London Gateway Port Gate Complex

Archaeological Monitoring Report

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LONDON GATEWAY PORT GATE COMPLEX

STANFORD-LE-HOPE, ESSEX

ARCHAEOLOGICAL MONITORING REPORT

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NON-TECHNICAL SUMMARY

In January and February 2013 Oxford Archaeology monitored the excavation by Murphy Group of a series of deep excavations, during installation of drainage for the London Gateway Port Gate Complex (C4512, NGR TQ 7140 8150).

A geoarchaeological floodplain deposit model of the London Gateway site indicates that Holocene alluvium laid down by the River Thames since the end of the last ice age is c12m thick in the western side of the Gate Complex site. Previous desk-based assessment has determined that there is a low likelihood of Holocene marine or wetland archaeological features being present within the alluvium, but if present any organic remains can be very well-preserved due to the waterlogged conditions. Roman pottery finds have been reported from the intertidal foreshore in front of the sea wall to the south of this area. Other known heritage features identified in the vicinity of the works are all of modern date, relating to the late 19th and 20th century development of the site. The drainage excavations passed through the site of the late 19th century Miner's Safety Company explosives plant on Curry Marsh. The site was subsequently developed as part of the Shell Haven Oil Refinery during the 20th century.

The monitoring was targeted on specific drainage features that would penetrate into the alluvial deposits, which included a pumping station, a series of separator pits and a deep pipe trench with manholes at intervals, all located at the western end of the Gate Complex site.

The top of the sequence comprised recently laid silty sand, formed from material dredged from the Thames as part of the London Gateway ground raising, typically c2.5m thick.This was removed across the approximate area shown on Figure 2, to a level at or just above the former oil refinery ground surface, which lay at c2.0m OD. The underlying made ground deposits were variable as they had been heavily disturbed by previous construction activity, including buried structures. The general thickness of refinery-period made ground was c1.0m. Blue-grey clay silt deposits (alluvium) were encountered at variable depths, depending on the extent and depth of disturbance. The upper level of alluvium in relatively undisturbed areas lies at c0.6m OD. No peat deposits were noted during the monitoring.

The deepest of the separator pits was excavated to c-1.7m OD, a total depth of c3.6m measured from the former oil refinery ground surface. This cut into the (pre-refinery) marshland ground level, penetrating the alluvium by c3m. The drain trench penetrated the alluvium to a maximum depth of c2.5m. The pumping station was cut into the alluvium to a depth of c12m, but the 'wet dig' excavation method used in this case meant that archaeological visibility was very poor.

No archaeological remains were discovered.

1 INTRODUCTION

1.1 Introduction

1.1.1 This report details the results of archaeological monitoring arising from the development by DP World London Gateway of a Gate Complex, forming part of the London Gateway Port development, in Stanford-le-Hope, Essex (Fig. 1).

1.1.2 The report describes the results of archaeological monitoring during excavation of various drainage features that were expected to penetrate through made ground layers and into alluvial deposits underlying the site. The drainage features monitored included a pumping station, a series of separator pits and a deep pipe trench with manholes at intervals, all located at the western end of the Gate Complex site (centred on NGR TQ 7140 8150). These were the only elements of the Gate Complex development that required archaeological mitigation.

1.2 Project planning background

1.2.1 The Gate Complex is part of the London Gateway Port and Park developments, comprising an international deep sea container terminal and a major business and logistics park. The outline planning approval (OPA) for the park was granted in May 2007 by the Secretary of State, following a Public Inquiry. 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, and this came into force in May 2008.

1.2.2 The Gate Complex area was assessed in general terms as part of the HEO Environmental Statement presented at Public Inquiry in 2002. Areas that lie within the OPA/HEO boundary are covered by 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.

1.2.3 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.

1.2.4 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.

1.2.5 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. In accordance with procedures outlined in the AMF, a site specific Short Form Archaeological Project Design (APD) was produced (OA 2012a), which assessed potential archaeological impacts for each component of the Gate Complex development and detailed appropriate mitigation measures. A short form APD is suitable for demonstrating that construction design information has been subject to appropriate assessment, in cases where archaeological mitigation requirements are very limited.

