

Deepham's Sewage Works Edmonton London Borough of Enfield



Archaeological Watching Brief Report



July 2012

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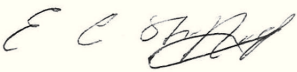
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**Deepham's Sewage Works, Edmonton,
London Borough of Enfield**

NGR TQ 3580 9450

Archaeological Watching Brief Report

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Oxford Archaeology

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Summary

In September 2011 Oxford Archaeology South (OAS) were commissioned by GBMJV Ltd, to maintain an archaeological watching brief during the creation of a new pumping shaft facility at Deepham's Sewage Works, Edmonton, Greater London. The purpose of the field investigation was to mitigate the impacts of the development.

Previous investigations at the site have including floodplain modelling and desk-based assessment, which suggested that the area has a high archaeological and a palaeoenvironmental potential. However, subsequent targeted field evaluations to the south of the site and small scale watching briefs within or close to the site have failed to identify any signs of significant archaeology. Instead large areas of ground disturbance and truncation have been identified associated with the construction of the Sewage works.

The more recent watching briefs undertaken at the site have identified preserved floodplain deposits, including peat and alluvial deposits sealed under thick Victorian made-ground deposits. An updated deposit model has also been produced and has indicated areas of preserved floodplain deposits exist to the east and south of the site, with signs of higher truncation on the gravel terrace to the west. The results of previous work on site have helped to confirm the high level of ground disturbance and truncation identified in the west, with only a few shallow archaeological features surviving here. The most significant of these were medieval and post medieval features and structures associated with the pre-sewage works, Deepham's Manor Farm.

No archaeological features or deposits were identified during the current watching brief located to the east of the sewage works, where an intact alluvial silts and organic deposits overlie sandy gravel deposits. The organic sequence was identified at a depth of 3.62m to 3.05m (8.39m and 8.96m OD) and potentially represents part of the prehistoric peats known from the surrounding area. These peats were overlain by a sequence of alluvial silty clays that represent increasing water and river-levels in this area. These deposits were found to have high potential for palaeoenvironmental assessment and dating. Two organic units were also identified interstratified within the Pleistocene gravels at depth of 6.5m (5.51m OD), which may represent the Late Glacial Arctic Bed deposits.

The absence of archaeology within this area of the site may potentially relate to the buried palaeotopography of the area, which the updated deposit model indicates is close to a large late Pleistocene channel that likely continued into the Holocene. The waterlogged nature and potentially early inundation of this area of the site may suggest that it was less favourable for human activity, compared to other locations like the terrace edge or floodplain islands that were also identified in the site model.

Deephams Sewage Works, Edmonton, Greater London

Archaeological Watching Brief Report

1 Introduction

1.1 Scope of work

- 1.1.1 In September 2011 Oxford Archaeology South (OAS) was commissioned by GBMJV Ltd, who was acting on behalf of Thames Water Ltd, to maintain an archaeological watching brief during the construction of a new sewage works pumping station facility within the Deephams Sewage Works, Edmonton, Greater London. Kim Stabler, Archaeological Officer for Greater London Archaeological Advisory Service (GLAAS) and Josh Williams (GBMJV), requested that a watching brief be maintained during the construction works to check for signs of archaeological preservation.
- 1.1.2 The watching brief was undertaken as part of a wider phase of work on the site that has included desk-based assessment, trench evaluation, watching briefs and deposit modelling. The watching brief was designed to investigate the level of ground truncation identified in the deposit model and mitigate the impacts of the new development.
- 1.1.3 This report outlines the results of the watching brief and describes the sequence of Pleistocene and Holocene deposits encountered.

1.2 Geology and topography

- 1.2.1 The site is located in the Deephams Sewage Treatment Works, Picketts Lock Lane, Edmonton, London Borough of Enfield (NGR: TQ 3580 9450). The area is occupied by slurry lagoons surrounded by earthwork bunds. The rest of the site comprises works buildings, with areas of hard standing and storage tanks (Figure 1).
- 1.2.2 The site lies on the western edge of the River Lea, a tributary of the River Thames, and extends across the former floodplain that was reclaimed during the post-medieval period. The site lies between +15 m and +10 m OD, sloping down towards the river.
- 1.2.3 The drift geology of the area is mapped as alluvium to the east and Kempton Gravel to the north-west, overlain by Langley Silts (BGS sheet 256 1:50,000). Previous geotechnical and archaeological investigations at the site have identified a sequence of alluvium, marls, brickearth and peat deposits underlying thick deposits of made-ground.
- 1.2.4 The Quaternary history of the Lea Valley has been previously summarised in Gibbard (1994, 109-112) and more recently in Corcoran *et al* (2011). The floodplain gravel is known as the 'Lea Valley Gravel', a member which includes the gravel and sand units that underlie the modern floodplain, and the 'Lower Terrace', 1-2 m above the floodplain on the western bank (Warren 1916). Contained within these gravels are organic rich deposits dating from before the last glaciation maximum between 20-30,000 years ago, known as the Lea Valley Arctic Beds or Ponders End Stage (Gibbard 1994, 109).

1.3 Archaeological and historical background

1.3.1 The archaeological potential of the site has been previously outlined in the desk-based assessment (Lewis 1995), which is summarised in the following sections.

