



C263 ARCHAEOLOGY LATE EAST

Method Statement

Archaeological Evaluation and Watching Brief

Victoria Dock Portal

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2a. Stakeholder (Principal Contractor:) review required? YES NO

(If NO, strike out sections 2a & 2b and go to section 3)

This document has been reviewed by L. Rowles in the capacity of SECTION MANAGER for coordination, compliance, integration, and acceptance as a safe system of work, output, control, sequence. This document is acceptable for transmittal to CR for no objection to the works being executed as described.

Sign: *[Signature]*


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Date: 30/05/2013

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3. Acceptance by Crossrail

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Note for Readers

Various readers of this method statement and risk assessment are likely to be directly interested in different parts of the document. The following table is intended to help readers identify which sections cover their main interests.

Reader's main interest	Most relevant sections
Principal Contractor	2.1, 2.3 3.1 4 5 15 16 17 18 21
Health, Safety, & Environment	16 17 21
Contractual	1.1 2 4 8 10 14 18 19 20
Archaeological methodology	1 3 5 6 7 10 11 12 13 14 15

Contents

Note for Readers	2
1 Introduction.....	1
1.1 Site Description	1
1.2 Geological and Topographical setting	2
1.3 Archaeological and Historic Background	3
1.3.1 Prehistoric Period (c 500 000 BP to AD50).....	3
1.3.2 Roman Period (AD50 to 450).....	3
1.3.3 Medieval Period (AD 450 to 1540)	3
1.3.4 Post-Medieval (AD1540 to 1900)	3
1.3.5 Modern (AD 1900).....	4
2 Interfaces and Communication Plan	5
2.1 Interface with Project Archaeologist.....	5
2.2 Interface with C263 Contract Administrator.....	5
2.3 Interface with the Principal Contractor	5
2.4 Interface with Project Archaeologist.....	5
2.5 Interface with External consultees	5
3 Scope of Works	6
3.1 Planned Fieldwork Events.....	6
3.2 Confirmation of Methods and Standards.....	6
3.3 Aims and Objectives	6
3.3.1 Site specific research aims	6
3.3.2 Relevant regional research aims.....	7
3.4 Event Codes.....	8
4 Site Management Plan	9
4.1 Tools and Equipment	9
4.2 Training and Certification	9
4.3 Site Monitoring	9
4.4 Progress Reporting	10
4.5 Resource Plan.....	10
4.6 Programme	10
4.7 Working Hours	10
4.8 Timesheets.....	10
4.9 Access.....	11
4.10 Requirements from Principal Contractor	11

5	Fieldwork Methodology	12
5.1	Evaluation Methodology	12
5.2	Site specific evaluation methodologies and procedures	13
5.3	Evaluation Recording Methods	14
5.4	Targeted Watching Brief Methodology	14
5.5	General/Targeted Watching Brief Recording Methods.....	15
5.6	Survey and setting out method	16
6	Geoarchaeological methodology	16
7	Sampling strategy	18
8	Deliverables and Submission Programme	20
9	Document Control and Record Keeping	20
10	Artefact Recovery and Conservation	20
10.1	Retention and Disposal	21
11	Treasure	21
12	Archaeological Science Strategy	22
12.1	Specialist Strategy	22
12.2	Excavation and Recording of Human Remains	22
13	Archiving and Dissemination Method	22
14	IT Capability – Digital Survey Recording, Data Capture and Curation	23
14.1	Survey	23
15	Additional Details	24
15.1	Standards and Guidance	24
15.2	Unexpected and Nationally-important remains	24
15.3	Progress Photographs	24
15.4	Management of Consents	24
16	Health and Safety	25
16.1	CDM Responsibilities and Reporting	25
	<i>The Principal Contractor will provide:</i>	26
	<i>The CDM Co-ordinator will provide:</i>	26
16.2	Rail Sites	26
16.3	Highway Sites	26
16.4	Health and Safety Reporting	26
16.5	Liaison with Principal Contractor	26
16.6	Behavioural Safety BMOS	27
17	Emergency Response	28
17.1	Emergency Preparedness & Response Plan	28
17.2	Training	28

17.3	Emergency & Accident Equipment.....	28
17.4	Monitoring & Testing	29
17.5	Emergency & Accident Incident Reporting.....	29
18	Environmental Management.....	30
18.1	Contamination	30
18.2	Water Disposal.....	30
18.3	Site Waste Management Plan.....	30
18.4	Vehicles/Motorised Equipment.....	30
18.5	Other Requirements.....	30
19	Quality Assurance Plan	31
20	Community Relations.....	31
21	Responsible Procurement.....	31
22	Appendix 1: Health and Safety Method Statement.....	32

Figures

(At back of document)

Fig 1: Site location

Fig 2: Location of evaluation trenches

1 Introduction

An archaeological evaluation, involving the excavation of 3 trenches, and a targeted watching brief is to be carried out on the site of the Victoria Dock Portal by Museum of London Archaeology (MOLA). The requirements are set out in a Crossrail Site-specific Archaeological Written Scheme of Investigation (SS-WSI – C154 Victoria Dock Portal, Crossrail, May 2011, Document No C154-HYD-T1-JLT-CR144_PT003-00001 revision 8.0).

The tasks covered by this method statement are:

Task	Principal Contractor	Provisional Programme
<ul style="list-style-type: none"> Trial trench evaluation (3 trenches) 	Vinci Construction UK Limited (C340)	2nd QTR 2013, duration 5 days per trench
<ul style="list-style-type: none"> Targeted Watching Brief (To be undertaken on specific ground works within the portal footprint) 	Vinci Construction UK Limited (C340)	2nd QTR 2013, duration TBC.

Table 1 Task information

This Method Statement has been developed in conjunction with the Principal Contractors currently appointed Vinci Construction UK Limited (C340), who will be responsible for ensuring that the archaeological works may be carried out as specified. The purpose of the evaluation is to provide information on the presence or absence, character, extent, date, preservation, and importance of the potential archaeological remains currently predicted on the site, in order to inform future mitigation of potential impacts of the Crossrail works (part of a mitigation strategy of *preservation by record* in line with Crossrail requirements).

If the project design or scope/method of working is subject to changes during the works, the Method Statement will be updated and re-issued to the Project Archaeologist and CDM Advisor for approval, in accordance with the specified document control procedures (see 9).

1.1 Site Description

The Victoria Dock site lies within the London Borough (LB) of Newham. The area of the works will be located approximately 110m east of Royal Victoria DLR station, adjacent to Victoria Dock Road. It will be constructed on the current alignment of Network Rail's disused NLL. The eye of the tunnels will be located opposite 245 Victoria Dock Road from where a ramp will be contained within a cut-and-cover box to the portal opposite 2 to 12 Bridgeland Road. From this point, Crossrail will run in a retained cut to join existing track levels immediately to the west of Custom House station. The portal site centres approximately on National Grid Reference (NGR) 540460 180910.

1.2 Geological and Topographical setting

The site is situated on the Holocene alluvial floodplain of the Thames, approximately 700m north of the modern day course of the Thames. Overlying London Clay are the Floodplain sands and gravels deposited during the Pleistocene, approximately 2,000,000 to 10,000 Before Present (BP), during which the Thames was a fast flowing braided river, formed of interconnected channels interspersed with higher sand and gravel bars. These floodplain gravels form the 'Holocene Template' on which Mesolithic activity would have taken place, the areas around channels and lakes providing resources attracting a hunter-gatherer population.

During the early Holocene, sea levels rose and lower lying areas were inundated. By the time of the Mesolithic/Neolithic transition at approximately 4000BP, the level of the Thames is likely to have risen to approximately 97m ATD. From the Later Neolithic, the braided channels gradually silted up, and combined with the rising sea levels, the conditions were conducive to peat formation. The landscape became predominantly marshland, which was crossed by the Thames as a single meandering channel.

Ground level on the site is approximately 101.5m ATD. There is expected to be at least 0.5m of modern disturbance overlying 19th century remains on the site, such as the Royal Victoria and Albert Docks cut. Elsewhere there is expected to be at least 1.0m of modern disturbance overlying earlier remains. Archaeological deposits may therefore survive up to levels of 101m and 100.5m ATD.

The alluvial deposit sequence across the site was characterised in a previous geoarchaeological deposit model (document no. C122-OVE-T1-RGN-CRG01-50001), utilising geotechnical data gathered from ground investigate works. Within the study area four Landscape Zones (LZs) were identified, two of which (LZ3 and LZ4) fall within footprint of the portal. The characteristics of these zones are summarised below.

LZ3 – Sand and gravel 'islands'

LZ3 comprises higher gravel 'islands' with potential for dry-land Mesolithic, early Neolithic, and possibly later Neolithic and Bronze Age activity. There is one such island within the site, located approximately at the southern end of Bridgland Road, and one to the immediate south of the eastern end of the site. There is another island c 50m west of the site. The elevation of the surface of the gravel islands is between 98m and 99m ATD. There is potentially a thickness of up to 4.0m of archaeological deposits in LZ3, extending down to 97m ATD.

LZ4 – Early Holocene channels and wetland deposits

Marginal wetland, characterised by thick peat deposits with potential for waterlogged later prehistoric remains such as timber trackways. This LZ is found at the westernmost 200m and easternmost 500m of the portal site although recent work suggests that this zone may extend into the area of the DLR re-alignment and portal. The most recent deposit model suggests that there is a humic layer across LZ4 at a fairly consistent level of c99m ATD. Previous deposit models suggested that this might be of Mesolithic date and was confined to the gravel islands but this new observation suggests that the deposit is Bronze Age. There is potentially a thickness of 3.5 to 4m of archaeological deposits in the marginal ground of LZ4, extending down to 97m ATD. Natural features such as stream channels may extend below this level although none are currently modelled.

