Cable Connection from London Gateway to Coryton Power Station

Shellhaven Creek Crossing

Archaeological Monitoring Report

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Cable Connection from London Gateway to Coryton Power Station, Shellhaven Creek Crossing

Archaeological Monitoring Report

Written by Stuart Foreman

and illustrated by Gary Jones

Table of Contents

Summary

In September 2012, Oxford Archaeology undertook archaeological monitoring during the installation of a new 33kv electric cable connection between DP World London Gateway Logistics Park and Coryton Power Station, Corringham, Essex. The work was undertaken as part of the DP World London Gateway Port and Logistics Park development (DPWLG). An impact assessment had previously established that the cable trench and associated infrastructure would, for the most part, be excavated within the thickness of modern made ground within DP World London Gateway. Monitoring was, however, required where the cable trench crossed Shellhaven Creek. At this location the absence of made ground meant that the trench penetrated the uppermost layers of Thames floodplain alluvium infilling the channel of the creek, where there was some potential for encountering marine or marshland archaeological sites. Holocene alluvial deposits were observed to the limit of excavation, c 1.7m below ground level. No significant archaeological remains were identified during the works.

1 Location and Scope of Work

1.1 In September 2012 Oxford Archaeology was commissioned by DP World London Gateway Port Ltd (LGP) to carry out archaeological monitoring at Shellhaven Creek in the parish of Stanford-le-Hope, Essex (NGR TQ 7380 8220). The work was undertaken during the installation of a new 33kv cable and substation by Volker Fitzpatrick, linking the DPWLG development with the adjacent Coryton Power Station. The two sites are separated by Shellhaven Creek (Figs 1 and 2).

2 Planning Background

2.1 The outline planning approval (OPA) for the DP World London Gateway Logistics Park (LG Park) was granted in May 2007 by the Secretary of State following a Public Inquiry. The Secretary of State's approval for the related port development was also issued in May 2007 under Harbour Empowerment Order (HEO) procedures, following the same Public Inquiry. This came into force in May 2008.

2.2 In August 2011 a separate approval under S36 of the Electricity Act 1989 was granted by the relevant Secretary of State to construct and operate the Gateway Energy Centre (GEC), a 900 MW gas-fired power station located within the south-eastern part of the LG Park. In the longer term, agreement exists for power to be supplied to the DPWLG site by the GEC scheme. In the short term, however, electrical power supply to the DPWLG site is obtained from the nearby Coryton Power Station, located to the east, until such a time that the GEC is constructed and commissioned.

2.3 The construction of a sub-station and related electricity supply infrastructure is a form of development already permitted by the OPA for the LG Park. Nevertheless a full planning application (ref: 11/50440/TTGFUL) was submitted in March 2012, as much of the proposed works area lay outside both the OPA and HEO boundaries. Areas that lie within the OPA/HEO boundary, including the sub-station itself, are subject to the requirements and methods detailed in the London Gateway Archaeological Mitigation Framework (AMF, OA 2003). Compliance with the AMF is a condition attached to planning consent for the HEO and Reserved Matters for the OPA. The AMF envisages that, wherever possible, any archaeological remains will be preserved *in situ* and that where this cannot be achieved any remains will be investigated and recorded.

2.4 The work was also undertaken in accordance a site-specific Archaeological Project Design (APD, OA March 2012), which was approved by Richard Havis (Senior Historic Environment Officer, Essex County Council Place Services), on behalf of the local planning authority. The APD included an impact assessment which established that the below-ground elements of the development would, for the most part, be entirely within the thickness of modern made ground within the DPWLG site, and would thus have no potential to affect significant archaeological deposits. The ground level within the DPWLG has been extensively raised, during development of the Shell Haven Oil Refinery in the 20th century and in preparation for the London Gateway development in recent years.

2.5 In contrast, the crossing of the cable trench over Shellhaven Creek was identified as an undeveloped area with little or no made ground, where the proposed works had the potential to impact upon undisturbed Holocene alluvial deposits. There was a low likelihood of archaeological remains surviving within the upper alluvium, but if present any organic remains could be very well preserved in waterlogged conditions.