1.3 Location, geology and topography

1.3.1 The general location of the Gate Complex site within the overall London Gateway development is shown on Figure 1. The site is reclaimed marshland that has been extensively developed as an industrial landscape since the late 19th century. In the 20th the area was developed as part of the Shell Haven Oil Refinery.

1.3.2 Prior to the monitoring the site had been covered with a layer silty sand, formed from material dredged from the Thames as part of the London Gateway ground raising, typically *c*2.5m thick. This was removed over the approximate area shown on Figure 2, prior to installation of the drainage features.

1.3.3 The site lies in an area covered by superficial deposits mapped by British Geological Survey (BGS) as 'Tidal Flat' deposits. These comprise clay silt and peat deposits, laid down by the River Thames since the end of the last ice age. The underlying solid geology is the Palaeocene Lambeth Group, consisting of shelly sands with lignite or coarse gravel (BGS 2014).

1.4 Archaeological background

1.4.1 Key London Gateway baseline studies covering the Gate Complex area include a desk-based assessment and the Geoarchaeological 'deposit model' report (OA 2012b). This technical report sets out the finalised results of baseline investigations in the Port and Park area. These baseline studies have shown that the entire Port area was occupied by intertidal mudflats and salt marsh from *c*6500BC (during the Mesolithic period when the site was inundated by rising sea levels) until the early 17th century, when the marshlands in the area were subject to large scale systematic reclamation, through the construction of sea walls. The Holocene alluvial deposits that infilled the floodplain area between *c*6500BC and the 17th century are *c*12 - 15m thick and well-preserved Mesolithic land surfaces may be present at the base of the sequence. The overlying alluvium generally has little or no potential for the discovery of settlement archaeology. However marine and marshland finds - such as boats, wharves or salterns of various dates - could be encountered in an exceptional state of preservation due to waterlogged conditions - in particular along lines of former major creeks. Roman pottery finds have been reported from the intertidal foreshore near the south-west corner of the Gate Complex (OA48, Fig. 3)

1.4.2 After reclamation in the 17th century the site continued to be used predominantly for grazing livestock until the late 19th century. The Thameshaven Branch Line of the London, Tilbury and Southend Railway, which forms the northern boundary of the Port, was built in 1854. It was initially used for passenger traffic (mainly tourists boarding paddle-steamers to Margate) and subsequently as a transhipment point for imported cattle destined for the London markets. In the late 19th and early 20th centuries large explosives factories and oil storage and refinery sites were developed, attracted by the railway, the strategic location of the site in relation to London, the deep sea anchorage at Shell Haven, and the remoteness of the location from centres of habitation. The drainage excavations passed through the site of the late 19th century Miner's Safety Company explosives plant on Curry Marsh (OA47, Fig. 3).

1.4.3 The Port and Park area largely correspond with the former Shell Haven Oil Refinery, which was subject to very extensive development and expansion during the 20th century, and which has disturbed or buried most surface historic landscape features. The refinery was identified as a key defence site during WW2 and various features, such as pill-boxes and anti-aircraft defences were constructed from 1939-45. The industrial and WW2 heritage of the site was mitigated by recording prior to demolition -

there are no surviving early industrial buildings or WW2 defence features within the site. A former pillbox site was formerly located on the sea wall to the south of the Gate Complex (OA49, Fig. 3).

2 MONITORING AIMS AND METHODOLOGY

2.1 Aims

2.1.1 The main project aims were as follows:

- Identify any archaeological remains or significant deposits that may be exposed during excavation of the Gate Complex deep drainage features, in order to develop a further understanding of past human activity and changing environments and landscapes within the local area.
- Investigate the extent, conditions, nature, character, quality and date of any archaeological and palaeo-environmental remains encountered.
- Preserve by record any significant archaeological features or deposits that may be removed during excavation of the drainage features.

2.2 Methodology (Fig. 2)

2.2.1 The methodology was carried out in accordance with the London Gateway AMF (OA 2003). The investigation strategy was determined in consultation with Gill Andrews, the London Gateway Archaeological Liaison Officer (ALO), and the local authority archaeological advisor, Richard Havis (Essex County Council Historic Environment Branch), to ensure compliance with the aims and methods of the AMF.

