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1 **INTRODUCTION**

1.1 **Scope of the Study**

1.1.1 Oxford Archaeology (OA) was commissioned by East Sussex County Council to produce a geoarchaeological assessment as a component of the Environmental Impact Assessment of the proposed Bexhill to Hastings Link Road (hereinafter referred to as the ‘Scheme’). The assessment aimed to review all of the available data and the geo-technical records for the proposed route to identify areas of geoarchaeological or palaeo-environmental potential.

1.1.2 The Scheme area has considerable archaeological potential as it crosses several river valleys and ridges of the Combe Haven Valley. This area would have supported a richchanging wetland environment that would have provided attractive locations for past human activity and settlement. The Study Area has been subject to several phases of sea level regression and transgression in the past. It has, therefore, considerable potential for early prehistoric archaeology to be buried at depth, sealed underneath and within layers of alluvium, peat and estuarine silts.

1.2 **Location, topography and geology**

1.2.1 The Scheme runs along the lower slopes of the Battle-Hasting ridge that forms an intricate pattern of minor valleys and ridges. The Scheme crosses the river valleys of the Combe Haven, Watermill Stream, Powdermill Stream and Decoy Pond Stream; skirting around the main Combe Haven basin. It consists of a series of broad low ridges that separate three deeply incised river valleys, which in turn gradually extend down into the low lying area of the main Combe Haven Valley.

1.2.2 The Combe Haven Valley itself is a low lying, poorly drained, flat wetland, where much of the land lies just above sea level. The Combe Haven River runs through the main valley, towards Bulverhythe, from where it flows into the sea. The majority of the land is unimproved pasture with small farmsteads located on the higher ridges of the valleys. To the east and west are the major coastal urban areas of Bexhill and Hastings.

1.2.3 The British Geological Survey of Great Britain (BGS 320/321) maps the underlying geology of the area as predominantly floodplain valley deposits, surrounded by ridges of predominately Wadhurst Clay overlying Ashdown Sands. These are part of the Hasting Beds formation, that were former Cretaceous seabed deposits, uplifted through tectonic movement into what now forms parts of South East England.
1.3 The Archaeological Context

1.3.1 The archaeological and historic background to the project has been extensively covered previously (Volume 1, Cultural Heritage Chapter 13), and only a brief summary of this work is presented here.

1.3.2 Previously it has been assumed that, due to its heavy soils, the Weald was less favoured for early prehistoric activity and settlement, compared to areas like the South Downs with its lighter soils (Armstrong, 1990). The lack of archaeological sites discovered within the area has tended to reinforce this view, with only isolated find spots hinting at low levels of archaeological activity in the area. This is however in contrast to palaeoenvironmental analysis (Jennings, 1998 & 1990) that has identified significant human impact on the vegetation history of the Combe Haven Valley. The absence of significant evidence is very likely therefore to reflect a lack of investigation rather than a true absence of activity and settlement in the area.

1.3.3 Early prehistoric activity within the area is likely to have been focused around the valleys ridges and edges, utilising areas of higher ground to exploit the wetland environment of the low lying valley. These environments would have offered rich resources for foraging, hunting and fishing. By the Iron Age, these environments were being inundated by estuarine conditions, creating natural inlets to act as harbours. This would have help to facilitate development of transport and trade routes in the area.

1.3.4 The remains of a thriving Iron Age economy has been identified in the Combe Haven Valley based on the establishment of an early iron smelting industry. The area contains the essential raw materials that are required for iron smelting, including a plentiful supply of fuel wood. During the Roman period, the iron extraction industry continued to be the main focus of economic activity in the area, and was likely to have expanded.

1.3.5 In the Early Medieval period the lower-lying parts of the Combe Haven Valley were largely reclaimed from the sea, with only certain parts of the valley retaining any maritime links. There is a paucity of archaeological and historical evidence for this period.

