

APPENDIX K

ARCHAEOLOGICAL BACKGROUND

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Contents Summary

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SCOTTISH POWER LTD

DAMHEAD CREEK 2 ARCHAEOLOGICAL BACKGROUND

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PALAEO-ENVIRONMENTAL AND ARCHAEOLOGICAL BACKGROUND –PALAEOLITHIC TO MODERN PERIOD

The proposed development site is located adjacent to the present Damhead Creek CCGT Power Station, and includes three attached areas for access and construction lay-down and a separate site upon which it is proposed to build an electricity sub-station. This area is referred to below as 'the site'. The Kent Historic Environment Record (HER) search area covered a 2 km radius from the centre of the site and is referred to below as the 'study area'. The HER records are mapped on Figure 17.1 and are referenced below in bold. Seven features were identified on, or in the immediate vicinity of the site, mainly through earlier archaeological investigation. These include Records 11, 12, 15, 17, 21, 46 and 69. The site gazetteer is included in Appendix K.

Summary of the Geological and Palaeo-environmental Background

The Geological Survey of Great Britain 1:50 000 scale map of the area (Sheet 272, 'Chatham') indicates that the site is underlain by a layer of estuarine alluvium, which in turn overlies solid Eocene London Clay. The BGS map indicates that towards the north-western corner of the site the underlying drift deposits comprise Head Brickearth, which overlies Quaternary River Terrace 1 Gravels, deposited during the Pleistocene period.

As part of the mitigation measures associated with the construction impact of the Damhead Creek CCGT Power Station a series of investigations were undertaken to gain an understanding of the deeply buried stratigraphic sequences that were to be impacted upon during the construction process. Limited geotechnical fieldwork was undertaken by Williamson and Pine in 1996, which produced a basic stratigraphic framework for subsequent investigations. In 1997 Dr Martin Bates conducted a geoarchaeological investigation using wire-line percussion drilling and a geophysical survey in order to ascertain the nature and extent of palaeo-environmental archaeology at the site (Bates, 1997). A final phase of investigation included drilling an additional borehole in 1999 in order to recover organic sequences, and assess the samples recovered in order to ascertain their palaeo-environmental content.

As part of a pre-determination archaeological evaluation undertaken in order to determine the archaeological impact of the proposed development of two 800MW supercritical coal fired generating units at the Kingsnorth Power Station a field investigation of a site bordering the southern boundary of the Damhead Creek Phase II application site was undertaken in summer 2007. Four boreholes were drilled under the supervision of Bates, in order to understand the nature of the deeply buried sequences preserved in the vicinity of the proposed development, the history of formation and consequently any archaeological relevance (Waters, 2007)

Methodology

A shell and auger drill rig was used to drill boreholes GEO 1 and GEO 2 (Figure 17.3) to a depth of 6.50m below surface level, where both reached the lower flint gravel (Bates, 1997). The location of borehole ARC 1 was chosen in order to maximize the likelihood of encountering organic sediments in the core samples, and it was drilled to a depth of 10.31m below surface level, where it reached the lower flint gravel. A collapse in the borehole prevented drilling to terminate before London Clay was penetrated (Bates, 1999).

Four boreholes were drilled during investigations at the adjacent Kingsnorth site in the summer of 2007. Boreholes 1 (TQ 81029 72626) and 2 (TQ 81030 72563) were drilled along Transect Line 2. In Boreholes 1 and 2 London Clay was encountered at depths of 8.67m and 8.40m below ground level respectively, and the boreholes terminated at this depth. Borehole 3 (TQ 81179 72616) was drilled on Transect Line 5, and London Clay was encountered at a depth of 9.3m below ground level. Borehole 4 (TQ 81322 72616) found London Clay at a depth of 7.60m below ground level (Waters, 2007).

Discussion of the below ground deposits

Historic borehole information suggests that an area of topographically high London Clay exists at the west end of the access road. This surface dips to the east, where it was reached at depths of –6.0m to –7.5m OD (Bates, 1997). This implies the presence of a possible palaeo-channel incised into the London Clay bedrock (Figure 17.2; Bates, 1997: 3).

The 1997 and 1999 site investigations indicated that the stratigraphic sequence beneath the main development area consisted of basal gravel (Unit 2), which rests on a bedrock London Clay surface (Unit 1). Unit 2 gravel is overlain by a complex of clay silts (Unit 3), which were in turn sealed by flint gravels (Unit 4). Unit 4 gravels were overlain by further clay silts (Unit 5) (Bates, in Griffin, 2004: 10).

No palaeo-environmental evidence was obtained from the basal flint gravels of Unit 2, however descriptions of the gravel type and size suggest that the gravels were deposited in a cold climate environment dominated by braided river channels under periglacial conditions. Unit 2 gravels were located at –5.71m OD in borehole ARC 1 in the vicinity of the current Damhead Creek Power Station, at –5.50m OD in borehole GEO 2 and at –6.0m OD in borehole GEO 1. It is estimated that Unit 2 was deposited during Late Marine Isotope Stage 6 (Late Saalian, c. 125, 000 – 150, 000 BP).

The clay-silts of Unit 3 lay between datums of –5.71m and +0.8m OD. The basal part of this deposit (–5.71m to –3.1m OD) contained a freshwater ostracod fauna, suggesting that swampy conditions, within which freshwater streams ran prevailed. This part of the sequence developed within a large river floodplain, in which small channels migrated through floodplain margins dominated by reedswamp. At –2.2m a change in the ostracod fauna to brackish water creek species suggests a marine water incursion following a rise in sea level. Pollen present above datums of –3.3m OD indicate that there was extensive woodland or scrub close to the depositional environment (Bates, 1999; 2004). The first part of the Unit 3 sequence is likely to have been deposited during the early stages of the Ipswichian interglacial (c.125, 000 BP).

No palaeo-environmental evidence was obtained from Unit 4, which was encountered between +2.4m OD and +0.8m OD. These sediments appear to have been deposited in a high-energy fluvial environment, probably under periglacial conditions (Bates, 1999). Deposition can be dated to the Late Marine Isotope Stage 5d-5, that is, during an early phase of the Devensian glaciation (c.120, 000 – 50, 000 BP).

Similarly, no palaeo-environmental evidence was recovered from the bedded clay-silts of Unit 5, which were encountered between +4.0m OD and +2.4m OD in ARC 1 (Bates, 1999). These clay silts are probably Holocene floodplain sediments, laid down in brackish water/ tidal mudflat or saltmarsh conditions within the last 6,000 years (Bates, in Griffin 2004).

Of the four boreholes drilled during the recent investigations at the adjacent Kingsnorth site, Borehole 2 revealed fine grained sands and silts throughout, Borehole 3 consisted of recent alluvium to a depth of 0.8m below ground level, underlain by a mixture of sands, gravels and silts to a depth of 9.3m below ground level, whilst borehole 4 consisted of recent alluvium to a depth of 1.6m below ground level, below which gravels, bedded sands and silts and a basal gravel occurred to a depth of 7.6m below ground level (Waters, 2007: 5-6). Significant quantities of charcoal, possible ceramic material and occasional burnt flint were observed in the Holocene alluvium at a depth of c.0.7m below ground level in Borehole 4. Borehole 1 on the other hand consisted of recent alluvium to 1.65m below ground level, overlying Pleistocene gravel to 2.4m below ground level, beneath which lay a layer of bedded silts with potential mollusc fragments, which overlay a gravel deposit between 4.45m and 8.6m below ground level, where London Clay was encountered. This suggests that the deep Pleistocene channel identified by Bates during the 1990s continues into part of the area to the south, though the sequence revealed in Borehole 1 was markedly different to those recorded in boreholes GEO 1 and 2 and ARC 1. It is therefore possible that the sequence in Borehole 1 may reflect a different part of the history of the channel (Waters, 2007: 6).