2.2.2 Consultation with the contractor, including a review of design drawings, indicated that the majority of groundworks for the Gate Complex would be at a superficial level, and would not impact upon surviving archaeological deposits. However, deep excavations to install drainage services at the western end of the Gate Complex site were expected to penetrate through the made ground and into intact alluvial sediments and therefore had the potential to encounter significant archaeological remains (Fig. 2). Archaeological monitoring was undertaken during excavation of a series of separator pits, a large drainage trench with manholes at intervals, and a pumping station in the western part of the Gate Complex area. The monitoring was completed between 1st January and 8th February 2013.

3 RESULTS

3.1 Conditions during fieldwork

3.1.1 The scope of the agreed monitoring did not involve altering the contractor's preferred working method. Archaeological visibility was impeded by shoring in all of the trenches, which prevented recording of the sections. Visibility was at its best in the separator pits, in which a toothless machine bucket was used, resulting in a cleaner excavation (Plates 9 – 11). The drain trench was excavated with a toothed machine bucket, which impeded visibility to some extent, but it was pumped dry to permit personnel to access the trench, resulting in reasonable visibility (Plates 1 – 7). The poorest visibility was during installation of the pumping station, which was undertaken as a 'wet dig' (ie while the trench was flooded) (Plate 8).

3.2 Sediment sequence

3.2.1 The top of the sequence comprised recently laid silty sand, formed from material dredged from the Thames as part of the London Gateway ground raising, typically *c*2.5m thick. This was removed across the approximate area shown on Figure 2, to a level at or just above the former oil refinery ground surface, which lay at *c*2.0m OD. The underlying made ground deposits were variable as heavily disturbed by previous construction activity, including buried structures. The general thickness of refinery-period made ground was *c*1.0m. Blue-grey clay silt deposits (alluvium) were encountered at variable depths, depending on the extent and depth of disturbance. The upper level of alluvium in relatively undisturbed areas lies at *c*0.6m OD. No peat deposits were noted during the monitoring.

3.2.2 The deepest of the separator pits was excavated to -1.7m OD, a total depth of *c*3.6m measured from the former oil refinery ground surface. This cut into the (pre-refinery) marshland ground level, penetrating the alluvium by *c*3m. The drain trench penetrated the alluvium to a maximum depth of *c*2.5m.

3.2.3 The pumping station was cut into the alluvium to a depth of *c*12m, in a *c*12x12m box, to just above the Pleistocene gravel, but the 'wet dig' excavation method used in this case meant that archaeological visibility was very poor indeed.

3.3 General distribution of archaeological deposits

3.3.1 No archaeological features or artefacts were identified.

3.4 Finds and environmental summary

3.4.1 No finds were recovered and no soil samples were taken during the monitoring.

4 DISCUSSION

4.1 Conclusions

4.1.1 The monitoring failed to identify any archaeological remains. The alluvial layers exposed clearly had the potential to contain waterlogged organic material, but none was identified. Visibility was variable depending on the type of excavation. In the case of the separator pits and drain trench excavations, there was confidence that substantial waterlogged timber structures would have been seen if present, but more ephemeral sites are likely to have been missed.

4.2 Acknowledgements

4.2.1 Oxford Archaeology would like to thank Marcus Pearson, Emma Deary and Chris Wild of DP World London Gateway's Environment Team, and Gill Andrews (LG Archaeological Liaison Officer), for facilitating the works, and Richard Havis (Essex County Council Historic Environment Branch) for monitoring and advice during the fieldwork. John Boothroyd and Ashley Strutt carried out the monitoring on behalf of OA, under management of Stuart Foreman.

4.3 Location of archive

4.3.1 The archive is currently held at OA, Janus House, Osney Mead, Oxford, OX2 0ES,

and will be deposited with the Thurrock District Museum in due course.

5 BIBLIOGRAPHY AND REFERENCES

OA 2002, London Gateway Logistics and Commercial Centre Outline Planning Application.Archaeological surveys and up-date of assessment of impacts on cultural heritage in respect of the proposed development of London Gateway Logistics and Commercial Centre. Technical Report Volume 1. Prepared by Oxford Archaeology for P&O, July 2002 (includes Phase 1 Access Road corridor magnetometer survey report and fieldwalking report).