1.3 Archaeological and Historic Background

This section provides a brief overview of the archaeological and historical background of the site to enable the site to be seen within its wider context. More details are available within the Detailed Desk-Based Assessment (document no. CR-SD-PRW-X-IS-00001). The Victoria Dock Portal lies within an Archaeological Priority Zone (APZ) as defined by the LB of Newham. There are no scheduled ancient monuments within the study area. Listed buildings do not fall within the remit of this report.

1.3.1 Prehistoric Period (c 500 000 BP to AD50)

All areas of the site have a high potential for palaeo-environmental evidence, including the survival of material such as molluscs, insects and pollen, especially within the channel sediments of LZ4. The marginal marshland of LZ4 also has potential for well-preserved waterlogged prehistoric archaeological remains such as timber trackways or jetties from the Neolithic and Bronze Ages, and other organic remains such as weirs, fish traps, revetments, causeways, peat deposits, and possibly boats.

On the islands of higher ground (LZ3) there is a moderate potential for evidence of Mesolithic and early Neolithic semi-permanent dry land activity, such as flint working areas or ephemeral structural occupation remains. A Crossrail borehole at such an island at the western end of the DLR diversions, west of the portal, contained a sandy peat layer interpreted as a possible Mesolithic soil horizon, which may offer high potential for evidence such as lithic scatters, CH22, South end of Munday Road, see Section 1.4 of Crossrail 2008b 'MDC4 Archaeology, Geo-archaeological Deposit Model', referenced in section 11.

1.3.2 Roman Period (AD50 to 450)

The environment in the area of the site remained marshy open land throughout the Roman period, although there is evidence of dropping local water levels and therefore there may have been occupation in the previously marshy areas, see Crossrail 2008b 'MDC4 Archaeology, Geo-archaeological Deposit Model'. However the gravel islands forming LZ3 lay at 98 to 99m ATD and probably remained inundated during this period.

1.3.3 Medieval Period (AD 450 to 1540)

The site was inundated after the Thames levels rose again during the early medieval period, and much of the landscape would have returned to marshy areas unfit for permanent settlement. The marshy low lying areas were gradually drained and reclaimed during the later medieval period.

1.3.4 Post-Medieval (AD1540 to 1900)

The process of land reclamation continued into the 19th century. The North Woolwich Railway line, opened in 1847, was constructed across previously undeveloped marshland. The growth of the docks ensured the area altered in character significantly during the post-medieval period, with the Royal Victoria Dock constructed in 1850 to 1855. There is high potential for industrial, and possibly railway, remains from this period on the site. This period also saw a huge increase in the construction of housing throughout the area north of Victoria Dock Road, including The Barge Public House, formerly the Freemasons Tavern, parts of which

were built in c 1862. The Royal Victoria and Albert Docks Cut (now filled in) is shown on maps of the late 19th century, and there is potential for this drainage channel at the southern edge of the portal and along the DLR diversion.

1.3.5 Modern (AD 1900)

Although badly damaged during bombing raids of World War II, the docks continued in use until after the war. From the 1960s onwards, the docks suffered from modern improvements in trade, and the move of large shipping to Tilbury docks further downstream. The Royal Victoria Dock ceased to accept commercial shipping in 1980.

2 Interfaces and Communication Plan

2.1 Interface with Project Archaeologist

The Method Statement has been developed jointly with the Principal Contractor and then submitted to the Project Archaeologist and Crossrail Safety/CDM Advisor for approval. Any comments have been incorporated. Regular progress reports will be submitted to the Project Archaeologist and will be augmented by progress meetings and site visits when required, in order to optimise communications and feedback.

2.2 Interface with C263 Contract Administrator

MOLA shall submit documentation in accordance with the C263 Contract to the Contract Administrator.

2.3 Interface with the Principal Contractor

MOLA has liaised with the appointed Principal Contractors (Vinci Construction UK Limited) to prepare the Method Statement. The Principle Contractor has submitted a Method Statement covering the excavation of the archaeological trenches and targeted watching brief (C340-VIN-C-GMS-CR144_PT003-50081). The archaeological investigations will take place under the auspices and supervision of the Principal Contractors. This interface extends to joint Health and Safety planning under CDM requirements. MOLA will provide the Principal Contractors with all necessary information to support site start-up (e.g. names of staff for inductions), health and safety planning; and (if required) to support the Principal Contractors' Permits to Dig. The majority of this information will be contained in this Method Statement. MOLA will liaise with the Principal Contractors regarding access, order of works, programme and commencement date.

2.4 Interface with Project Archaeologist

MOLA shall liaise with the project archaeologist, to implement the correct archaeological design specification, described in the SS-WSI (Section 1 above).

2.5 Interface with External consultees

The project archaeologist shall liaise with the GLAAS (Greater London Archaeology Advisory Service) Archaeological Advisor for the LB of Newham to inform them of the archaeological works.

3 Scope of Works

3.1 Planned Fieldwork Events

This Method Statement sets out the methodology and health and safety requirements for the archaeological evaluation and targeted watching brief on the site of the Victoria Dock Portal. The mitigation strategy for the site will be preservation by record.

3.2 Confirmation of Methods and Standards

The archaeological fieldwork and reporting will be conducted in accordance with the following guidance and standards:

- C340 Victoria Dock Portal contaminated land risk assessment, Document No C340-VIN-T1-RGN-CR144_PT003-50005
- Crossrail Environmental Minimum Requirements (Crossrail 2008)
- Crossrail Archaeology Generic Written Scheme of Investigation (draft July 2009)
- SS-WSI – *C154 Victoria Dock Portal*, Crossrail, May 2011, Document No C154-HYD-T1-JLT-CR144_PT003-00001
- Crossrail Archaeology Specification for Evaluation & Mitigation (including Watching Brief) (CR-PN-LWS-EN-SP-00001)
- Crossrail Code of Construction Practice
- English Heritage Centre for Archaeology Guidelines, Environmental archaeology: a guide to the theory and practice of methods, from sampling and recovery to post-excavation (2002)
- English Heritage, 2004, *Geoarchaeology: using earth sciences to understand the archaeological record*
- Institute for Archaeologists (IFA) Standards and guidance for watching briefs and field evaluation (IFA 2001a and 2001b)
- Museum of London Archaeological Site Manual (1994)
- Museum of London General Standards for the preparation of archaeological archives deposited with the Museum of London (1998)
- United Kingdom Institute for Conservation's Conservation Guidelines No. 2

3.3 Aims and Objectives

The overall objectives of the trial trench evaluation and targeted watching brief is to establish the nature, extent and state of preservation of any surviving archaeological remains that will be impacted upon by the development, and to define the level of watching brief required at a later stage.

3.3.1 Site specific research aims

The following site specific research aims can be outlined for the proposed investigations at the Victoria Dock Portal site:

- What is the development of the local landscape, topography and environment of the Thames floodplain? Can buried peat deposits be identified? If they can be dated what activity is contained within them, and how does this help to refine knowledge of prehistoric activity, occupation and settlement in the marginal wetland habitats?
- Is there any evidence for Mesolithic activity at the base of the alluvium/surface of the gravels? Is there any evidence of Mesolithic activity on the higher gravel areas of LZ3? If so, what form does this activity take, e.g. fishing, hunting, flint working etc?
- Is there any evidence for later prehistoric activity or occupation? What is the nature of activity in the marginal marshlands of LZ4? Is there evidence of prehistoric water management or subsistence fishing? What is the nature of activity on the higher grounds of LZ3? Is there evidence of semi-permanent occupation?
- Is there any evidence for Roman activity, in particular for water management, flood defences and/or fishing?
- What can be learned about the process of land reclamation and management of the area from the medieval period until the construction of the docks?
- What can be learned about the development of the docks during the recent historic period? Can details about London's growth as a 'world city' and the contribution of the Docks to this economic growth be further elucidated?
- Are there any surviving remains of the Royal Victoria and Albert Docks Cut, and the channels that fed into it? If so, what can be learned about the methods, materials and techniques employed in its construction?

3.3.2 Relevant regional research aims

The site has potential to address several general research aims identified in the regional research agenda: 'A Research Framework for London Archaeology' — Museum of London, 2002. The specific regional research themes are outlined below (page numbers are in brackets):

- understanding the significance of geomorphology, ecology, ecosystems and climate, hydrology, and vegetational and faunal development, on human lives (79);
- understanding London's hydrology, river systems and tributaries particularly the role of the Thames (as boundary, communication route, resource, ritual focus etc) in shaping London's history, and the relationships between rivers and floodplains (79);
- understanding the relationship between landscape, river and settlement, and the influences of the Thames in particular on communications and social interaction (79);
- understanding the origins of the prehistoric metalwork sequence from the Thames, and examining the links between the metalwork hoards deposited at the headwaters of river tributaries and other activities (79);
- studying the correlation between sites associated with watercourses and meander bends, so as to understand the origin of settlements (80);
- understanding the relationship between the Bronze Age wooden trackways and the settlements to which they presumably led, and what the trackways represent in terms of woodcraft and woodland management (82);

- understanding the development of London's Docklands and Waterways (82);
- examining breeding programmes and wildlife management, and marine and riverine exploitation, to understand the strategies used, their success or otherwise, and their consequences (83);
- understanding the nature and meaning of the deposition of metalwork in the Thames and at the headwaters of river tributaries (86); and
- The Mesolithic to Neolithic transition: understanding the significance of horticultural experimentation at this time, and the transition from hunter-gatherers to farmers (87).

3.4 Event Codes

A unique site code for the works is XSX11

4 Site Management Plan

4.1 Tools and Equipment

Tools and equipment appropriate for the archaeological works will be ordered by the Supervising Archaeologist and delivered to site by the MOLA Equipment Officer from the MOLA central store. See Section Appendix 1, section 9.2 for details.

