and Roberts, 1993), Human Bones from Archaeological Sites: Guidelines for producing assessment documents and analytical reports (English Heritage, 2004). As a minimum this shall include lifting and bagging of bones by skeletal area, with separate bags for the left and right sides and sieving, over a 2mm mesh, of soil from the abdomen, chest and neck area. Sieving shall also be undertaken of the soil around the hands and feet unless the excavators are satisfied that all of the small bones present have been recovered. Following the lifting of the skeleton, the layer of soil beneath the body shall also be sieved to ensure that no small bones or teeth, or any other calcified material has been missed.

7.8 Scientific dating

7.8.1 Suitable samples for scientific dating shall also be obtained. The proposed dating strategy will be agreed in advance with the Consultant in consultation with the Historic England and Cambridgeshire County Council. Dating techniques shall only be applied on written instruction from the Consultant. These may include:

7.8.2 Radiocarbon dating;

- Radiocarbon dating (Accelerator Mass Spectrometry);
- Archaeomagnetic dating; and
- Dendrochronological dating.

7.8.3 Obtaining suitable samples for scientific dating shall be undertaken
so as to make these samples available for dating to inform the
development of the mitigation excavation strategy as instructed by
the Consultant.

7.8.4 All processing, recording, cleaning, storage and conservation of finds
and samples shall be in accordance with the Chartered Institute for
Archaeologist’s Standard and Guidance for the conservation and
research of archaeological materials (2014c).

7.9 Emergency conservation of artefacts and metalwork

7.9.1 The Contractor will make provision for the emergency
conservation/stabilisation and storage of artefacts and metalwork.

7.10 Waterlogged remains

7.10.1 Should waterlogged remains be encountered during the mitigation
works the strategies for its recovery and treatment will be in
accordance with the appropriate national guidance, including English
Heritage’s guidelines on Waterlogged Organic Artefacts. Guidance on
their Recovery, Analysis and Conservation (2012). The Contractor
will also liaise with the Curator and relevant specialists about the
treatment of waterlogged remains.
8 Strip, Map and Sample Excavation Methodology

8.1 Setting out and mechanical stripping of strip, map and sample excavation areas

8.1.1 The methods used for setting out, surveying and mechanically stripping the SMS areas shall be the same as those set out in sections 6.2 and 6.3 above.

8.1.2 SMS areas will be used to extend the limits of targeted excavation areas where fieldwork proves that significant archaeological evidence extends beyond the agreed excavation limits.

8.1.3 Both during and immediately following the removal of the topsoil and any other overburden, the whole area stripped shall be inspected for archaeological features. Rapid hand-cleaning with shovels or hoes shall be carried out in selected areas only if necessary to define the extent of archaeological features prior to mapping.

8.2 Map

8.2.1 An overall plan shall be prepared by instrument survey and, where appropriate, hand planning. The survey data and any hand-drawn plans shall be accurately tied in to the Ordnance Survey National Grid and Ordnance Datum. The Archaeological Contractor will ensure that sufficient points are taken on any feature to provide a true reflection of its form in plan. The plan shall also show any areas of visible damage or destruction of the archaeological remains caused by recent activity e.g. service trenches, quarry pits etc. The overall plan shall show grid-references for at least two points and spot-heights related to Ordnance Datum as appropriate.

8.2.2 The print out of the plan shall be checked for accuracy on site. The excavated area must be independently re-locatable on the ground by a third party, by measurement to local permanent features.

8.2.3 The overall plan shall within 5 days of the completion of the topsoil stripping be submitted to the Consultant as a georeferenced AutoCAD drawing (.dwg) to show the extent of area stripped, the extent of cleaning, location and extent of features identified and areas of visible damage. Features shown on the drawing shall be annotated with a preliminary archaeological interpretation.

8.2.4 The plan will form the basis for a meeting between the Consultant, Curator and Contractor to agree a strategy for the investigation of the area by sample excavation. The plan is an essential pre-requisite of agreeing a suitable investigation strategy for the exposed
archaeological remains. Once it has been agreed investigations will proceed according to the agreed investigation strategy.

### 8.3 Sample excavation

**8.3.1** The scope and extent of any sample excavation following the site stripping and mapping will be agreed on site by the Consultant and Curator in conjunction with the Contractor. Within 2 days of a written instruction to proceed being issued by the Consultant, the Contractor shall undertake the agreed archaeological investigation in accordance with the methods set out below, or as otherwise instructed.

**8.3.2** The Contractor shall undertake archaeological excavation by hand in accordance with the agreed investigation strategy and the requirements of Sections 6.5 to 6.10 above.
9  Watching Brief Methodology

9.1  Areas for watching brief

9.1.1 Watching brief will be undertaken at two locations, which are described below and shown on drawings B241000/3/D/R/0007-3 and 5.

9.1.2 Watching brief area 1 (WBA 1) is an area of 879m² to the south-east of Huntingdon Station and west of the current A14. It is located to investigate the site of Huntingdon East Station (Asset 451).

9.1.3 WBA 2 covers an area of 5,107m² and is intended to investigate the route of the Thrapston to Huntingdon Railway (Asset 491) where it is crossed by the scheme west of Station Farm, Buckden.

9.2  Methodology for watching brief

9.2.1 Removal of topsoil, hard surfaces or other overburden and any relevant deeper excavations undertaken by the Employer (or their sub-contractors) will be under continuous observation of the Contractor’s archaeological staff. Where excavation is in progress at more than one location, at least one member of the Contractor’s archaeological staff shall be present at each location. Where more than one mechanical excavator is in use at any given location, sufficient members of the Contractor’s archaeological staff shall be present to ensure that all stripping is properly monitored.

9.2.2 During the monitoring process, the Contractor shall endeavour to identify archaeological features or artefacts by visual inspection. Immediately on recognition of any potential archaeological remains during monitoring works, the Contractor shall take the following steps:

- Seek to define the extent of the archaeological remains through close monitoring of ongoing topsoil stripping in adjacent areas;
- Mark out the area of the remains in such a manner that they are clearly visible, with a ‘buffer’ of at least 10m beyond all of the archaeological features (so far as possible while remaining within the works area). Any such boundary to be adjusted as required as new remains are identified;
- Liaise with the Employer and their sub-contractor(s) as appropriate to ensure that no plant shall enter the marked out areas and no works shall be carried out in those areas until they have been cleared for construction works to proceed; and
- Within 24 hours, report the discovery to the Employer, the Consultant and the Curator.
9.2.3 Where archaeological remains are identified which in the judgement of the Contractor are of low density or complexity, and where they can reasonably do so without compromising ongoing monitoring work, the Contractor shall investigate and record the remains according to the methodology set out below. Where, in the judgement of the Contractor this is not feasible, because the remains are too complex or extensive to be investigated with the available resources or without compromising ongoing monitoring, then the contingency arrangements set out at section 8.3 below shall be implemented.

9.2.4 Hand-cleaning of features or selected areas shall be undertaken to clarify the extent of, or relationship between, features/deposits. Discrete features shall be investigated by hand-excavation of a half section, or otherwise as appropriate. Linear features shall be investigated by excavation of one or more cross-sections as appropriate; hand-excavation is preferred, but where necessary, this may be done by mechanical excavation of the section followed by cutting-back the exposed face by hand excavation. Relationships between intersecting features shall be determined by hand-excavation. All hand-excavation shall be carried out in a stratigraphic manner in accordance with standard industry practice.

9.2.5 All excavated contexts shall be fully recorded by a descriptive written context record for each stratigraphic unit, together with full photographic records and drawn plans and sections at appropriate scales, in accordance with standard industry practice.

9.2.6 All finds shall be recorded by context as a minimum. Individually significant finds (“special finds”) shall be recorded separately using a sequence of unique numbers. Soil or other samples for potential palaeoenvironmental analysis or scientific dating shall be collected from suitable contexts, including any waterlogged deposits, deposits visibly rich in charred or other organic materials or other deposits as appropriate, in accordance with standard industry practice.

9.2.7 Small-scale hand-excavation shall be undertaken where necessary to clarify the nature or significance of features or deposits, or to facilitate recording, or for hand-cleaning of sections or other surfaces as part of the recording process. In areas of deep excavation, it is anticipated that features and deposits shall largely be excavated by machine.

9.2.8 All finds of potential archaeological value shall be retained and removed from the site; cleaned, catalogued and appropriately packaged.

9.3 Contingency Arrangements

9.3.1 Where archaeological remains are identified which, in the judgement of the Contractor, are too complex or extensive to be reasonably investigated and recorded with the resources available on site without compromising the ongoing monitoring work, then the Contractor shall
mark-out the relevant area in an appropriate manner and notify the Employer, Consultant and Curator. Plant or vehicles shall not be permitted to enter the marked-out area except if given clearance to do so by the Contractor. All construction works within the marked-out area shall be suspended until completion of the archaeological investigation in that area.

9.3.2 Notification of discoveries as set out above shall be made within 24hrs of the discovery, and shall include an estimate of the time and resources required to complete the investigation.

9.3.3 After such notification, the Consultant shall initiate a meeting between the Consultant, Curator, Contractor and the Employer (or their representatives) to determine the need for, nature and scope of any further archaeological investigation and recording works or an alternative design solution to avoid or reduce the impact. If this meeting cannot be arranged to take place within two working days of the initial notification by telephone, then the remains shall be recorded according to the methodology set out above, or otherwise as agreed with the Consultant. Additional archaeological staff and other resources shall be required to arrive on site as soon as possible and in any case within two working days of receipt of an instruction to proceed with the works.

9.3.4 Unless otherwise instructed by the Consultant and agreed with the Curator, the Contractor shall undertake archaeological excavation by hand of any archaeological remains identified in accordance with the methods set out in Sections 6.4 to 6.10 above.

9.3.5 Any significant archaeological features which extend beyond the defined monitoring area may need to be investigated beyond these limits, while remaining within the footprint of the scheme. Such extensions shall be undertaken, where necessary, only when instructed by the Consultant in consultation with the Curator.
10 Archiving on Completion of Archaeological Investigations

10.1.1 Archive consolidation shall be undertaken immediately following the conclusion of fieldwork on each area. The site record shall be checked, cross-referenced and indexed as necessary.