Conclusions

The 1997 and 1999 investigations revealed that much of the proposed development site is underlain by a complex sequence of deposits, probably spanning a period of at least 100, 000 years, representing part of the Pleistocene record previously little understood in the lower Medway.

Sedimentary sequences deposited during interglacial periods are of local and regional importance. This site has revealed that such potential can occur in Medway deposits, and therefore has important implications for future investigations in the area. Further confirmation of the presence of Pleistocene interglacial deposits with archaeological potential has been provided by the sequence identified in Borehole 1 at the adjacent Kingsnorth site. The presence of molluscan remains in these sediments suggests the likely presence of foraminifera and ostracoda, the analysis of which may enable further palaeo-environmental reconstruction. The presence of molluscan remains also indicate a potential for dating the sediments, whilst the presence of sand in many of the deposits indicates that direct dating using Optically Stimulated Luminescence dating should be possible. The acquisition of absolute dating must be a key objective of any future palaeo-environmental investigations in the area.

Although no palaeo-environmental material was recovered from the Holocene alluvium (Unit 5) at the Damhead Creek, evidence of charcoal, burnt flint and possible ceramic material recovered from Borehole 4 at Kingsnorth suggests that the Holocene alluvium at least represents considerable potential for archaeological evidence of human activity during the last 7, 000 years.

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

The Palaeolithic period in Britain was characterised by alternating glaciations (Ice Ages) and temperate interglacial periods. During the glacial maximums huge quantities of seawater were trapped in vast ice-sheets, resulting in sea levels as much as 100m lower than the present. In the periglacial margins south of the ice-sheets and during the warmer interglacials high energy meltwater rivers deposited huge spreads of gravel along their lower courses; and it is from these gravel terraces that much of the evidence of Palaeolithic activity have been recovered.

Substantial quantities of Lower Palaeolithic (c.500, 000 – c.250, 000BP) Acheulian flint tools (chiefly handaxes) and smaller quantities of cruder Clactonian flake-based implements manufactured between the Anglian and Wolstonian glaciations have been found in riverine gravel deposits in northern Kent. Whilst many have been recovered from residual contexts some distance from their point of origin, others including the Clactonian and Acheulian assemblages from the Lower Gravels at Swanscombe, appear to have been deposited only a short distance from their point of discovery (Ashbee, 2005: 61-65). On the Hoo peninsula both Acheulian and Clactonian artefacts were recovered from Late Anglian/ Post-Anglian Third Terrace Gravels at Shakespeare Farm Pit near St Mary's Hoo (Bridgland and Harding, 1984: 51-53).

Towards the end of the Lower Palaeolithic the style of flintworking known as the 'Levalloisian' technique came into use, whereby large flint flake-blades were created from specially produced cores (Wymer, 1991: 7-8). A probable early Levallois flake was recovered from a residual context at Frindsbury, approximately 7.5 km to the south-east of the application site on the north (Hoo) bank of the Medway (Lawson & Killingray (eds), 2004: 7).

Compared with the abundance of Lower Palaeolithic material discovered in the county, fewer Middle Palaeolithic (c.250, 000 – c.35, 000 BP) assemblages have been found in Kent, although a huge quantity of Middle Palaeolithic Levalloisian flakes and implements was discovered at Baker's Hole, Northfleet during the late 19th century (Ashbee, 2005: 71). Quantities of Levalloisian material tentatively dated to the Wolstonian glaciation have been discovered on the east side of the Medway estuary below 2m of clay and flints at Luton near Chatham, and at a possible flint working site on the floodplain gravels on the west bank of the river at New Hythe (Ashbee, 2005: 72). Although the Pleistocene clay silt complex identified by Bates in the Damhead Creek palaeo-channel sequence was laid down during the Middle Palaeolithic Ipswichian interglacial (HER TQ 87 SW 70; Figure 17.1: 1), these sediments are considered unlikely to produce any in-situ archaeology, however it is possible

that reworked artefacts may be present in the gravel units deposited under periglacial conditions either side of this temperate interlude (Bates, 1997: 4).

Associated with the late Devensian glacial maximum and subsequent post-glacial climatic amelioration, the Upper (Advanced) Palaeolithic period (c.35,000 – c.10,000 BP) is comparatively poorly represented in Kent. A quantity of Upper Palaeolithic flakes discovered on a gravel terrace beneath an alluvial deposit at North Cray hints at the possibility that contemporary sites may be found in the north and west of the county on low-lying and estuarine land surfaces buried beneath sediments and soils deposited by the post-Devensian rise in sea-level (Ashbee, 2005: 74-75).

Despite the comparatively rich Palaeolithic resource in north and west Kent, no finds dated to the period have been identified in either the application site or the study area.

Mesolithic period (10,000 - 4,000BC)

During the climatic amelioration that accompanied the ending of the Devensian glaciation around 10,000 years BP, deciduous forests began to colonise the future south-eastern corner Britain, whilst the proliferation of flora and fauna attracted nomadic groups of human settlers.

At the same time rising sea-levels created an environment characterised by salt marshes, shallow tidal creeks and sand banks along the low-lying estuarine fringes and marshlands of north Kent, which offered abundant opportunities for hunting, wildfowling and fishing. Of the 250+ Mesolithic sites thus far identified in Kent, a reasonably clear distinction can be drawn between those situated in low-lying areas in the north of the county, many of which became subsequently buried beneath organic peats, estuarine alluvium and marsh clays, and a number of inland sites, mainly located along the well-drained Greensand escarpment (Ashbee, 2005: 79-82). It appears that occupation was seasonal, with groups moving down from inland hunting, gathering and stone tool production sites to waterside encampments which were used as a base from which marshland habitats were exploited.

Significant sites of the period in north and west Kent include the later Mesolithic occupation sites situated on the east bank of a former Medway channel at Lower Halstow, where an assemblage of large axes, adzes and sharpeners suggest that the inhabitants were engaged in tree-felling and wood-working, in a landscape that was a considerable distance from the contemporary coastline (Ashbee, 2005: 83). A number of earlier Mesolithic antler and bone tools have been found on the Hoo peninsula at Cliffe Creek, and to the south at Higham.

Approximately 20m to the east of the eastern boundary of the central application site, a small number of pieces of residual late Mesolithic/ early Neolithic flints were recovered from later features during archaeological investigations within the Habitat Exclusion Area (Area 14) of the Damhead Creek Phase I Power Station in 2002 (Griffin, 2002: 3). These finds included up to 20 hammer-struck flakes, blades and a core although no evidence was found of permanent or transient settlement of any kind (Griffin, 2004: 79), suggesting that the low-lying marshland environment and tidal creeks of the present application site were seasonally exploited by groups during the period (HER TQ 87 SW 75; Figure 17.1: 9).

Neolithic period (4,000 - 2,000BC)

The earliest settled farming societies had emerged in the British Isles by c.6, 000 BP. The early Neolithic period in Kent was characterised by the construction of large numbers of substantial earthwork monuments, including causewayed enclosures and earthen and stone long barrows. A triple-ditched example of the former was discovered on a hilltop site at Kingsway Farm on the Isle of Sheppey (Ashbee, 2005: 93), whilst megalithic long barrows flank both sides of the Medway where the river cuts through the North Downs chalk to form the Maidstone Gap (Ashbee, 2005: 101).

In addition to the distinctive monumental signature of the period, the early Neolithic saw the first widespread use of pottery vessels, and a single residual sherd of Neolithic pot was discovered from a posthole in the Habitat Exclusion Area adjacent to the application site (Griffin, 2002: 6-7). Further

residual Neolithic finds in the area included a polished stone axe fragment and a fragment of a leaf-shaped arrowhead recovered from a ditch, suggesting that the site remained marginal, probably seasonally exploited estuarine wetlands (HER TQ 87 SW 70; Figure 17.1: **11**). Other prehistoric finds that may indicate an ephemeral presence near the present site during the period include a couple of sherds of very coarse flint-tempered pottery accompanied by a large flint flake, found on the Damhead Creek foreshore in 2004 (HER TQ87 SW 1151; Figure 17.1: **13**).