1.3.6 The Combe Haven Valley appears to have remained relatively stable since the Medieval period, although some variation in sea-levels have been recorded.

2 AIMS

2.1 Research strategy

2.1.1 The primary objective of the assessment is to identify the main sediment units that will be encountered along the Scheme and provide an assessment of their archaeological and palaeo-environmental potential. More specifically, the study will aim to:
• Characterise the sequence of sediments and patterns of accumulation across the Scheme area, including the depth and lateral extent of major stratigraphic units, and the character of any potential land surfaces/buried soils within or pre-dating these sediments.

• Identify where possible any significant variations in the sediment sequence indicative of localised features that may have a higher archaeological or palaeoenvironmental potential.

• Identify the location and extent of any potential waterlogged deposits in order to highlight areas where samples can be taken to assess the potential of palaeoenvironmental remains and material for scientific dating

• Clarify the relationships between sediment sequences and other deposit types, including periods of ‘soil’ development, peat growth, archaeological remains, and the effects of relatively recent human disturbance, including the location and extent of made-ground and quarrying activity

• To provide where necessary any recommendations that will help to realise the archaeological and palaeoenvironmental potential of the Scheme area, in the context of mitigation of potential effects of the proposals.

3  METHODOLOGY AND SOURCES

3.1  Introduction

3.1.1  The assessment consists of a desk-based study of all the available archaeological and palaeo-environmental work that has been carried out within the Study Area, including previous sites, finds and specialist palaeo-environmental reports. Where necessary, reference has been made to significant data from outside of the Study Area. Two principal sources have been used:

- Records of the geotechnical investigations undertaken by Amey plc in 2006;
- An archaeological watching-brief report on the Amey geotechnical investigations (Archaeologicy South East, 2006).

3.2  Methods

3.2.1  An assessment of 31 boreholes and 63 geotechnical test pit records was carried out by OA to map the sedimentary sequence within the proposed development, and to highlight possible strata of archaeological and palaeoenvironmental potential. This data was entered into geological modelling software (Rockworks 2004) and was used to correlate and model the main stratigraphic units across the area. Specific emphasis was placed upon identifying variations in the character and thickness of organic or alluvial deposits, and the surface of the Pleistocene gravels.

3.2.2  Subsurface deposit modelling has the ability to reconstruct past geographies (palaeogeographies) for areas where the visible surface topography (modern ground surface) bears little or no relationship to buried evidence of previous land surfaces. This type of approach is particularly valuable in floodplain environments where the archaeological potential is difficult to assess by traditional evaluation methods. In many of the floodplains of the larger rivers and estuaries in England and Wales, this is often
due to thick deposits of made-ground and alluvium effectively masking earlier deposits that frequently lie at great depth.

3.2.3 No core or sample data was available during the initial assessment to verify any of the observations made in this report. All the data comprised paper copies of boreholes and test pit logs. Bates et al (2000) have drawn attention to the potential shortcomings of this form of data-set.

3.3 Sources

Literary review

3.3.1 The literary review collated information from all of the previous archaeological and environmental investigations that have been carried out within or near to the Scheme area. This included a review of the East Sussex Sites and Monuments Register in order to assess the archaeological discoveries that have been made in the area. This helped to provide information on the types of archaeological finds and features that have been identified. It has also helped to identify where and within what contexts this material has been uncovered.

Geo-technical investigations

3.3.2 As part of the assessment, all of the records of the geotechnical boreholes and test pits were studied along the Scheme, including those that were subject to archaeological monitoring (Archaeology South East 2006). The geotechnical investigation provided a valuable source of information on the types of sediment sequences that are present along the Scheme and allowed the main units to be mapped. The locations of the geotechnical boreholes and test pits are shown on Figure 1.

Local Researchers

3.3.3 The Combe Haven has been subject to a number of intensive studies looking at its sediment sequences and formation. Simon Jennings of London Metropolitan University has been working at Combe Haven for the last 10 years and has produced several research papers on the landscape history of the valley (Smyth and Jennings 1990, 1998, and Jennings 2005). Discussions with Mr Jennings on the sediment sequence and any potential research questions that could be addressed within any future stages of work have proved very useful.