10.1.2 All retained finds shall be cleaned, conserved, marked and packaged in accordance with the requirements of Cambridgeshire Archives.

10.1.3 All retained finds shall be assessed and recorded using pro-forma recording sheets, by suitably qualified and experienced staff. Initial artefact dating shall be integrated with the site matrix.

10.1.4 The Site Archive shall be prepared in accordance with the standards set out in Appendix 1, P1 of MoRPHE PPN3 (English Heritage 2008).

10.1.5 The 2009 and 2014 archaeological archives should be incorporated in to the overall archive strategy for the deposition of the A14 Improvement Scheme.

10.1.6 The site archive for each area shall contain all the data and material collected during the excavation. It shall be quantified, ordered, indexed and internally consistent. Adequate resources shall be provided during fieldwork to ensure that records are checked and internally consistent.

10.1.7 Immediately after completion of fieldwork, all retained soil samples shall be appropriately processed in accordance with the sampling strategy agreed prior to the start of fieldwork or otherwise agreed during fieldwork, and appropriate records shall be kept.

10.1.8 In addition to the site records, artefacts, ecofacts and other sample residues, the archive shall contain:

- site matrices where appropriate;
- a summary report synthesising the context records;
- a summary of the artefact record, and
- a summary of any other records or materials recovered.
11 Post-Excavation Assessment, Analysis and Reporting

11.1 Post-Excavation Assessment and Updated Project Design

11.1.1 A Post-Excavation Assessment (PEA) and an Updated Project Design (UPD) as defined in English Heritage's Management of Research Projects in the Historic Environment (MoRPHE) Project Planning Note 3 (PPN3, 2008) will be produced by the Contractor on completion of the excavations. Consultation of the results of the assessment will be undertaken with the heritage stakeholders noted above.

11.1.2 The 2009 and 2014 archaeological archives should be integrated into the assessment and analytical programmes.

11.1.3 The PEA shall clearly acknowledge the role of the Employer, the Consultant and the Curator and show the logos of the Employer on the front cover. All reports shall be prepared in line with the principles set out in Appendix 1; Product P1 of MoRPHE PPN3, and shall include as a minimum:

- a non-technical summary;
- site code and project number;
- Planning Reference number and HER event codes;
- dates when the fieldwork took place;
- a description of the background to and circumstances of the work;
- a brief description of the previously known archaeology of each site;
- a description of the methodology used;
- an objective description of the results (‘factual data’ in Appendix 1; P2 of MoRPHE PPN3);
- a specialist assessment of each category of data (‘statement of potential’ in Appendix 1; P2 of MoRPHE PPN3);
- details of archive location and destination (with accession number, where known), together with a catalogue of what is contained in that archive;
- an assessment of the archaeological significance of the deposits identified, in relation to other sites in the region;
• a conclusion with recommendations for further post-exca
work, if required;
• a statement of the storage and curation requirements for each
category of data;
• general and detailed plans at appropriate scales, showing the
location of each site accurately positioned on an up-to-date
Ordnance Survey base;
• plans of each site at appropriate scales, with keys and north points;
• detailed plans and sections of individual features where necessary;
• all scales used on any drawings should be standard scales such as
would appear on a normal scale ruler;
• a copy of the specification and/or project design, and
• references and bibliography of all sources used.

11.1.4 Each category of data and material recovered by the fieldwork (site
records/stratigraphic data, each category of artefact or other find, each
category of palaeoenvironmental/economic evidence, any other
data) shall be examined and assessed by a suitably qualified and
experienced archaeologist or specialist in line with the principles set
out in Section 3.5 of English Heritage’s Management of Research
Projects in the Historic Environment (MoRPHE) Project Planning
Note 3 (PPN3, 2008). During the assessment specialists shall make
recommendations regarding the discard and retention of material.

11.1.5 The assessment of all samples shall be undertaken in accordance
with the guidance provided by Environmental Archaeology: A Guide
to the Theory and Practice of Methods, from Sampling and Recovery
to Post-exca (English Heritage 2011). The Contractor shall start
processing and assessing samples as soon as fieldwork work starts
to both inform the onsite sampling strategy and also to reduce the
number of samples to be processed after fieldwork. Any samples
remaining after fieldwork shall be prioritised (such as those from
those from key deposits) for processing and assessment.

11.1.6 If necessary and possible to achieve the aims and objectives of the
PEA, dating evidence shall be obtained by the application of
radiocarbon, dendrochronological or other scientific or other scientific
dating techniques.

11.1.7 The PEA report shall be accompanied by an Updated Project Design
(UPD) in accordance with Section 3.5 of MoRPHE PPN3. The UPD
shall set out the further analytical and archiving works, if any,
required to achieve the potential identified in the PEA report.

11.1.8 The UPD shall make a recommendation as to the scope of further
reporting works, including the form of any publication required.

11.1.9 The UPD will include a programme, task list and table of resources required to complete the works. A costed task/resource table shall be attached as an Appendix. This will include costs for publication. Note that, if only minor remains have been identified, there may be no value in further analysis, and in such circumstances the UPD should clearly state that this is the case.

11.1.10 The report on the earthwork survey shall be prepared in line with the requirements set out in Understanding the Archaeology of Landscapes: A guide to good recording practice (English Heritage, 2007), and shall include a detailed and interpretative written account (Items 1 to 5, 8 to 12, 13, 14 and 18 in English Heritage, 2007). The report shall include as a minimum:

- An Introduction to the report which shall acknowledge the role of the Employer, the Curator and the Consultant;
- a non-technical summary of the results (an 'abstract');
- a description of the background to and circumstances of the work, including the nature of the development. This shall include the dates on which the survey was undertaken;
- a brief description of the location and previously known archaeology of the survey area, giving the layout and purpose of the survey area, with eight-figure National Grid References for at least two points which shall be clearly marked on all relevant illustrations (and, if relevant, Local Grid references for the same or another two points also shown on the illustrations), the total area of the survey and any sampling strategy employed;
- a description of the techniques and methodology used;
- a factual description of the nature and layout of the sites recorded, with any influences, limitations or constraints on the recording and interpretation of the data;
- a written archaeological interpretation of the results of the survey, separate from the factual description and setting out the reasons for the interpretation given. This should include a consideration of the findings on a local, regional and national basis;
- an objective description of the results of the work;
- general and detailed location plans at appropriate scales, with all survey areas accurately positioned on Ordnance Survey map bases using points recorded by instrument survey including;
- a general plan showing the location of the site in relation to the proposed scheme;
metrically accurate site plans an appropriate scale (1:250, 1:500, 1:1,000 or 1:1,250, depending on the size of the site under investigation), with keys and north points, accurately positioned on Ordnance Survey map bases using points recorded by instrument survey at the time of the fieldwork;

detailed, interpretative hachured plans at 1:500 or larger scale of the site, accurately positioned, oriented and on map bases as above;

interpretative diagrams showing the successive phases of development of the site;

profiles illustrating salient vertical and horizontal differences in ground surface;

photographic print and slide registers as an Appendix in addition to drawn photographic registers detailing the position and direction of each shot, and

an annotated plan showing the location and direction of photos (where applicable).

11.1.11 Adequate resources shall be provided during fieldwork to ensure that all records created by the surveys are checked and internally consistent.

11.1.12 One copy of a complete draft PEA report and UPD and earthwork survey report shall be submitted in the first instance for review/checking by the Curator and the Consultant. This shall be submitted within 9 months of completion of fieldwork. In finalising the report, the Contractor shall take into account any comments made by the Consultant and the Curator and amend the report accordingly. The finalised report shall be submitted to the Consultant within ten working days of receipt of the Consultant’s and Curator’s comments on the draft report.

11.1.13 Together with the PEA report and UPD, the Contractor shall submit a priced schedule of activities and resources required to complete the works recommended in the UPD. The UPD should aim to have the final report prepared for comment by the Consultant and Curator within 18 months of the written approval of the UPD, unless otherwise agreed.

11.1.14 The Contractor shall note that six bound copies, one unbound copy and a digital copy in PDF format (including drawings) of the Post Excavation Assessment and Updated Project Design report and earthwork survey report will be required.

11.1.15 Hard copies of the reports will be submitted to Cambridgeshire County Council Historic Environment team and Historic England. Digital copy of the report will be submitted to the Cambridgeshire
Historic Environment Record (CHER).

11.2 Post-Excavation Analysis

11.2.1 Where the conclusion of the post fieldwork assessment is that detailed analysis is required, it shall proceed in line with the principles set out in Section 3.7 of MoRPHE PPN3.

11.2.2 The post-fieldwork analysis shall only begin following approval of the updated project design by the Consultant in consultation with the Curator and the products will be a post-fieldwork analysis report(s) (Section 3.7 of MoRPHE PPN3), a research archive (Appendix 1; P1 of MoRPHE PPN3) and relevant reports for publication.

11.3 Reporting

11.3.1 The post-fieldwork analysis report will be produced within the timescales specified in the programme provided as part of the approved UPD.

11.3.2 The post-fieldwork analysis will consist of detailed work on the stratigraphy, artefacts and environmental data and will lead to the production of fully synthetic and integrated report texts.

11.3.3 One copy of a complete draft post-fieldwork analysis report shall be submitted in the first instance for review/checking by the Consultant who will consult with the Curator. In finalising the report, the Contractor shall take into account any comments made by the Consultant and the Curator and remedy any faults identified by the Consultant and the Curator. The Contractor should note that six bound copies, one unbound copy and a digital copy (including drawings) of the final report will be required. The finalised post-fieldwork analysis report shall be submitted to the Consultant within ten working days of receipt of the Consultant’s and Curator’s comments on the draft report.

11.3.4 One hard copy of the final report(s) will be submitted to each of the following: CHER. A further digital copy of the report will be submitted to the CHER.

11.4 Monitoring during Post-Excavation Analysis

11.4.1 The Contractor should allow for monitoring by the Consultant and the Curator during the post-fieldwork analysis stage. At least one meeting should be arranged at the beginning of the post-fieldwork assessment stage to discuss the aims, resources and timetable for the assessment. Subsequent meetings on a regular basis should be planned to assess progress and any other matters arising from the ongoing analysis.

11.5 Publication
11.5.1 The final output(s) of the results of the archaeological investigations will be decided as part of the post-excavation assessment as described above.