Evidence of less transient middle or late Neolithic activity has recently been discovered within the study area on the Hoo Flats, some 1.7 km to the south-west of the application site (HER TQ 77 SE 1151; Figure 17.1: **10**). As rising sea levels continued to inundate peripheral land beside the Thames and the Medway, extensive areas of marshland formed, leading to the creation of substantial peat deposits (examples of prehistoric peats in the study area include HER TQ 77 SE 1145 and TQ 87 SW 1127; Figure 17.1: **3** & 1.4: **5**). The Neolithic inhabitants of the Hoo area established at least one trackway across these marshes, presumably to provide access to and from the wet intertidal zone for activities such as grazing, fishing and wildfowling, and either they or their later prehistoric descendents may have been responsible for a number of nearby brushwood trackways revealed by the erosion of the present foreshore (HER TQ 77 SE 1146, TQ 77 SE 1148 and TQ 77 SE 1150; Figure 17.1: **4, 6 & 8**).

No evidence of permanent Neolithic settlement has been found within the study area, and it is probable that people chose to settle in the agricultural landscape of the higher gravel terraces to the north-west of the site. It is possible that evidence of agricultural land divisions, represented by a series of ditches and an alignment of six post-holes discovered during the archaeological evaluation at the Damhead Creek Habitat Exclusion Area may be Neolithic in origin (see HER TQ 87 SW 68; Figure 17.1: **12**). The lack of credible dating evidence makes it impossible to ascribe anything more precise than a late prehistoric date for the construction of the ditches and postholes (James, 2001: 8), and it is equally possible that they may be associated with the extensive agricultural landscape that emerged in the area during the Bronze Age.

Bronze Age (2,000 - 700BC)

During the Bronze Age the Thames valley and estuary achieved social and political primacy in southern Britain, as new settlement and large-scale cultivation spread along the river and its major tributaries. The growth of settlement led the formal planned reorganisation of the agricultural resource, and farming communities used the surpluses that resulted from improvements in agricultural productivity to compete for the increasing range of high status bronze metalwork objects that were being produced both in Britain and in mainland Europe (Lawson & Killingray (eds), 2004: 13-15).

The earliest phase of the Bronze Age was characterised not only by the emergence of metallurgy but by the appearance of distinctive Beaker pottery forms, which may have represented status symbols associated with the development of a newly stratified social order (Ashbee, 2005: 120-122). A small quantity of Early Bronze Age material was recovered from the Damhead Creek Power Station site, consisting of two small sherds of Beaker pot, both found in the Area 14 Exclusion Area (Griffin, 2004: 25). Unfortunately these finds could not be used to date the features from which they were retrieved and may well have been residual (Griffin, 2002: 3).

The Middle Bronze Age witnessed the start of an extended period of more intensive land use on either side of the lower Medway. Middle Bronze Age occupation sites developed around Nor Marsh on the Medway estuary (Griffin, 2004: 79), and a number of sites and findspots dating to the period have been located both south and east of the estuary, and to the north and west on the Hoo peninsula. Within the study area, archaeological investigations along a pipeline route north-east of the application site (Area 12) revealed a number of ditches and pits, whilst a pit in Area 14 contained an articulated calf skeleton (HER TQ 87 SW 76; Figure 17.1: **15**), the latter considered as possible evidence of contemporary 'ritual' activity (Griffin, 2002: 4; Griffin, 2004: *ibid*). The evidence provided by these limited excavations at Damhead Creek suggests that the low-lying area may have provided seasonal grazing for livestock during the Middle Bronze Age.

Archaeological investigation of Damhead Creek Areas 12 and 14 also revealed evidence of Late Bronze Age agricultural land division, and it has been claimed that the site and its environs may represent the earliest formal agricultural landscape on the Hoo peninsula (Griffin, 2004: *ibid*). A number of NW-SE aligned ditches running parallel with modern field boundaries between the marshland margin and the spinal ridge of the Hoo peninsula included a pair of linear ditches that possibly represent a droveway (Johnson, 1999: 7; HER TQ87 SW 73; Figure 17.1: **14**), along which livestock were driven to the low-lying areas to graze on marsh pastures during the summer months (Griffin, 2004: 80). Similar droveways have been found at Coldharbour Lane, Gravesend and at Mucking in Essex, whilst a Late Bronze Age field system that included a similar trackway enclosed by ditches was revealed by archaeological excavation at Iwade, on the southern bank of the Medway Estuary (Bagwell, 2001: 97).

Despite the abundance of Late Bronze Age features in Areas 12 and 14 (the latter area featured a number of Late Bronze Age pits, postholes and gullies – Griffin, 2002: 4), no evidence was found for a permanent domestic presence in the vicinity of the application site, and it seems likely that the previously marginal landscape was used on a seasonal basis for grazing and possibly salt-working, both activities that typically took place during the summer months. The earliest evidence of salt extraction in Britain comes from Later Bronze Age contexts at sites such as Hulbridge, Mucking and Corringham in Essex and from the Wash Fenlands (Morris, 1994: 384), and it is possible that salt making may have been associated with summer grazing on these sites (Bradley, 1978: 51). Quantities of briquetage, including at least one pedestal base were found in Area 12, confirming a Bronze Age origin for the Medway salt-extraction industry (Griffin, 2004: 51).

Permanent Late Bronze Age settlement is most likely to have been situated on the higher ground to the north-west of the application site, where settlement-related activity has been found in the form of a number of founder's hoards discovered at Roper's Farm (HER TQ 87 SW 11; Figure 17.1: **16**; possible erroneous NGR on HER), at Homewood Farm, Allhallows (HER TQ 87 NW 5) and at Little Combe, St Mary's Hoo (HER TQ 87 NW 10).

Iron Age (700BC – 43AD)

Until recently little was known about settlement in Kent during the Late Bronze Age/ Early Iron Age transition period, following the apparent collapse of the regional and cross-Channel exchange networks towards the end of the Bronze Age (Griffin, 2004: 80; Lawson & Killingray (eds), 2004: 15-16). The discovery of a comparatively dense concentration of settlement on the Isle of Thanet, and of a settlement site in Gravesend clarified the picture in east and west Kent, however it was not until archaeological investigations associated with the Damhead Creek Power Station and the Kingsnorth Gas Pipeline were carried out that evidence became available about the period in the lower Medway area.

The archaeological evidence suggests that the transition was marked by a period of continuity in the study area, and it appears that the land divisions, agricultural and industrial practices established towards the end of the former period carried on functioning into the latter. The earliest evidence of occupation in the study area was recorded approximately 20m east of the main application site in Area 14, where a putative round-house was identified in the vicinity of a dense scatter of post-holes and pits, several of which were clay-lined and may have been associated with the extraction of salt from seawater (HER TQ 87 SW 77; Figure 17.1: **17**). The discovery of briquetage fragments both here and in Area 12 confirmed the proximity of the site to a salt-works, and in the absence of any sizeable assemblage of contemporary domestic pottery it is possible that the occupation may have been associated with seasonal salt extraction (Griffin, 2004: 81).

Although no further occupation evidence was found, indications of activity during the transition period were identified along the pipeline route in Area 12, where a cremation/ funeral pyre deposit, containing calcined bone but no artefacts, was excavated approximately 1 km north-east of the site in 1999 (Johnson, 1999: 7; HER TQ 87 SW 72; Figure 17.1: **18**). Other Early Iron Age features identified during the pipeline watching brief included a number of postholes parallel to modern field boundaries, close to the Late Bronze Age droveway (Johnson, 1999: 7) and a number of linear

features, again most likely associated with agricultural boundaries (HER TQ 87 NW 55; Figure 17.1: **19** and TQ 87 SW 78; Figure 17.1: **20**).