OA 2003, The London Gateway Harbour Empowerment Order Archaeological Mitigation Framework (AMF), prepared by Andrews, G, Shepherd, N, Chandler, J, Firth, A, and Bates, M, 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, London Gateway Port Gate Complex, Stanford-le-Hope, Essex: Short Form Archaeological Project Design, prepared by Oxford Archaeology for DP World

OA 2012b, A Multi-Disciplinary Investigation of the Sediments at the London Gateway Site, Essex: Geophysics, Palaeoenvironment and Dating, Final Deposit Model Update

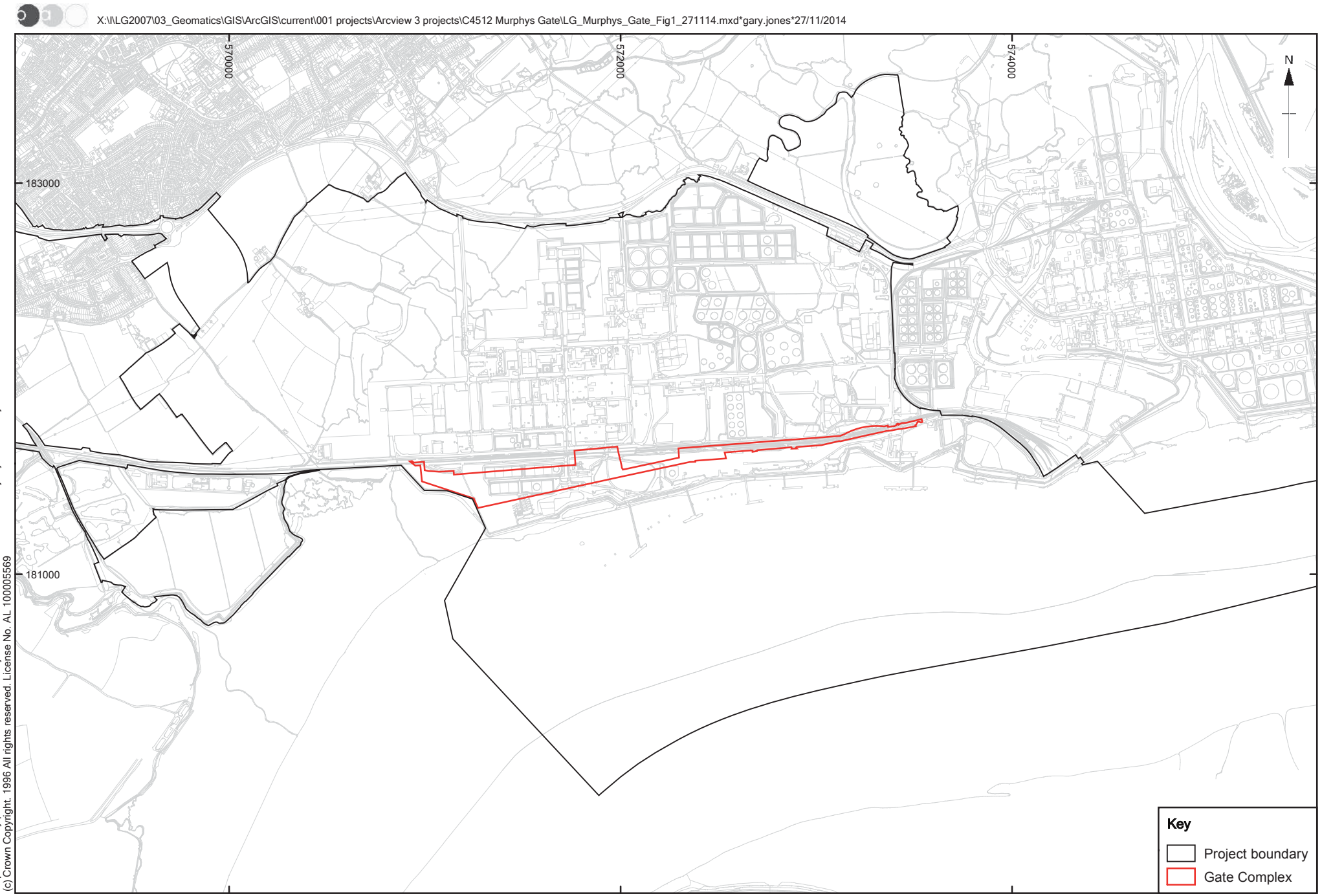

Figure 1: Location of the Gate Complex (C4512) in relation to the overall London Gateway development