Prehistoric (500,000BC □ AD43)

- 1.3.2 The prehistoric period is represented in the area by relatively few findspots. The earliest remains include Palaeolithic and Mesolithic flint artefacts, mostly recovered from the floodplain or riverine locations.
- 1.3.3 By the Bronze Age there is evidence to suggest that large areas of London were being organised into co-axial field systems serviced by droveways and waterholes. On the floodplain of the Thames and its tributaries such as the Rivers Lea and Colne, there is evidence for rising water-levels and correspondingly the construction of wooden trackways and platforms.
- 1.3.4 Bronze Age finds from the area are more frequent and tend to be found in these water-lain or peat contexts. Some are clearly utilitarian tools lost by accident, while others including a rapier, spearhead and shield, may reflect ceremonial or ritually placed deposits. To the south of site, at the new Edmonton Ikea building, evidence of Mesolithic activity and Bronze Age to Iron Age wooden pile structures and a cremation burial were identified (AOC 2005). Excavations to the north of the site at Ramme Marsh have also revealed a complex sequence of occupation and land division of Bronze Age date (Wessex Archaeology 1997).
- 1.3.5 Finds of prestigious metalwork from alluvial contexts during the Iron Age may represent a continuation of ritual offerings within water bodies. Pottery, coins and metalwork within the wider area would also suggest some settlement within the surrounding river terraces.
- 1.3.6 Low-lying floodplain locations were clearly preferred and utilised in Mesolithic and Neolithic times (Clarke 1976). During later prehistory when flooding and ground water became more of an issue (Lambrick and Robinson 1984), Bronze Age and Iron Age occupation appears to have retreated to the terrace edges and islands of the floodplain. Evidence of gravel islands and terrace edges within the site area have been previously mapped by Lewis (1995).

Roman (AD43 □ AD450)

- 1.3.7 In the Roman period, Londinium (London) was established and developed into an urban centre, and later the provincial capital of Roman Britain (Perring and Bridgham 2000). A network of roads was constructed that connected London to the regional centres, such as Lindium Colonia (Lincoln). The Roman road to Lincoln runs just to the west of the site.
- 1.3.8 Roman remains are well represented within the area surrounding the site with the emphasis of activity along the corridor of the Roman road. Finds of pottery, coins and metalwork would suggest a largely settled landscape at this time.

Medieval (450AD □ 1539AD)

- 1.3.9 After the collapse of the Roman administration in London, the city fell into decline. There is little documentary evidence for Saxon Lundenwic, and even less for the outlying areas. Evidence of Saxon activity in the area of the site is not well represented, but settlement activity has been identified at Edmonton and Lower Hall Lane.

- 1.3.10 In contrast, later medieval activity from the area is well-represented by a large number of known sites and findspots. Deepham's Manor House lies just to the north of the site beneath the retained area of the sewage works.

Post-medieval to modern (1539 onwards)

- 1.3.11 During the post-medieval period the area was predominantly used for mixed agriculture associated with the Deepham's Manor Farm. In 1852 the Manor is recorded as owning 25 bullocks, oxen, horses, pigs, geese and chickens.
- 1.3.12 It was not until the 1870s that the sewage works were constructed on the former Deepham's Farm, which was extended in 1927 to cover 200 acres. The construction of the works will have had a major impact on the archaeological survival at the site. However, the previous borehole records do reveal areas of intact alluvial deposits towards the south, where the main site is located
- 1.3.13 Quarrying of brickearth and gravel is widely known to have occurred in the area, in particular to the north of the Deepham's site at Pickett's Lock. These works continued to be exploited until 1951.

Previous archaeological Investigations

- 1.3.14 The archaeological potential of the site has been previously highlighted in the desk-based assessment (Lewis 1995). This study identified significant archaeological deposits in the area and suggested that similar deposits could extend to the site. The study also identified, through the examination of geotechnical boreholes, the presence of buried peat deposits, sealed beneath alluvium and found in association with gravel islands. It concluded that the area has high potential to preserve early prehistoric remains associated with buried land surfaces.
- 1.3.15 Two phases of field evaluation were undertaken in 2001 in order to investigate the archaeological potential towards the south of the site. The first phase (Pine 2001) was targeted on the deposits and topographic features identified in the desk-based assessment. No archaeological features or deposits were identified during the evaluation. Deposits of made ground up to 1 m in thickness were recorded sealing a sequence of alluvium and laterally extensive peat.
- 1.3.16 A watching brief was also maintained between January and December 2001 on all intrusive works. Again no archaeological deposits were identified and some areas revealed evidence of severe disturbance.
- 1.3.17 More recent phases of work have included monitoring of geotechnical boreholes at the site (OA 2010a). This work identified a sequence of preserved alluvial and peat deposits within the existing sewage works. An updated deposit model (OA 2010b) was also developed for the site, based on Lewis's (1995) original deposit model and new data now available since the original work was completed. The model was able to identify areas of potential within the floodplain towards the east and south of the site, but the gravel terrace to the west may have been significantly disturbed.
- 1.3.18 The most recent phases of work has been the completion of two watching briefs by Oxford Archaeology (OA 2011) and AOC Archaeology (AOC 2011), which identified structures and features associated with the 18th-19th century Deepham's Manor Farm. These features were either demolished or in-filled as part of the late 19th century landscaping prior to the construction of the modern sewage works complex.

1.4 Acknowledgements

- 1.4.1 OA would like to thank Josh Williams of GBMJV Ltd for providing advice during the project. Also thanks are due to the project manager Gary Attwell and David Purnell who helped to facilitate the archaeological works. The fieldwork was undertaken by Christof Heistermann and John Boothroy. The report was written by Carl Champness who also undertook the georachaeological assessment. The project was managed by Elizabeth Stafford.

2 AIMS

2.1 Aims

2.1.1 The main aims of the watching brief were to search for signs of archaeological preservation within the site and to mitigate the impacts of the new pump shaft. The following is a summary of the specific aims of the investigation, developed in conjunction with GBMJV and GLAAS:

2.1.2 The main aims of the watching brief were to;

- Identify the location and extent of any waterlogged organic deposits, and address the potential and likely locations for the preservation of archaeological and palaeoenvironmental remains;
- To signal, before the destruction of the material in question, the discovery of a significant archaeological area and any finds for which the resources allocated are not sufficient to support and may require further mitigation;
- To make available the results of the investigation;

3 METHODOLOGY

3.1 General

3.1.1 Intrusive excavations were planned in association with a new sewage pumping station and services (Figure 2). These excavations required the removal of sediments up to a depth of 8m in a circular area 10m in diameter (Plates 1 and 2). A continuous watching brief was maintained during all intrusive works associated with the new development.