11.5.2 Where publication of a report in an academic journal or as a monograph has been recommended in the post-fieldwork analysis report or UPD, and agreed with the Consultant and the Curator this should be accepted for publication within a timescale specified on the programme within the approved UPD and agreed in advance with the Consultant and Curator. One copy of a complete draft publication report shall be submitted in the first instance for review/checking by the Consultant who will consult with the Curator. In finalising the report, the Contractor shall take into account any comments made by the Consultant and the Curator and remedy any faults identified by the Consultant and the Curator within five working days.

11.6 Online Access to Index of Archaeological Investigations (OASIS)

11.6.1 The CHER supports the Online Access to Index of Archaeological Investigations (OASIS) Project. The overall aim of the OASIS project is to provide an online index to the mass of archaeological ‘grey literature’ that has been produced as a result of the advent of large scale developer funded fieldwork.

11.6.2 The Contractor will complete the online OASIS form. If the Contractor is unfamiliar with OASIS, they are advised to contact the CHER prior to completing the form. Once a report has become a public document by submission to or incorporation into the CHER, the CHER will validate the OASIS form thus placing the information into the public domain on the OASIS website. This shall be undertaken as part of the post-excavation works.
12 Archive Deposition

12.1.1 The Contractor shall integrate the archives from all areas of excavation, strip, map and sample excavation and watching brief into a single archive.

12.1.2 Archive consolidation for each area shall be undertaken immediately following the conclusion of fieldwork in that area. The site record for each area shall be checked, cross-referenced and indexed as necessary.

12.1.3 All retained finds shall be cleaned, conserved, marked and packaged in accordance with the requirements of Cambridgeshire Archives (Appendix B).

12.1.4 All retained finds shall be assessed and recorded by suitably qualified and experienced staff. Initial artefact dating shall be integrated with the site matrix.

12.1.5 The Site Archive shall be prepared in accordance with the standards set out in Appendix 1, P1 of MoRPHE PPN3 (English Heritage 2008).

12.1.6 The site archive for each area shall contain all the data and material collected during the excavation. It shall be quantified, ordered, indexed and internally consistent. Adequate resources shall be provided during fieldwork to ensure that records are checked and internally consistent.

12.1.7 In addition to the site records, artefacts, ecofacts and other sample residues, the archive shall contain:

- site matrices where appropriate;
- a summary report synthesising the context records;
- a summary of the artefact record;
- a summary of any other records or materials recovered, and
- copies of any reports generated by the post-excavation assessment and analysis and copies of any supporting information used during these stages.

12.1.8 The archiving of any digital data arising from the project shall be undertaken in a manner consistent with professional standards and guidance including the Archaeology Data Service (ADS)/Digital Antiquity’s Digital Archiving, Guide to Good Practice (Archaeology Data Service / Digital Antiquity 2011).

12.1.9 The digital archive and reports arising from the project shall be deposited with the ADS. The Contractor will prepare the digital data in accordance with the ADS’ Guidelines for Depositors (ADS 2012).
12.1.10 The final archive shall be transferred to Cambridgeshire Archives. The Site Archive shall be prepared in accordance with the standards set out in Appendix 1; P1 of MoRPHE PPN3 and Cambridgeshire Archives’ guidelines for deposition of archaeological archives (2014). The Site Archive shall contain all the data collected during the investigation, including all primary written documents, plans sections and photographs. It shall be quantified, ordered, indexed and internally consistent.

12.1.11 The Contractor shall supply the Consultant with written confirmation of the acceptance of the archive by Cambridgeshire Archives.
13 Health, Safety and Environment

13.1.1 Task method statements, risk assessments and safe plans of action are required to be submitted to the Consultant for review, prior to the start of works.

13.1.2 The Workplace (Health, Safety and Welfare) Regulations 1992 (Second Edition, 2013) do apply to archaeological sites works and therefore the following welfare requirements (quoted below from the Regulations) shall be met by the Contractor:

20. – (1) Suitable and sufficient sanitary conveniences shall be provided at readily accessible places.

21. – (1) Suitable and sufficient washing facilities, including showers if required by the nature of the work for health reasons, shall be provided at readily accessible places.

22. – (1) An adequate supply of wholesome drinking water shall be provided for all persons at work in the workplace.

23. – (1) Suitable and sufficient accommodation shall be provided:

(a) for the clothing of any person at work which is not being worn during working hours; and

(b) for special clothing which is worn by any person at work but which is not taken home.

25. – (1) Suitable and sufficient rest facilities shall be provided at readily accessible places.

13.1.3 A first aid kit shall be available on site at all times with an accompanying accident book.

13.1.4 A method statement shall be completed by staff prior to undertaking site tasks and shall be compiled on a daily basis and updated as and when there is a change to the specified task.

13.1.5 All of the Contractor’s site staff shall be Construction Skills Certification Scheme (CSCS) cardholders or the equivalent thereof.

13.1.6 Mechanical excavators shall only be operated by qualified drivers; all drivers shall be CITB/CTA approved and shall hold valid CPCS cards or the equivalent thereof.

13.1.7 All the Contractor’s site staff shall wear appropriate Personal Protective Equipment (PPE), consisting of: high visibility coat/vest; safety boots; hard hat; gloves; and goggles/eye protection.

13.1.8 If a Permit to Dig is required for the excavations, permits shall be
issued on a weekly basis on the receipt of satisfactory Safe Plans of Action from the Contractor and once the Consultant is satisfied that works may continue safely. This permit may be revoked at any time by the Consultant in the event of unsafe practices or dangerous occurrences.

13.1.9 The Contractor shall identify all services prior to the commencement of Site Operations. The Contractor shall include in his rates and prices for this, and also taking measures for the identification, avoidance, support and full protection of pipes, cables and other apparatus, during the progress of the Site Operations including working adjacent to, traversing under or over services. The Contractor shall keep the Consultant informed of all arrangements made with the owners of privately owned services, Statutory Undertakers and Public Authorities as appropriate.

13.1.10 Further to the measures outlined above, the Contractor shall take all reasonably practicable steps to ensure the accurate location of underground services by scanning all trench locations before beginning excavation.

13.1.11 Excavation of individual archaeological features shall proceed to a depth sufficient to address the objectives of the mitigation. Should support be required the Contractor shall ensure adequate measures are taken to prevent ground collapse and maintain the safety of their staff.

13.1.12 The Contractor will ensure that all works are executed in accordance with all relevant statutory requirements including but not limited to:

- The Health and Safety at Work Act 1974;
- The Management of Health and Safety at Work Regulations 1999;
- The Construction (Design and Management) Regulations 2007\(^2\);
- The Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 1995;
- Control of Substances Hazardous to Health (COSHH) Regulations 2002;
- Manual Handling (Operations) Regulations 1992, and

13.1.13 Significant hazards are listed in Appendix A. This is not intended to be an exhaustive list and is intended to aid tenderers in production of

\(^2\) Note that subject to Parliamentary approval, new regulations come into force on 1 April 2015.
their own risk assessments, method statements and safe plans of action. Safe plans of action should break each major task into a series of subtasks, identify the main hazards and how each subtask will be completed safely, including resources required.

13.1.14 The Contractor shall bring to the attention of the Consultant any actions by site staff or third parties that may endanger site operatives or the works. If these actions are considered to be of an immediate danger or compromise the safety of the investigation then the Contractor may act accordingly.

13.1.15 The Contractor shall be responsible for maintaining the safety of the public.

13.1.16 The Contractor shall have the right in the interests of safety to halt works on the approach of any non-essential personnel or members of the public.

13.1.17 The Consultant shall have the right to halt works in the interests of health and safety and/or to exclude the Contractor’s personnel from site in the event of a breach of health and safety policy or observance of unsafe practices or other unacceptable behaviour.

13.1.18 The detail designer’s and/or the Consultant’s staff may undertake health and safety audits at any time. The Contractor shall allow the staff access to the site and the Contractor’s site accommodation for this purpose.
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**APPENDIX A: Hazard Identification**

**Significant Health and Safety Risks identified during Design**

In order to aid the Contractor’s preparation of a Risk Assessment, Safe Plans of Action and any other health and safety considerations as required by this specification, a list of potential hazards is included below. This is not intended to be an exhaustive list but identifies significant hazards only. This does not preclude the need for the Contractor to undertake their own risk assessments, and any such assessments may differ from the information provided.

<table>
<thead>
<tr>
<th>Hazard</th>
<th>Hazardous Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Presence of and impact upon recorded and unrecorded underground services</td>
<td>Excavation, erection of fencing, insertion of grid pegs or other localised intrusions</td>
</tr>
<tr>
<td>Presence of overhead cables</td>
<td>Excavation and movement of plant</td>
</tr>
<tr>
<td>Burial resulting from collapsed excavation or spoil heap</td>
<td>Working in areas of deep excavation</td>
</tr>
<tr>
<td>Damage to eyes from wind-blown dust</td>
<td>Working in/near excavations in dry, dusty or sandy soils</td>
</tr>
<tr>
<td>Skin damage</td>
<td>Working in open areas/exposure to sunlight</td>
</tr>
<tr>
<td>Slips and trips</td>
<td>Working on/crossing uneven ground surface</td>
</tr>
<tr>
<td>Struck by vehicle/plant</td>
<td>Working near/crossing roads. Working with mechanical plant</td>
</tr>
<tr>
<td>Vehicle collisions</td>
<td>Travelling to/from/between locations</td>
</tr>
<tr>
<td>Water-borne infections such as Weils Disease</td>
<td>Standing water contaminated with rats urine in excavated archaeological features or standing water on material coverings.</td>
</tr>
<tr>
<td>Fire</td>
<td>Use of site accommodation</td>
</tr>
</tbody>
</table>
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1. Introduction

Cambridgeshire County Council’s Historic Environment Team (CHET) acts as the main archaeological repository for archaeological investigation archives for projects undertaken in the county of Cambridgeshire. The repository uses two stores; the council’s converted bunker at the County Council offices in Cambridge and the DeepStore facility in Cheshire. The repository fulfils the function of an archaeological repository and also supports local museums by loaning finds for displays and exhibitions.

2. Purpose of these guidelines and general overview

These guidelines set out the requirements for the conservation, organisation, labelling, marking, transfer, storage and documentation of archaeological archives that are to be deposited with CHET.