There appears to have been a significant gap in activity in the study area between the Early and Late Iron Ages, reflecting an apparent hiatus in archaeological activity that has been observed across the region, perhaps brought about by population decline or a hitherto-unexplained change in agricultural practice. Whether or not the fields, droveways and salt production sites of Areas 12 and 14 were abandoned during the Middle Iron Age, it is clear that the field system that emerged during the Late Iron Age shared the same orientation and similar boundaries as its Late Bronze Age/ Early Iron Age predecessor (HER TQ 87 SW 78; Figure 17.1: **21**, and HER TQ 87 SW 74; Figure 17.1: **22**). Activity was again focused upon the site of the Early Iron Age round-house in Area 14, and a successor structure was built within a small enclosure that may have been used as a pen for livestock. It appears that the site resumed its seasonal pastoral function, and it is unlikely that it was ever used for permanent domestic occupation (Griffin, 2004: 81). Despite this functional continuity, a shift in activity to the southern margins of the application site was observed, with a number of Late Iron Age sherds recovered from the site of the sedimentation basin created to drain the site during the construction of the Damhead Creek Power Station in Area 4 (Johnson, 1999: 26).

Although little evidence of Late Iron Age salt production has been identified at Damhead Creek, elsewhere on the north Kent and Essex coasts the industry continued well into the 1st and 2nd centuries AD, leaving a distinctive signature in the form of the 'red hills' made up of the burnt clay and briquetage debris left behind by the process of extracting salt by boiling seawater (Rippon, 2000: 69-70). A Late Iron Age/ early Roman salt making site was identified in the vicinity of the foreshore south of Kingsnorth Power Station in 2004, but the site has not been subject to detailed investigation (HER TQ 87 SW 1094; Figure 17.1: **25**). An extensive marsh-edge proto-industrial site discovered at Rose Court Farm on the Isle of Grain was engaged in agriculture, fishing and salt production during the period (Philp, 2002: 139-143), a distant forerunner of the Roman pottery and salt production sites of the Thameside and Medway marshes of the 1st to 3rd centuries AD (see below).

The Late Pre-Roman Iron Age (LPRIA; c.150BC – 43AD) in southern Britain was characterised by rapid and dramatic change, as new concepts, such as coinage, new technologies and new mortuary rites were introduced (Davenport. 2003: 108). Mints opened in Canterbury and Rochester, the latter of which has been identified as one of a number of much-debated proto-urban 'Oppida' in the south-east. A group of four LPRIA coins and a pre-Claudian Denarius from the reign of Augustus were discovered by metal detection at Tudor Farm, near Stoke (HER TQ 87 SW 17/64; Figure 17.1: **24**; HER TQ 87 SW 18; Figure 17.1: **26**).

Although a possible LPRIA site on the Hoo marshes to the south-west of the site may have continued to flourish into the 1st and even 2nd centuries (HER TQ 77 SE 122; Figure 17.1: **23**), the absence of 'Belgic' pottery from Damhead Creek suggests that activity may have ceased in the area of the proposed development by c.50 BC (Griffin, 2004: 81).

Roman Period (43 - 410AD)

During the second half of the 1st century AD the civitas of the Cantiaci was formally established in Kent, governed by the native tribal elite from the cantonal capital at Canterbury. In subsequent years the small town at Rochester (Durobrivae) became the second major settlement of the canton, and may even have been granted certain administrative powers (Mattingly, 2006: 287). It appears however that the Cantiaci may not have been the major beneficiaries of the wealth that flowed from the industries that flourished on the Thames and Medway marshes during the period, for it has been argued that the area was either assigned to the control of Londinium (Sheldon & Schaaf, 1978), or formed part of an imperial estate, managed on behalf of the emperor by bailiffs or chief tenants (Mattingly, 2006: 386, 455).

Irrespective of ownership, the Thameside and Medway marshes were centres of Romano-British industrial activity at least until the 3rd century AD, with the latter area particularly associated with the production of salt during the 1st and 2nd centuries, and the manufacture of fine reduced wares on the Upchurch Marshes from the late 1st century (Pollard, 1988: 173). Up to four 1st and 2nd century salt

extraction sites have been identified on islets in the Medway estuary, including one on the northern shoreline of Darnet Ness, approximately 2 km to the south-east of the application site (Griffin, 2004: 82), and it is possible that a mound in Bishops Marsh depicted on an Admiralty chart of 1802 may have represented another of these sites (HER TQ 87 SW 1007; Figure 17.1: **44**). Saltern debris has also been recovered from the Hoo Saltings, where traces of 1st century occupation material have been identified (HER TQ 77 SE 10005 1010; Figure 17.1: **29**). Further evidence of Romano-British domestic activity has been recovered from Stoke (HER TQ 87 SW 1000; Figure 17.1: **27**), a short distance from a group of cremation burials discovered in the Stoke Marshes north-east of Damhead Creek (HER TQ 87 SW 1; Figure 17.1: **28**), whilst a single sherd of a 2nd century Roman flared bowl was found on the foreshore at Slede Ooze, south-east of the application site (HER TQ 87 SW 1155; Figure 17.1: **34**).

In contrast to the industrial activity elsewhere in the lower Medway area, much of the application site itself appears to have been comparatively inactive during the 1st and early 2nd centuries (Griffin, 2004: 82). Archaeological investigation of Area 14 suggested a phase of pastoral activity and even the cultivation of arable crops, though no trace was found of a local source for the large quantity of 1st century pot discovered in the Hoo marshes during the 1950s (Blumstein, 1957: 273). It is possible that salt working took place on the estuarine marshes to the south and south-east during the period, and a spread of Roman pottery with briquetage was identified during the construction of a jetty at Kingsnorth Power Station in 1975 (HER TQ 87 SW 10; Figure 17.1: **32**).

At some point during the mid-2nd century it appears that a substantial area of the present site was turned over to industrial use, and archaeological excavations and a magnetometer survey carried out in 1999 revealed a number of large ditches containing pottery and associated wooden stakes in the 'receptor site' in Area 3 and a substantial quantity of stratified 2nd and early 3rd century kiln furniture in the pipe trench in Area 11, which was interpreted as representing a pottery production site that covered an area of at least 120m by 50m (Griffin, 2004: 50; Johnson, 1999: 10). The bulk of the pottery recovered from the site consisted of North Kent White Slipped Ware (NKWS), a type that became dominant amongst Upchurch-type wares during the Hadrianic period of the 2nd century (Pollard, 1988: 174). Subsequent archaeological evaluation of Area 14 revealed a deep cut feature interpreted as a clay extraction pit associated with the pottery production site (James, 2001: 8; HER TQ 87 SW 69; Figure 17.1: **30**). Further possible evidence of 2nd and 3rd Roman pottery production was identified in Area 12, where a shallow pit filled with a burnt deposit was interpreted as the rake-out from a kiln (Johnson, 1999: 13; HER TQ 87 SW 71; Figure 17.1: **31**).

No trace of the kilns themselves was discovered during the Damhead Creek Phase I archaeological investigation, and it is possible that the site was destroyed when the Damhead Creek channel was re-cut during the construction of Kingsnorth Power Station in the 1960s (Monaghan, 1988, cited by Johnson, 1999: 2). A subsequent magnetic survey of the area immediately south of the present application site undertaken in advance of the proposed construction of Supercritical Generating Units at Kingsnorth Power Station (GSB Prospection Ltd, 2007) also failed to reveal definitive evidence of intact kilns or industrial sites. However unsuitable ground cover in the part of the evaluation area closest to the industrial deposits excavated in Area 11 meant that only a partial scan was possible in the area of greatest archaeological potential.