3.1.2 The fieldwork was carried out according to the relevant GLAAS Archaeological Guidance Papers (GLAAS 2009) and IFA guidelines (IFA 2001). Prior to the commencement of fieldwork a unique number site code was obtained from the Museum of London.

3.2 Methodology

3.2.1 A continuous watching brief was maintained during the stripping of the pumping station shaft at the site. The excavation area was taken down in plan using controlled machine strips with the insertion of concrete retaining ring around the edge of the excavation (Plates 3 and 4). Exploratory trenches were excavated during the stripping in order to provide sediment profiles and to help to assess the archaeological potential of the deposits.

3.2.2 A daily record of the nature, extent and depth of groundworks was maintained throughout the duration of the project. Digital and black-and-white negative photograph records were taken of all sections, excavations and potential archaeological features.

3.2.3 All contexts and small finds were allocated unique numbers. Bulk finds were collected by context. Site plans were drawn at an appropriate scale (normally 1:50 or 1:100) with larger scale plans of features as necessary. Section drawings of the shaft and exploratory trenches were drawn at a scale of 1:20.

4 RESULTS

4.1 Introduction

- 4.1.1 The area designated for the construction of new pumping shaft and associated services was stripped with a mechanical excavator using a toothless and toothed bucket (Plate 1). Made-ground deposits were reduced to a depth of 2.30m to reveal a sequence of undisturbed alluvial deposits. No archaeological features or deposits were identified during the monitoring works.
- 4.1.2 The sedimentary sequence is discussed in terms of depth below modern ground level and also quoted in positive metres above Ordnance Datum (m OD).

4.2 General sequence

- 4.2.1 The site was overlain by made-ground deposits that were used to raise and level the area during the construction of the sewage works. The deposits were observed to be between 2-2.50m in thickness across the site area. These deposits were found to overlie a sequence of undisturbed alluvial and organic deposits on top of Pleistocene gravels and sands. Two organic deposits were also identified sealed within the gravels.
- 4.2.2 The context data from the watching brief is recorded in Appendix A. The deposits are described with their dimensions and any relevant dating evidence. An interpretative sedimentary profile through the pump shaft is reproduced in Figure 3.
- 4.2.3 The detailed finds and sample data from the watching brief can be found within Appendices C and D.

4.3 Results of the watching brief

- 4.3.1 The watching brief did not identify any signs of human activity within the site area. No archaeological features or deposits were identified during the monitoring works. A continuous vertical section was maintained during the excavations and environmental samples were taken when and where appropriate.
- 4.3.2 The pumping shaft was excavated under archaeological supervision to a depth of 8m below the current ground level. A sequence of stratified gravel and sandy gravel deposits (013) were recorded at the base of the sequence. These deposits accumulated under high-energy meltwater streams that were present at the end of the last glacial period (Devensian).
- 4.3.3 Interstratified within the gravel and sands deposits were two lenses of organic rich silts (011 and 012) at a depth of 6.5m (5.51m OD) that contained visible plant remains. These deposits may relate to the 'Arctic Beds' deposits described previously in the report. They were mapped previously in this area and predicted at a similar depth in the deposit model (Figure 4; OA 2010b). These deposits were sealed by sandy gravels (010) and loose light brownish yellow clayey sands (009). The surface of these sands were very well-defined and sloped down at 30° angle from east to west across the site towards the present river.
- 4.3.4 Above the sloping Pleistocene sands and gravels, was a thin 0.15m-0.20m brown organic silt (008) between 4.40m to 4.50m in depth (8.21m to 7.36m OD) with signs of fine rootlets and alluvial silt couplets. This appeared to represent the beginnings of stabilisation and soil formation (pedogenesis) on the sands during the early post-glacial period (early Holocene). This surface appears to have been later transformed into a wetland soil through rising ground water-levels and flooding that occurred later in the

- Holocene. Its low-energy nature means that it has high potential to preserve important early prehistoric remains, although none were observed during the watching brief.
- 4.3.5 This surface was overlain by pale grey alluvial sandy clay (007) with fine inter-bedded lens of higher-energy sands and silts. These deposits accumulated between 4.40m and 3.62m in depth (7.61m and 8.39m OD) and represent a combination of overbank floodplain alluviation and high-energy channel edge deposits. The coarser nature of the deposit would suggest that any archaeological materials present would have undergone a moderate degree of transportation and modification.
- 4.3.6 The lower alluvial deposits were overlain by an organic sequence at a depth of 3.62m to 3.05m (8.39m and 8.96m OD). This unit comprised of three contexts; a brown silty peat (006), blackish peat (005) and organic clayey silt (004). These deposits represent a range of shallow wetland environments that reflect fluctuating water-levels and an overall general reduction in the rise of ground water-levels on the floodplain.
- 4.3.7 These organic deposits gradual transform into a bluish grey structureless silty clay (003) between 3.05m and 2.50m in depth (8.96m and 9.51m OD). These alluvial deposits represent rising water-levels and the inundation of parts of the floodplain. The waterlogged (gleyed) nature of these deposits would indicate that this area never completely dried-out during the summer months to allow oxidation of the deposits.
- 4.3.8 The upper alluvial surface (002) became increasing organic in nature and potentially represented the stabilisation of this alluvial surface. The rate of sediment accumulation is likely to have been significantly reduced during this time and the deposit may have accumulated over a longer period of time.
- 4.3.9 The alluvial surface was sealed by up to 2-3m of Victorian ground make-up deposits, which were a mixed deposit of clayey sand deposits and frequent coarse inclusions. This deposit contained numerous pottery vessels and glass bottles, only the more intact of these were retained. The fact that a pre-reclamation soil was identified underneath these deposits means that little truncation of the alluvial sequence appears to have occurred within this area of the site.