4.2 Training and Certification

MOLA provides Safety Training for its staff as follows:

- Induction Training for all staff (undertaken on joining MOLA, and as appropriate on individual projects).
- General H&S Training for supervisory staff (an H&S awareness course targeted at Field and Support Staff).
- Specialist H&S Training (designed to cover specialist areas and to update professional knowledge; as appropriate to deployment)

All MOLA staff on site will be competent to carry out their archaeological work. On site all staff will be supervised by a competent person.

For certain specific aspects of MOLA work only those members of staff with the relevant training and certification will be allowed to undertake them. These include Cable and Pipe/Underground Service Location, Chainsaw use, Confined Spaces and Power Auger use. However, it is anticipated that only Confined Spaces will be required on this site.

At present the profession of Archaeologist is largely covered by the CSCS, Construction Related Organisation CRO White Card for Archaeological Technician (Code 5363); other cards are available for site visitors etc. All MOLA staff have passed a CITB Health and Safety Test to operative level and carry the card on site at all times.

All staff will have their MOLA ID cards with them (see Appendix 1, section 7.1).

4.3 Site Monitoring

The archaeological works will be monitored by the MOLA Fieldwork Director (Mike Smith) and Project Manager (David Divers) via site visits, as and when required, in order to provide advice and support to the MOLA Supervisor. MOLA H & S Advisor Ian Grainger will also regularly monitor the site, see 16.4.

The results of the H & S advisor's monitoring, and the monthly HS&E incident summary form, along with monthly environmental audits will be submitted to Crossrail.

4.4 Progress Reporting

MOLA has agreed a programme of weekly written progress reports, and progress meetings (if appropriate) with the Project Archaeologist. MOLA shall provide information describing progress on-site to date, the processing of samples and artefacts and feedback from initial assessment.

4.5 Resource Plan

The evaluation and targeted watching brief will be supervised by a MOLA Supervisors (Grade 4 or 5) assisted by members of the MOLA field team (Grade 6) with support from MOLA Geomatics and Photographic team members when required. Other archaeological specialists (Grade 8, as above) may be called in if necessary.

Staff will be drawn from the pool of CVs submitted to Crossrail for approval.

The named Supervisor will be confirmed to Crossrail and the Principal Contractor in advance, once the firm start date has been notified to MOLA.

All archaeological staff are direct MOLA employees, ordinarily full time. The working hours are set out in 4.7 below.

4.6 Programme

Evaluation

Trenches 1–3 are all located in the western half of the portal footprint. The evaluation programme is scheduled to run for 1 week per trench.

Targeted Watching Brief

A TWB may also be required during some of the works associated with the main civil works for Victoria Dock Portal (C340), as these works will be within the alluvium. If no archaeological remains are found in the trial trenches then, once the sequence has been recorded and appropriate geo-archaeological and palaeo-environmental samples have been taken, no further archaeological intervention will be required.

4.7 Working Hours

Work on site shall only take place within the core Crossrail working hours, which are between 0800 to 1800 on weekdays and 0800 to 1300 on Saturdays as specified in the Environment Requirements (Section 4 of Works Information Vol 2). Operations anticipated to cause disturbance are limited to these hours (or as specified within a Section 61 consent obtained by the Principal Contractor), in order to minimise disruption to local residents and the general environment.

MOLA will provide a site attendance when required during these specified periods, so that all the relevant Principal Contractor's ground works defined in this MS are monitored and recorded.

4.8 Timesheets

During Targeted Watching Briefs MOLA will supply timesheets included in the weekly progress reports to Crossrail.

4.9 Access

Access to work areas and site compounds to be determined by Principal Contractor as they become available. See Appendix 1, section 7.1.

MOLA staff will comply with the Principal Contractor's site rules on security, access, safe walking routes, etc.

4.10 Requirements from Principal Contractor

These are listed in Appendix 1, section 9.1. They include welfare facilities, currently predicted to be for up to 6 people for the evaluation.

5 Fieldwork Methodology

5.1 Evaluation Methodology

Trenches

Once the secant pile wall has been constructed, three archaeological evaluation trenches will be excavated, all in the western half of the site. The trench locations are shown on Fig 2, exact location of trenches is to be agreed on site by CRL/C340. It was agreed that all of the trenches should be moved to be located against the northern secant pile wall/shoring in order to remove the need to use piled shoring. The location of the evaluation trenches will be set out by the main contractor and subsequently located by MOLA surveyors.

The evaluation trenches are to measure 4m x 15m at the base of the dig and will be aligned east-west. The trenches will be excavated once the secant pile wall has been constructed. The excavation of the trenches will then progress as follows:

- Each trench will be excavated against the northern sheeting, the south, west and east sides will be benched in five steps, each approximately 1m wide by 1.2m deep. The trenches at the surface will measure 9m by 25m.
- Excavate to 1.2mBGL through the modern pile mat material. This will not require archaeological supervision.
- Excavate to 2.4mBGL (this is the anticipated level of the Alluvium)
- Record representative section and take geoarchaeological samples as necessary.
- Excavate next bench to 3.6mBGL.
- Continue excavation to agreed method down to RTG (expected at 5.6mBGL)
- Backfill and remove temporary works.

The trenches will evaluate the complete archaeological sequence down to the gravel where it exists and also sample any archaeological features which may be cut into the gravel. They could, therefore, extend to a depth of up to 5.6m below the existing ground surface. If the excavation reaches the surface of the floodplain gravels, excavation will cease. The surface of these deposits marks the base line for deposits of archaeological/palaeoenvironmental interest.

Targeted Watching Brief

A TWB may be required during some of the main civil works for Victoria Dock Portal to observe and record any archaeological remains which may be revealed within the alluvial deposits or the gravels beneath. If this is the case, so as to ensure that any archaeological remains can be observed and recorded, excavation through the alluvium and any archaeological deposits on or cutting the river terrace deposits below will be undertaken by a large 360 degree excavator fitted with a wide bladed bucket (ditching bucket or similar) with no teeth. This will reduce levels in spits to a depth at the discretion of the monitoring archaeologist (C263) up to a maximum of 300mm over its reach so that any archaeological remains revealed may be exposed further by hand and appropriately sampled and recorded. It will then move backwards and start excavating again so that neither the excavating machine nor any dump truck or other spoil removal vehicle travels over the ground which has just been exposed. There is no need for any archaeological watching brief to continue once the

River Terrace Deposits have been reached and any remains within them appropriately sampled and recorded.

5.2 Site specific evaluation methodologies and procedures

Prior to the controlled archaeological excavation, machine removal of the concrete slab and modern overburden will be carried out by the main contractor over the whole area of each trench excavation. A toothless bucket (where possible) will be used to clear back modern overburden to minimise damage to the underlying surface of archaeological strata. Clearance should be carried out progressively towards the spoil removal/collection point, preferably in an archaeologically sterile area, and will be monitored by MOLA staff under watching brief conditions.

The Principal Contractor will provide all necessary equipment to provide a safe working environment (i.e. lighting, trench access, pumping, spoil removal and gas monitoring equipment) within the trench. The method of the trench construction and machine excavation will provide adequate exposures of the archaeological/alluvial deposits in conditions that enable examination and recording to be carried out in a safe and workable environment.

The ground will be scanned for UXO prior to and during the excavation as deemed necessary by the UXO contractor, appointed and supervised by the main contractor.

If features or structures of industrial significance (i.e. railway archaeology) are identified within the upper made ground deposits machining will cease. Features and structures will be cleaned and defined by hand sufficiently to determine type, planform and relationship. These will be recorded and photographed following standard MOLA procedures, and located and planned from a base line or surveyed in by MOLA surveyors. A MOLA standing buildings specialist will be on standby to record and advise on any significant structural remains.

Once the level of undisturbed floodplain stratigraphy has been reached, excavation will proceed by machine in controlled spits measuring c 100–300mm in thickness using a toothless machine bucket. Sections through the alluvial deposits will be cleaned and examined, and the most representative section recorded. Geoarchaeological sampling will be undertaken by monolith and adjacent bulk samples on the recorded section. The sampling will aim to take continuous samples through the whole of the Holocene alluvial sequence. Further details on the geoarchaeological sampling strategy and investigation are outlined in Sections 6 and 7.

Excavation of the spits will cease on instruction of the MOLA supervisor to allow examination and hand cleaning of the deposits sufficient enough to ascertain the absence or presence of archaeological material within each exposed horizon. Provision will be made by the Principal contractor to remove any spoil generated by hand excavation. If archaeological features/structures are encountered, recording and excavation will follow the procedures outlined in Section 5.3.

Adequate provision for the pumping and removal of water ingressing into the trench will be made by the principal contractor. If water ingress becomes excessive the excavation will cease (see also H&S assessments below).

5.3 Evaluation Recording Methods

The archaeological remains will be recorded to best practice standards, in order to achieve archaeological objectives. The site recording will include as a minimum:

- The written record of individual context descriptions on appropriate pro-forma sheets.
- The drawn record: including, plans and section drawings of appropriate features, structures and individual contexts (1:10 1:20 or 1:50). Isolated archaeological remains (artefacts) may be spot located in plan and a height provided where possible. Deposits which are regular in plan (pits and ditches) may be located through co-ordinates, annotated with dimensions, and may be recorded digitally.
- A stratigraphic matrix of the sequence of deposits and structures encountered in each trench will be produced.
- The photographic record: photographs taken with a digital camera of resolution of 12 megapixel or greater, providing similar resolution to a conventional 35mm SLR. The photographic record will include photographs of archaeological features, appropriate groups of features, structures, and quaternary deposits. Each photograph will be recorded on site using a proforma photographic record sheet, showing image number, area/test pit, context number(s), subject/description, direction of view, and date. In addition, appropriate record photographs will be undertaken to illustrate work in progress.
- Levels on plans, sections and other fieldwork records shall be related to Tunnel Datum (m ATD) datum.
- The location of all evaluation trenches, temporary grids and baselines will be electronically surveyed by MOLA Geomatics staff. After fieldwork a digital trench location plan will be produced.
- Other appropriate drawn and written records will be produced (for environmental sampling etc).