4 Sediment Description

4.1 Introduction

4.1.1 An interpretative cross-section of the four valleys stratigraphy has been produced (Figure 2) showing the distribution and identity of the main sedimentary units that have been identified along the route of the Scheme.

4.2 Preliminary deposit model

4.2.1 The sedimentary sequence within the Scheme area is associated with the Combe Haven and its tributaries. The stratigraphy is relatively consistent and comprises:
• **Bedrock:** Very stiff blue grey laminated clays and light grey medium grained sandstone and siltstone;

• **Basal Gravel:** Very stiff grey sandy and clayey gravel;

• **Estuarine silts:** Fine-grained silty/sandy clay;

• **Combe Haven Peats:** Spongy dark blackish brown silty and fibrous peat;

• **Upper silts:** Soft light grey/greyish brown sandy clay and silty clay;

• **Subsoil:** Loose light yellowish brown silty sand/sandy silt;

• **Topsoil:** Firm dark brown slightly sandy clay/sandy silt.

4.3 **Pre-Holocene deposits and basement topography**

*Bedrock*

4.3.1 The underlying bedrock across the site was recorded as being Wadhurst Clay overlying Ashdown Sands. The Wadhurst Clay was recovered as very stiff blue grey clay that in places was deeply fissured and fractured. The Ashdown Sands were recovered as hard, yellowish grey closely fissured silts with bands of sandy clay.

*Basal gravel*

4.3.2 The basal gravel unit consists of mixed deposits of fine to coarse weathered bedrock with well-sorted angular to rounded sandstone gravel. These deposits are confined to the valley bottoms and edges and vary in thickness from 1.30 m to 5.95 m. They accumulated during the last cold stage that occurred between 85,000 to 14,000 Before Present (BP).

4.3.3 These gravels represent material deposited through glacial outwash streams by rivers swollen by spring and summer melting. These rivers formed the deeply incised valleys of the area when most of the water was trapped in glacial ice and sea level was much lower than present day. During the winter months the ground would have been frozen as permafrost and the valley edges would have been subject to solifluction processes.

4.3.4 Any finds recovered from the gravels will have undergone a high degree of transportation and are likely to be abraded. With the notable exception of the Sussex coastal plain, the area is not known for its Palaeolithic industries. This could be in part due to the lack of gravel extraction (Leslie and Short, 1999, 10) or to limited archaeological study in the area. Any finds from this period would be exceptionally rare and likely to be of national importance.

4.3.5 The surface of the gravel and the bedrock essentially defines the topography of the early Holocene landscape. Bates (1995) refers to this as the ‘topographic template’ and suggests that variations in the template largely dictated the patterns of subsequent landscape evolution, as flooding and sedimentation ensued during the prehistoric period. On initial examination of the Combe Haven data, the elevations of the surface of this template reflect the four deeply incised river valleys of the Combe Haven, Watermill Stream, Powdermill Stream, and Decoy Pond Stream. These are in turn
separated by three ridges of higher ground at Hillcroft Farm, Adam’s Farm and Upper Wilting Farm.

4.3.6 The Powdermill Stream Valley is the deepest of the river valleys, extending to a depth of -8m OD; compared to -6m OD for Watermill Stream Valley, -2m OD for the Decoy Pond Stream Valley and 0m OD for the Combe Haven Valley. The Watermill Stream and Powdermill Stream are the most extensive river valleys, with the deepest and most representative sediment sequences.

4.4 Holocene sediments

**Estuarine silts**

4.4.1 These deposits consist of fine-grained silty/sandy clay that occupy all of the valley bottoms and have been recorded as much as 3 km inland. They vary in thickness from 0.80m to 4.60m, accumulating at between -6m OD to -3m OD.