4.4 Finds

General distribution

- 4.4.1 Only a limited number of finds were recovered during the watching brief and these were all from the Victorian made-ground deposits (001). Often finds of such recent date are discarded but this site has previously produced some exceptional complete and rare bottles and ceramics that are of historical value in themselves.

Pottery by John Cotter

- 4.4.2 Four sherds representing four separate vessels including two complete stoneware ink bottles and two sherds of refined earthenware tablewares. These are all common pottery types of the later 19th century and early 20th century and have the character of material from typical Victorian bottle dumps.
- 4.4.3 The smaller unmarked ink bottle in cream-coloured stoneware and the two sherds of tablewares (blue transfer-printed whiteware and a sherd of yellow ware) are only broadly datable to c 1850-1925. The taller ink bottle in brown salt-glazed stoneware is a fine example of a common type produced by the firm of J. Bourne and Son at the Denby Pottery in Derbyshire. This bears the simple late mark BOURNE DENBY in a small oval near the base of the vessel and can be dated c 1899-1925 (Askey 1981,

106). It is quite possible that the other vessels are also as this late. Further details are recorded in the spot-dates in Appendix B.

4.5 Environmental

- 4.5.1 A series of five bulk environmental samples were taken during the watching brief from key organic deposits identified within the alluvial sequence. These samples were taken specifically for dating purposes and waterlogged plant remain assessment should archaeological features or deposits have been identified. Both the upper and lower organic units (005 and 006) were sampled to provide if necessary a chronological framework to the sequence. The basal organic deposit (008) overlying the Pleistocene sequence was also sampled for dating and plant remains.
- 4.5.2 The two organic rich silt deposits (011 and 012) identified within the Pleistocene gravel sequence were also sampled. Due to the depth of these deposits, the samples were recovered from the machine bucket and not from a stratified section. However, great care was taken to ensure that these samples were from secure contexts and free from any modern contamination.
- 4.5.3 All samples were retained for future dating and palaeoenvironmental assessment should this be required as part of any further mitigation strategy.

5 DISCUSSION

5.1 Reliability of field investigation

5.1.1 Visibility of the alluvial sequence and the gravel surface during the watching brief was hindered by the practicalities of the stripping in such an enclosed space and also the absence of being able to maintain a continually running vertical section. However, in general, visibility was sufficient that areas of archaeological features or deposits would have been identified if present. The absence of significant archaeological remains at the site can therefore be seen as a true reflection of its potential.

5.2 Significance and potential

5.2.1 The watching brief was able to achieve the aims and objectives outlined within the project specification. Overall, the work was able to identify a sequence of alluvial and organic deposits that are preserved underneath parts of the sewage works. These deposits have high potential for palaeoenvironmental interpretation and dating. The results of this work have also helped to support the observations made in the deposit model (OA 2010) about the preservation and potential of alluvial sequences at the site.

5.2.2 The work identified that no archaeological features or deposits were impacted by the development. The only pottery identified on the site originated from the Victorian ground make-up deposits. The absence of archaeology on the site may reflect its topographic position and its alluvial origins.

5.2.3 Based on the results of the watching brief the following sequence of deposition can be proposed:

5.2.4 The gravel deposits (013) identified within the base of the sequence represents high-energy deposits formed by glacial meltwater streams in the Pleistocene. It is possible that the overlying gravel deposits (010) were formed near the end of the last glacial maximum (19,000 years ago). Sandwiched between these two deposits are the potential Arctic Bed deposits that survive at the base of this channel sequence. The waterlogged and organic nature of these deposits means that they have excellent potential for palaeoenvironmental assessment and dating.

5.2.5 Previous environmental studies of the Arctic Beds suggest they accumulated in arctic/periglacial conditions, which have been previously radiocarbon dated to between 21,000 to 28,000 years ago (Gibbard 1994, 192), immediately prior to the Last Glacial Maximum. It is likely they represent parts of the floodplain that escaped modification during the subsequent periods of thaw and down-cutting at the end of the last cold stage, when the gravels were deposited across the main part of the valley floor. The extent of the Arctic Beds and their relationship to the gravels across the main part of the floodplain was previously unknown and has been highlighted as an important target for future palaeoenvironmental work in the area. These deposits therefore have the potential to inform about the changing climate, animal and plant assemblages that were occurring during this transitional period.

5.2.6 The Pleistocene sands overlying the gravel surface potential represents a polygenic deposit formed by a combination of fluvial and colluvial deposits from the terrace edge. These deposits potentially stabilised during the onset of the Holocene, with signs of oxidation, root voids and soil formation beginning. Previous excavations along the Lea at Rickoff's Pitt, Broxbourne (Warren *et al* 1934; Bonsall 1977) and along the Colne Valley (Lewis *et al* 1992) have demonstrated the potential of these earlier surfaces