5.4 Targeted Watching Brief Methodology

A targeted watching brief comprises the observation and recording of the Principal Contractor's or their sub-contractor's works with specific operations carried out under the supervision of a MOLA Senior Archaeologist. Targeted watching briefs are carried out either in areas where the density of archaeological features or deposits are not considered of sufficient significance to warrant investigation in advance of construction, or they may be carried out in areas where access prior to construction has been impossible and where, as a result, there is a possibility of unexpected discoveries (Crossrail 2009 Archaeology Specification for Evaluation & Mitigation (including Watching Brief) CR-PN-LWS-EN-SP-0001, version 3).

It should be noted that during a targeted watching brief, the Archaeological Contractor may impose constraints on, or require changes to, the Principal Contractor's or his sub-contractor's method of working to enable the archaeological investigation to take place alongside construction works. These constraints may include restrictions on the type of equipment used, the methodology employed, stopping excavation works to allow time for recording and the installation of temporary works or other attendances such as pumping out, in order that the archaeologists may enter the works excavations safely.

In addition to anthropogenic deposits, some assessment and basic recording of any naturally deposited levels will be necessary, e.g. alluvial deposits. This may require the attendance of a MOLA Geoarchaeological specialist to record and sample the deposits. Normally if the remains are localised the Principal Contractor's works may continue in other areas (subject to a safe method of working and monitoring. It is expected that the Principal Contractor will make allowance in their work programme to take account of the delays that a targeted watching brief may cause.

During a targeted watching brief MOLA staff will compile a basic record consisting of notes, measurements, drawings and photographs consistent with an observation role; e.g. depth, character, date and survival/truncation of deposit sequence, height of natural geology.

If potentially very significant (but localised) remains are exposed, such that they cannot be recorded adequately under the scope of the targeted watching brief, then subject to the Project Archaeologist's approval, additional archaeological resources and time may be required at that location (to allow for more detailed follow-up recording and perhaps limited excavation).

In the event that significant archaeological remains are uncovered and a targeted watching brief is required, the works are likely to require controlled machine excavation under MOLA supervision. This will need to be undertaken by a large 360 degree excavator fitted with a wide bladed bucket (ditching or similar) with no teeth. Once levels of archaeological significance are exposed hand cleaning will be undertaken in order to carry out recording as outlined in section 5.5.

5.5 General/Targeted Watching Brief Recording Methods

The archaeological remains will be recorded to best practice standards, recognising the special circumstances of a watching brief which demand flexibility in order to achieve archaeological objectives and requirements within the construction environment.

The recording will include as a minimum:

- The Event Code and chainage/location of the area observed
- The date(s) of the observations
- Personnel employed on site
- A description of the works observed
- The works (sub) contractor and personnel undertaking and supervising the construction activity
- Depths and extents of excavation works observed
- Measure of confidence that any archaeological remains would have been observed and reasons
- Reasons why any particular area of works was not observed, noting those areas not subject to disturbance from construction
- Location and description of any archaeological remains
- Location and description of any modern remains

- The written record of individual context descriptions on appropriate pro-forma.
- The drawn record: including, plans and section drawings of appropriate features, structures and individual contexts (1:50 1:20 or 1:10). Isolated archaeological remains (artefacts) may be spot located in plan and a height provided where possible. Deposits which are regular in plan (pits and ditches) may be located through co-ordinates, annotated with dimensions, and may be recorded digitally.
- Other appropriate drawn and written records will be produced (for environmental/geoarchaeological sampling etc.).
- The photographic record: photographs taken with a digital camera of resolution of 12 megapixels or greater, providing similar resolution to a conventional 35mm SLR. The photographic record will include photographs of archaeological features, appropriate groups of features, structures, and quaternary deposits. Each photograph will be recorded on site using a proforma photographic record sheet, showing image number, area/test pit, context number(s), subject/description, direction of view, and date. In addition, appropriate record photographs will be undertaken to illustrate work in progress.

5.6 Survey and setting out method

Where a Permit to Dig has been issued, it may be more appropriate for the Principal Contractor to set out the trenches that they will be opening up and to supply MOLA with the co-ordinates. MOLA will then additionally survey in the as dug trenches.

The watching brief observations will be located manually by MOLA staff on a suitable hardcopy site plan. Observations can be related to features included on the OS mapping (e.g. adjacent structures or property boundaries), or located on the contractors CAD drawings. In event of significant features being uncovered, MOLA Geomatics staff will be called upon to carry out the survey using GPS/GNSS.

6 Geoarchaeological methodology

Geoarchaeology is the study of soils and sediments in either a natural or anthropogenic context, that either contain human cultural material or are contemporary with human habitation within the region being studied (i.e. the Pleistocene/Lower Palaeolithic and later). It can include techniques of landscape reconstruction such as palaeobotany, palynology and soil micromorphology.

Given the likely impact on the floodplain deposits, a geoarchaeological approach shall be adopted in recording any floodplain soils and/or sediments uncovered during the watching brief works and trial trench evaluation. Deposits will be recorded according to standard sedimentological criteria in order to ascertain the depositional environment and site formation processes. This will involve characterising the visible properties of each deposit, in particular relating to its colour, compaction, texture, structure, bedding, inclusions, clast-size and dip. Geoarchaeological recording will be undertaken by and/or under advice of a MOLA Senior geoarchaeologist.

As the floodplain sequences are likely to be fairly uniform and laterally extensive, the geoarchaeological recording of the floodplain sequence can be selective, focusing on the most representative part of an exposed deposit sequence. Any major unconformities within the sequence will be recorded as these may indicate distinct

landforms and features; for example tidal creeks/channels dissecting the wetlands, or terrestrial soils within the alluvium.

Significant features and/or layers of alluvial stratigraphy revealed during the investigations may require sampling if deemed necessary by the Project Archaeologist and/or the GLAAS Scientific Advisor. The sampling methodology is set out in section 7. This work will be conducted under the geoarchaeological and palaeoenvironmental sampling strategy (archaeological science strategy) as set out in WSI's for the Custom House Station Worksites.

7 Sampling strategy

Samples will be taken from the evaluation trenches usually by the geoarchaeologist. These will be taken as monolith samples taken from the vertical sections of each step. They will be supported by 10L bulk samples of distinct deposits.

It is unlikely that sampling will be required during the watching brief work, unless archaeological features or floodplain deposits of significance are encountered that have not been sampled in the evaluation trenches. In the event of required sampling, it will be targeted to establishing the palaeoenvironmental potential and significance of the deposits. The aim of this sampling is to evaluate the degree of preservation and range of environmental remains preserved within the archaeological/palaeoenvironmental deposits, assess their potential to address the overall site objectives and identify any additional research aims that might also be addressed by the archaeological deposits surviving on the site.

In general, sampling will be undertaken by the archaeologists. However, a geoarchaeologist will be on call to visit the site, advise and where necessary record and take samples from selected deposits.

General Methodology

Where significant features and/or alluvial layers are encountered the Contract Manager and MOLA Supervisor will ensure the following with the support of a MOLA Environmental Archaeologist / Geoarchaeologist:

- That a range of suitable samples are collected from the site for the recovery of an appropriate range of environmental evidence that will contribute to the research strategy that underpins the requirement for the watching brief and recording.
- That the environmental procedures outlined in the *Archaeological Site Manual* (MoL 1994) and *Environmental archaeology: a guide to the theory and practice of methods, from sampling and recovery to post-excavation* (English Heritage 2002) are followed.
- That general bulk samples, 40 litres in size (20L if waterlogged) will be the standard samples taken and that the processing methods are designed to recover a wide a range of materials from the same deposit in a single sample. In addition, as a number of post-excavation analytical techniques will be employed on the material recovered, a number of different sampling approaches will be required. These might include: gridded/spatial bulk samples, to sample horizontal stratigraphy where it survives (i.e. prehistoric soils and activity horizons), the sample size will depend on feature; column bulk samples (c 2-20L) to sample ditches, deep cut features and natural deposit profiles; spot samples for dating; monolith and micro morphology samples to recover *in-situ* blocks of sediments or complex strata.

Sample	Sampled by	Material	Processing
Hand Collected	archaeologist	Human Bone	Hand washing
	archaeologist	Large/small mammal, bird, fish	Power hosed
Bulk (general 40 litre sample), for	archaeologist	Large/small mammal, bird, fish, reptile, amphibian, marine molluscs, eggshell, plant macrofossils	Flotation or wet sieving

Sample	Sampled by	Material	Processing
cut features		Insects	Paraffin flotation
		Artefacts	Hand Washed
Column bulk (20 litre), at 0.1m intervals down deposit profiles	Archaeologist on advice of geoarchaeologist	Freshwater and terrestrial molluscs, ostracods,	Disaggregated and wet sieved
		Plant macrofossils	Flotation or wet sieving
		Insects	Paraffin flotation
Monolith	geoarchaeologist	Sediments	Laboratory cleaning
		Pollen and Diatoms	Sub-sampled for external Specialist
Kubiena	geoarchaeologist	Soils/complex strata	External Specialist
Spot/Grab	archaeologist	Coprolites, unidentified organic materials	Specialist
	geoarchaeologist	Pollen, diatoms, ostracods, forams, radiocarbon	Sub-sampled from for external specialists

- The sampling strategy will be monitored throughout the works and adapted in light of the preservation and the type of features encountered. A MOLA Environmental Archaeologist/Geoarchaeologist will undertake site visits to provide advice and additional advice will be sought from the EH Regional Archaeological Science Advisor when necessary. A MOLA Environmental Archaeologist/Geoarchaeologist will be on site during any visit made by the EH Regional Archaeological Science Advisor.
- As a general policy, uncontaminated negative features will be bulk sampled and bone collected by hand. Horizontal stratigraphy if it survives will be sampled on a spatial basis where appropriate. Unstratified contexts, make-up layers and contexts thought to have a high degree of residual or intrusive material will not be sampled. Bulk samples may also be taken to recover artefacts such as evidence for metalworking and/or other industrial activity.
- If encountered, human burials will be recovered individually, with separate parts of the body (i.e. right arm, torso, left leg etc.) bagged separately on site. Samples will be taken for analysis of the abdominal area if the soil conditions are wet or moist. Control samples will also be taken by consultation with the appropriate Specialist. Cremations will be excavated in consultation with specialists.