2.6 The Secretary of State's policy on archaeological remains and how they should be preserved or recorded is set out in Chapter 12 of the National Planning Policy Framework (NPPF). It indicates the need to take account of known archaeology in development proposals and to ascertain the extent of further archaeological remains which may be affected by the proposed development. The guidance states that in the case of nationally important archaeological remains the presumption should be in favour of their preservation *in situ*. Where preservation *in situ* is not justified it advises that it is reasonable for planning authorities to require the developer to make appropriate and satisfactory provision for excavation and recording of remains. In this case the APD recommended that archaeological monitoring be undertaken during construction of the cable trench in the Shellhaven Creek section.

3 Archaeological Background

3.1 There are no recorded archaeological sites of prehistoric, Roman, medieval or post-medieval date in the immediate vicinity of the cable trench route. This is due in part to the thickness of alluvial deposits covering the site. A geoarchaeological deposit model completed for the DPWLG floodplain areas showed that any archaeological deposits that pre-date systematic reclamation of the area in the early 17th century are buried at variable depths within the alluvial sequence. There is some potential for Mesolithic land-surfaces to be preserved beneath alluvium, following inundation of the Thames floodplain by rising sea levels *c* 6500 BC. These are expected to be at depths of *c* 15m below existing ground level in the vicinity the proposed sub-station site (eg Borehole ARC BH10, OA 2012a).

3.2 The potential for surviving later prehistoric, Roman and medieval archaeological sites is uncertain. Attempts to date the upper part of the alluvial sequence have been largely unsuccessful, owing to difficulties in identifying suitable *in situ* organic material for radiocarbon dating in these highly reworked deposits. In general, the potential for settlement evidence or other terrestrial archaeology at this site is very low. The geoarchaeological deposit model suggests that the eastern side of the DPWLG development area was characterised (prior to reclamation in the 17th century) by high energy tidal environments, which is likely to have had an erosive effect on any coastal/ marine archaeological remains, although sites might have been preserved in locations protected from tidal influence (OA 2012a).

3.3 There is limited potential for the discovery of saltern sites and other specifically coastal marshland activities of various periods. The proximity of the site to two large tidal creeks (the former Rugward Creek and Shellhaven Creek) increased the likelihood of marine or intertidal finds being present (boats, fishtraps etc). However, the distance from historic centres of settlement on the river terrace (*c* 2km to the north-west of the proposed sub-station site) suggests that concentrations of activity are unlikely in this particular context (OA 2012b).

3.4 According to documents held in the Essex Records Office, reclamation of the Fobbing Marshes was undertaken by private landlords in *c* 1620, with the assistance of Dutch engineers. The DPWLG site is bounded on the south side by the present sea wall, which is broadly on the line of the original 'Dutch Wall'. However, any trace of the original wall that may survive is buried beneath 19th/20th century structures or made ground (OA 2012b).

3.5 OS maps from the 1880s up to the mid 1920s show the area through which the cable trench runs to be made up of former marshland, the former waterway known as Rugward Creek crossing the southern part the site from north-west to south-east. Shellhaven Creek also crosses the application area (OA 2012b).

3.6 The eastern half of the DPWLG site was subsequently redeveloped from the mid-20th century as part of the Shell Haven Oil Refinery. It was occupied by an array of oil storage tanks, some of which are known to have had piled foundations which would have impacted upon the Holocene alluvial sediments to some extent. The refinery was closed in 1999 and most of the structures have since been demolished. The western half of the site, including the area of the proposed sub-station, remained as reclaimed marshland. In the course of the 19th and 20th centuries the site was covered with made ground of variable thickness, which included in the in-filling of Rugward Creek at some point after the issue of the 1924 OS map. Since decommissioning of the refinery the made ground has been extensively excavated in the course of remediation work to decontaminate the site (OA 2012b).

4 Methodology

4.1 The Shellhaven Creek crossing was observed by an archaeologist during excavation of the electrical cable trench in September 2012. This was the only substantive below ground impact arising from the development that had the potential to affect archaeological deposits. The trench was excavated using a 20 tonne 360 degree tracked mechanical excavator, fitted with a toothless bucket, in the location shown on Figure 2. Deposits were removed in spits *c* 0.2m thick until the required excavation depth was reached.

4.2 All work was undertaken in accordance with the methods and standards outlined in the LG Archaeological Mitigation Framework (OA 2003).

5 Description of Deposits

5.1 Relatively homogeneous dark grey silty clay alluvial deposits (context 101, Plate 1) were present beneath a 0.2m thick topsoil layer (context 100). The alluvium was recorded from the base of the topsoil to the limit of excavation (1.7m).