All finds and archives are stored according to their material requirements, as specified by the Museums and Galleries Commission (MGC 1992) (subsequently Museums, Libraries and Archives Council, now the Arts Council).

- Sensitive/fragile finds are stored at the council’s converted bunker at the County Council offices in Cambridge. This secure storage facility is temperature and humidity controlled.

- Stable/bulk finds and documentary archives are stored at the DeepStore facility in Cheshire. The secure storage facility is temperature and humidity controlled and complies with the PD5454 (2012) standard.

- Digital data should ideally be stored with the Archaeology Data Service (ADS) in York.

Detailed standards, information and advice to supplement this document can be found in ‘Archaeological Archives. A guide to best practice in creation, compilation, transfer and curation’ (PDF 868KB, date accessed: 25/02/2014).

These guidelines supplement archaeological briefs issued by CHET, and are intended for use by units wishing to make use of the stores for the deposition of final archive. Project archaeologists are strongly encouraged to read these guidelines during preparation of their specification, so any specific requirements can be incorporated into the programme of works at the outset.

Project archaeologists should note that CHET reserves the right to refuse to accept and/or return archives or parts of archives that are not considered acceptable, and/or to charge for work needed to bring archives to a standard compatible with these guidelines.
3. The Archaeological Archive

At the completion of an archaeological project, all appropriate material related to it should be archived.

The site archive is defined as all parts of the written, drawn, photographed and digital archaeological record and generated material.

CHET will only accept archives if they are complete, and consist of all the relevant elements including:

- artefacts, ecofacts and any other sample residues
- scientific samples
- original context records
- original site drawings (plans, sections, elevations)
- site notebooks
- original photographic records, negatives and prints
- original sample records
- original skeleton records
- survey reports (e.g. borehole, geophysical, documentary)
- original finds records (e.g. registered finds, bulk finds, artefact dating catalogues)
- records of conservation and x-rays undertaken
- site and finds reports (including assessment reports, updated project designs, archive reports, specialist reports and publication reports)
- management data, brief and specification, original and revised project designs/WSI
- copies of correspondence
- digital archives (databases, photos, survey data, graphics etc) and relevant print outs

The preparation requirements for each of these elements are detailed in sections 10 and 11 of this document.

4. Pre-Deposition Requirements

The archive must derive from archaeological work undertaken within Cambridgeshire or from projects where the majority of the work was based within the county.

Project archaeologists should read these guidelines during the preparation of their project design/written scheme of investigation (WSI) so that any archive and storage requirements can be factored in.

Depositors are required to contact CHET in advance of deposition so that costs can be provided and arrangements for accessions can be made. Project catalogues and metadata should be sent in advance. Contact details for the CHER are provided on page 28.

Any necessary conservation work for the long term preservation of any part of the archive must have been completed by a professional conservator and be fully documented.
The archiving and storage of organic finds, sediments and related paper records from wet sites or sites with a wet component will require special consideration. Sites that are known or thought likely to have a wet component must be discussed at the earliest possible opportunity, either prior to commencement of the project or as part of the updated project design.

Items of a high monetary value should be identified upon deposition so secure storage can be identified at the outset.

CHET should be advised of the type and quantity of all material in advance of the intended deposition. A large archive consists of more than 80 boxes and will be sent direct to the stores from the Unit location. Less than 80 boxes, the archive will be sent to CHET. Please follow the flow chart in appendix 1.

A cataloguing spreadsheet must be completed for every archive that is to be deposited. Please see appendix 2.

An archive will only be accepted if an appropriate level of assessment and reporting has been undertaken on the project overall (including finds and environmental material), as agreed with the relevant archaeological officer (see English Heritage’s Management of Research Projects in the Historic Environment PPN 3: Archaeological Excavation (2008) (PPN3), appendix 3.2, for minimum requirements.)

The archive must be in a form that permits comprehension and further interpretation of the site.

5. Selection and retention policy

CHET maintains a permanent collection of archaeological archives, taken to mean the excavated material, together with paper, photographic and digital records. The requirements set out below will apply to all categories of archaeological archive. All archive material offered to the council must be offered as a gift free of encumbrance and prepared and packaged according to these guidelines.

The council will consider accessioning additional archaeological archive to its permanent collections that meet any of the following criteria in descending order of priority:

- Necessary to create and maintain a permanent record of the site. This is the primary archive.
- Provides material of use for outreach activities, mainly schools handling packs, museum exhibitions and other temporary or permanent displays
- To facilitate ongoing research into aspects of material culture (e.g. pottery type series)

Additionally, we will accession material where disposal is not possible and so there may be a legal requirement for storage (e.g. human remains over 100 years old).

Any request to deposit material with the council must be accompanied by information supporting the eligibility under any of the criteria above. Supporting information should consist of (but is not limited to):
• Statements of retention priorities as part of the Written Scheme of Investigation, including on site and off site policies for recording and discard
• The identification of national guidance or policy that justifies the retention of material
• Specialist reports confirming the local, regional or national importance of material recovered, resulting in recommendations for retention and future use
• The use of appropriate research frameworks to support the retention of material
• Assessments of local ‘gaps in knowledge’
• A statement of archive potential as part of the Post Excavation Assessment and Updated Project Design

All material excavated but not forming part of the primary site archive is to be recorded by quantity, type and weight. This is secondary archive. Remaining material is considered available for other uses and is expected to be offered to museums, outreach organisations and community groups by the contractor concerned. Evidence of discussions with local schools, museums and other community groups that identifies any requests for archaeological material from such organisations.

6. Conservation of finds prior to deposition

During the post-excavation assessment phase of the archaeological project we request that the specialists engaged on the project provide an opinion of the quality and interest of studied material, with the objective of archaeological finds being loaned to and displayed in local or national museums. Such material can include (but is not limited to) pottery, metalwork and other non-metallic small finds. The remainder of the archaeological material can be regarded as suitable for storage.

With regards to metalwork and other sensitive finds, CHET has a two stage approach to conservation requirements:

• Finds deemed worthy of display and presentation by the relevant specialists should be identified as such on archive deposition, and appropriate levels of preparation and conservation to prepare the material for display is to be undertaken before deposition.

• Archaeological archive material for storage and not display is to be stabilised and packaged for long-term storage according to the Institute of Conservation (UKIC) guidelines.

7. Cambridgeshire Event Numbers (ECB)

The CHER will issue an ECB reference standing for “Event CamBridgeshire” at the start of an archaeological project. The requirement for a number will be issued with the Development Management archaeological brief. This number will be unique for each project and must be used throughout the archive as it is the key reference for curatorial use.

The ECB number must be clearly written on all boxes alongside any site code that might have been issued by the archaeological contractor.
When these references are issued by the CHER, it is expected that project archaeologists will take the opportunity to familiarize themselves with the archive deposition guidelines for Cambridgeshire.

It should be noted that the issuing of a number is no guarantee that an archive will be accepted.

8. The OASIS project

CHET supports the use of the OASIS project [http://www.oasis.ac.uk/england](http://www.oasis.ac.uk/england) by the ADS. All contractors wishing to deposit with CHET will be required to submit a completed OASIS form for the project.

Advice on completion of the forms can be provided by ADS and also by CHET.

9. Digital data and the CHER

In addition to the provision of a digital archive, depositors are requested to facilitate CHER in their public role by providing copies of digital elements of the archive on request. This would include (but is not limited to) finds databases, aerial photograph plots, contexts lists, site reports, photographs and site plans. The depositor is to ensure all security files have been disabled.

The CHER uses Microsoft Office, Adobe Acrobat and MapInfo. File formats should therefore be readable by these programmes. Where appropriate, AutoCAD files should be in a format that can be imported into MapInfo (for example, .dfx) or already transferred to TAB files.

GIS/mapping datasets are to be provided in MapInfo or ArcGIS file formats. All datasets must be fully georeferenced to the Ordnance Survey national grid where appropriate.

The preferred format for images is high quality JPEG or uncompressed TIFF.

Where possible, documentation of digital datasets should be undertaken, following guidelines specified in the ADS Guides to Good Practice [http://guides.archaeologydataservice.ac.uk](http://guides.archaeologydataservice.ac.uk).

One hardcopy of the final report should be sent to the CHER as soon as the project has been completed and one digital copy uploaded to OASIS or another file store of equivalent standard. We welcome the submission of final reports in Portable Document Format (.pdf) format.

At the beginning of the deposition process, the depositor should provide CHER with one hardcopy and one digital copy of an indexed inventory to the complete archive in addition to the deposition catalogue spreadsheet (see appendix 2). This should include a list of small finds, a list of the containers of the bulk finds (e.g. bags of pot), a list of the paper archive, a list of electronic media and file names and a list of maps, plans and diagrams.

Please note this is a specific addition to and does not replace the need for digital archiving. Project archaeologists are encouraged to contact ADS for guidance on digital archiving.
10. Guidelines for the Documentary Archive

10.1. Paper archive

A security copy of the primary records should be made in digital format (see section 10.2 for the accepted formats). If this is not possible we still accept microfiche as a security copy.

Paperwork must be properly filed and labeled including the CHER event reference (ECB) on each piece of paper. Suitable pens include Staedler Pan Colour 303 or 353, Artline 70, Platignum laundry marker, WH Smith Planner pen and polyester film marking pens.

Original documents rather than photocopies must be included in the archive.

Paperwork must be kept flat and together, in acid-free folders and acid-free boxes.

Do not use metal fastenings or bindings such as staples and ring-binders, or adhesive tape, although archival quality brass paper clips are acceptable.

Packages or bundles of documents may be tied with archive tape or string.

Photographic material, drawing film, acetates and paper must be separated from each other.

Details of any terminology controls and a list of any finds selected for destructive analysis should be included.

10.1.1 Written archive

Written archive can include:

- one copy of the final reports
- administration and correspondence; the Archaeological Brief, WSI, contracts, specifications
- on site records including context sheets, notes, registers including small finds and sample registers,
- sample records and registers, specialist reports (if not digital in origin) and finds indexes

All written archives if possible should be produced on plain paper with a neutral to mildly alkaline pH.

All elements of the paper archive must be classified to identify their function.

There must be indexes for all parts of the paper archive. Some of these are compiled on pro-forma during data collection, eg running lists of context numbers, but others, such as lists of correspondence included in the archive, will be completed as part of the archive compilation process.