The discovery of a locally produced amphora with a coating of black resin on the rim gave rise to the suggestion that the juxtaposition of salt-working and pottery production in the vicinity was far from coincidental, and that the vessels may have been manufactured as packaging for locally-produced commodities, such as salt, or possibly salted fish and/or fish sauce (Griffin, 2004: 47, 82). A number of examples of 2nd and 3rd century Romano-British industrial sites where salt and other commodities appear to have been produced side-by-side have been found in the Thameside Marshes on the north shore of the Hoo peninsula. These include a site at Broomhey Farm at Cooling (NGR TQ 764 767) where salt-making took place during the 2nd and 3rd centuries a short distance from a kiln complex, and where both cheese presses and wrings and a foreshore fish tank were excavated (Miles, 2005), and a site near Decoy Farm at High Halstow, where a Romano-British cheese press was found near the remains of a saltern (Ocock, 1970: 255-257).

It is not clear what caused the cessation of Romano-British industrial activity at the Damhead Creek site, although changes in the military supply and exchange network in the early 3rd century (Alcock, 2001), and the consequences of repeated marine inundation (which was responsible for the ending of the production of Upchurch wares on the Slayhills marshes on the east bank of the Medway a century earlier) may both have contributed. A thin layer of grey clay (525) that blanketed Area 11 has been interpreted as the result of a marine incursion that took place during or after the 4th century (Johnson, 1999: 10).

Saxon/ Early Medieval Period (410 - 1066 AD)

The lower Medway region was one of the first areas of the county to be settled by migrating Germanic groups in the late 5th and early 6th centuries (Lawson & Killingray (eds), 2004: 25-27). Shortly after the establishment of a Germanic Kentish kingdom in the late 6th century, St Augustine converted Kent to Christianity after AD 597. One of St Augustine's final acts was the creation of a new see at Rochester, capital of the west Kentish sub-kingdom in AD 604 (Page, 1926: 11). A copy of a spurious charter of AD 664 allegedly confirming a grant of land at Hoo by Wulfhere, King of Mercia to St Peter's Minster at Peterborough provides the earliest historical indication of a religious house at Hoo (Sawyer, 1968: 88). A nunnery dedicated to Wulfhere's daughter St Werburgh is known to have existed at Hoo by the end of the 7th century.

The foundation of a Minster Church at Hoo has traditionally been dated to the early or mid-8th century, when a certain Ethelbald built the first church dedicated to St Werburgh. This Minster church was one of 14 founded in the diocese of Rochester, the site probably chosen because it was the local villa regalis or estate centre (Lawson & Killingray (eds), 2004: 40-41). The church would have been the ecclesiastical centre of the peninsula during the pre-parochial Middle Saxon period, fulfilling the role of a mother church to dependent churches at High Halstow, All Hallows and St Mary's Hoo.

Both Hoo and Kingsnorth share a Saxon derivation, the former meaning 'place at the spur of land', whilst 'Cynning snad' or 'Cyninersnode', which first appears in the Cartularium Saxonicum of c.850 denotes 'a detached piece of land belonging to the king' (Griffin, 2004: 3; Mills, 1991: 177).

Until recently, archaeological evidence of Early Medieval activity in this part of north Kent remained limited to a group of 5th and early 6th century Saxon pagan cemeteries discovered in the lower Medway area near Rochester. Although settlement was known to have existed at Hoo and Stoke, little was known about the extent of either settlement or cultivation in the area. The 1998/9 excavations at Damhead Creek provided some information regarding agricultural practice on the peninsula during the period, in the form of a number of Middle Saxon pits and channels situated either side of an undated trackway in Area 1 (Johnson, 1999: 13, 14, 26; see **Figure 1.19**). Subsequent analysis of environmental samples indicated that the area was likely to have been set aside for grazing, although there were indications of arable cultivation in the vicinity (HER TQ 87 SE 1155; **Figure 17.1: 34**).

By the 8th century the kingdom of Kent had been subdivided into juridical units known as lathes, which themselves were divided into smaller units, or hundreds during the following century. The hundred of Hoo was a sub-unit of the lathe of Aylesford, whilst at the eve of the Conquest it was also both a manor and a parish.

Medieval Period (1066 - 1540AD)

The Domesday entry for Hoo suggests that the manor retained its pre-eminent status in Hoo Hundred at the end of the Saxon period (Williams & Martin, 2002: 20). It appears that both arable cultivation and livestock husbandry took place, the inhabitants taking full advantage of the wide variety of productive land types the manor offered, which included land for 50 ploughs, 32 acres of meadow and enough woodland for 50 pigs to forage. Although dwarfed by its neighbour to the west, the manor of Stoke contained a mix of land types as well as a fishery, presumably based on the Stoke Marshes. Archaeological traces of a medieval timber fishtrap have been identified in Oakham Marsh, approximately 2 km south-east of the application site (HER TQ87 SW 1144; **Figure 17.1: 35**). Interestingly no mention is made of salt extraction in either manor, though this may be a consequence

of a deficiency of the Kentish Domesday survey rather than evidence of the cessation of salt production on the Hoo Peninsula, for the process was still being carried out on the Isle of Grain at the end of the 18th century (Hasted, 1798: 152, also see Figure 17.4).

By 1086 most of the manor of Hoo was held directly by Bishop Odo of Bayeux, with a portion in the hands of Richard of Tonbridge, who held it as a sub-tenant of the Bishop (Williams & Martin, 2002: 20). Both the manors of Hoo and Stoke experienced a degree of subinfeudation in the Middle Ages, and a number of sub-manorial units (such as the manor of Malmains) were established during the period.

The post-glacial rise in sea-levels and subsidence of the land surface of south-east England continued throughout the historical period, and by the 10th century high spring tides had begun to overflow the lower parts of the land surface in the region (Brandon & Short, 1990: 75). Whilst sea defences in the Fenland and Romney Marsh had enabled the inhabitants to reclaim and cultivate former marshland by the 11th century (a process known as 'inning'), it appears that much of the tidal wetlands along the north Kent coast estuaries were left as tidal salt marshes well into the medieval period (Rippon, 2000: 70). By the early 13th century the frequency of high spring tides and surges led to the erection of sea and river walls in north Kent to exclude the rising tide.

It is not clear to what extent the Medway marshes between Hoo and Stoke were reclaimed for arable cultivation, though there is some documentary and archaeological evidence for the construction of sea walls in the 13th century. A sea wall was erected during the 13th century to protect agricultural land north of the Hoo Flats, permitting the construction of the 13th - 15th century moated site at Abbot's Court (apparently a possession of Leeds Abbey in Kent prior to the Dissolution, and known as 'Abbey Court' during the 18th and 19th centuries; Lewis, 1848), approximately 2 km south-west of the application site (HER TQ 77 SE 24; Figure 17.1: **36**). Although the fields that surrounded Abbott's Court were used for grazing sheep during the mid-19th century, an environmental sample taken from Area 1 of the Damhead Creek Power Station site revealed that at least part of the application area lay under arable cultivation in the medieval period (Griffin, 2004: 83).

It is not known for how long this land remained under cultivation, and it is possible that the maintenance of any medieval sea defences ceased to be economically viable in the face of progressive climatic deterioration as the Middle Ages progressed. It may have been that local landlords were able to enjoy the profits of the marsh fringes without the need to invest in maintaining expensive reclamation measures. By the time that the Tithe Apportionment was completed in the mid-19th century all of the surrounding fields had reverted to pasture.

A single medieval findspot was recorded in the search area, consisting of a late 14th century bronze seal and die representing the Hundred of Wouldham (south-west of Rochester) discovered in a field on Barton Farm approximately 900 m north-west of the application site (HER TQ 87 SW 13; Figure 17.1: **37**).