4.4.2 Previous analysis of fossil remains and diatoms confirm that these deposits were lain down under estuarine conditions, radiocarbon dated to between 8000 and 5000 BP. A phase of peat formation has been previously recorded within the main Combe Haven Basin, although it is not represented within the Scheme area. This brief period of peat formation has been dated to c 6000 BP, when estuarine conditions were confined to the present valley mouth and alder and willow carr appear to have become established on the floodplain of the valley. The causes of the marine regression are unknown but one suggestion is that the build-up of temporary beach sediment at the mouth of the valley was the likely cause (Jennings, 2005). Just a few hundred years later, estuarine conditions returned to the valley, probably due to the erosion of the aforementioned beach sediment.

4.4.3 The valley ridges and channel edges at this time would have provided an attractive location to Mesolithic hunter-gathers communities, enabling them to exploit the rich resources and environments at the estuary edge. Any archaeological remains of this period are likely to be buried at depth under later accumulations of peat and estuarine silts.

**Combe Haven peat**

4.4.4 The peats consist of silty peat and fibrous peat, which are confined to the base of three of the four main valleys in the Scheme area (the Watermill, Powdermill and Decoy Pond Valleys). In places, these deposits are between 1.80m and 5.60m in thickness. They occur between -5m OD to 1m OD, with the most extensive deposits being located within the Watermill Valley. Slightly older and thicker peat deposits appear to be located in the Powdermill Stream Valley (Borehole 15). The thinnest and possibly the youngest deposits are recorded within the Decoy Pond Stream Valley. These are likely to have been eroded by shifting river channels, as suggested by the presence of sandy deposits (Boreholes 23 and 25). No peat deposits were recorded within the upper section of Combe Haven Valley.

4.4.5 These peat deposits reflect a major withdrawal of the sea from the valleys, and a period when the shoreline extended out much further than the present day. Areas that were previously salt marsh appear to have been replaced by carr and reed swamp deposits. Evidence for this former shoreline comes from the remains of a submerged forest bed that can be seen at the low tide mark at the seaward mouth of the valley, c 2.5km south
of the Scheme route. The same forest bed can be found offshore near the Pevensey Levels, Rye Bay and Pett.

4.4.6 Previous studies have established that these peat deposits were laid down between 5000 BP - 2200 BP. Pollen analysis (Smyth and Jennings 1998) of the lower peat has identified the first significant changes in the valley brought about by woodland clearance at this time, either caused by the effects of disease or by the adoption of agriculture by Neolithic communities. The widespread correlation of timings of this change in the pollen record may favour the disease as the most likely cause, although it is also possible that Neolithic activity played a significant role in helping to spread the disease and exacerbate its effects.

4.4.7 The upper peat has been dated to 3,500 BP (the Middle Bronze Age) which is characterised at many sites across England as a period of extensive woodland clearance principally to make way for enclosed agricultural fields. Previous work looking at silt deposits identified within the top of peat, have interpreted them as colluvial silts probably caused by woodland clearance of the surrounding valley edges, leading to erosion of the soils into the valley bottoms and rivers.

4.4.8 The bottoms of the valleys, the gravel islands and the edges of the wetland zone would have been very attractive locations for Neolithic and Bronze Age communities to exploit the rich wetland and river resources present. However, settlement was likely to have been confined to the top of the ridges or higher up on the slopes of the valleys.

4.4.9 Any artefacts associated with these peat deposits are likely to have undergone only limited lateral transportation and would have been rapidly sealed by later flooding. At Upper Wilting Farm several possible hearth deposits dated to the Bronze Age have been located on the valley edges and at the interface with the wetland zone, suggesting that there may have been a Bronze Age (perhaps seasonal) settlement in this area, possibly farming the higher ground. Any material recovered from this period is likely to be of significant value representing possible *in-situ* early prehistoric activity.