The paper archive must be accompanied by an overall contents list.

Do not use metal fastenings or bindings such as staples and ring-binders, or adhesive tape, when preparing the paper archive for long term storage.
Documents of the same type should be bundled together, using the following criteria

- fasten paper using plastic treasury tags or plastic paperclips
- use a separate title page to mark groups of documents
- do not use self-adhesive labels (or such things as stick-on notes)
- organise documents of the same type in a logical order (eg record sheets in context order; correspondence in chronological order)
- do not fold documents
- store documents in acid-free, dust-proof, cardboard boxes, do not store documents vertically

10.1.2 Drawing

Plans and sections should be on polyester-based film and labeled with the CHER event reference (ECB) and drawing number in pencil.

They should be kept flat rather than rolled.

The archaeological contractor must provide appropriate acid-free wallets or folders in which to store the plans and sections, and any other loose drawings. A4 size is preferred.

Large or oversized plans (A2 or A1, to a maximum of A0 size) on polyester film must be rolled and stored in acid free containers with own microclimate, preferably tubes. Please consult CHET about unusual sizes.

Self-adhesive plan hangers are not acceptable.

Find or conservation drawings should be labeled with the CHER event reference (ECB) and the appropriate context and find numbers.

Acetates should be packaged separately from polyester film.

10.1.3 Photographs

All film and photographic prints should be correctly processed, following the current British Standards (BS 5699) for archival purposes.

All prints should be stored in transparent polyester envelopes in acid-free wallets, folders or boxes. Each print should be labeled with the CHER event reference (ECB) in pencil.

Slides should be mounted and labeled using a suitable permanent marker pen and stored in polyester punched hanging folders.

Negatives should be stored in polyester divided punched files and stored separately from the prints in A4 size acid-free boxes. Negative-holders should be clearly labeled.

A copy of the photographic index should be included with the archive.
10.1.4 X-rays

X-rays should be annotated with a unique x-ray number, usually part of a running sequence. X-rays should be stored in appropriately sized 75 micron polyester or acid-free paper sleeves. The CHER event reference (ECB), site code and context number should be annotated on to the sleeve as well as the individual small find numbers with a suitable permanent marker pen. Annotations should be made using permanent coloured or white ink.

10.1.5 Microfiches/form

Microfiche must be separated from the rest of the paper archive and sent to CHET prior to the deposition of the paper archive. Microfiches/form should be stored in divided polyester or acid-free paper sleeves with a binding edge for storage. Self-adhesive labels should have a strong, permanent adhesive and labelling should be done in suitable permanent marker pen.

10.2 Digital Archive

Digital material comprises all born-digital material, including text, data, drawings, 3D models, photographs and video, as well as files generated from digitised material, such as data entered from paper pro-forma and scanned images or text.

Digital data should be included with the project archive and follow Richards & Robinson (2001). The depositor is strongly advised to contact the Archaeology Data Service (ADS) about digital archiving.

At the start of an archaeological project (immediately before fieldwork commences) an OASIS online record http://ads.ahds.ac.uk/project/oasis/ must be initiated and key fields completed. All parts of the OASIS online form must be completed for submission to the CHET. A copy of the completed form should be included in the paper archive.

10.2.1 Storage of digital archive

Either of the two following methods are suitable for deposition of the digital archive:

- All elements of the digital archive should be deposited with the ADS with an accompanying index.
- All elements of the digital archive should be stored on archival quality high resolution optical disc (e.g. ‘Kodak Gold’ CD-ROM or DVD) labelled with suitable permanent marker pen and with an accompanying index.
The inventory should include a list of all electronic files (digital and paper copy) with accompanying metadata which includes CHER event reference (ECB), site codes, context numbers, brief description, file type, file size, software type, version number, author (see ADS guidelines).

The digital archive should be coherently ordered with versions of files clearly labelled. The digital archive should not include duplicate or spurious files.

The ADS is developing a system that allows users to upload their own data for archiving including forms to capture appropriate metadata for each digital file. The ADS EASY system http://archaeologydataservice.ac.uk/easy contains a costing module that allows users to estimate the costs of digital archiving before submission of the archive online. This system is currently in development.

10.2.3 File naming convention

Accepted file name conventions should be alphanumerics, with hyphens or underscores and without spaces, punctuation or full stops (see ADS guidelines).

File names should be consistent through the project archive and include: site code, context number, trench number, relevant file number, description.

Where non descriptive file names are used, an appropriate index should be provided.

10.2.4 Word Processed Documents

Final reports should be submitted as a Portable Document Format for long term archiving (.pdf or ideally .pdf/a)

A copy of the final report in .pdf version should be uploaded to the associated OASIS record for the project.

10.2.5 Databases and Spreadsheets

MS Access databases (.mdb) and MS Excel tables (.xls or .csv) are both accepted by CHET.

10.2.6 Photographs

The preferred format for photographic images is uncompressed TIFF, however high quality JPEGs will be accepted.

10.2.7 CAD (Computer-Aided Design)

Graphics should be stored in their original form. Where appropriate, all AutoCAD files should also be exported and saved into a format that can be imported into other programmes (for example, as .dxf) or transferred to .TAB files for use with GIS software.

Derived vector files such as Adobe Illustrator are not considered suitable for long term preservation. Depositors must ensure that all relevant material is available either in original CAD (.dxf) files or as finished versions in .pdf/a.
10.2.8 Survey Data (GIS)

GIS files should be in their original format (.tab or .shp or georeferenced TIF), and also exported and saved into a format that can be imported into other programmes (for example, MapInfo .mid/.mif).

Specialist survey data, such as geophysics, should be deposited both in proprietary format for reading with the original software and also in non-application specific formats for the long-term preservation.

Specialist survey data, such as geophysics, can be uploaded to the associated OASIS record for the project.

11. Guidelines for the Material Archive

The finds should be ordered by type of material (for example, ceramics, stone, etc) and then by context number. Each category of material should be packaged separately (except in small archives where some grouping may be necessary).

A contents list should be included in each box.

Details of the classification systems utilised for ordering finds should be included in the site archive.

Suitable permanent marker pens include Staedler Pan Colour 303 or 353, Artline 70, Platignum laundry marker, WHSmith Planner pen and polyester film marking pens.

11.1 Bulk Finds

‘Bulk’ finds are those that often occur in quantity, and do not require special treatment or closely controlled storage conditions, for example; animal bone, ceramic building material, pottery, shell, slag, stone. For preparation of Human Remains for archive see section 11.2 of this document.

11.1.1 Cleaning and marking

All finds with a stable surface should be cleaned, unless conservation requirements dictate otherwise.

All pottery and worked flint is to be marked individually with the CHER event reference (ECB) and context number to provide security of information; marking is also essential where finds researchers are handling and comparing large quantities of material.

Finds should be marked using white or black permanent waterproof ink.

Ceramic building material, burnt flint, metalworking residue (slag) and shell is not usually marked with the exception of any material that is laid out for comparison, reference or display.
Depositors should be aware that the marking of bone is likely to be required on larger sites (multi-phase settlements, landscapes or urban sites) where the detailed study of animal bones will make a significant contribution to the understanding of behaviour on the site. Contact CHET for further information and advice.

For further guidance on marking and labelling finds, the National Museums Liverpool guidelines on marking and labelling methods and positions is available through Collections Link: http://www.collectionslink.org.uk/discover/site-information/823-guidelines-on-marking-and-labelling-methods-national-museums-liverpool.

11.1.2 Boxes

All packaged bulk finds (ceramics, building materials, slag, flint, un-worked bone) should be placed in acid-free boxes.

A standard box size is used for bulk finds of 500 x 250 x 160 mm, with brass or other rust proof staples and well-fitting full-depth lift off lids (required for strength during palleting and transportation).

The exterior box can contain material from more than one site subject to being correctly catalogued and barcoded.

11.1.3 Bags

Finds should be placed within pierced polythene bags of appropriate quality.

Finds should be packaged in clean, perforated polythene self-sealing bags with opaque ‘write-on’ strips; the most appropriate sized bag for the finds should always be used, and bags should not be over-filled. Any that cannot be closed will be rejected.

Bones of small mammals, birds and fish should be placed separately in small polythene bags and stored in the same box as the rest of the animal bones to prevent loss of finds.

The bag should be labeled, using a suitable permanent marker pen, with the site code, material, context number, small find number (if appropriate) and any other important contextual information such as burial number for grave goods or spit number etc. The same information should be put on a spun bonded polyethylene (Tyvek) label and placed inside the bag. Double labelling (on the outside of bags, plus a label inside with material) is standard practice.

11.1.4 Packing

Pierced bags of chopped polyethylene foam (plastazote) should be placed inside the boxes filing the empty spaces to prevent movement of the finds for safe transportation. These are to be placed on top of the finds (and around the edges if required) to fill any spaces. All bulk material boxes must be filled to capacity once the finds have been placed in the box. As a minimum, we would suggest that at least 25% of each bulk material box is filled with plastazote but this may be higher for boxes with less material in.

For boxes containing fragile finds, packaging needs to be placed all around it.
11.1.5 Labels and barcodes

All boxes should be labeled along one of the narrow faces and on the lid using a suitable permanent marker pen, with site code, site name, CHER event reference (ECB), excavator, unit, material type, context range, number of bags/items and box number. This information should be written directly onto the box; sticky labels are not acceptable.

There should be one barcode per archive box. The large barcode sticker should be placed at the rear of the box in the centre so that it is visible and can be scanned once it’s been deposited. Place the related small barcode number sticker on to the rear of the other detachable half of the box.

Apply the 'Warning Heavy' sticker to boxes over 6kg in weight, see appendix 6.
11.1.6 Strapping

This is only required if deemed a ‘large’ archive at the start of the deposition process, please contact CHET for details.

Once the archive has been inspected and confirmed ready for deposition, the boxes must be strapped with polypropylene strapping.

Check that the box has a contents list inside and ensure that the box is minimum 75% full and suitably packed with bags of plastazote packing before strapping.

Using the instructions on how to operate the strapping machine (see appendix 7), strap the box once width ways. For boxes over 6kg please strap twice for extra support.

11.1.7 Palleting and layering for deposition

This is only required if deemed a ‘large’ archive at the start of the deposition process, please contact CHET for details.