Post-medieval (1541 - 1900AD)

It appears that the post-medieval rural settlement pattern of the manors of Hoo and Stoke, comprised of dispersed farmsteads that cultivated arable on the higher ground to the north and west, and grazed livestock on the low-lying ground to the south and east, was already long established by the end of the medieval period.

Several present-day farms in the vicinity have medieval origins including Malmaynes Farm (a sub-manor of Stoke first mentioned in a document of 1240 and seat of the Malmains family during the 14th century), Tudor Farm (first mentioned in 1244) and White Hall Farm, which was first mentioned in 1436 (Entergy Power Group, 1998: 7:8; Hasted, 1798: 253). Most of the major farms in the vicinity are depicted in Figure 17.4, which was originally published to illustrate Hasted's account of the History of Kent of 1798.

Whilst the early 18th century farmhouse at Malmaynes was demolished in 1960, the Grade II listed 16th century White Hall House survives to the present (approximately 1.1 km to the north of the application site), despite having acquired a number of 'Gothick' adornments during the early 19th century (LB 172908; Figure 17.1: **108**). Of the other listed post-medieval buildings in the study area, Cold Harbour Farm House is a Grade II timber-framed brick clad house a short distance to the north-west of White Hall Farm, approximately 1.5 km north of the application site (LB 172907; Figure 17.1: **106**), whilst Lancers Farm House is a 17th century Grade II timber-framed and weatherboarded structure, situated on Jacob's Lane to the west of Kingsnorth Industrial Estate, approximately 1.1 km west of the site (LB 172904; Figure 17.1: **107**).

The 'upland' arable fields of the Hoo peninsula had largely been enclosed, or at least subdivided by the early 17th century (Brandon & Short, 1990: 175-176), so little detailed mapping of the area was published until the area was surveyed on behalf of the Tithe Commissioners for Hoo in 1841. The Tithe Apportionment map (not illustrated) depicts a clear division in land use between the arable fields north of Barton's Farm, and the pasture and marsh grazing to the south and east. Field names listed in the Apportionment provide a clear indication of the formerly low-lying and occasionally waterlogged nature of land in the southern and eastern extremities of the present application site. In addition to the aforementioned Rushy Marsh (in which the south-western corner of the triangular proposed Phase II Power Station lies), both the north-west corner of the main application and the southern half of the eastern construction lay-down area are located in Lower Twelve Acres pasture, whilst the northern lay-down area is situated in the pastures of Upper and Lower Hooks. A narrow and sinuous unit of land along the west bank of Damhead Creek was known as the Salt Ground, an area subject to regular tidal inundation (Tithe Apportionment, 1841).

The distinction between the low-lying marshes and the permanent pasture and arable to the north-west is clearly depicted on the Admiralty chart of 1847 (Figure 17.5), which illustrates the isolated situation of Teapot Hall, a structure surrounded by a four-sided enclosure at the southernmost tip of Hoo Marshes, which was also shown on the First to Third Editions of the Ordnance Survey (HER TQ 87 SW 1036; Figure 17.1: **38**).

The chart is also of interest in that it depicts a number of place names that had gone out of use, or had been changed by the time the First Edition Ordnance Survey was published just over twenty years later. The most striking of these is the absence of the name Damhead from the earlier map, which is neither applied to the present Creek nor the SW – NE aligned Fleet, which is identified here as the Old Fleet. It is possible that the dam-like structure that separates Creek from Fleet gave both bodies of water their subsequent names. A number of buildings shown on this and later maps are also identified by different names, including North Street, subsequently known as Barton's Farm, Cork House, which appears to have been one or both of the semi-detached cottages later known as Sparrow's Castle, White House and Slate House, which are depicted, though not named on maps published as late as the 1930s.

There appears to have been little change in land use between the 1840s and 1870, when the First Edition Ordnance Survey map was published (Figure 17.6). A number of earthworks of uncertain date appear to have offered protection to the permanent pastures from flooding from both Damhead Creek to the east (HER TQ 87 SW 1064; Figure 17.1: **46**), and from Damhead Fleet (HER TQ 87 SW 1054; Figure 17.1: **48**), albeit with varying degrees of success. Both the latter wall and the south-east facing wall in Rushy Marsh appear to have been overwhelmed by floodwaters from Damhead Fleet, which may have been dammed (at some point before 1847) in order to provide a lasting solution to the problem of flooding in Rushy Marsh and the pasture west of the Fleet. A magnetometer survey conducted in 1997 identified a surface bund towards the south-eastern corner of the present site, which probably reflects the dumping of clay silt on the ground surface to construct a sea wall (Bates, 1997: 4.4).

A large sub-rectangular enclosure depicted on the 1870 Ordnance Survey south of Damhead Creek in the vicinity of the later power station has been variously interpreted as representing a post-medieval livestock enclosure (albeit a very large one), or a salt-panning site of the same period (HER TQ 87 SW 1081; Figure 17.1: **56**). Whatever its original purpose, by 1870 it appears to have been

used a sheepfold, one of a number in the area of rough marsh grazing in the south-eastern part of the study area (HER TQ SW 1053; Figure 17.1: **47** almost certainly represents another example nearby).

Although the area of the application site continued to be dominated by sheep farming in 1870, a number of the isolated farmsteads and cottages cultivated orchards within their immediate vicinities, including White Hall Farm, Slate House, Burnt House Farm and Lancers and Ashcole (later Eschol) on Jacob's Lane.

A number of marsh features that lay within the study area but outside the environs of the application site were recorded on the First Edition map, including a hardway in Hoo Flats (HER TQ 77 SE 1062; Figure 17.1: **45**), a hardway in Slade Ooze on Oakham Marsh (HER TQ 87 SW 1052; Figure 17.1: **50**) and a hillock and trackway in the Stoke Saltings (HER TQ 87 SW 1032; Figure 17.1: **49**).

Little change seems to have occurred in the vicinity of the application site between the publication of the First and Second Edition Ordnance Survey map of 1897 (Figure 17.7), although the progressive drying-out of the Damhead Fleet appears to have resolved the drainage problem in the south-east corner of Rushy Marsh and the pasture at the west end of the Fleet, both of which seem to have been largely reclaimed by the end of the century.

Both the Second and Third Edition 25" to 1 mile Ordnance Survey maps of 1897 and 1908 (neither illustrated) depicted a couple of small circular embanked features on the east bank of Damhead Creek that may have represented redundant salterns (HER TQ 87 SW 1076 & HER TQ 87 SW 1077; Figure 17.1: **51** & **52**), however neither they, nor an enigmatic mound shown on the 25" Second Edition in the vicinity of Slade Creek (TQ 87 SW 1078; Figure 17.1: **53**) could be identified during the foreshore survey conducted by Wessex Archaeology in 2004/5. Similarly two circular embanked features depicted in the Oakham Marsh saltings in the 25" Second Edition could not be identified during the recent coastal survey (HER TQ 87 SW 1078 & HER TQ 87 SW 1080; Figure 17.1: **54** & **55**), although the surveyors did identify possible post-medieval sea defences (HER TQ 87 SW 1146; Figure 17.1: **39**), elements of two possible post-medieval or modern landing stages (HER TQ 87 SW 1146 & HER TQ 87 SW 1145; Figure 17.1: **40** & **41**) and a dump of modern roof tiles in the Oakham Marsh area (HER TQ 87 SW 1140; Figure 17.1: **41** & **42**).

A number of post-medieval wharves depicted on the Second Edition also appear to have survived in varying states of repair along the western bank of Damhead Creek and the Stoke Saltings foreshore, including HER TQ 87 SW 1075; HER TQ 87 SW 1073; HER TQ 87 SW 1074; HER TQ 87 SW 1154; Figure 17.1: **58** – **62**).