8 Deliverables and Submission Programme

MOLA shall provide the following reports to the Project Archaeologist in accordance with the Crossrail, 2009 Archaeology Specification for Evaluation & Mitigation or as otherwise instructed by the Project Archaeologist:

- Organisation of site monitoring visits, as and when requested by the Principal Archaeologist.
- A weekly illustrated progress report to the Project Archaeologist containing the information required at part 5.10 of the C263 Contract.
- A short illustrated interim statement within 1 week of the completion of fieldwork if required.
- A survey report within 2 weeks of the completion of fieldwork.
- A Fieldwork Report will be prepared within 6 weeks if required. This will include the results of Geoarchaeological investigation and an assessment of the deposits sampled. All levels cited in these reports should be Above Tunnel Datum (ATD = OD +100m). All Co-ordinates cited in these reports should be based on the London Survey Grid, apart from archive copies which will use OS National Grid.
- MOLA will produce monthly progress photographs of archaeological work on the sites in this method statement to contribute to the 30 per month required across the whole of the C263 contract (see 15.3).
- MOLA will complete an SMR (OASIS) Summary Sheet for the works (ie one per fieldwork event). This Summary Sheet will be included in the Fieldwork Report if required.
- A Summary report of no more than 500 words for the works shall be prepared by MOLA for submission to the Project Archaeologist for subsequent publication within the London Archaeologist Annual Fieldwork Round-up.

9 Document Control and Record Keeping

MOLA will access the Crossrail eB control system for transmitting reports and other deliverables. The primary report deliverables (as per 8) will be submitted to the Project Archaeologist (and Crossrail CDM Advisor in the case of Method Statements) in draft form (Version 1.0). Any tracked changes or comments added by the Project Archaeologist and/or Crossrail CDM Advisor will then be incorporated and future dated versions (2.0 etc) will be returned via eB accompanied with the appropriate Checklist with Contractor's responses.

10 Artefact Recovery and Conservation

At the evaluation stage, the objective is to establish what range and quality of finds and environmental evidence if present and then to develop a sampling regime appropriate to the potential of each category of material. Sampling strategies are developed on a site specific basis to meet the evaluation objectives stated in the

Crossrail Site-specific WSI; and the following professional standards, in consultation with appropriate specialists:

- MOL Archaeological Finds Procedure Manual (2006)
- Relevant English Heritage Centre for Archaeology Guidelines eg on Environmental Archaeology (English Heritage 2002)
- Guidelines of the Society of Museum Archaeologists for the Selection, Retention and Dispersal of Archaeological Collections (SMA 1993).
- Minimum Standards for the Processing, Recording, Analysis and Publication of Post-Roman Ceramics produced by the Medieval Pottery Research Group Occasional Paper 2, (Slowikowski, A, Nenck, B. and Pearce, J 2001)

In general all material from stratified archaeological deposits is retained unless it is clearly residual or part of a large but routine assemblage, in which case samples of both typical and diagnostic items are retained.

Due allowance will be made for occasional specialist attendances which may be needed on and off-site to complete the investigation to the appropriate specified standard. These would only be called upon on a case-by-case basis, if significant structures or strata are revealed. Such attendances may include artefact conservation, photography, surveying, environmental sampling, finds assessment, Geoarchaeology and scientific dating. MOLA has a full range of in-house specialists and can therefore deploy such resources at short notice, if needed, eg to advise on sampling strategies.

All finds and samples will be treated in a proper manner and to Museum of London standards. They will be exposed, lifted, cleaned, conserved, marked, bagged and boxed in accordance with the guidelines set out in the United Kingdom Institute for Conservation's Conservation Guidelines No. 2 and the Museum of London's Standards for the Preparation of Finds to be permanently retained by the Museum of London. Metal objects will be x-rayed and appropriate objects then selected for conservation.

10.1 Retention and Disposal

The finds retrieval policies of the Museum of London will be adopted. An adequate and representative sample of finds and deposits as advised by appropriate MOLA specialists who will be available to attend site as required (see 12.1).

11 Treasure

All finds falling within the definitions of treasure (Treasure Act 1996) shall be reported immediately to the Project Archaeologist and all subsequent works must be undertaken in accordance with the relevant legislative requirements as set out in the Environmental Requirements (archaeology) section of the relevant package Works Information.

To protect the finds from theft, MOLA shall record the finds and remove them to a safe place. Where recording and removal is not feasible or appropriate on the day of

discovery, MOLA shall ensure, on liaison with the Project Archaeologist that adequate site security is provided by the Principal Contractor.

12 Archaeological Science Strategy

Where necessary, the strategy for sampling archaeological and environmental deposits and structures (which can include soils, timbers, animal bone and human burials) will be developed by MOLA in accordance with English Heritage and IFA guidelines. Advice will be sought from appropriate MOLA specialists and if additionally required from English Heritage. Subsequent on-site work and assessment of the processed samples and remains will be undertaken by MOLA Specialists.

If necessary, samples for absolute dating such as C14 or timber samples for dendrochronology will be submitted to nominated MOLA external laboratories. This will only be done with the prior approval of the Project Archaeologist where there are particular research objectives to be addressed by such dating.

12.1 Specialist Strategy

An appropriate programme of ceramic dating and study of other excavated artefactual and environmental materials (including deposits of Geoarchaeological significance) will be undertaken by MOLA Specialists as their contribution to the Fieldwork Report.

12.2 Excavation and Recording of Human Remains

Human remains are unlikely to be present on the Victoria Dock site. If any human remains were to be found, they will be treated in accordance with the procedures in section 7.A.6 to 7.A.15 of Archaeology, Specification for Evaluation & Mitigation.

Crossrail procedures for dealing with discoveries of human remains shall identify any specific individual roles or actions that are relevant to the works. If removal of human remains were to be required, an Exhumation Licence would be required from the Coroner's Office of the Ministry of Justice, under the terms of the 1857 Burial Act. This would be obtained by the archaeological contractor, unless otherwise required by the Project Archaeologist.

13 Archiving and Dissemination Method

The required methodology for off-site work including specialist method statements, assessment, analysis, publication and archive is set out in the SS-WSI and is not repeated here.

The site-specific publication and archive requirements will be agreed in conjunction with the Project Archaeologist in the light of the overall approach being developed for the Crossrail project (eg publication format and the extent to which individual sites may be grouped spatially or thematically; and degree to which the archive will be systematised and deposited as a single whole).

14 IT Capability – Digital Survey Recording, Data Capture and Curation

The required methodology for IT (including site survey) will be carried out in accordance with the C263 Contract and project standard survey requirements.

14.1 Survey

- For evaluations the trenches and boreholes may be manually marked out on site in relation to existing real world features by MOLA staff in the locations specified by the Project Archaeologist on a suitable hardcopy site plan. If trench locations are required to be set out on Crossrail London Survey Grid co-ordinates, then Crossrail surveyors will need to supply MOLA Geomatics with the relevant survey control and mapping sufficiently in advance of the site visit to allow for survey preparation. In the event of MOLA Geomatics staff setting out trenches without Crossrail survey control, then they will reference locations to OSGB36 co-ordinates, through using GPS/GNSS.
- Upon completion of the fieldwork a Site Survey Report will be compiled.

15 Additional Details

15.1 Standards and Guidance

See Section 3.2.

15.2 Unexpected and Nationally-important remains

In cases where unexpected discoveries cannot be preserved *in situ*, the response plan would revert to the normal Crossrail mitigation strategy of further archaeological investigation (*preservation by record*). The aim would be a rapid and commensurate response, targeted to just those remains unavoidably affected by the works.

Recording and sampling methods would also be proportionate to the significance of the remains. Additional archaeological resources would be deployed to achieve this, in order to minimise any delay to the Principal Contractor's works. With flexibility and good communication it is often possible for the development works to continue in other areas while localised discoveries are recorded.

15.3 Progress Photographs

In addition to the archaeological photography specified in the SS-WSI and this Method Statement MOLA will submit a monthly professional photographic record of the progress of the archaeological scope of works. The photographs from the sites in this method statement will form part of the 30 required each month across the whole of the C263 contract.

15.4 Management of Consents

In the event of the unexpected discovery of human remains on site, MOLA will obtain a Burial Licence from the Ministry of Justice.

16 Health and Safety

16.1 CDM Responsibilities and Reporting

- MOLA will be supporting and reporting to the Principal Contractor (Vinci Construction UK Limited) for the evaluation and to the Crossrail Project Archaeologist and CDM Co-ordinator.
- MOLA will be implementing archaeological designs in the SS-WSI prepared by the appropriate FDC consultant, therefore not acting as CDM Designer under the Construction (Design and Management) Regulations 2007.