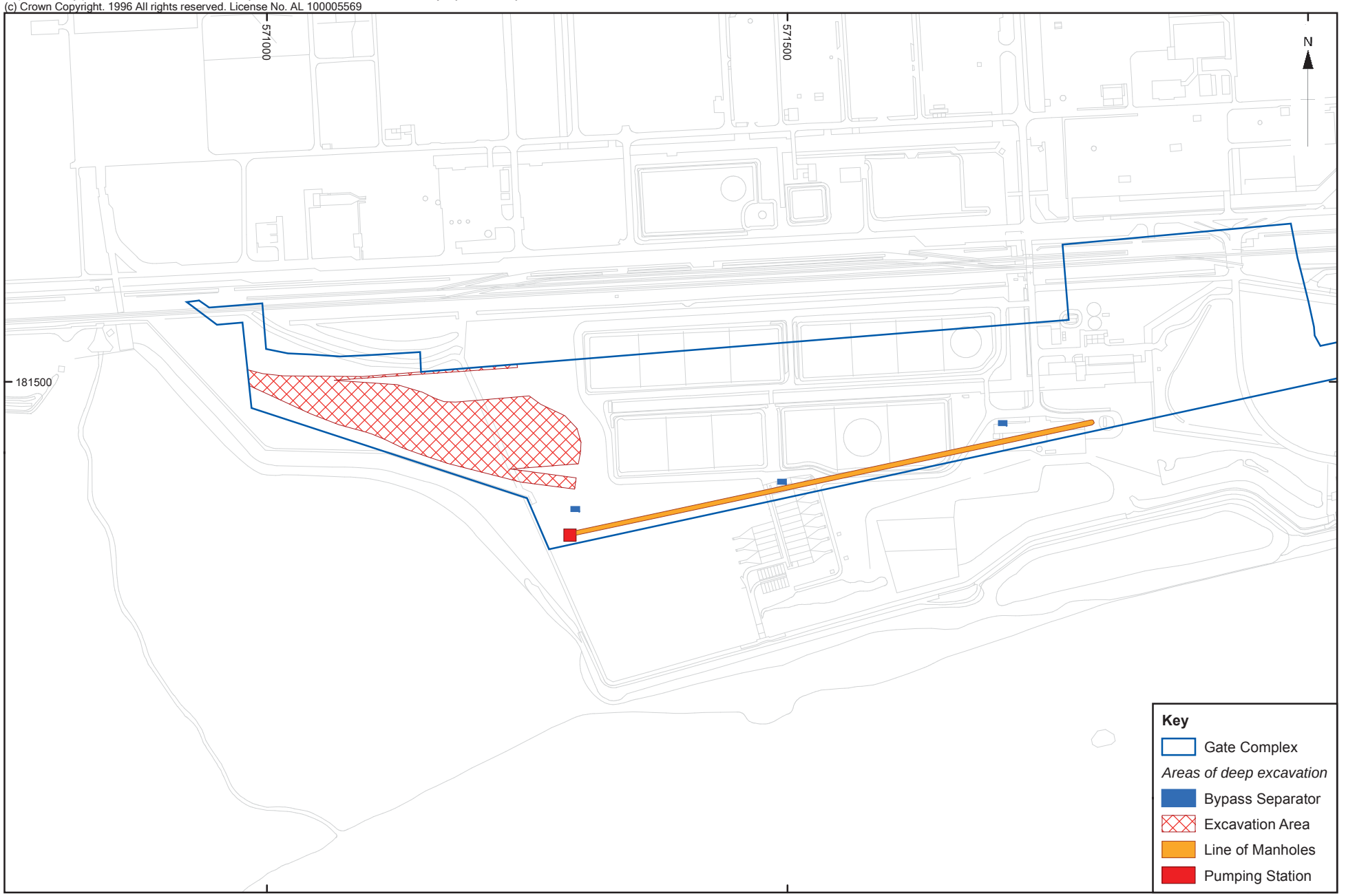

Figure 2: Map showing areas of deep excavation within the Gate Complex (C4512) that were subject to archaeological monitoring