- sealed underneath peat/organic deposits to contain *insitu* flint scatters dating from the late Palaeolithic to early prehistoric period. These surfaces are often found to be preserved underneath later floodplain alluvial deposits.
- 5.2.7 The organic/peat deposits that overlie the sands potentially reflect increased waterlogging and the transformation of these early Holocene soils into floodplain soils. To the south of the site a similar sequence of deposits have been radiocarbon dated to the early Mesolithic (KIA 14505: 6870±46 BP; Hull and Ford 2001). Evidence of early prehistoric soils buried underneath the alluvial sequence has been identified in the recent Olympics and Stratford City Developments (Corcoran et al. 2011).
- 5.2.8 The Lea Valley has produced a concentration of environmental evidence relating to the early Holocene. This is believed to have been a result of unusual dryness of the Lea Valley during the early prehistoric period (Corcoran *et al.* 2011), which may also explain the absence of thick prehistoric peat deposits on the floodplain that are so characteristic of the Lower Thames and its other tributaries.
- 5.2.9 These early landsurfaces appear to have been inundated and buried by alluvium associated with a river edge environment. Rising water-levels on the floodplain during the late prehistoric period possibly reflect the effects of increased woodland clearance and surface run off in the Lea Valley. It may also reflect the effects of rising groundwater levels on the floodplain due to the knock-on effects of rising sea-levels in the later prehistory.
- 5.2.10 The thin peat/organics deposits recorded on the site potential reflect the reduction in the rate of ground water-levels and the development of more stable conditions on parts of the floodplain during later prehistory/Roman period. However, In spite of the absence of thick peat accumulations recorded in the Lea Valley, more stable conditions have often been recorded close to the floodplain edge associated with localised topographic features and areas of higher ground. Previous dating of peat deposit to the south of site at a similar elevation of 8.52mOD, producing a Bronze Age date (KIA 14505: 3802±48 BP Hull and Ford 2001). These wetland surfaces have enhanced archaeological potential due to their particular association with archaeological activity at the edge of the Thames floodplain and many of its tributaries. Wooden structures, like the timber structure found at Edmonton Ikea (AOC 2005), trackways identified along the A13 at Movers Lane and Woolwich Manor Way (Giffords and Partners 2001a; 2001b) and a pebble causeways at Dagenham (Meddens 1996), are often found associated with the peat surface.
- 5.2.11 The upper alluvial deposits most likely accumulated under conditions of rising groundwater, backing-up of freshwater systems and estuarine expansion as a consequence of rising sea-levels during the late Roman and post Roman periods. The period of inundation responsible for the deposition of the upper alluvial deposits in the Lea Valley is part of a region-wide trend which has been recorded at many sites along the Lower Thames (Bates *et al.* 2004, Sidell *et al.* 2000; 2004). During transgressive periods settlement activity is likely to have retreated to the higher ground with the floodplain edge and an islands becoming particular focuses.
- 5.2.12 The formation of the upper alluvial surface at the site may reflect the drainage and embankment of the floodplain. The area may have been used as seasonal pasture during the medieval/post medieval periods. It may still have been prone to localised seasonal flooding, but this would most likely have been controlled by a network of drainage ditches and river embankments. At the time the Deephams Manor Farm was in use, this area was most likely used for permanent pasture.

- 5.2.13 The floodplain was fully reclaimed and raised in the late Victorian period (between late 1800s to early 1900s) with extensive ground raising activities occurring associated with the construction and enlargement of the sewage works. The Victorian made-ground deposits comprise rubbish and bottle dumps associated with refuse material most likely originating from London and surrounding areas.

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Appendix A. CONTEXT DATA

Pump Shaft excavation						
General description				Orientation		E-W
The excavation of the pump shaft contained no archaeological features. The gravel natural was overlain by deposits of peat and alluvium, which were in turn sealed by Victorian made-ground deposits.				Avg. depth (m)		8
				Width (m)		15
				Length (m)		-
Contexts						
context no	type	Width (m)	Depth (m)	comment	finds	date
001	Layer	-	0-2.40	Levelling layer	Pottery/Glass	Victorian
002	Layer	-	2.40-2.50	Organic clayey silt	-	-
003	Layer	-	2.50-3.05	Silty clay alluvium	-	-
004	Layer	-	3.05-3.35	Organic silts	-	-
005	Layer	-	3.35-3.44	Organic silts	-	-
006	Layer	-	3.44-3.62	Organic silts	-	-
007	Layer	-	3.62-4.40	Sandy clay alluvium	-	-
008	Layer	-	4.40-4.50	Organic sandy clay	-	early Holocene
009	Layer	-	4.50-5.60	Coarse sands	-	Pleistocene/early Holocene
010	Layer	-	5.60-6.78	Sandy gravel	-	Pleistocene
011	Layer	-	6.78-7.00	Organic silts	-	Late glacial
012	Layer	-	6.78-7.00	Peat/organic silt	-	Late glacial
013	Layer	-	7.00-8.00	Sandy gravel	-	Pleistocene

Appendix B. PLATES

Plates



Plate 1: Excavation of the pump shaft



Plate 2: Removal of spoil from the excavation



Plate 3: Excavation of the alluvium



Plate 4: Excavation of the organic deposits.

Appendix C. POTTERY ASSESSMENT

By John Cotter (OAS)

A total of 4 sherds of pottery weighing 1227 g. were recovered from a single context (Context 1). This is all of fairly modern date. All the pottery was examined and spot-dated during the present assessment stage. For each context the total pottery sherd count and weight were recorded on an Excel spreadsheet, followed by the context spot-date which is the date-bracket during which the latest pottery types in the context are estimated to have been produced or were in general circulation. Comments on the presence of datable types were also recorded, usually with mention of vessel form (jugs, bowls etc.) and any other attributes worthy of note (eg. decoration etc.).

The four sherds represent four separate vessels including two complete stoneware ink bottles and two sherds of refined earthenware tablewares. These are all common pottery types of the later 19th century and early 20th century and have the character of material from typical Victorian bottle dumps. The smaller unmarked ink bottle in cream-coloured stoneware and the two sherds of tablewares (blue transfer-printed whiteware and a sherd of yellow ware) are only broadly datable to c 1850-1925. The taller ink bottle in brown salt-glazed stoneware is a fine example of a common type produced by the firm of J. Bourne and Son at the Denby Pottery in Derbyshire. This bears the simple late mark BOURNE DENBY in a small oval near the base of the vessel and can be dated c 1899-1925 (Askey 1981, 106). It is quite possible that the other vessels are also as late as this. Further details are recorded in the spot-dates spreadsheet. No further work is recommended.