MOLA will provide:

- A current health and safety policy, including defined operational procedures and managerial responsibilities, risk assessment/control, and measures to ensure that a safe method of working is implemented by the archaeological team on site, including appropriate advice and support from office-based managers.
- Adequate safety information in the MOLA site accommodation including the WSI, current Health and Safety Policy, Health and Safety at Law Poster, Data Protection Compliant Accident Book, and copies of Public and Employers Liability Insurance. The Supervisory Archaeologist is responsible for ensuring that this information is made available.
- Compliance with current legislation and HSE guidance; including the Construction Design and Management Regulations (CDM) 2007 (not as a Designer); and the Principal Contractor's Health and Safety Policy, safety inductions and fire and emergency procedures.
- Field staff qualified to operative level (or higher) of the CITB Health and Safety test and therefore eligible to carry a Construction Related Organisation (CSCS CRO) White Card for Archaeological Technician (Code 5363).
- Services of a Contract Manager, Project Officer and Supervisory Archaeologist to manage site investigations, including liaison with the Principal Contractor's Health and Safety Co-ordinator and Principal Contractor, attendance at site meetings etc. The Supervisory Archaeologist will act as principal liaison with the Principal Contractor.
- Services of a professional health and safety consultant to attend site when required; reporting to the Supervisory Archaeologist and Project Officer, with any concerns or recommendations copied to the Principal Contractor's site manager
- A safety monitoring/reporting procedure. This should include accident reporting by the Supervisory Archaeologist to non RIDDOR and RIDDOR standard and any necessary liaison and follow-up of agreed safety actions with the Principal Contractor's site manager
- All necessary staff supervision, training and personal protective equipment (PPE) including tool box talks and safety inductions for new staff.
- Review and compliance with the Principal Contractor's Construction Phase Plan under the CDM Regulations 2007.
- Trained First Aiders, 'Where to get First Aid' poster and a First Aid kit (to be located in the MOLA site accommodation). The Principal Contractor will also have first aid facilities on site.

- Staff will attend the C340 site induction.

The Principal Contractor will provide:

- Overall control and supervision of the site and a safe working environment. The archaeological organisation will be unable to complete the specified works in any area where this is not provided.
- Technical services and attendances to the archaeologists as required. These services may include providing, site accommodation, plant for the excavation of trenches and other equipment such as lighting, handrails, shoring and ladders. These requirements are listed in detail in separate documents.

The CDM Co-ordinator will provide:

- Overall co-ordination of health and safety planning and management.
- A communications structure; including contact details for key personnel, meetings, reporting, etc.
- Supply of material information: eg services and contamination reports; any relevant requirements regarding rights of way, noise, hours of operation, etc.

16.2 Rail Sites

The site is located adjacent to an active railway line. MOLA staff will fully comply with the principle contractor's rules and regulations for operating within these areas.

16.3 Highway Sites

The site is not located on an active highway site.

16.4 Health and Safety Reporting

Adherence to health and safety procedures will be monitored by the MOLA Health and Safety Consultant, Contract Manager, Project Officer and Site Supervisor. The consultant will attend site for regular monitoring visits and, on each occasion, will supply a report on the archaeological work, containing any necessary health and safety recommendations. This will be forwarded to the Principal Contractor's site manager. Where appropriate to the scale of work, regular on-site progress meetings will be held between MOLA, the Project Archaeologist and the Principal Contractor at which any safety issues may be discussed, agreed and actioned.

16.5 Liaison with Principal Contractor

The MOLA supervisory archaeologist will act as the principal point of contact with the Principal Contractor's site manager throughout the periods of site investigation. Contact details will be exchanged. The supervisory archaeologist will be supported and advised by the MOLA Fieldwork Director and project management team as needed.

C263 MOLA Project Management team contact details

- David Divers, Project Manager
ddivers@mola.org.uk
Direct Line: 020 7410 2253
Mobile: 07867 783310
- Mike Smith, Fieldwork Director
msmith@mola.org.uk
Direct Line: 020 7410 2283

16.6 Behavioural Safety BMOS

Mobile phones, personal CD players, iPods, and similar will not be used by MOLA staff in archaeological trenches or areas of work. Smoking and naked flames are/is not permitted in the trenches or areas of work. Alcohol is not permitted on site. This aspect will be monitored by the MOLA Supervisor and H and S Advisor (see 4.3).

17 Emergency Response

17.1 Emergency Preparedness & Response Plan

A General Emergency Preparedness Plan (EPP) is currently being prepared within the MOLA Health and Safety Plan for C263. This should be referred to for generic emergency and accident issues.

Site-specific issues are as follows:

- For the Evaluation MOLA staff will comply with the Principal Contractor's (Vinci Construction UK Limited) Emergency Plan.

Employers Incident Response Contact	Crossrail helpdesk 0345 602 3813
Principal Contractor (Vinci Construction UK Limited) Incident Response Contact	John Sherman Mobile: 07879435907 On-call duty manager Mobile 078107546157
MOLA Incident Response Contact	David Divers, Project Manager ddivers@mola.org.uk Direct Line: 020 7410 2253 Mobile: 07867 783310
Local A&E location	<i>Full A & E at:</i> Newham General Hospital Glen Road Plaistow E13 8SL Tel: 020 7476 4000

17.2 Training

MOLA provides Safety Training for its staff as in Section 4.2.

The MOLA Experienced Archaeologist will attend all emergency training/inductions on Preparedness/Response Plan provided by the Principal Contractor.

17.3 Emergency & Accident Equipment

- MOLA Archaeologists when working singly on the watching brief tasks will carry a single person First Aid Kit and mobile phone.
- During the evaluation a first aid box will be located in the desk/office area provided by the Principal Contractor or a specific location provided by the Principal Contractor.
- It is expected that the Principal Contractor will also provide basic first aid facilities on site.

17.4 Monitoring & Testing

MOLA staff will comply with Crossrail requirements.

17.5 Emergency & Accident Incident Reporting

All accidents and emergencies must be reported to the Principal Contractor's project manager (Richard Reid, mobile: 07810 756157) who will call the emergency services, if required. They will also be reported to the Crossrail Helpdesk (24 hour helpline) Call: 0345 602 3813 or helpdesk@crossrail.co.uk

All accidents and emergencies must be reported to the following personnel at Crossrail and MOLA:

- Jay Carver, Project Archaeologist, Crossrail Central, Crossrail Ltd, 25 Canada Square, London E14 5LQ
DD 0203 229 9258 Int 2258
Mobile 07870 191 705
- Raymond Davies, CDM Advisor, Crossrail Central, Crossrail Ltd, 25 Canada Square, London E14 5LQ
DD 0203 197 5416 Int 5416
- George Dennis, Senior Project Manager, Museum of London Archaeology, Mortimer Wheeler House, 46 Eagle Wharf Road, London N1 7ED
DD 0207 410 2200 Int 2256
- Ian Grainger, Field Manager, Museum of London Archaeology, Mortimer Wheeler House, 46 Eagle Wharf Road, London N1 7ED
DD 0207 410 2200 Int 2271

18 Environmental Management

The archaeological works will be carried out whilst the Principal Contractor is in possession of the site. MOLA has received a copy of the Principal Contractors Environmental Management Plan (document no: C340-VIN-T1-STP-CR144_PT003-50001). MOLA will comply with the Principal Contractor's Environmental Management System as documented in their Environmental Management Plan, and contribute to their EMS reporting if required.

If any remedial action is needed, eg controls for dust, water, noise or controlled waste, this will be agreed with and undertaken by the Principal Contractor as part of the required attendances (see 16 and Appendix section 9.1). In addition an updated MOLA corporate Environmental Management Plan is currently being prepared for submission to Crossrail.

The nominated environmental person is: Alison Telfer, atelfer@museumoflondon.org.uk, 020 7410 2276.

18.1 Contamination

MOLA staff will not disturb or damage asbestos, or undertake asbestos removal from a building, structure, or buried material. If asbestos is found the Principal Contractor will be responsible for having it dealt with by a licenced contractor.

18.2 Water Disposal

The Principal Contractor is responsible for disposal of any ground water pumped from the trenches or other excavations, in accordance with their environmental management plan, with which MOLA will comply.

18.3 Site Waste Management Plan

MOLA staff will adhere to the Principal Contractor's site waste management plan.

18.4 Vehicles/Motorised Equipment

There is currently no contractor parking on site. Deliveries can be made in advance. MOLA staff will liaise with the Principal Contractor to provide safe access for MOLA vehicles if required to attend site:

- Ford Silver Transit (Medium Wheelbase) – EA55 NBJ – Driver tbc.
- 1.7 Turbo Diesel Astra Estate – KC54 XTZ – Sarah Jones, Geomatics Manager, 0207 410 2200 Int 2287.

18.5 Other Requirements

MOLA staff will always be courteous with any members of the public they have dealings with.

19 Quality Assurance Plan

An updated Quality Assurance Plan has been prepared for submission to Crossrail in accordance with the format specified at part 5.4 of the C263 contract. Records will be kept and supplied to Crossrail in accordance with procedures set out in Crossrail Specification CR-PN-LWS-EN-SP-00001, as amplified by the SS-WSI. The MOLA responsible procurement representative is Dawn Jackson, who is a member of the Senior Management Group

20 Community Relations

MOLA will co-operate with the Principal Archaeologist and Principal Contractor regarding any notified community relations issues in relation to the Construction Community Relations Strategy Framework as defined in the Works Information.

MOLA will in the first instance refer any media enquires or community relation issues to the Crossrail Helpdesk and the Project Archaeologist.

21 Responsible Procurement

A draft Responsible Procurement Plan document was submitted to Kelly Hussey, Crossrail on 28th April 2011.

22 Appendix 1: Health and Safety Method Statement

1. Introduction and Purpose

1.1. Project Background

Archaeological investigations are to be carried out on this site by Museum of London Archaeology (MOLA). The requirements are set out in a Crossrail Site-specific Written Scheme of Investigation (SS-WSI – *C154 Victoria Dock Portal*, Crossrail, May 2011, Document No C154-HYD-T1-JLT-CR144_PT003-00001, Version 8.0).

2. Scope of Document

This Method Statement sets out the specific MOLA safe methods of working to be applied to:

- Archaeological Trial Trench Evaluations at Victoria Dock Portal
- Targeted Watching Brief at Victoria Dock Portal

This method statement has been developed in conjunction with the Principal Contractors, who will be responsible for ensuring that the archaeological works may be carried out as specified.