On arrival of the Deepstore van at your office to collect the archive, the archive boxes will need to be put onto pallets ready for transportation. This will be managed by the DeepStore staff.

Stack the bulk finds, human remains & skull boxes on separate pallets and make sure the barcode is facing out. See appendix 1 for a flowchart explaining the deposition process.

11.1.8 Large or heavy finds

Finds that are too large or too heavy for standard boxes, or which require specialist lifting, should be discussed before deposition.

Worked stone and similar materials must be marked with the CHER event reference (ECB) and identifying context number. Bulky items with only labels tied on with string will be returned. Conservation-grade PVA glue may be used to attach an acid-free paper label to the find.

Barcode labels are to be tied to the find with un-dyed cotton tape.

11.2 Human remains

11.2.1 Cleaning and marking

All human remains with a stable surface should be cleaned, unless conservation requirements dictate otherwise.

Human remains should be marked with site and context/skeleton identifiers using black permanent waterproof ink.
11.2.2 Boxes

Each individual skeleton should be stored in a separate box to distinguish different individuals, although disarticulated bones and fragmentary remains may be boxed together provided they are clearly labeled.

A standard box size is used for bulk finds of 500 x 250 x 160 mm, with brass or other rust proof staples and well-fitting full-depth lift off lids (required for strength during palleting and transportation). Skull boxes are accepted and also fit inside the standard box size.

11.2.3 Bags

Human remains should be placed within pierced polythene bags of appropriate quality.

Human remains should be packaged in clean, perforated polythene self-sealing bags with opaque ‘write-on’ strips; the most appropriate sized bag for the finds should always be used, and bags should not be over-filled. Any that cannot be closed will be rejected.

Small bones should be placed separately in small polythene bags and stored in the same box as the rest of the human remains to prevent loss of finds.

The bag should be labeled, using a suitable permanent marker pen, with the site code, material, context number any other important contextual information such as skeleton/burial number etc. The same information should be put on a spun bonded polyethylene (Tyvek) label and placed inside the bag. Double labelling (on the outside of bags, plus a label inside with material) is standard practice.

11.2.4 Packing

Pierced bags of chopped polyethylene foam (plastazote) should be placed inside the boxes filing the empty spaces to prevent movement of the human remains for safe transportation. These are to be placed on top of the finds (and around the edges if required) to fill any spaces. All human remains boxes must be filled to capacity once the finds have been placed in the box. As a minimum, we would suggest that at least 25% of each bulk material box is filled with plastazote but this may be higher for boxes with less material in (see figure 1).

Boxes that contain especially fragile human remains, packaging should be placed all around the sides.

11.2.5 Labels and barcodes

All boxes should be labeled along one of the narrow faces and on the lid using a suitable permanent marker pen, with site code, site name, CHER event reference (ECB), excavator, unit, material type, context range, number of bags/items and box number. This information should be written directly onto the box; sticky labels are not acceptable.

There should be one barcode per archive box. The large barcode sticker should be placed at the rear of the box in the centre so that it is visible and can be scanned once it’s been deposited. Place the related small barcode number sticker on to the rear of the other detachable half of the box (for both long bone boxes & skull boxes).
Apply the HSR sticker to all boxes of human remains, see appendix 6.

![Box with labels](image)

**Figure 3: Positioning of other labels**

### 11.2.6 Strapping

This is only required if deemed a 'large' archive at the start of the deposition process, please contact CHET for details.

Once the archive has been inspected and confirmed ready for deposition, the boxes must be strapped with polypropylene strapping.

Check that the box has a contents list inside and ensure that the box is minimum 75% full and suitably packed with bags of plastazote packing before strapping.

Using the instructions on how to operate the strapping machine (see appendix 7), strap the box once width ways. For boxes over 6kg please strap twice for extra support.

### 11.2.7 Palleting and layering for deposition

This is only required if deemed a 'large' archive at the start of the deposition process, please contact CHET for details.

On arrival of the Deepstore van at your office to collect the archive, the archive boxes will need to be put onto pallets ready for transportation. This will be managed by the DeepStore staff.

Stack the bulk finds, human remains & skull boxes on separate pallets and make sure the barcode is facing outwards. See appendix 1 for a flowchart explaining the deposition process.
11.2.8 Circumstances for reburial

CHET recognises the sensitive nature of this category of archaeological remains. We will not support the wholesale reburial of human skeletal remains but may consider individual requests on a case by case basis.

Any assessment of human skeletal remains submitted to CHET is to contain a statement by the specialist in this material previously advised as part of the project specification as to the current and future research potential of the assemblage.

Assemblages of human skeletal remains not considered by the specialist report to be of regional or national significance for further study may be reburied if appropriate requests and provisions are made. The final decision on reburial is to be made by CHET.

Assemblages where reburial is being considered may be deposited with us with the remainder of the physical archive, pending a final decision. In such cases we may withhold the deposition charge for such but reserves the right to levy these charges should the decision be made to retain the assemblage.

11.3 Sensitive Finds (metalwork)

Sensitive finds require controlled storage conditions. Due to storage requirements, we have separated metalwork from organic material (see section 11.4 for organics).

Sensitive finds should be kept separate from the bulk material. It should be ordered by material, context and then small find number. Material illustrated in the final report can be indicated by labelling or separate packaging.

All unstable finds (for example, all iron, copper alloy, silver) should arrive at the store in micro-climates for example, pierced polythene self sealing bags within polythene boxes with an environmental controlling agent to create a low relative humidity (dry silica gel).

Lead, should be in polythene boxes with appropriate support but do not need an environmental controlling agent. However, archives with lead finds in silica gel controlled boxes will be accepted if the quantities are too small to warrant a separate box.

11.3.1 Cleaning and marking

Light, dry brushing of metal finds may be undertaken. Finds must be cleaned to recognised standards, using methods described in nationally recognised documents, (for example, First Aid for Finds).

Any conservation work, including the cleaning of sensitive finds, must be carried out by qualified conservators.

11.3.2 Boxes

The exterior box can contain material from more than one site subject to being correctly catalogued and barcoded. Only full boxes will be accepted.

Do not mix items which require silica gel and those which do not (do not mix metal and organics, see section 11.4 for organics).

The current Stewart Sealfresh™ boxes should ideally be ‘off gassed’ for a few weeks before use. This means storing with the lid off until the smell has gone. Lids should be replaced after this to prevent the box deforming if stored for a long time before use.

We accept the following box dimensions:

Stewart Sealfresh™ Rectangular
http://www.stewart-solutions.co.uk/plastic.php?category=2&range=1

<table>
<thead>
<tr>
<th>Code</th>
<th>Product</th>
<th>Length (cm)</th>
<th>Width (cm)</th>
<th>Height (cm)</th>
<th>Capacity (litres)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1377008</td>
<td>Popular Pack</td>
<td>23.5</td>
<td>17</td>
<td>8</td>
<td>2.25</td>
</tr>
<tr>
<td>1378008</td>
<td>Picnic Pack</td>
<td>27</td>
<td>19.5</td>
<td>10.5</td>
<td>3.75</td>
</tr>
<tr>
<td>1780008</td>
<td>Meat Storer</td>
<td>30</td>
<td>21</td>
<td>14</td>
<td>7.5</td>
</tr>
<tr>
<td>1374008</td>
<td>Bacon Storer</td>
<td>27.5</td>
<td>11</td>
<td>6</td>
<td>1.1</td>
</tr>
</tbody>
</table>

Stewart Sealfresh™ Square
http://www.stewart-solutions.co.uk/plastic.php?category=2&range=2

<table>
<thead>
<tr>
<th>Code</th>
<th>Product</th>
<th>Length (cm)</th>
<th>Width (cm)</th>
<th>Height (cm)</th>
<th>Capacity (litres)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1225008</td>
<td>Pizza Storer</td>
<td>25</td>
<td>25</td>
<td>7.5</td>
<td>3.5</td>
</tr>
<tr>
<td>1781008</td>
<td>Giant Storer</td>
<td>31.5</td>
<td>31.5</td>
<td>16</td>
<td>13</td>
</tr>
<tr>
<td>1268008</td>
<td>Cake Storer</td>
<td>26</td>
<td>26</td>
<td>12.5</td>
<td>6.5</td>
</tr>
</tbody>
</table>

11.3.3 Bags/crystal boxes

The bag size should be dictated by the size of the find it is to contain. The find should be no less than 10% of the volume of the bag and should be placed within pierced polythene bags of appropriate quality. The bag should have an opaque strip on which information can be written.

Individual clear polystyrene boxes (crystal boxes) should be provided for finds in need of structural support, and size should be dictated by the size of the find it is to contain.

The bag should be labeled, using a suitable permanent marker pen, with the site code, material, context number, small find number (if appropriate) and any other important contextual information such as burial number for grave goods or spit number etc. The same information should be put on a spun bonded polyethylene (Tyvek) label and placed inside the bag. Double labelling (on the outside of bags, plus a label inside with material) is standard practice.
For crystal boxes the information should be put on a tyvek label and placed inside the box facing outwards.

11.3.4 Packing

All sensitive finds must be supported to prevent movement within the bag or box. Sheets of polyethylene foam (plastazote) or acid-free tissue can be used to provide support.

Insert the polyethylene foam sheet into bags to provide rigidity, or use as cut outs inside polystyrene boxes. Or use acid free tissue scrunched up and then wrapped smoothly into puffs to provide support. Do not wrap finds in tissue paper, unwrapping for condition checking/research is likely to cause damage.

Figure 4: Packing of sensitive artefacts

11.3.5 Silica gel

Silica gel should be used to create micro-climates for all unstable finds (for example, all iron, copper alloys, silver). Use 10% wt/v (weight by volume) as a guide to how much silica gel to use in each outer box (for example, for a 1 litre box use 100g of gel).

Place the gel at the side or end of the box, so that it is easily accessible.

Sewn pre-packaged silica gel bags are preferred but adhesive sealed bags will be accepted (adhesive sealed bags can also be subject to surface scorching of the bag and melting adhesive, leading to silica loss).

