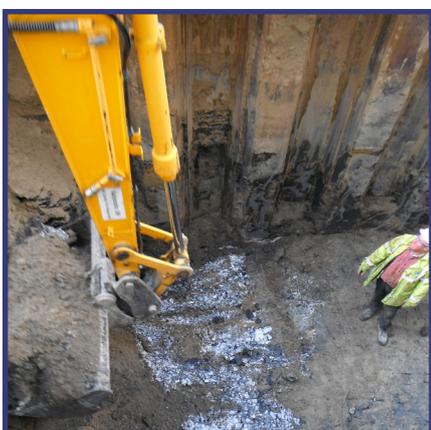


Welfare and Workshop  
Building Drainage Works  
London Gateway  
Essex



**Archaeological  
Monitoring Report**

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# Welfare and Workshop Building Drainage Works, London Gateway, Essex

*Archaeological Monitoring Report*

*Written by Stuart Foreman*

*and illustrated by Gary Jones*

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## Summary

*In February 2013, Oxford Archaeology undertook archaeological monitoring during the installation of drainage infrastructure associated with development of a welfare and workshop building, as part of the DP World London Gateway Port development, Stanford-le-Hope, Essex. An impact assessment had previously established that the welfare and workshop building development would, for the most part, only affect modern made ground deposits. Monitoring was, however, required during the excavation of a deeply buried separator tank, part of the drainage system for the development. Installation of the separator tank was the only excavation activity that penetrated through the modern made ground covering the site and into the underlying Holocene alluvium.*

*Archaeological visibility was poor because the sections were covered by a cofferdam. In addition, the deposits were obscured by material falling from higher levels during excavation. Nevertheless, undisturbed alluvium was observed at a depth of c 2.5m below ground level (c -0.5mAOD). No significant archaeological remains were identified during the monitoring.*

*The separator pit only penetrated the uppermost layers of the Holocene alluvium. For comparison, Borehole MW633, located 100m north-west of the welfare and workshop building site, recorded 1.4m of made ground, overlying a Holocene alluvial sequence 13.1m thick, extending down to the surface of the underlying terrace gravel at c -12.3mAOD.*



## 1 LOCATION AND SCOPE OF WORK

- 1.1 In February 2013 Oxford Archaeology was commissioned by DP World London Gateway Port Ltd (LGP) to carry out archaeological monitoring during the installation of drainage infrastructure associated with development of a welfare and workshop building, as part of the LGP development, Stanford-le-Hope, Essex (NGR TQ 73800 81750, Fig.1). The work was undertaken during the installation of a deeply buried separator tank by the principal contractor, Volker Fitzpatrick.

## 2 GEOLOGY AND TOPOGRAPHY

- 2.1 The proposed development lies entirely within an area mapped on the British Geological Survey 1:50,000 drift geology mapping as 'Tidal Flats'. Geoarchaeological modelling of the Thames floodplain deposits underlying the site has shown that the Holocene deposit sequence (comprising sediments laid down by the river Thames since marine inundation of the site c 6500 BC) are up to c 15m thick in the vicinity of the site. Within the floodplain these overlie pre-Holocene sand and gravel deposits (OA February 2012a).
- 2.2 The welfare and workshop building forms the south-eastern corner of the London Gateway Port site, bounded to the south by the sea wall and lying in what was formerly a peninsula of reclaimed marshland between Shellhaven Creek to the east and the former Rugward Creek to the west. Historic maps show that in the 18th and early 19th century the development lay in an area of reclaimed inter-tidal marshland (OA 2012b).

## 3 PLANNING BACKGROUND

- 3.1 The London Gateway Port site, in which the welfare and workshop building is situated, received planning permission from Government on the 30th May 2007. The applications were in the form of an Outline Planning Application for the Port (OPA) and a Harbour Empowerment Order (HEO) for the Port. A condition of both permissions is the implementation of the London Gateway Archaeological Mitigation Framework (OA 2003). Originally included as a Technical Report to the Environmental Statement, the purpose of this document was to establish a strategic framework, applicable to the entirety of the archaeological resource, within which the London Gateway archaeological programme would operate.