3. Responsible Persons and Site Management

3.1. Site Management

The MOLA Senior Archaeologist/Site Supervisor will ensure that a copy of the MOLA Welfare, Health & Safety Method Statement is made available to the appropriate Principal Contractor at the site. Where further changes or additions to the WH&S Method Statement are required and agreed these should be appended to the site master copy by the MOLA Senior Archaeologist/Site Supervisor.

All changes to the WH&S Method Statement will be signed off by the Project Archaeologist, Crossrail H & S Advisor, MOLA Senior Project Manager and MOLA Field Manager.

4. Scope of Works

The scope of archaeological works is set out in section 2 of the appendix and in section 1 of the method statement, above.

5. Methodology, Programme and Sequence

The provisional programme is set out in section 4.6 of the method statement, above.

5.1. Evaluation

The three trenches will be opened during the 2nd QRT of 2013. The evaluation programme is 1 week for each of the three trenches.

5.2. Targetted Watching Brief

To be undertaken on the ground works within the portal footprint.

6. Risk Assessments

Overall and site specific risk assessments for the Evaluation are included in the following section.

6.1. MOLA Risk Assessment – Evaluation Trenches and General Watching Brief

SITE RISK ASSESSMENT REGISTER												
For Site: Victoria Dock Portal						Type						
Persons Affected			No			Classification			No			
Employees			4			Experienced			4			
Other workers						Inexperienced						
Public						Disabled						
Known and Suspected Hazards on site (mark as appropriate) and include numbered risk assessment in WSI												
1 Access	x			17 Contaminated Land	x			33 Plant as lifting equipment				
2 Ladders				18 Weil's Disease	x			34 Human Remains				
3 Plant	x			19 Psittacosis				35 Public Safety				
4 Dumpers	x			20 UXO				36 Violence (to Staff)				
5 Scaffolding (inc Towers)				21 Asbestos				37 Chainsaw				
6 Excavations	x			22 Welfare/housekeeping				38 Power Auger				
7 Work at height	x			23 Lone working				39 Hand Auger				x
8 Slips, Trips, falls	x			24 Manual Handling	x			40 Foreshore/water				
9 Underground services	x			25 Fumes/Gas				41 Adverse Weather				x
10 Overhead Power Lines				26 Dust				42 Spoil Mounding				x
11 Electrical				27 Noise	x			43 LPG(Butane)				
12 Fire (inc LPG)				28 Deep Excavations	x			44 Waste				
13 Confined spaces	x			29 Power Tools				45 Storage				
14 Breaking Out				30 Vibration				46 Animals				
15 Hand Tools	x			31 Vehicles				47 Ionising and non-ionising radiation				
16 Spray paint				32 Lifting Equipment(Hoists)				48 OTHER				
Assessment Of Remaining Risk From Specific Risk Assessments Included in WSI With This Register												
	L	M	H		L	M	H		L	M	H	
1 Access	x			17 Contaminated Land	x			33 Plant (lifting)				
2 Ladders				18 Weil's Disease	x			34 Human Remains				
3 Plant	x			19 Psittacosis				35 Public Safety				
4 Dumpers	x			20 UXO				36 Violence (to Staff)				
5 Scaffolding (inc Towers)				21 Asbestos				37 Chainsaw				
6 Excavations	x			22 Welfare/housekeeping				38 Power Auger				
7 Work at height	x			23 Lone working				39 Hand Auger	x			
8 Slips, Trips, falls	x			24 Manual Handling	x			40 Foreshore/water				
9 Underground services	x			25 Fumes/Gas				41 Adverse Weather	x			
10 Overhead Power Lines				26 Dust				42 Spoil Mounding	x			
11 Electrical				27 Noise	x			43 LPG(Butane)				
12 Fire (inc LPG)				28 Deep Excavations	x			44 Waste				
13 Confined spaces		x		29 Power Tools				45 Storage				
14 Breaking Out				30 Vibration				46 Animals				
15 Hand Tools	x			31 Vehicles				47 Ionising/non-ionising rad				
16 Spray paint				32 Lifting Equipment				48 OTHER				
General Project Controls												

Project Manager in over all charge of project is: David Divers Tel: 02074102253
 Supervisor(s) in daily charge of project is: TBC?
 Number, training and experience of supervisors will be sufficient for the project
 Supervisor(s) holds IOSH Supervising Safely Cert
 All staff will comply with the: MOLA H&S policy, Principal Contractors site rules, all WSIs, Risk assessments, safe systems of work Permits to work.
 All staff will have sufficient training and experience for the tasks they undertake or be under close supervision
 All staff will be CITB H&S tested and hold a CSCS card appropriate to their profession or be in the process of obtaining one where appropriate
 All staff will be fit to undertake their work
 All staff will be inducted on first day of work, briefed on the WSI and the specific hazards and control measures attendant on their work on site
 Tool box talks/staff briefing will be conducted on the hazards and control measures on a regular basis (at least weekly or more frequently if circumstances dictate)
 Appropriate PPE to be worn
 First Aid kit on site, First aider/appointed person on site. Nearest accident and emergency unit located and contact numbers obtained

Competent Person(s) appointed to take action: Ian Grainger – H&S Manager David Divers – Project Manager Mike Smith – Fieldwork Director Senior Archaeologist	All Risk Assessments seen by (initials)	
	PM	Archaeologists
	SA(s)	
	Client	
	Contractor	
Other		

6.2. MOLA Site Specific Risk Assessments

MOLA RISK ASSESSMENT				ALL AREAS/TRENCHES	REFERENCE NO: 0001			
PROJECT: Victoria Dock Portal								
ACTIVITY/TASK/HAZARD: ACCESS				COMPLETED BY: L Davies	DATE COMPLETED: 06.12.12			
TO BE READ IN CONJUNCTION WITH: Method Statement								
Hazards	Initial Risk Rating			Persons Affected	Control Measures	Remaining Risk L/M/H	Action By (initials)	Reviewed/amended On site (date & initials)
	L	M	H					
Fall of persons from height	x			Staff Contractors Visitors	All access routes will be kept clear of debris/obstructions/hazards. All safe access routes will be clearly sign posted All hazards will be marked and in an exclusion zone All access routes will be well lit. All stepped access will be maintained in good condition All sloping access will be at 45 degrees or less and maintained in good condition. All access routes will be inspected daily, after adverse weather, or when it is altered. All pedestrian access routes will be separate from Machine/vehicle access	L	CM SA A PC	Weekly review required on project by SA or HSM, amend control measures when circumstances change if required
Fall of objects from height	x							
Slips Trips falls		x						
Collapse of structure	x							
All persons affected by this hazard must be made aware of the contents of this Risk Assessment								

MOLA RISK ASSESSMENT				ALL AREAS/TRENCHES	REFERENCE NO: 0003			
PROJECT: Victoria Dock Portal								
ACTIVITY/TASK/HAZARD: PLANT				COMPLETED BY: L Davies	DATE COMPLETED: 06.12.12			
TO BE READ IN CONJUNCTION WITH: Method Statement								
Hazards	Initial Risk Rating			Persons Affected	Control Measures	Remaining Risk L/M/H	Action By (initials)	Reviewed/amended On site (date & initials)
	L	M	H					
Persons Struck by Machine	X			Staff Contractors Visitors	MOLA staff not certified or trained to operate plant and will not do so. plant operator must be trained and certificated and fit to work and uncertificated drivers will not be allowed to operate plant on site Sub contracted plant hire companies to be H&S assessed and audit prior to hire Plant must be inspected	L	CM SA A PC	Weekly review required on project by SA or HSM, amend control measures when circumstances change if required
Shovel or load dropping		x						
Hydraulic fluid spray	x							
Overturning of machine	x							
Fire/explosion	x							

				<p>and certificated as fit for use before work commences and plant operator must conduct daily inspection of plant.</p> <p>Defective plant must not be used and must be service and repair only by qualified contractor.</p> <p>MOLA staff will not work with or near plant operator obviously under influence of drugs/alcohol or otherwise behaving erratically</p> <p>All plant operations for MOLA to be under supervision of MOLA supervisor and Trained banks person also where applicable</p> <p>All staff working near machine to ensure that the operator has seen them and that they are maintaining a safe distance</p> <p>Separate pedestrian areas and routes to be established and barriered where practicable. Plant to be traffic managed on site e.g. Speed restrictions for JCBs, designated routes and work areas and plant to be switched off and secured when not in use. Particularly overnight/weekends</p> <p>MOLA staff to briefed on plant operations and changes to those operations</p> <p>Warning signs to be displayed as appropriate</p> <p>Ear defenders to be worn with standard PPE when there are high Noise levels e.g. breaking out operations</p>		
<p>All persons affected by this hazard must be made aware of the contents of this Risk Assessment</p>						

MOLA RISK ASSESSMENT				ALL AREAS/TRENCHES	REFERENCE NO: 0004			
PROJECT: Victoria Dock Portal								
ACTIVITY/TASK/HAZARD: DUMPERS				COMPLETED BY: L Davies	DATE COMPLETED: 06.12.12			
TO BE READ IN CONJUNCTION WITH: Method Statement								
Hazards	Initial Risk Rating			Persons Affected	Control Measures	Remaining Risk L/M/H	Action By (initials)	Reviewed/amended On site (date & initials)
	L	M	H					
Overturning/tipping	X			Staff Contractors Visitors	No MOLA staff to operate dumpers on site unless trained and certificated to do so and supervised by a person competent do so	L	CM SA A PC	Weekly review required on project by SA or HSM, amend control measures when circumstances change if required
Falling into excavations	X							
Falls from vehicle – persons and load	X							
Injury to pedestrians	X							
Electrical fault	X							
Mechanical fault	X							
				Certification of sub contractors drivers will be checked and drivers must be over 18				
				Dumper must be inspected and certificated as fit to operate before use				
				Daily checks prior to use will include brake testing				
				The number and movement of dumpers on site will be limited where practicable				
				A banks person is to be used where driver's vision is impaired or operating in congested areas and warning signs will be displayed where appropriate				
				Driver instructions: handbrake to be applied when loading, tipping or parked, even loading of dumper skips to be achieved, no projecting materials, drivers to dismount during loading and passengers must not be carried unless additional seat is fitted				
				Dumpers are not to be left unattended with engines running				
				Extra care must be taken when working on slopes, especially when crossing the				

					gradient			
					Dump skips are to be kept clean, to facilitate unloading free-flowing materials			
All persons affected by this hazard must be made aware of the contents of this Risk Assessment								