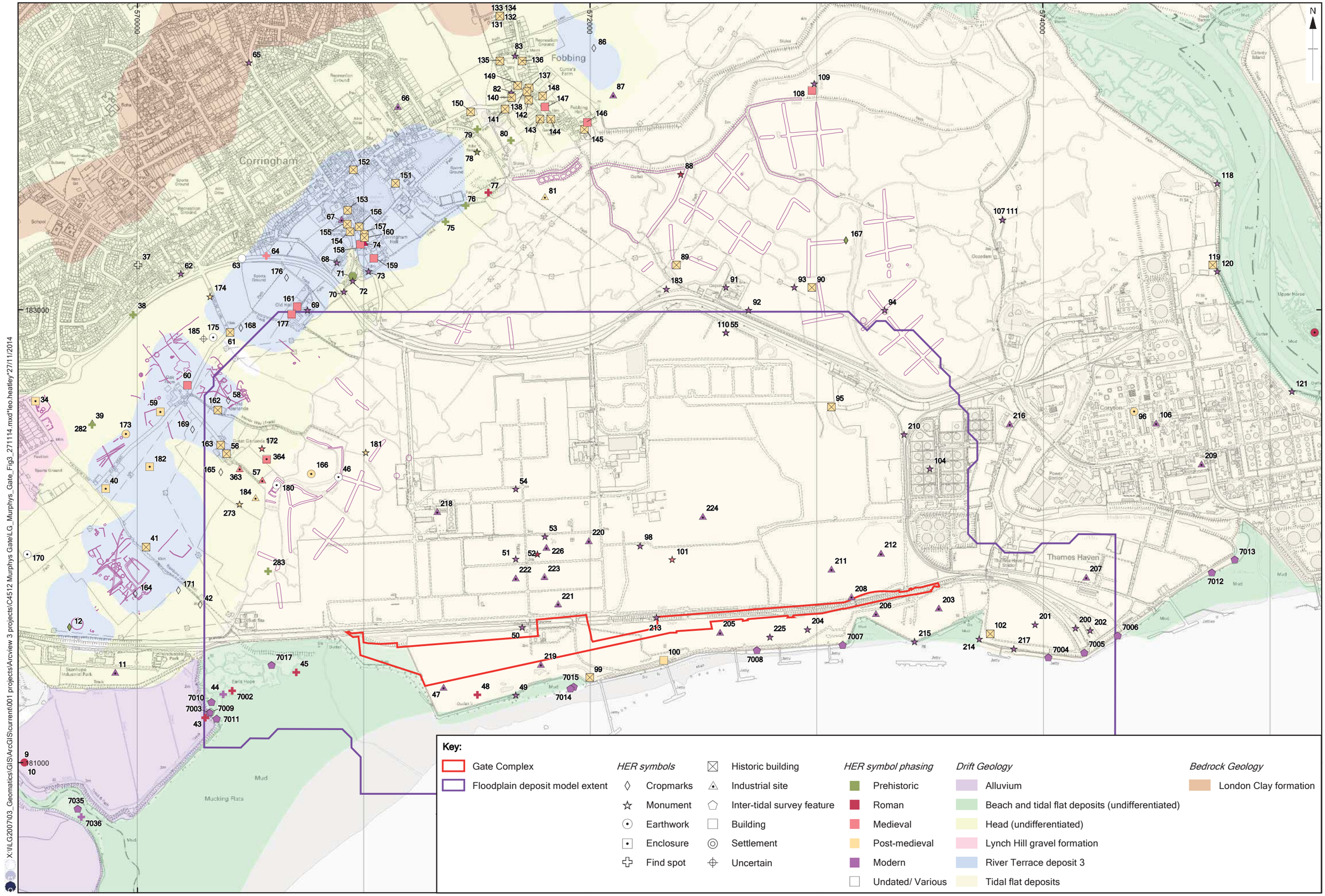

Figure 3: Gate Complex site outline in relation to London Gateway Heritage Baseline data