Context	Spot-date	Sherds	Weight	Comments
1	c1899-1925	1	883	Complete brown salt-glazed stoneware ink bottle. Cylindrical with narrow neck & flattened rim with pouring lip. Flat base. Small simple stamp in oval near base 'BOURNE/DENBY'. Derbyshire. Ht 200mm, rim diam 41mm, base diam 89mm
1	c1850-1925	1	322	Complete cream-coloured clear Bristol-glazed stoneware ink bottle. Cylindrical with narrow neck & flattened rim. Flat base. Unmarked. Ht 120mm, rim diam 39mm, base diam 61mm
1	c1850-1925	2	22	Rim blue transfer-printed bowl or tureen with dark blue floral dec in roccoco style. Bodysherd yellow ware vessel with int white slip
TOTAL		4	1227	

Table 1: Pottery spot dates

Appendix D. ENVIRONMENTAL SAMPLES

By Julia Meen (OAS)

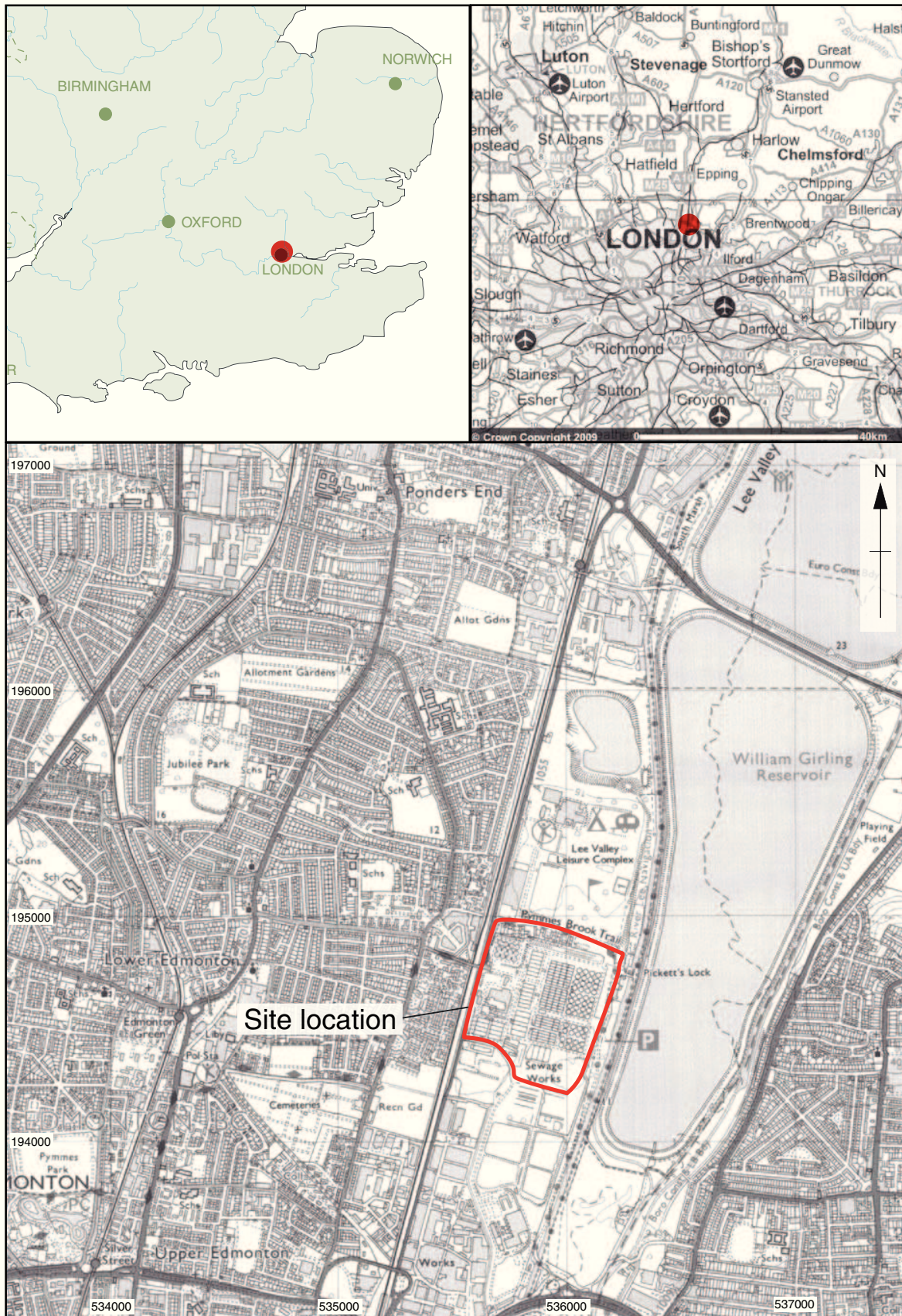
Five bulk samples were taken during the watching brief for the recovery of waterlogged plant remains and dating. These samples originated from the organic deposits that were observed during the monitoring works. These samples were retained in case archaeological deposits were encountered or that a chronological framework needed to be established for the sequence.

Sample No	Context No	Deposit type	Additional notes
1	005	Organic alluvial silt	Blackish upper organic alluvium
2	006	Organic alluvial silt	Brown lower organic alluvium
3	008	Basal palaeosoil	Possible palaeosoil overlying the Pleistocene sands
4	011	Organic lens	Arctic Beds □ recovered from the gravel at a depth of 6.5m bgl (7.5 m OD). Visible plant remains.
5	012	Organic lens	Arctic Beds

Table 2: Table of environmental samples

Appendix E. SUMMARY OF SITE DETAILS

Site name:	Deepham's Sewage Works, Edmonton, Greater London
Site code:	DSE11
Grid reference:	TQ 3580 9450
Type:	Archaeological Watching Brief
Date and duration:	September 2011
Area of site:	0.06 Ha
Summary of results:	Archaeological Watching brief of a new sewage pumping facility at the Deepham's Sewage Works. No archaeological or deposits were identified with a well-preserved floodplain sequence of alluvial and organic silts overlying sandy gravel. These deposits had good potential for palaeoenvironmental assessment and dating. The most significant of these were two organic deposits found within the Pleistocene gravels that potentially represent the Late glacial Arctic Bed deposits.
Location of archive:	The archive is currently held at OA, Janus House, Osney Mead, Oxford, OX2 0ES, and will be deposited with the Museum of London in due course, under the following accession number: DSW10