Modern (1901AD - present)

The first railway to be opened on the Hoo peninsula was the Lodge Hill and Upnor Light Railway, which originally ran between Upnor to the School of Military Engineering at Chattenden Barracks in 1875 (Yeatman, 1966: 277). This 2' 6" narrow gauge line was initially used by the Royal Engineers to transport stores and personnel between the barracks and the garrison at the Hoo Ness Fort. At the turn of the 20th century the Admiralty took possession of the line and renamed it the Chattenden Naval Tramway. Thereafter the Tramway was used to transport munitions off-loaded from Royal Navy vessels entering the Chatham Dockyard to the Lodge Hill Magazine.

Plans for a passenger railway on the Hoo peninsula were originally mooted as early as 1865, although it was not until 1880 that the South Eastern Railway began construction of the Hundred of Hoo Railway ('Subterranea Britannica', online at: http://subbrit.org.uk/sb-sites/stations/b/beluncle_halt/index.shtml). The first section of the line between Hoo Junction and Sharnal Street was opened in 1882, and was extended later the same year to Port Victoria at the south-eastern edge of the Isle of Grain. Although the railway was never a commercial success, a station halt was added at Beluncle in 1906 (HER TQ 87 SW -; Figure 17.1: **67**). Around the same time the Naval Tramway was extended from the Lodge Hill Magazine to sidings at Sharnal Street. Following the opening of the Grain Oil Terminal in 1928, the Port Victoria branch became increasingly dominated by freight and works traffic, and passenger services were finally withdrawn in 1961.

A mixture of tradition and modernity in the study area are apparent from the Third Edition Ordnance Survey of 1909 (Figure 17.8). Whilst the land divisions remained largely unchanged, a number of significant changes had taken place since the turn of the century. A submerged telephone cable had been laid across the Medway, which headed inland west of the application site (HER TQ 87 SW 1011; Figure 17.1: 68). The fields to the north-west of Eschol Road had been largely turned over to orchards, which had become a prominent feature in the landscape. Cutting through the orchards, on a north-west to south-east alignment was an earthen embankment, marked 'Railway in course of construction'. The latter represented the eastwards extension of the Chattenden Naval Tramway from Sharnal Street, and its construction represented the start of the most intensive utilisation of the application site to date.

By the time that the Third Edition Ordnance Survey map was published, the Admiralty had already purchased Kingsnorth Farm from a local farmer named Walter Miskin, who also owned and occupied Barton and White Hall Farms and who continued to tenant Kingsnorth Farm as late as 1912 (ADM 116/1305). It is possible that the Admiralty had originally planned to establish an aerodrome for fixed-wing aircraft at the site, perhaps similar to the experimental station it had established nearby at Grain (Brooks, 1990: 60).

The decision to build a military airship station at Kingsnorth was finally made in 1912, and by October Miskin had agreed to surrender his lease on Kingsnorth Farm so that an airship shed could be built (AIR 1/354/15/227/10: DW 0191/1912). Kingsnorth Farm and Sparrows Castle were scheduled for demolition (although the latter were still standing during the 1920s) and construction of the first of two airship hangars began in 1913, whilst a contract was issued for the construction of the second shed in July 1913 (Smith, 1999: 2.3). The hangars appear to have been approaching completion by early 1914, and a photograph from April that year shows the almost completed timber (southern) and steel-framed sheet metal (northern) hangars. It became apparent to the Admiralty that additional land was required to permit the airships to manoeuvre on the ground (DW 407/1914), and an offer was made to Miskin to purchase a further 81½ acres of (predominantly marsh) land at Barton Farm for this purpose (Figure 17.9). Following a series of tortuous negotiations the recently renamed Royal Naval Air Service (RNAS) finally took possession of the extension area on 12th August 1914, shortly after which operations commenced with the RNAS' first two (foreign-built) airships (DW 3453/1915; Smith, 1999: 2.7; HER TQ 87 SW 1001; Figure 17.1: 69).

The development of the infrastructure of roads, quarters and ancillary structures necessary to support operations began in 1913 and a complex of buildings soon spread north of the airship hangars (Figure 17.11). The majority of technical buildings, including a large hydrogen gas generating station with several gasholders, a depot for gas cylinders and numerous workshops, machine rooms and stores developed to the north-west of the airship sheds (Figure 17.10), whilst the 'regimental buildings', including barracks and quarters, messes, and kitchens expanded to the north and west (Smith, 1999: 3.2). In order to transport the heavy hydrogen plant to the site the Naval Tramway was extended to the Medway, where it terminated at the new Abbott's Court Jetty. In November 1914 the Commanding Officer of RNAS Kingsnorth requested that a permanent platform magazine and hut be installed for anti-aircraft defence (AIR 1/354/15/227/10); at the time anti-aircraft guns were located '150 yards from the Officers quarters, 400 yards from the men's quarters across a ploughed field'.

RNAS Kingsnorth had four key wartime roles, including the design, development and manufacture of airships, and until 1916 it was the lead training establishment for airship crews (Smith, 1999: 4.2). The station's role in research and development was crucial to British military airship development, and several families of anti-submarine patrol craft, including the SS (Submarine Scout), the C* (Coastal) Type, the NS (North Sea) Type and the SS Pusher (SSP) Types were designed and tested there. Following the transfer of the aircrew training function to Cranwell, the station became the lead RNAS Experimental Station and one of six Admiralty Airship Construction Stations (Brooks, 1990: 61; Smith, 1999: 5.1).

By early 1919 the Admiralty was confronted with the problem of disposing of a large number of redundant wartime facilities. As various stores and depots throughout the British Isles were decommissioned, Kingsnorth became first a repository for live and deactivated naval mines, 4400 of the former stored in the 'iron shed' and an unknown quantity of empty mines stored in the timber

hangar (AIR 2/52). Chemicals from the RN store depot at White City were transferred to No. 5 Stores Depot at Kingsnorth in January 1919, whilst plans were being considered to retain the Experimental Station in peacetime. The decision to close the base appears to have been made in March of that year, and by the end of August the Drawing Office had closed down. By 1920 the RNAS had vacated the station, which was partially abandoned thereafter.

Archaeological investigation of the site of the former RNAS station in advance of the construction of the Damhead Creek Power Station located a number of structural remains associated with the southern shed, including a group of concentric concrete arcs at the east end of this hangar in Area 1, and it was possible to survey the overall layout of the concrete base and associated foundations of the shed in Area 2 (Griffin, 2004: 15).

At some point during the 1920s the sheds and a number of the former technical buildings were used for wood pulping, whilst the former ratings and petty officers quarters were converted into 'Workmen's Houses' (Smith, 1999: 5.1). A log flume was excavated between the river bank and the west end of the southern shed, where a rectangular log pond was built.

At the end of the 1920s Berry Wiggins established a small oil and petrol refinery on the site, making use of many of the former RNAS buildings (HER TQ 87 SW 1061; Figure 17.1: **71**). Renewed activity on site prompted Holm and Co. Ltd to reactivate the disused Kingsnorth branch of the former Naval Tramway in 1929 and to rename it the Kingsnorth Light Railway (KLR) (Yeatman, 1966: 292). Berry Wiggins made use of the railway and the Abbott's Court Jetty until the completion of the Bee Ness Jetty in 1937, which enabled oil to be transferred between the refinery and tankers moored off Stoke Ooze (HER TQ 87 SW 1110; Figure 17.1: **72**). Following the construction of the jetty the KLR closed in 1940 and its tracks were pulled up and scrapped in order to support the war effort (Archaeology South East, 2003: 222).

The 1938 Provisional Ordnance Survey map (Figure 17.12) shows the extent to which Berry Wiggins retained the fabric of the old RNAS station, although the superstructures of the airship sheds appear to have been demolished during the 1930s. The concrete foundations of these are clearly visible on the 1946 RAF vertical aerial photograph of the site (Figure 17.13), which also shows the early post-war scale of the oil tank facility, which extended almost as far north as the railway line.