Plate 1: Deep drainage excavations in progress

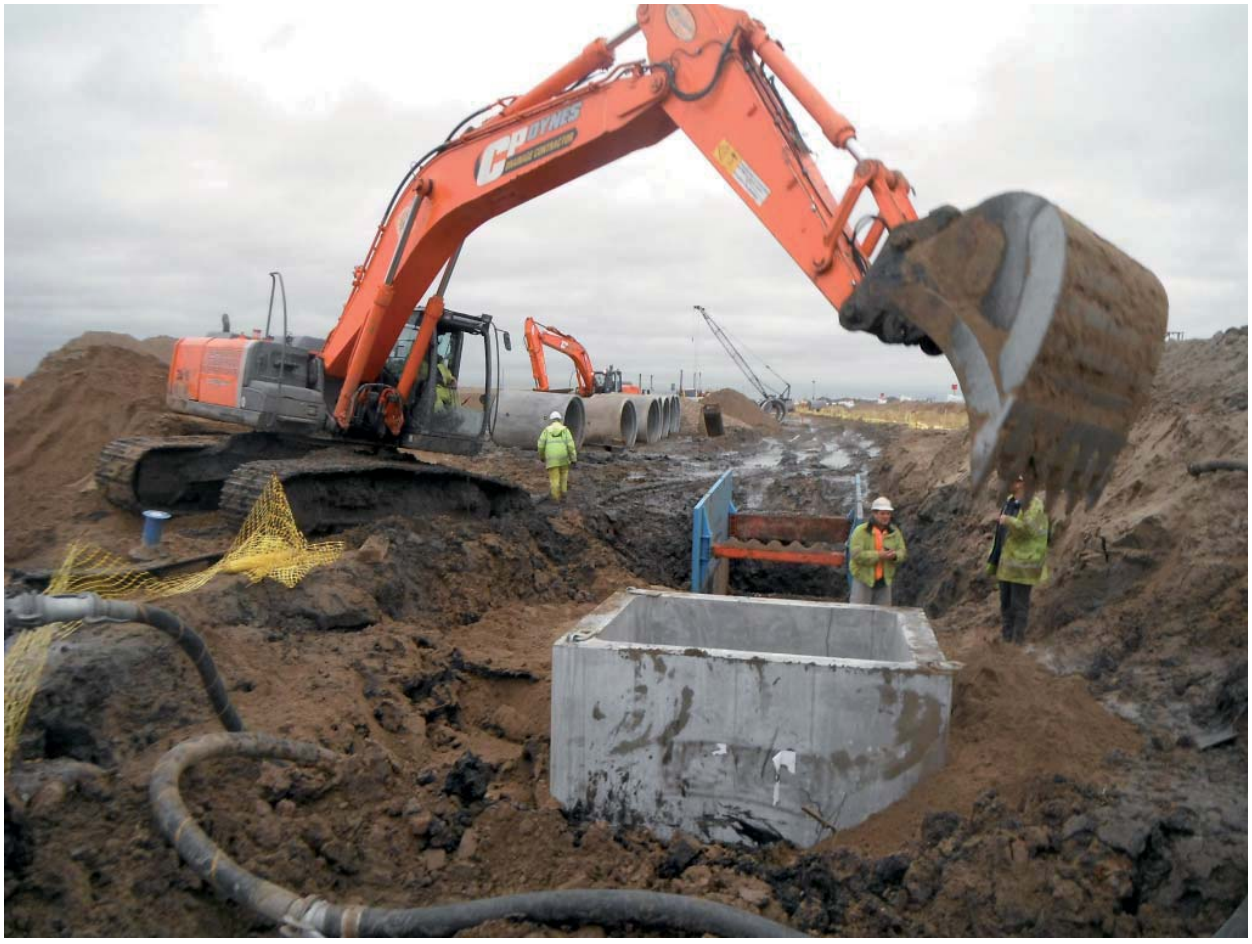

Plate 2: Deep drainage excavations in progress

Plate 3: Deep drainage excavations in progress

Plate 4: Deep drainage excavations in progress

Plate 5: Deep drainage excavations in progress

Plate 6: Deep drainage excavations in progress

Plate 7: Deep drainage excavations in progress

Plate 8: Plate 8: Deep drainage excavations in progress (pumping station)

Plate 9: Deep drainage excavations in progress

Plate 10: Deep drainage excavations in progress

Plate 11: Deep drainage excavations in progress

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