- 3.2 An archaeological project design (APD) was prepared for the welfare and workshop building development by DP World's Archaeological Contractor (Oxford Archaeology; OA 2012b). The APD comprised an assessment of the archaeological impact of the proposed construction works and proposals for mitigation measures, in this case monitoring during construction of deep drainage features. The APD was validated by the LG Archaeological Liaison Officer (Gill Andrews) and the archaeological statutory consultee for the LG Park, Richard Havis (Senior Historic Environment Consultant, Essex County Council).

## 4 ARCHAEOLOGICAL BACKGROUND

- 4.1 There are no recorded archaeological sites of prehistoric, Roman, medieval or post-medieval date in the immediate vicinity of the site. This is due in part to the thickness of alluvial deposits covering the site. A geoarchaeological deposit model completed for the London Gateway 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 14.5m below existing ground level in the vicinity the proposed sub-station site (eg, Borehole MW633, OA February 2012a).
- 4.2 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 London Gateway 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 February 2012b).
- 4.3 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 welfare and workshop building site) suggests that concentrations of activity are unlikely in this particular context (OA February 2012b).



- 4.4 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 development 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 February 2012b).
- 4.5 OS maps from the 1880s to the mid 1920s show the application site 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).
- 4.6 The eastern half of the application 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 the refinery was decommissioned, the made ground has been extensively excavated in the course of remediation work to decontaminate the site (OA 2012b).

## 5 METHODOLOGY

- 5.1 On the basis of extensive baseline studies, the archaeological potential of the development site was considered to be generally low, although slightly enhanced in the case of localised deep excavations that penetrated through modern made ground and into the underlying Holocene alluvium. OA was commissioned by LGP to conduct monitoring during the excavation of localised deep drainage features that had some potential to encounter archaeological deposits.
- 5.2 A cofferdam excavation of a 3.5m deep separator pit was observed by an archaeologist in February 2013. This was the only substantive below ground impact arising from the development that had the potential to affect archaeological deposits. The cofferdam was excavated using a 20 tonne 360 degree tracked mechanical excavator, fitted with a toothless bucket, in the location shown on Figure 2. Archaeological visibility was poor because the sections were covered by a cofferdam. In addition, the deposits were obscured by loose material falling from higher levels during excavation and the archaeologist was not permitted to enter the excavation for health and safety reasons. The excavation was not undertaken under archaeological control, although a toothless bucket was used, which improved archaeological visibility somewhat.
- 5.3 All work was undertaken in accordance with the methods and standards outlined in the LG Archaeological Mitigation Framework (OA 2003).



## 6 DESCRIPTION OF DEPOSITS

- 6.1 Apparently undisturbed alluvium was observed at a depth of c 2.5m below ground level (c -0.5mAOD). No significant archaeological remains were identified during the monitoring.
- 6.2 The made ground and uppermost alluvial deposits had clearly been subject to contamination and extensive disturbance.
- 6.3 No artefacts or palaeoenvironmental samples were recovered.

## 7 CONCLUSIONS

- 7.1 The separator pit was the only location within the welfare and workshop building site which required archaeological monitoring during construction. No significant remains were identified during the excavation.



## 8 BIBLIOGRAPHY AND REFERENCES

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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

OA, 2012b Welfare and workshop building, Contract C4502, London Gateway, Essex. Archaeological Project Design, Oxford Archaeology