5.2 The topsoil and uppermost alluvial deposits had been subject to some contamination and modern disturbance.

5.3 No artefacts or palaeoenvironmental samples were recovered.

6 Conclusions

6.1 The Shellhaven Creek crossing was the only location along the cable trench route which required archaeological monitoring during construction. No significant remains were identified during the cable trench excavations.

7 Bibliography and References

OA, 2003 The London Gateway Harbour Empowerment Order Archaeological Mitigation Framework (AMF), prepared by Oxford Archaeology on behalf of P&O (The AMF forms Appendix 2 of The London Gateway Logistics and Commercial Centre Harbour Empowerment Order, Statement of Common Ground on the Topic of Cultural Heritage for the HEO, agreed between the Peninsula and Oriental Steam Navigation Company (P&O) and Thurrock Council. Compiled by Macfarlanes and Faber Maunsell July 2003.)

OA, 2012a A multi-disciplinary investigation of the sediments at the London Gateway Site, Essex: Geophysics, palaeoenvironment and dating, final deposit model update, Oxford Archaeology, February 2012

OA, 2012b Private electrical power connection, sub-station, related infrastructure and access to serve the London Gateway Port and Park development, Essex. Archaeological Project Design, Oxford Archaeology, March 2012

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User

Figure 1: Site location

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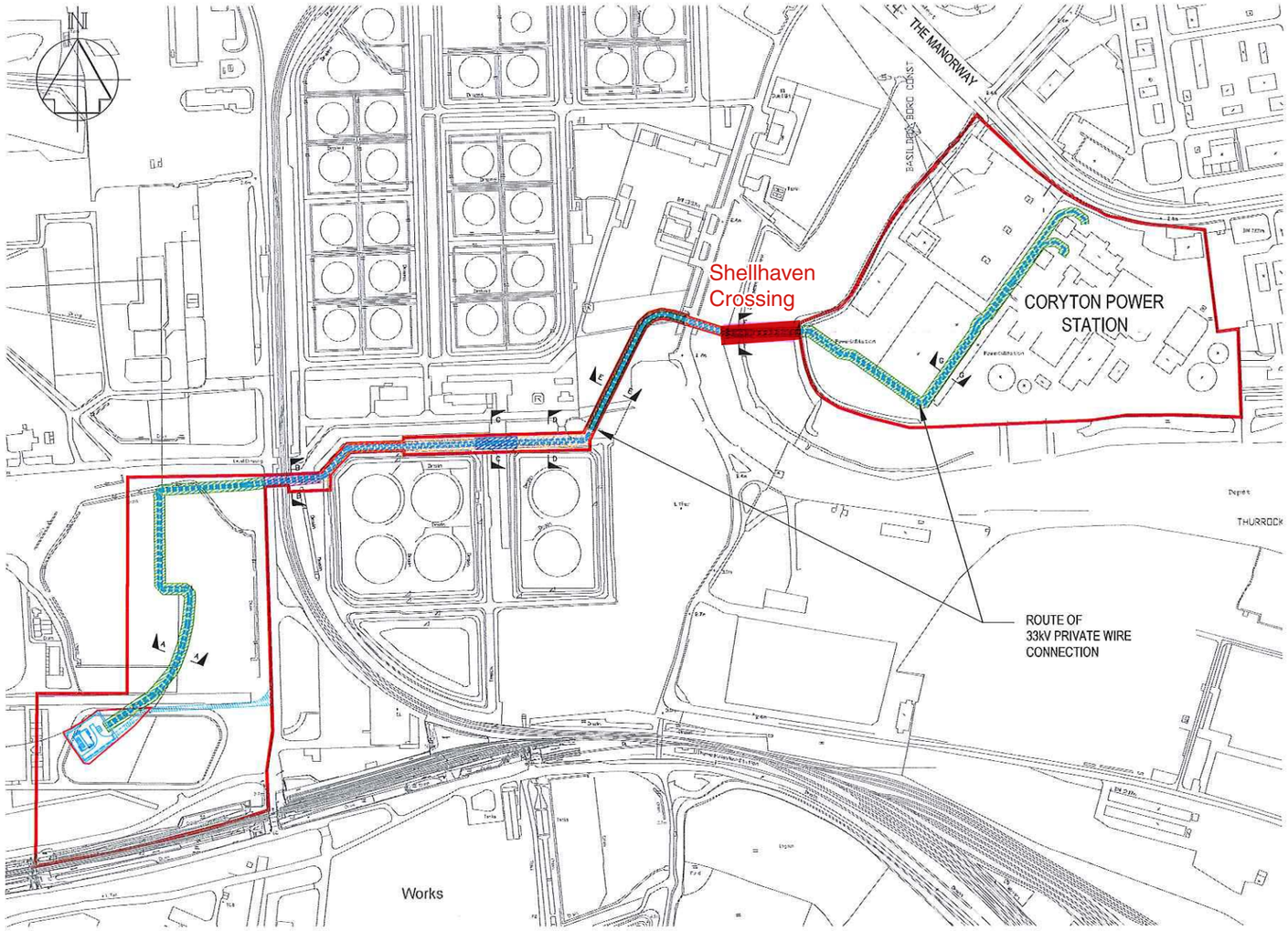