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Figure 1: Site location

Deephams STW, Picketts Lock Lane, Edmonton N9 0BA

Grid Ref of area being developed (outlined in black): 536069, 193357

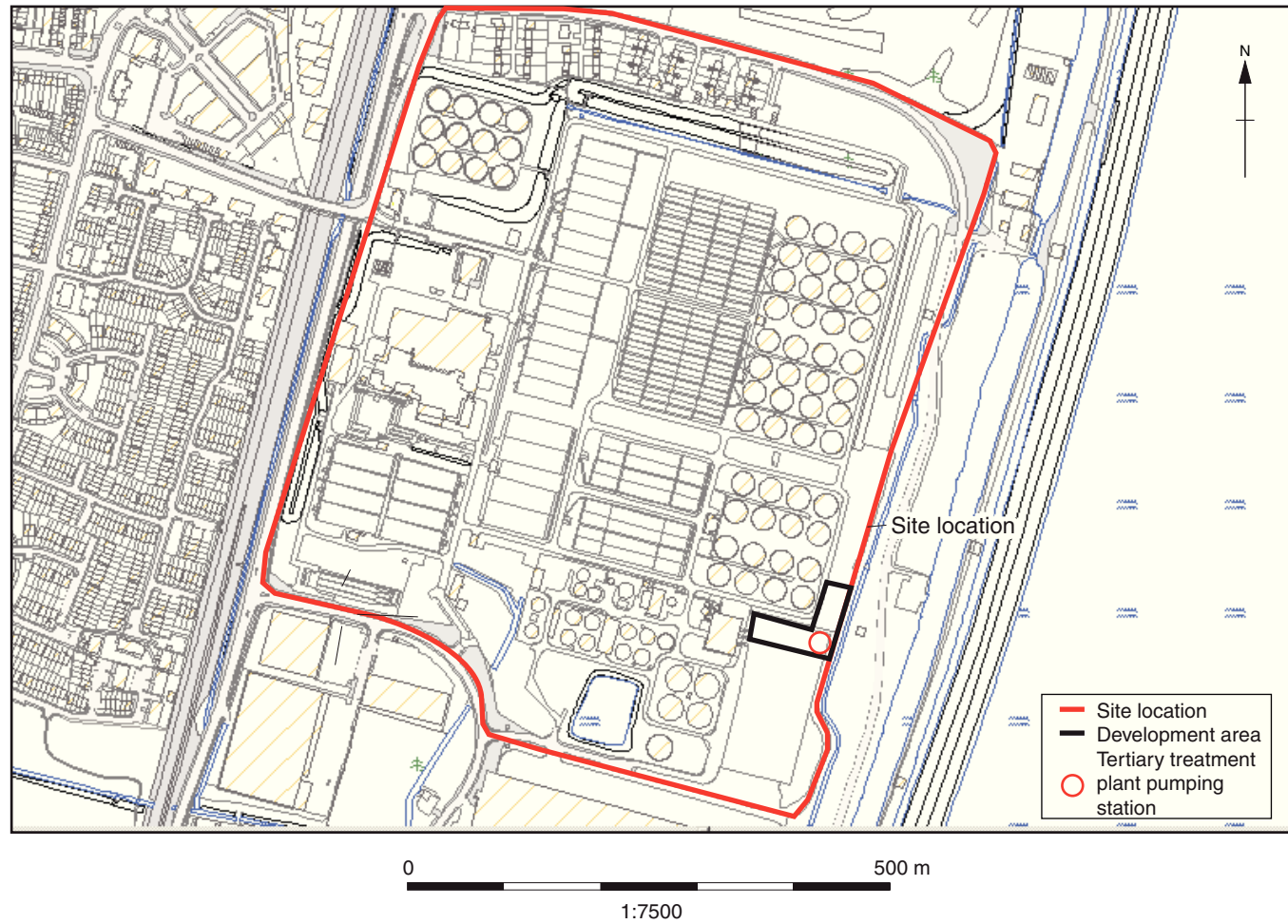


Figure 2: Location of the watching brief

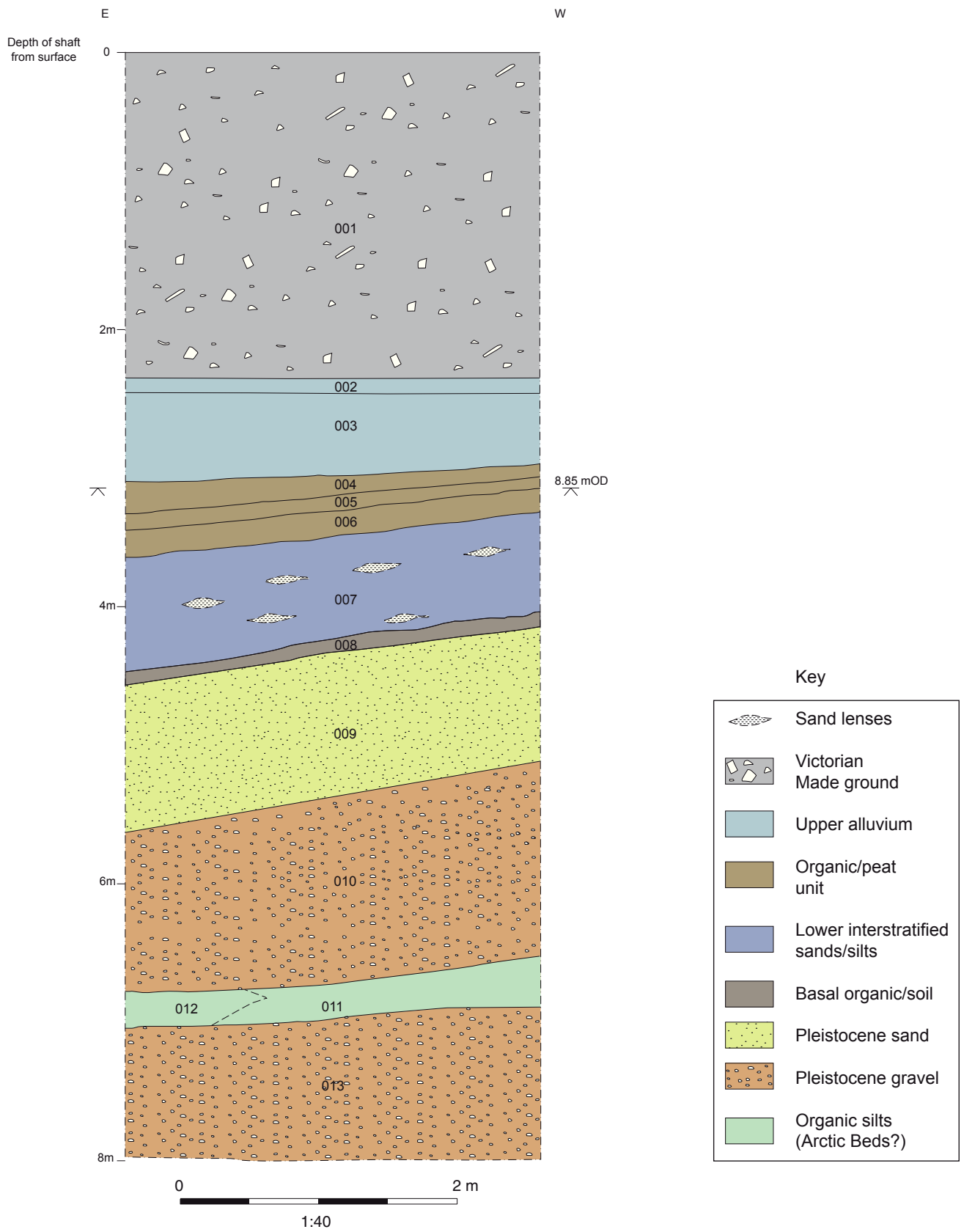
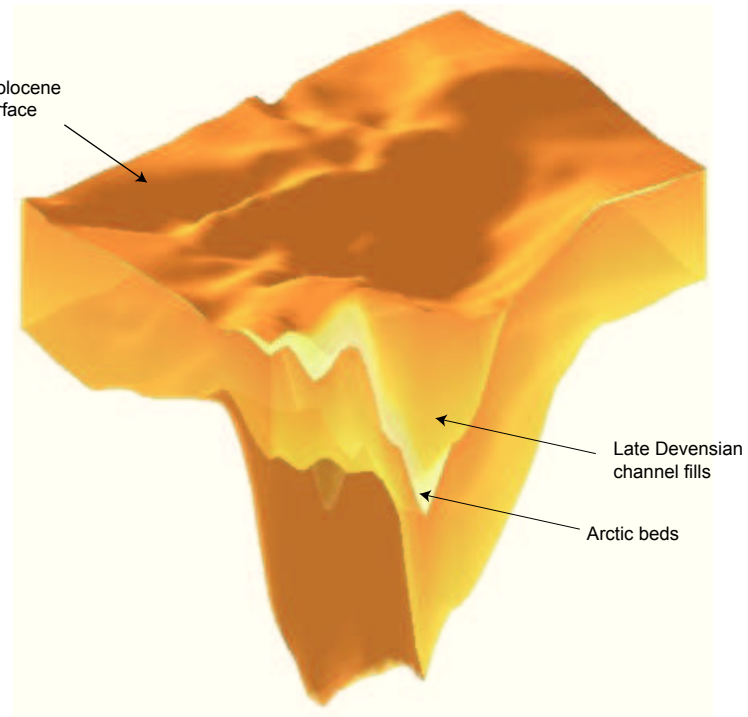