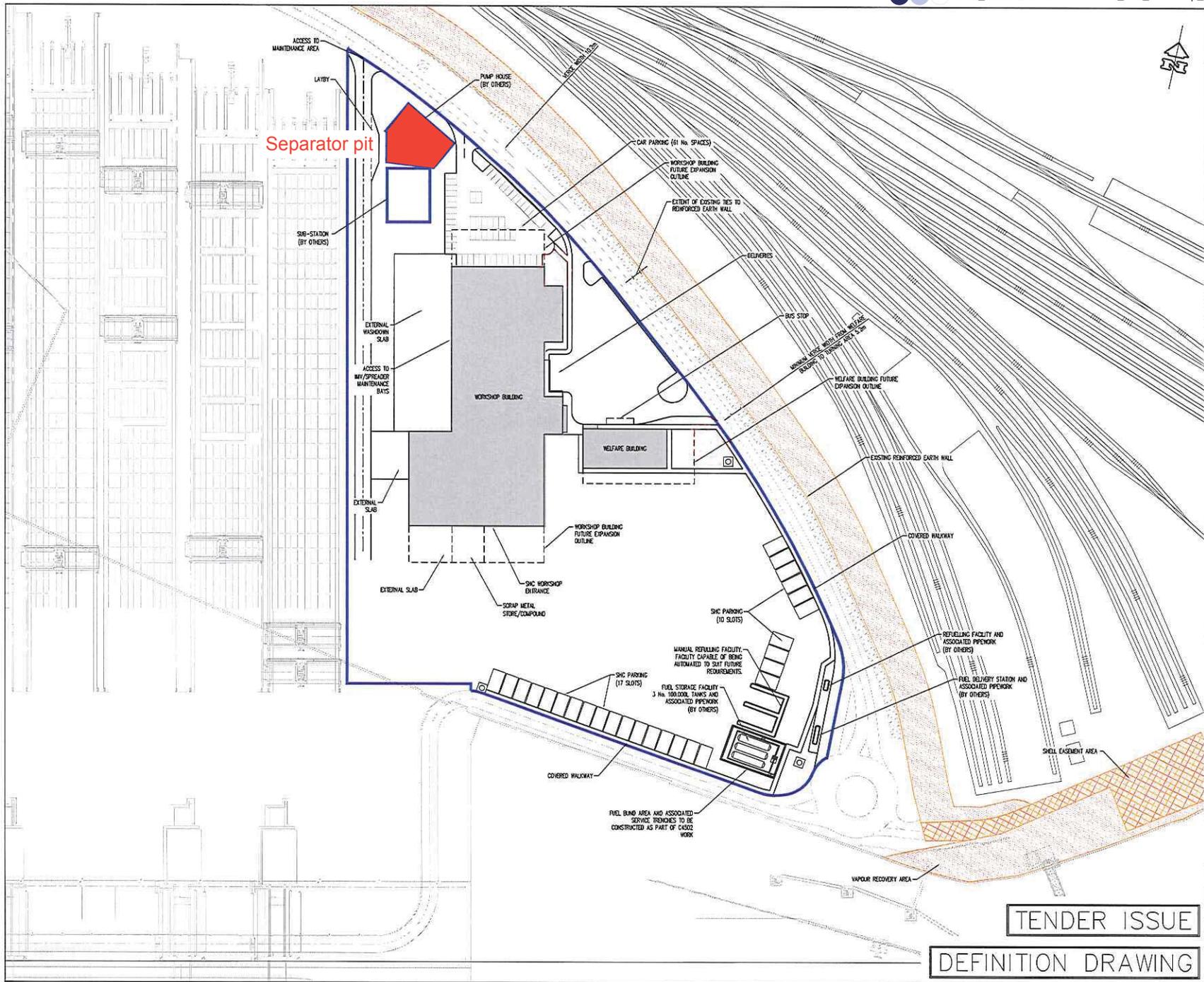
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Figure 1: Site location



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**GENERAL NOTES**  
 1. REFER TO DRAWING LGW-021-001 FOR GENERAL NOTES.

**LEGEND:**

	EDGE SITE BOUNDARY
	SHELL RETAINED LAND
	SHELL EASEMENT
	LIGHT TOWER

2	TENDER ISSUE (A/C)	21.10.11
1	TENDER ISSUE - DRAFT (A/C)	04.10.11

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Project: **WORKSHOP AND WELFARE BUILDING WORKS CONTRACT C4502**

Discipline/Title: **GENERAL ARRANGEMENT OF PROPOSED WORKS**

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AC		30.08.11

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A1	LGW-021-006	2

Drawing number	Revision
LC-CCR-POR-BDG-C4502-DRA-PLN-0006	2.0

**TENDER ISSUE**  
**DEFINITION DRAWING**

Figure 2: Welfare and Workshop Building design layout



Plate 1: Welfare and Workshop Building drainage. Separator pit under excavation



Plate 2: Welfare and Workshop Building drainage. Separator pit under excavation



Plate 3: Welfare and Workshop Building drainage.  
Separator pit under excavation





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