*Upper silty clay*

4.4.10 The upper silts mark a shift away from the deposition of organic sediments to minerogenic silty clays, represented by a second phase of marine incursion. These deposits consist of soft light-grey/greyish-brown, sandy clays and silty clays, occasionally with organic peaty lenses near to the base. They range in thickness from 0.40m to 1.60 m, and are located at approximately 1m OD to 6m OD.

4.4.11 Previous studies of pollen and diatoms contained within this deposit record the establishment of salt marsh conditions on what had been previously alder woodland, including the seaward forest bed. Similar major incursions by the sea at this time are recorded in the Lower Thames Valley, and a number of other locations around the coast of England. It is often referred to as the ‘Romano-British Trangression’, with a number of potential causes cited for the increased sea level. It is widely believed that large-scale deforestation played a significant role in increased flooding and rising water levels of floodplain environments during this period.

4.4.12 Any artefacts identified within these silty clay deposits are likely to have undergone a moderate degree of lateral transportation and possible size sorting. Any human activity associated with these deposits is likely to be found towards the valley edges which
could have acted as natural harbours. These may have been used for communications and trade, necessary for the growth of the iron industry in the area.

**Subsoil**

4.4.13 This unit consists of loose, light yellowish brown, silty sand/sandy silt. It varies in thickness from 0.40m to 1.60m, overlying the basal gravel and bedrock on the higher ground and over the alluvial deposits within the valley bottoms.

4.4.14 This unit represents a mixture of weathered bedrock, loess, colluvial and alluvial deposits. Towards the base of the valley much of this material is likely to be alluvium or colluvium. Archaeological features and deposits could potentially be dug into, contained within or sealed by these deposits. Any artefacts recovered from these deposits are likely to have been moved from their original contexts.

**Topsoil**

4.4.15 This consists of a mixture of firm, brown, sandy clay and clay with occasional to frequent partially sorted angular to sub-rounded gravel. It ranges in thickness from 0.35m to 1.40m, representing different sediment types and including ploughsoil and made-ground deposits.

5 **DISCUSSION**

5.1 **Sediment sequence**

5.1.1 The elevation data from the surface of the gravel and bedrock up to the topsoil has been used to create a cross-section of the Scheme route representing the early Holocene land surface and later deposition sequences (Figure 2). A previous deposit model proposed by Jennings (2005), using radiocarbon dates and pollen analysis allows age estimates and vegetation history to be applied to this sequence (based on correlation of deposit types).

5.1.2 During the Pleistocene, when the deep valleys of the area were being cut into the underlying bedrock by glacial rivers, the ground would have been frozen, supporting treeless vegetation with large areas of bare open ground. This would have represented an environment similar to modern day tundra that is found within sub-arctic regions.

5.1.3 During the reworking of the landscape in the Middle to Upper Palaeolithic, sandy gravels were laid down. This period was characterised by flint industries based on hand axes, and core and flake technologies. These flints are the only traces of the semi-nomadic hunter-gather communities that would have visited Britain on a seasonal basis during this period. There is very little evidence to indicate that Britain was permanently occupied at this time. Activity is likely to have transient, focussed around river valleys and areas that provided some shelter from the intense cold.

5.1.4 Any material recovered from within the gravel is likely to have been highly modified and undergone natural sorting processes. The surrounding area has previously produced very little in the way of Palaeolithic artefacts with only a small number of artefacts from Bexhill and west of Hastings (Leslie and Short, 1999, 11). The potential of the basal gravel is therefore considered to be generally low.
5.1.5 The onset of the early Holocene saw rapid warming and the silting up of former Pleistocene channels. The climate amelioration allowed the more adaptable vegetation to become established and this created suitable conditions for the first soils to form. Eventually oak, elm, ash and lime would have formed a dense forest cover over most of the country, with the wetter valley bottoms being dominated by alder and willow. As sea level rose, estuarine conditions would have started to migrate further up the river valleys, replacing former wooded areas with reed swamp and salt marsh.