CABLE ROUTE PLAN
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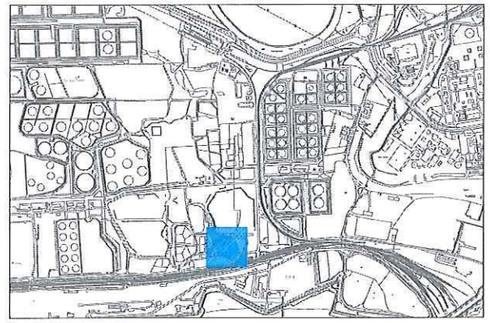


KEY PLAN
(N.T.S)

ATKINS

LEGEND:

METHOD OF CABLE INSTALLATION

DIRECT BURIED

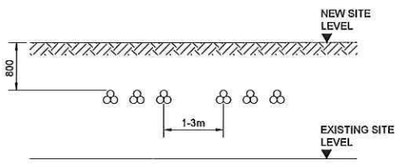
DUCTED

DIRECTIONAL DRILLING

CABLE BRIDGE

Drawing Number 5099571/09.01/1006 Rev. 5

B



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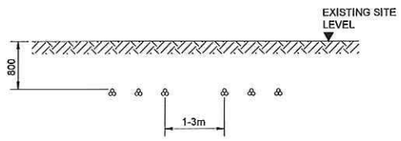

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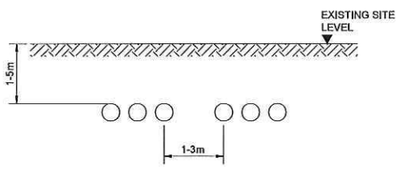

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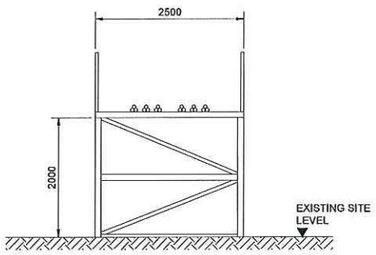

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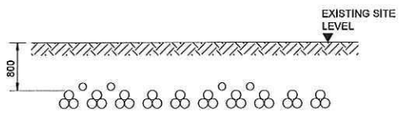

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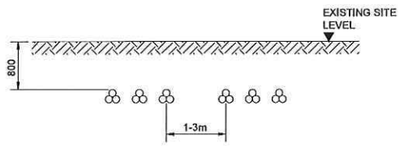

CABLE SECTION `G-G`
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0 10 Millimetres 150

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4	REVISED INLINE WITH CLIENT COMMENTS	DE	09.03.12	MIH	GT	GT
3	REVISED INLINE WITH CLIENT COMMENTS	DE	04.01.12	MIH	IL	IL
2	SECTION 'C–C' REVISED INLINE WITH CLIENT COMMENTS	DE	05.12.11	MIH	IL	IL
1	REVISED INLINE WITH CLIENT COMMENTS	DE	08.12.11	MIH	IL	IL
	PLANNING	0	06.12.11		IL	
Code	Purpose of issue	Rev	Date		Authorised	

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Client: DP WORLD

Project: LONDON GATEWAY PORT LTD.

Title: PROPOSED 33kV PRIVATE WIRE CONNECTION FIGURE 6

Drawn	Originator	Checked	Reviewed	Authorised
DE	MIH	IL	IL	IL
Date 05.12.11	Date 06.12.11	Date 06.12.11	Date 06.12.11	Date 06.12.11

Scale	Drawing Number	Rev
AS SHOWN	5099571/09.01/1006	5

Figure 2: Location of Watching Brief area

Plate 1: Cable trench excavation in progress, showing undisturbed alluvium close to present ground surface

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