During the Second World War a possible 'military installation' was established in the vicinity of the present Kingsnorth Power Station (HER TQ 87 SW 1057; Figure 17.1: **70**). The nature and extent of this structure is presently unknown. The presence of large numbers of concrete cylinders (of a form and dimensions reminiscent of Second World War anti-tank cylinders) around the Kingsnorth Industrial Estate may be an indication of the re-use of former Second World War anti-invasion defences during the post-war period.

By the early 1960s the Kingsnorth area was becoming increasingly industrialised. In addition to the expanded Berry Wiggins oil refinery, work began on the present Kingsnorth Power Station in 1963 (HER TQ 87 SW 63; Figure 17.1: **73**). The power station was built by the Central Electricity Generating Board (CEGB) between 1963 and 1973, one of a group of ten 2000-megawatt stations built during the decade. The station can be fired both by coal and oil, and two jetties were built in the Medway to receive fuel from both colliers and tankers, although coal was the sole fuel source after 1978. The station also possesses an auxiliary back-up gas turbine plant.

The 1969 Ordnance Survey shows the construction of the station in progress (Figure 17.14). A group of hostel buildings for workers employed during the construction of the station was built immediately to the east of the former railway embankment, adjacent to the western construction lay-down area for the present proposed development. Berry Wiggins had developed the latter area since the Second World War and had erected a functional two-storey office block, which, though currently derelict, still stands. To the south of this area a large rectangular pond had been created, which appears to have been fed by a linear drain that ran from the power station construction site across an embanked area of rough ground to the south. The area east of the office block seems to have been largely cleared by this stage, and little if anything of the fabric of the former RNAS station is visible. To the north of the cleared area a number of oil refinery structures, tanks and filter beds are visible.

The completed power station was first depicted on the 1974 1:50 000 Ordnance Survey Map (not illustrated), protected to the south by new flood defences on the banks of the Medway. Little change appears to have occurred in the vicinity during the twenty years before the next Ordnance Survey map of the site was published in 1993 (Figure 17.16). Since that date major changes have taken place to the north of the original power station, including the construction of the Damhead Creek Power Station and areas of associated landscaping, and the closure of the Berry Wiggins Oil Refinery and the subsequent establishment of the Kingsnorth Industrial Estate on the same site.

There are a substantial quantity of named and unidentified vessels in the creeks and channels of the marshes and flats. All of these vessels appear to be post-medieval or modern, and include the 1924 Medway steamer, the Medway Queen (HER TQ 87 SW 1024; Figure 17.1: **78**) and at least one (HER TQ 87 SW 30; Figure 17.1: **84**), possibly three German First World War U-Boats (HER TQ 87 SW 1022; Figure 17.1: **85**). At least eight unidentified barges were identified from the 1946 RAF aerial photograph (Figure 17.1: **79**), whilst a number have been spotted in subsequent coastal surveys and from more recent aerial photographs (Figure 17.1: **86 – 91**).

Sites of Uncertain Origin

There are a number of potential archaeological sites within the vicinity of the application site which cannot be ascribed to any particular historic period, and for which function or purpose is uncertain. Several of these sites have been identified through the interpretation of aerial photographs, whilst others were identified during the North Kent Rapid Coastal Zone Assessment Survey of 2004/5.

Situated to the south-east of Kingsnorth Power Station is the site of an undated enclosure identified from the 1946 RAF aerial photograph and in the vicinity of the possible livestock enclosure depicted on the First to Third Editions of the Ordnance Survey (HER TQ 87 SW 1055; Figure 17.1: **92**). No trace remains of a former landing stage identified from aerial photographs immediately south of the Power Station (HER TQ 87 SW 1056; Figure 17.1: **93**), nor of an unmapped ring ditch in the vicinity (HER TQ 87 SW 1031; Figure 17.1: **96**).

A square enclosure identified from a 1946 aerial photograph to the east of Kingsnorth Power Station has not been shown on any mapping, though it may have represented a former salt-working site (HER TQ 87 SW 1046; Figure 17.1: **94**). Another square enclosure, between Damhead Creek and Slede Ooze remains unidentified, and the inaccessibility of its location prevented closer assessment (HER TQ 87 SW 1045; Figure 17.1: **95**).

No trace remained in 2004 of a circular embankment feature a short distance to the west of Kingsnorth Power Station identified from aerial photographs (HER TQ 87 SE 1019; Figure 17.1: **97 & 100**. This represents a duplication of a single feature). A linear feature on the foreshore of Slede Creek proved to have been a tangle of modern hawsers, iron tubing and other unidentified metalwork (HER TQ 87 SW 1023; Figure 17.1: **98**), whilst a strandline of well-sorted and rounded flint pebbles and broken shell was recorded on nearby Slede Ooze (HER TQ 87 SW 1020; Figure 17.1: **99**).

Two parallel rows of abraded rounded wooden posts observed at the northern edge of Hoo flats may represent an unidentified archaeological feature (HER TQ 77 SE 1147; Figure 17.1: **101**), whilst a group of three wooden stakes in the foreshore of Damhead Creek proved to be inaccessible, preventing further investigation (HER TQ 87 SW 1153; Figure 17.1: **102**).

A series of small enclosures, situated between the 30m and 35m counters near to Tunbridge Hill approximately 1.7 km north-west of the site, remain unexplained (HER TQ 87 SW 12; Figure 17.1: **103**).

Finally two undated foreshore features include a possible fish weir, observed on the northern edge of Hoo Flats (HER TQ 77 SE 1069; Figure 17.1: **104**) and a probable fish weir on the west bank of Damhead Creek (HER TQ 87 SW 1156; Figure 17.1: **105**).

USE OF SOURCES & BIBLIOGRAPHY

The Sites and Monuments Record (SMR)

The Kent Historic Environment Record (HER) is the primary repository of information on all known archaeology in the area. The data held by the HER consists of all known sites taken from the records of archaeological investigations, early map evidence, aerial photography and local knowledge.

All sites and finds within a 2 km study area surrounding the site which were detailed in the HER were examined.

Reports for each phase of archaeological and geoarchaeological work conducted in association with the development of the Damhead Creek Power Station were examined (see bibliography)

The National Monuments Record (NMR)

An assessment of the records held by the NMR for the 1km study area were examined. The record comprises a computer database of all known archaeological sites in England and an Index of all excavations in the area.

Published Material

Published sources as held by the local studies libraries at the Centre for Kentish Studies at Maidstone, the Medway Local Archive and Study Centre (MLASC) at Strood were consulted. A full bibliography can be found below.

Cartographic Sources

This assessment involved examination of all readily accessible historic maps up to the late 20th century (including the OS 1st Edition 6" plans) at the Centre for Kentish Studies, Maidstone and the Medway Local Archive and Study Centre (MLASC) at Strood.

Field inspection

The site walkover was conducted in December 2007 in order to provide further information on the archaeological potential of the proposed development site based on topography, the nature of the existing buildings, current land use, and the extent of past ground disturbance on the site. The results of the site visit are discussed in the main text.

Consultations

A meeting was held at Damhead Creek Power Station with Ian Chatt, Project Manager DHC II Development for Scottish Power on Tuesday 4th December 2007 to discuss the extent of the proposed development and the available archival resource. A conversation was conducted with Simon Mason, Kent County Council Archaeological Officer on Friday 7th December 2007 in order to discuss the extent of previous archaeological investigations in the vicinity, and to ascertain areas of potential archaeological interest within the boundaries of the study site. Conversations took place with Andrew Mayfield, Historic Environment Record Officer, throughout the reporting process.

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Online Resources

Archaeology Data Service, National Monuments Record, at: <http://ads.ahds.ac.uk/>

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