5.1.6 The gravel surface would have represented the landsurface for the earlier parts of the Holocene, where archaeological material may exist resting on, or cut into this surface. The age and stratigraphic integrity of any recovered material would depend on the date of flooding and the nature of the flooding processes. It is expected that the lower-lying areas of the gravel surface would have been overwhelmed by flooding relatively early in the Holocene (after 8,000 BP) and consequently only contain Mesolithic archaeological material. Other areas of the gravel surface at higher elevations (particularly towards the edges of the floodplain and valley edges) may have remained dry until relatively late (c. 3,500 BP) and contain a range of material including that from the Mesolithic, Neolithic and Bronze Age periods.

5.1.7 Estuarine conditions were recorded in all the valley sequences soon after 8,000 BP. Areas of former forest bed would have given way to salt marshes. A brief retreat of the sea has been recorded in the lower Combe Haven Valley at 6,000 BP, leading to a brief period of peat growth. This period of regression does not appear to have extended further up the valley and into the Scheme area, as indicated by the recorded sediment sequences within the Scheme area.

5.1.8 Early Mesolithic activity associated with the estuarine environment is likely to be located near to the edges of the lower silt deposit. The valley edges would have provided prime sites to exploit marine resources and provided routes through which to infiltrate the dense woodland of the period. At this time the valley slopes would have supported lime and oak deciduous woodland, while salt marsh conditions would have been present in the valley bottoms. Any evidence from the Mesolithic period is likely to be sealed underneath the main Combe Haven peat at considerable depth.

5.1.9 The onset of peat formation within the area has been previously dated to c. 5,000 BP, and marks a major withdrawal of the sea, and an advance of the shoreline seaward of that present today. The exact reason behind the regression is unknown but it has been suggested that the build up of beach sediment is one of the most likely causes. This allowed alder and willow to encroach into the valleys, and replace areas that were previously salt marsh. As mentioned previously, several submerged forest beds have been identified to the south of Bulverythe and at other locations along the south coast.

5.1.10 The peat unit was confined to the three valleys of the Watermill Stream, Powdermill Stream and Decoy Pond Stream, while being notably absent from the upper sections of the Combe Haven Valley. The thickness of these peat units is significant, representing an important palaeoenvironmental sequence of waterlogged deposits that covers much of the early prehistoric period.

5.1.11 Early prehistoric activity (Mesolithic-Bronze Age) associated with the formation of the Combe Haven peat sequence is likely to be found buried at depth, sealed within or just above the peat. Within the Scheme area (and in the valleys of the Watermill Stream, the Powdermill Stream and the Decoy Pond Stream), between 1m to 2m of later fluvial sediments have been recorded overlying the peat. Activity of this period is therefore likely to be very difficult to identify and problematic to investigate using traditional trial
trenching methods. Prehistoric track ways and wooden platforms have been identified elsewhere within similar contexts on the floodplains of the Thames and Severn Estuaries. At Shinewater, to the north of Eastbourne, a substantial wooden platform and associated track way, dated to the late Bronze Age, was found buried by marine silts (Stevens 1997).

5.1.12 Further estuarine incursions has been recorded in the Combe Haven Valley circa 2,200 BP, most likely following the erosion of the beach by an as yet unidentified process. Once again salt marsh and reed swamp environments replaced areas of former alder and willow woodland. This environment is likely to have played a significant role in the development of the areas iron industry. The river valleys could have facilitated the establishment of harbours and landing points, necessary for the transport of iron exports and trade. Several iron-working sites have been recorded at Byne’s Farm, Lower Wilting Farm and Upper Wilting Farm close to, or within, the Scheme area.

5.1.13 It is believed that by the 11th century the river inlets started to slowly silt up naturally, with the last maritime connections being recorded at Bulverhythe in the 17th century. Pollen analysis from the upper deposits in the Combe Haven Valley has shown a decline in salt marsh plants and their replacement with grasses, sedges and cereals, consistent with the growth of modern agricultural activity. Secondary woodland regeneration has also been recorded in recent times, this is most likely due to the decline of the iron industry in the region.