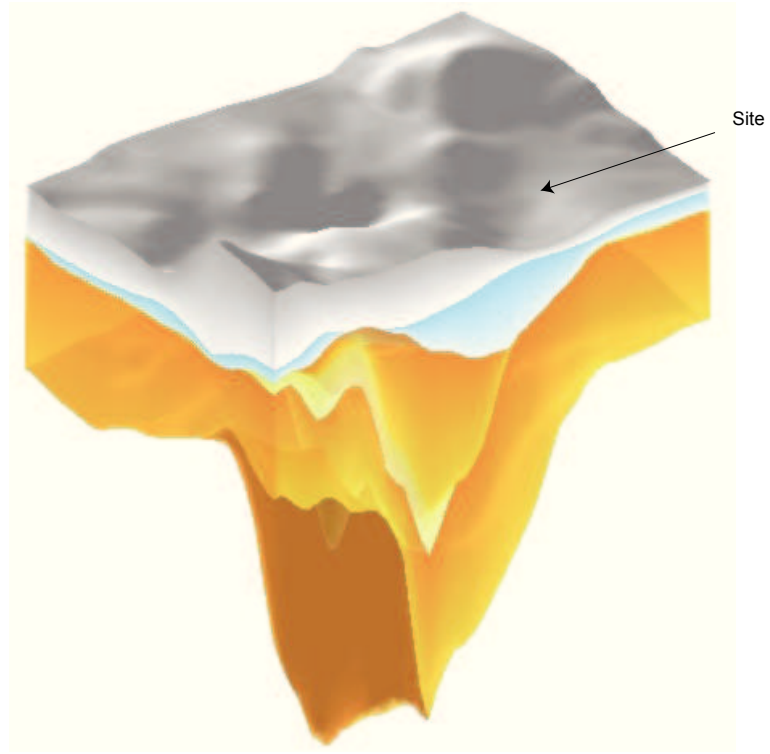


Figure 3: Sedimentary profile of the pump shaft



- | | |
|---|--|
|  Made ground |  River terrace deposits (Sand and Gravel) |
|  Holocene alluvium |  Alluvial unit in terrace gravels |

Figure 4: 3D stratigraphic model showing site location (view to NE, vertical scale exaggerated x20)



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