Loose silica gel in polythene bags can also be used, beads are preferred over granules due to lower dust levels but both are accepted. Write the weight of the gel used on the polythene bag.
using a suitable permanent marker pen, and pierce all polythene bags containing silica gel. Indicator silica gel may be used on its own or in conjunction with non-indicating gel. Iron indicators (typically yellow/green/orange) are currently accepted.

**Pink/blue indicator silica gel will not be accepted. The indicator is a known carcinogen.**

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**Figure 5: Optimal options for silica gel usage**

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**11.3.6 Labels and barcodes**

All outer boxes should be labeled along one of the narrow faces and on the lid using a suitable permanent marker pen, with site code, site name, CHER event reference (ECB), excavator, unit, material type, context range, number of bags/items and box number.

There should be one barcode per bag/crystal box of sensitive finds. Do not remove any of the barcodes from its backing. Place the small barcode number into the bag/box with the find so that it is facing outwards. Place the large barcode or strip of barcodes if there are several finds, inside the outer box along with the contents list.

Apply the 'Warning Heavy' sticker to the outer box for boxes over 6kg in weight, see appendix 6.
11.3.7 Placement of humidity indicator strips

Humidity indicator strips should be placed in such a way that they are visible from the outside of the box without opening it.
11.4 Sensitive Finds (organic)

Sensitive finds require controlled storage conditions. Due to storage requirements, we have separated metalwork from organic material including leather, textile, worked bone, and wood (see section 11.3 for metalwork).

Sensitive finds should be kept separate from the bulk material. It should be ordered by material, context and then small find number. Material illustrated in the final report can be indicated by labelling or separate packaging.

11.4.1 Cleaning and marking

Finds must be cleaned to recognised standards, using methods described in nationally recognised documents (for example, First Aid for Finds). Any conservation work must be carried out by qualified conservators.

For guidance on marking and labelling finds, please use the National Museums Liverpool guidelines on marking and labelling methods and positions. This is available through Collections Link:

11.4.2 Boxes

The exterior box can contain material from more than one site subject to being correctly catalogued and barcoded. Only full boxes will be accepted.

Do not mix items which require silica gel and those which do not (do not mix metal and organics, see section 11.3 for metalwork).

The current Stewart Sealfresh™ boxes should ideally be ‘off gassed’ for a few weeks before use. This means storing with the lid off until the smell has gone. Lids should be replaced after this to prevent the box deforming if stored for a long time before use. See section 11.3.2 for a list of suitable box sizes.

11.4.3 Bags/crystal boxes

The bag size should be dictated by the size of the find it is to contain. The find should be no less than 10% of the volume of the bag and should be placed within pierced polythene bags of appropriate quality. The bag should have an opaque strip on which information can be written.

Individual clear polystyrene boxes (crystal boxes) should be provided for finds in need of structural support, and size should be dictated by the size of the find it is to contain.

The bags should be labeled, using a suitable permanent marker pen, with the site code, material, context number, small find number (if appropriate) and any other important contextual information such as burial number for grave goods or spit number etc. The same information should be put on a spun bonded polyethylene (Tyvek) label and placed inside the bag. Double labelling (on the outside of bags, plus a label inside with material) is standard practice. For
crystal boxes the information should be put on a tyvek label and placed inside the box facing outwards.

11.4.4 Packing

All sensitive finds must be supported to prevent movement within the bag or box. Sheets of polyethylene foam (plastazote) or acid-free tissue can be used to provide support.

Insert the polyethylene foam sheet into bags to provide rigidity, or use as cut outs inside polystyrene boxes. Or use acid free tissue scrunched up and then wrapped smoothly into puffs to provide support. Do not wrap finds in tissue paper, unwrapping for condition checking/research is likely to cause damage (see figure 4).

11.4.5 Labels and barcodes

All outer boxes should be labeled along one of the narrow faces and on the lid using a suitable permanent marker pen, with site code, site name, CHER event reference (ECB), excavator, unit, material type, context range, number of bags/items and box number.

There should be one barcode per bag/crystal box of sensitive finds. Do not remove any of the barcodes from its backing. Place the small barcode number into the bag/box with the find so that it is facing outwards. Place the large barcode or strip of barcodes if there are several finds, inside the outer box along with the contents list (see figure 7).

Apply the 'Warning Heavy' sticker to the outer box for boxes over 6kg in weight, see appendix 6.

11.5 Environmental Archive

Environmental samples should only be deposited if their long-term storage can be justified. If such material is to be submitted, the depositor should follow UKIC guidelines (Walker 1990). Each sample must be given a unique identifier.

Artefacts and ecofacts recovered from processed environmental samples must be archived following the appropriate section of the guidelines above for the material and type of find. The unique identifier for the sample should be included in all labelling of the finds.

Finds may be sampled for a variety of purposes, and using various techniques, many of which are destructive and no material will survive for archiving. The sampling and analysis process must be fully documented, and all associated records must be submitted with the archive.

12. Treasure Finds

In the event of items falling under the definition of treasure under the Treasure Act 1996 (and subsequent definitions) being discovered during archaeological fieldwork, the following should be enacted:

Where items that fall under the legal definition of Treasure are discovered during fieldwork, the project archaeologist is advised to contact CHET for advice and guidance within 48 hours of the discovery.
Treasure finds in Cambridgeshire are processed by CHET who contact the coroner, the British Museum and local museums. The county employs a Finds Liaison Officer as part of the Portable Antiquities Scheme, and they are based at CHET.

Please note that where a find is not disclaimed under the Treasure Act there is a very high possibility that it will be separated from the rest of the site archive. Therefore, a full photographic and drawn record should be made, and include the treasure forms as part of the paper archive.

Project archaeologist should know that the Act prohibits financial rewards to archaeologists undertaking fieldwork, but also that the exclusion applies to metal detectorists working supervised on archaeological sites.

13. Metadata and cataloguing

Metadata in the form of a completed spreadsheet should accompany the archive in both digital and paper forms.

A cataloguing spreadsheet will be provided at the beginning of the archive process, which will need to be completed for each part of the archive. The cataloguing spreadsheet is populated with pick lists for many of the columns and is intended to be quick and easy. See appendix 2 for more information on the columns and pick lists.

When completing the cataloguing spreadsheet, you need to ensure that a new row (each SCB number in the first column) is dedicated to one type of material in each individual outer box when dealing with the written archive and bulk archive. For the sensitive material, one row is dedicated to a single bag/crystal box with one barcode.

There should not be multiple materials or barcode numbers in a single row on the cataloguing spreadsheet.

The barcode is the unique reference used for retrieval purposes. A barcode scanner must be used to add these barcodes to the cataloguing spreadsheet (see appendix 3 for more information on barcodes).

Accompanying the catalogue spreadsheet should also be
- a quantitative list of what is in the paper archive (contents list)
- a list of any finds or samples retained by specialists for further research or of those that have been destroyed during post-excavation analysis

14. Costs of Deposition

CHET provides permanent storage for archaeological archives.

The current deposition cost is £75 per box.

This combined charge covers accessioning and uplift (£15) together with a fee to provide for the long term storage (£60).
The charge applies to each box:
• Bulk archive: long bone boxes, skull boxes, custom pallets for large items
• Documentary archive: archival standard cardboard boxes
• Sensitive archive: polythene boxes (e.g. Stewart)

The cost of transfer and any insurance for finds during transfer will be the responsibility of the depositor.

15. Transfer of Ownership and Copyright

15.1 Transfer of title and ownership

CHET, as the final archive repository, must have ownership of any finds from archaeological fieldwork.

Material collected by archaeological fieldwork, with the exception of items classified as Treasure, belongs to the landowner unless there has been a transfer of title. As a condition of acceptance, CHET requires that the landowner transfers title to CHET before an archive is deposited in the County Stores.

Every effort must be made to get the agreement of the landowner/developer to the deposition of the full site archive and transfer of title to the intended archive repository before fieldwork commences. The archaeologist undertaking fieldwork is responsible for obtaining the written consent of the landowner to transfer ownership of finds. It is expected that the complete archive will be accepted as an unconditional gift. If this is not achievable for all or part of the finds archive then provision must be made for additional recording (e.g. photography, illustration, scientific analysis) as appropriate.

Please use your own transfer of title and copyright forms.

15.2 Transfer of archive ownership form

In addition to your own transfer of title and copyright forms, please use the transfer of archive ownership form found in appendix 5.

Archives will not be accepted until the project archaeologist has signed the transfer of ownership form.

CHET reserves the right to inspect archives prior to delivery and on delivery to monitor compliance. We reserve the right to refuse archives that do not meet the requirements.

15.3 Copyright

The documentary archive is the property of the archaeologist unless specified in a contract.

Copyright ownership for the documentary archive usually resides with the archaeologist who creates the archive. CHET expects to be granted a written assignment of copyright in perpetuity, or licence if the copyright holder is unwilling to assign copyright, in order to have the
right to utilise the documentary archive under current copyright legislation either under sole or shared copyright.

16. Contacts

Further information and advice can be obtained from the Cambridgeshire County Council Historic Environment Team and also the ADS:

- **Email:** archaeology@cambridgeshire.gov.uk
- **Telephone:** 01223 728569 or 728570
- **Post:**
  Historic Environment Team
  Growth & Economy
  Cambridgeshire County Council
  CC1008
  Cambridge
  CB3 0AP

- **Email:** help@ads.ahds.ac.uk
- **Telephone:** 01904 433954
- **Post:**
  Archaeology Data Service (ADS)
  University of York
  King’s Manor
  York
  YO1 7EP

17. Further references

Institute of Field Archaeologists 1991 Guidelines for Finds Work, IFA


Society of Museum Archaeologists 1993 Selection, Retention and Dispersal of Archaeological Collections SMA, London


AEA, 1994, Guidelines for Environmental Archaeology. Association for Environmental Archaeology draft paper.


IFA, 2009, Standard and Guidance for the creation, compilation, transfer and deposition of archaeological archives


Appendix 1: Archive deposition flow chart

Unit begins archive preparation process:
At the earliest possible point, please contact CHET to:
- check that you have the correct ECB reference
- send transfer of ownership and copyright forms (that are signed and completed)
- send archive metadata relating to bulk, sensitive and paper archive to CHET
- estimate the size of archive (so that CHET can generate a suitably sized catalogue spreadsheet).