6 CONCLUSIONS AND RECOMMENDATIONS

6.1 Conclusion

6.1.1 The assessment has successfully characterised the nature of the sub-surface stratigraphy underlying the present ground surface within the Scheme area. The following conclusions can be made:

- The major stratigraphic sequences conform, from the available data, to the regional model that has proposed by Jennings (2005).

- The Scheme topography is dominated by the four river valleys of the Combe Haven, Watermill Stream, Powdermill Stream and the Decoy Pond Stream. Between 6m and 10m of Holocene sedimentation now fills these valleys. Three of these valleys contain thick deposits of peat (c 1.80 to 5.60m in depth), which are of significant palaeoenvironmental and archaeological potential.

- Significant local deposits are likely to be present within the study area associated with different environments of deposition and local topographic features, such as areas of higher ground or shifting channel deposits. The valley ridges and higher ground would have provided an attractive location for early settlement activity, associated with the exploitation of the lower valley wetland environment, and therefore have a significant archaeological potential. The interface between these two environments (upper dry slopes and the lower wetlands) is also likely to have been the focus of activity and also has significant archaeological potential.
There is a high potential for waterlogged remains to exist within the valley bottoms along the Scheme route. Evidence could include deposits relating to the exploitation of the wetland environment and the use of the valleys for water transport (e.g., wooden structures or trackways), as well as palaeoenvironmental material dating from the Mesolithic period onwards. Such material has the potential to contextualize any archaeological remains present, as well as adding to current research data regarding the palaeoenvironmental history and evolution of the Combe Haven floodplain in general. The presence of organic remains could also potentially provide further dating material.

Without suitable mitigation, the valley sequences and any associated archaeological or palaeoenvironmental deposits could be vulnerable to direct primary impacts resulting in the partial or complete destruction of such deposits (e.g., through ground intrusion), and direct secondary impacts (e.g., the compression of buried deposits through earthworks, or the de-watering of sensitive, waterlogged remains through drainage). These impacts may occur during the construction and operational phases, and may also include residual effects from direct secondary impacts.

6.1.2 Sufficient data was available to offer a reasonable interpretation of the sub-surface stratigraphy. The distribution of boreholes and test pits however was somewhat uneven, due to access issues, particularly in the area towards the northwest of the Scheme area. This made it very difficult to fully characterise any localised variations within the sediment sequence. All the data that was available derived entirely from paper records and many of the inferences made in this assessment will need to be confirmed through further work.

6.2 Recommendations

6.2.1 It is recommended that as part of any programme of archaeological trench evaluation of the Scheme route, certain trenches are targeted on particular areas of the Scheme where a higher archaeological potential has been identified through the geotechnical data. This comprises the upper valley slopes and the interface with the floodplain deposits, where it is considered that evidence of activity and settlement is more likely to be located.

6.2.2 Where archaeological and palaeoenvironmental deposits may potentially be buried at greater depth (at the interface between the upper slopes and the lower wetland environment, or in the wetland environment), it may be practical to evaluate the presence and nature of such deposits through the use of machine-dug test pits.

6.2.3 A targeted program of boreholes might also be appropriate. This approach would be particularly valuable to investigate early prehistoric activity that could exist in the valley bottoms, buried at depth, and beyond the reach of more traditional trial trenching methods. This would help to ground-truth the sedimentary sequence proposed within the assessment and help to identify localised features that may have higher archaeological potential. It may also provide palaeoenvironmental samples that would help place any archaeological sites within a wider landscape setting.

6.2.4 Due to the depth and nature of the sediment sequences that are likely be encountered within the Scheme area, it is recommended that a geoarchaeologist be present during trenching or made available to visit the site. This will allow for the valley sediment...
sequence to be tied in with archaeological features that may be identified on higher ground.

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