Based on the Unit’s estimate, CHET classifies the archive as small or large.
CHET creates a catalogue spreadsheet and sends it to the Unit

**SMALL ARCHIVE**

Small archives will be sent to CHET.
Unit prepares archive:
+ pack, catalogue and barcode bulk archive
+ pack, catalogue and barcode sensitive archive
+ catalogue paper archive (don’t barcode)

**LARGE ARCHIVE**

Large archives will be sent direct to the stores from the Unit location.
Organise a visit from CHET to Unit (current archive location) whilst Unit prepares archive:
+ pack, catalogue and barcode bulk archive
+ pack, catalogue and barcode sensitive archive
+ catalogue and barcode catalogue paper archive

**CHET visit:** Check packing and cataloguing of archive, discuss pick up logistics (palleting, vehicle access, etc)*

After the CHET visit:
Unit straps bulk material (including HSR), and barcodes the paper archive

Unit sends completed catalogue to CHET

CHET check and approve catalogue
Unit and CHET organise deposition date

Unit sends archive to CHET (conventional methods)
CHET straps bulk archive and sends with paper archive to DeepStore

Unit and DeepStore staff pallet archive at Unit location
DeepStore staff take bulk and paper archive to DeepStore
CHET removes sensitive material *

CHET stores all sensitive material

* CHET may remove sensitive material if possible during visit
Appendix 2: The cataloguing spreadsheet

The spreadsheet includes 18 columns for each of the following pieces of data:

- **Source UID** is the unique reference for each component of the archive
- **Source type** (see pick list)
- **Site Code** is your unique code for the archive
- **Date** is the year the archive was created
- **Title** is the title of the archive (following a template, see below)
- **Originator** is the unit or individual who created the archive.
- **Location** is the intended location: ‘off-site store’ for bulk and paper material and ‘on-site’ for sensitive material (or any material that requires active conservation)
- **Material** (see pick list)
- **Barcode** is the unique reference used for retrieval purposes
- **Small finds ref** is the column for small finds refs and HSR references
- **Treasure ref** (if applicable)
- **Context** (can be range or individual number)
- **Box series** (if the boxes of the archives form a sequence of their own i.e.- box 1 of 12)
- **MonUID** is the unique reference for each CHER monument *
- **EvUID** is the unique reference for each CHER archaeological project
- **FindUID** is the unique reference for each CHER artefact/find *
- **OldCatalogueRef** can be used if you use finds catalogues as well
- **Attention column**: please mark these rows with requires attention or not and enter the details into the next free column and a member of CHET staff will get back to you.

* Filled in by CHET after catalogue is completed.

Cataloguing spreadsheet in more detail

If the context and box series columns default to date format, select the entire column and set format to text.

Pick lists are shown in full on the second tab of the spreadsheet; source type, material and location are controlled lists.

**Source UID**

Auto-generated unique reference or 'SCB number' for each archive element. These will be supplied in the spreadsheet for cataloguing (to aid our import process once the cataloguing is completed). If you require more Source UIDs, please do not copy and paste or extend the auto-generated list of SCB values; just let us know and we can send more.

**Source Type**

PICK LIST of 4 terms: Material, Documentary, Digital and Small Find.

**Site Code**

This is the site code used by the unit etc: BOT14 or CAMFGE14

**Date**

The year the archive was created.
Title
Please include the name of the site and the parish etc: "Grange Farm, Duxford evaluation excavation". If the investigation crossed parish boundaries, use the district or districts it was within etc: "Stow Longa to Tilbrook, Hunts pipeline evaluation".

Originator
PICK LIST: 1 term
Auto-generated unit reference. If you are cataloguing archive produced by another unit or amateur group, etc, please let us know and we’ll add them to the pick list.
The name of the unit or group is satisfactory.

Location
PICK LIST of 2 terms: Off site and on site. This is the intended location for the archives. Please use "off site store" (DeepStore) for bulk material and paper that does not need active conservation and "on site store" (Castle Court bunker store) for sensitive material that does need active monitoring such as metalwork, leather, wood and also complete artefacts that are suitable for display (whole pots, finely produced and complete flint tools, etc).

Material
PICK LIST of 61 terms. Use ‘Small Finds’ in the Source Type column and give each small find in the box a row in the spreadsheet and barcode (and use the actual small find material e.g.- metal) in this column.

BarCode
Please use the barcode scanner to add barcode entries to the spreadsheet (see appendix 3).

Small Finds Ref (including HSR unique reference is there is one)
Please use this column for small finds (SF) references and all HSR references such as skeleton (SK) or burial (B) where applicable. Do not use a space between the prefix and the number e.g. SF2 or SK102 or B102.

Each small find and each individual (if more than one are to be stored in a box) should be given a separate source UID and repeat the same barcode in each row.

Treasure Ref
Please add the treasure reference if applicable for the item in the box.

Context
Please add the context or contexts as to be listed on the box here.
The format of this column should be set to text (Format→Cells→Text).

Box series
Please use your units' unique box reference number here OR put * of * for the archives box series here e.g. 1 of 5.

MonUID *
These will be added once the populated spreadsheet is returned to the HER
EvUID
Please add the ECB reference for the archive here.

FindUID *
These will be added once the populated spreadsheet is returned to the HER

OldCatalogueRef
This field is only for use where the unit maintains a catalogue as well as a register of finds.

Attention
If you have any problems with the spreadsheet or come across any other issues regarding the cataloguing of boxes, please populate this box with either not required or required and add the reason to the next free column of the spreadsheet and a member of the team here will get back to you as soon as possible. In particular, if you cannot find the ECB for the archive, please let us know as we can help to ascertain this quickly and easily.

* Filled in by CHET after catalogue is completed.
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Appendix 3: Ordering and using barcodes

Barcodes can be ordered from CHET at any time.

Barcodes come in sheets of 16 so you may wish to request a run of 1000 barcode labels (63 sheets) at once in order to use them over several sites but you can also order them on a site by site basis. Please contact the team to discuss how many you require.

Please email archaeology@cambridgeshire.gov.uk with the amount that you require and we will organise for them to be delivered directly to you.

Barcode scanner tips

The barcode scanner needs to be plugged into the pc/laptop you are using it with before the machine is turned on. See the instruction manual for set up.

Put stickers on box before scanning as the scanner machine can be so sensitive that it can detect several at once if still on the label sheet.

Hold the scanner at an angle over the barcodes as this will improve the accuracy of the reader.

The barcode is the primary method of locating and retrieving archive from both stores so errors in the bar code reference (for instance, if hand-typed) could be extremely problematic.
Appendix 4: Supplier details

Listed below are the recommended suppliers used by CHET.

The properties listed below are those which meet the standard of care and consistency required.

If the depositor uses materials which they think reach a similar standard of care then please discuss the materials with CHET before using any alternative products to those listed.

1. Acid free boxes for the paper archive and bulk finds

Properties:
A4/A3/A2/A1 acid free archive folders/boxes

Acid free four flap folders:
Properties: 300gsm sand archival cover
A1 size: 880mm x 632mm - three flaps of 127mm, full fourth flap
A2 size: 632mm x 458mm - three flaps of 102mm, full fourth flap

Bulk finds boxes:
Wire-Stitched Boxes, 1900 micron double kraft-lined container board (pH 6.5-8)
80 mm deep lift-off lid with square or triangular corner lugs. Stitched with pure brass wire.
Standard Size = 500mm x 255mm x 180mm

Supplier: G. Ryder & Co Ltd www.ryderbox.co.uk

2. Polythene ‘Stewart’ boxes for sensitive material

Properties: Polythene Stewart Sealfresh™ boxes

Standard Sizes:
• ‘Savoury Storer’ 235 x 140 x 70mm (External) 1500ml
• ‘Picnic Pack’ 270 x 195 x 105mm (External) 3750ml
• ‘Giant Storer’ 335 x 335 x 165mm (External) 14000ml

Supplier: Stewart (see section 11.3.2)

5. Pens for labelling

Properties: Suitable pens include Staedler Pan Colour 303 or 353, Artline 70, Platignum laundry marker, WH Smith Planner pen and polyester film marking pens.

6. Plastazote (chopped)

Properties: Shredded LD/HD Plastazote mix supplied in Polythene bags. LD/HD Grade Plastazone (Mixed) in bags of 1m3.

Supplier: Polyformes limited www.polyformes.co.uk
7. Barcodes (if applicable)

Sheets of barcode labels can be ordered from CHET.

8. Strapping materials (if applicable)

Properties: Polypropylene strapping and seals
Supplier: Allpack Packaging Supplies Ltd [www.allpack.co.uk]
Appendix 5: Transfer of archive ownership form

Confirmation of Acceptance - Guidelines for Archaeological Archive Deposition, Cambridgeshire County Council

I confirm that I have read the ‘Deposition of Archaeological Archives in the Cambridgeshire County Council Archaeological stores’ guidelines and that the archive I wish to submit meets its requirements.

I confirm that title, copyright, data right are assigned to/licensed to Cambridgeshire County Council.

I confirm all materials are clean and stabilised, boxes are packaged appropriately and labelling is correct.

I have/have not contacted ADS about digital archiving.

I accept that if the archive does not meet requirements it may be returned to me at my expense.

Name:

Signed

On Behalf of:

Date:

For Office Use Only

| Contacted prior to completion
| Contacted prior to deposition
| Checked on site
| Checked on delivery
| Date for 1st monitoring
| Special requirements |
Appendix 7: Using the strapping machine

http://www.allpack.co.uk/2pchandstrap.htm

*How to:* Use a 2 piece strapping tool set for polypropylene.

Firstly feed the strap around the box/pack to be strapped, it is generally easier to pull the strap from the coil with the coil in front of you.

Secure the cut end of the strap under the gripper plate, this plate is raised and lowered by squeezing the handle and the base together. Be sure to leave enough strap in front of the tensioner in order to place the seal.
Next feed the other end of the strap through the cutter housing (A) at the front and the windlass (B). For greater detail, [click here](#).

Tension the strap to the desired amount by cranking the handle as shown.
Clip the seal over the strap where they run one above the other.

Crimp the seal into place.
With the seal crimped in place, squeeze the handle and the base together. This will do three things, the cutter in the cutter housing (A) will cut the strap from the coil, the windlass will disengage and release the tension (B) and the gripper plate (C) will be raised allowing the removal of the tool from the completed strap.

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