MOLA RISK ASSESSMENT				ALL AREAS/TRENCHES	REFERENCE NO: 0006			
PROJECT: Victoria Dock Portal								
ACTIVITY/TASK/HAZARD: EXCAVATION AREAS & TRENCHES				COMPLETED BY: L Davies	DATE COMPLETED: 06.12.12			
TO BE READ IN CONJUNCTION WITH: Method Statement								
Hazards	Initial Risk Rating			Persons Affected	Control Measures	Remaining Risk L/M/H	Action By (initials)	Reviewed/amended On site (date & initials)
	L	M	H					
Collapse of sides		x		Staff Contractors Visitors	Service plans will be consulted prior to commencement where available and appropriate, and measures put in place to avoid, isolate, or decommission live services. Cable location by competent person will be undertaken prior to commencement	L	CM SA A PC	Weekly review required on project by SA or HSM, amend control measures when circumstances change if required
Striking existing services	x							
Persons falling in			X					
Plant, bucket, and materials falling in			X					
Flooding			X					
Hazardous atmosphere	X							
Contaminated soil	X							
Asbestos	x							
					A ground Contamination report will be obtained prior to commencement where available and applicable and measures put in place to reduce the risk to staff			
					Where work is within a standing building an Asbestos survey report will be obtained prior to commencement where available and applicable and measure put in place to avoid disturbing known asbestos			
					A competent person will determine the depth for the installation of shoring/ battering back, shoring will be installed by competent persons and inspected and maintained by them daily/each shift Edge barriers, Access scaffolding/Ladders, will be erected, maintained and inspected by competent persons – see RA 0001, 0002, 0028			
					Appropriate warning and information signs will be			

				<p>displayed</p> <p>All hand tools will be fit for use and visually inspected before use- RA0015</p> <p>All Plant/lifting equipment/power tools will be inspected and certified as fit for use by competent person before use and inspected daily thereafter. The training and certification of plant operators will be checked, prior to the start of work. Un-certificated plant and plant operatives will not be allowed to operate on site (see RA 0003, 0029, 0032, 0033, 0037, 0038)</p> <p>A Pump or pumps will be provided for use where flooding is an issue and will be inspected and certified prior to use.</p> <p>A certified and tested gas monitor will be provided and used where required</p> <p>Designation for Confined space will be assessed prior to commencement and the relevant safety procedures and equipment implemented – see RA 0013 and 0028</p>			
<p>All persons affected by this hazard must be made aware of the contents of this Risk Assessment</p>							

MOLA RISK ASSESSMENT			ALL AREAS/TRENCHES	REFERENCE NO: 0007				
PROJECT: Victoria Dock Portal								
ACTIVITY/TASK/HAZARD: WORK AT HEIGHT			COMPLETED BY: L Davies	DATE COMPLETED: 06.12.12				
TO BE READ IN CONJUNCTION WITH: Method Statement								
Hazards	Initial Risk Rating			Persons Affected	Control Measures	Remaining Risk L/M/H	Action By (initials)	Reviewed/amended On site (date & initials)
	L	M	H					
Falls of Persons Falls of materials and equipment		x		Staff Contractors Visitors	<p>Safe access ensured by: Fixed Ladders (RA 0002) or Scaffolding/scaffolding tower (RA 0005)</p> <p>Robust and suitable Edge protection will be provided</p> <p>Safety harnesses and lanyards will be provided if required and secured to suitable fixed point</p> <p>Warning signs will be in place</p> <p>Toe-boards/mesh/chutes will in</p>	L	CM SA A PC	Weekly review required on project by SA or HSM, amend control measures when circumstances change if required

				<p>place to prevent falling debris where appropriate</p> <p>Workers below will be protected by an exclusion zone if appropriate</p> <p>Staff will be task briefed before commencement</p> <p>Staff will be suitable for work at height and comfortable doing so</p> <p>All equipment will be checked daily/before each shift by competent person</p>			
<p>All persons affected by this hazard must be made aware of the contents of this Risk Assessment</p>							

MOLA RISK ASSESSMENT				ALL AREAS/TRENCHES	REFERENCE NO: 0008			
PROJECT: Victoria Dock Portal								
ACTIVITY/TASK/HAZARD: SLIPS, TRIPS, FALL (On Level)				COMPLETED BY: L Davies	DATE COMPLETED: 06.12.12			
TO BE READ IN CONJUNCTION WITH: Method Statement								
Hazards	Initial Risk Rating			Persons Affected	Control Measures	Remaining Risk L/M/H	Action By (initials)	Reviewed/amended On site (date & initials)
	L	M	H					
Injury to self and others	x			Staff Contractors Visitors	All work areas to be kept free of obstruction and debris	L	CM SA A PC	Weekly review required on project by SA or HSM, amend control measures when circumstances change if required
Dropping of equipment/material	x				<p>All work areas to be well lit</p> <p>All safe pedestrian routes to be sign posted</p> <p>Dangerous areas to be sign posted and subject to exclusion zone</p> <p>All protective barriers to be in place as appropriate</p> <p>All surfaces to be kept level and dry where practicable</p> <p>Staff to be physically fit for the conditions on site</p> <p>All staff to be briefed on safe pedestrian routes and changes thereto</p> <p>All visitors to be inducted and accompanied by site staff</p> <p>Supervisor to assess work in adverse weather – eg heavy rain, snow, ice, high winds etc and</p>			

					suspend work if appropriate			
All persons affected by this hazard must be made aware of the contents of this Risk Assessment								

MOLA RISK ASSESSMENT				ALL AREAS/TRENCHES	REFERENCE NO: 0009			
PROJECT: Victoria Dock Portal								
ACTIVITY/TASK/HAZARD: UNDERGROUND SERVICES				COMPLETED BY: L Davies	DATE COMPLETED: 06.12.12			
TO BE READ IN CONJUNCTION WITH: Method Statement								
Hazards	Initial Risk Rating			Persons Affected	Control Measures	Remaining Risk L/M/H	Action By (initials)	Reviewed/amended On site (date & initials)
	L	M	H					
Contact with electricity, water, sewage or gas supplies. Other utilities	x			Staff Contractors Visitors	MOLA will obtain service diagrams for site prior to commencement of work where available All known live service routes will be marked with spray paint or similar before work commences where appropriate	L	CM SA A PC	Weekly review required on project by SA or HSM, amend control measures when circumstances change if required
Flooding	x				The trench layout be redesigned to avoid services remaining live where possible			
Electrocution	x				Any services remaining live in trench will be clearly demarcated and segregated			
Asphyxiation	x				Where applicable MOLA will employ trained sub-contractor to hand dig to locate live service prior to machining where applicable			
Fire/explosion	x				A competent person will use a cable location scanner calibrated within last 12 months to scan for live electrical services: before initial breaking out; before machine clearance of first level; and each machining level thereafter			
Bacterial infection	x				Machining will cease on discovery of unidentified service and not resume until service status confirmed/made safe Hand digging will cease on discovery of unidentified service and not resume until safe status confirmed			
					Induction/task briefing on live			

				<p>services on site to be given to all staff</p> <p>Supervisor to inform Contract manager and H and S manager immediately of any contact with unrecorded service</p> <p>The relevant utilities company will be informed by the PC on discovery of any unrecorded service, and work not resume until that company has given the all clear</p>			
All persons affected by this hazard must be made aware of the contents of this Risk Assessment							

MOLA RISK ASSESSMENT				ALL AREAS/TRENCHES	REFERENCE NO: 0013			
PROJECT: Victoria Dock Portal								
ACTIVITY/TASK/HAZARD: Confined spaces				COMPLETED BY: M Smith	DATE COMPLETED: 21.05.13			
TO BE READ IN CONJUNCTION WITH: Method Statement								
Hazards	Initial Risk Rating			Persons Affected	Control Measures	Remaining Risk L/M/H	Action By (initials)	Reviewed/amended On site (date & initials)
	L	M	H					
Collapse of sides/ structure			X	Staff Contractors Visitors	Permit to work will operate. Supervisor to brief staff on task prior to commencement. Only staff trained in entry into confined spaces or supervised by them will undertake task. Only physically fit/suitable staff will be deployed. Visually monitor staff health. Report all ill health immediately. No smoking or naked flames/lights. Fire extinguisher to available. Only equipment specified in the permit will be used. Ventilate adequately. A top-person (lookout) will be in place. An escape plan for an unconscious/immobile casualty will be in place and the rescue party trained regularly. The following safety equipment will be used (retain as appropriate): gas monitoring equipment, breathing apparatus/escape sets, harnesses, winch/tripod, lanyards/life lines	M	CM SA A PC	Weekly review required on project by SA or HSM, amend control measures when circumstances change if required
Flooding		X						
Free flowing solids			X					
Fire/ explosion		X						
Electrical	x							
Gas, fumes Toxic atmospheres, oxygen deprivation			X					
Bacteria	x							
All persons affected by this hazard must be made aware of the contents of this Risk Assessment								

MOLA RISK ASSESSMENT				ALL AREAS/TRENCHES	REFERENCE NO: 0015			
PROJECT: Victoria Dock Portal								
ACTIVITY/TASK/HAZARD: HAND TOOLS				COMPLETED BY: L Davies	DATE COMPLETED: 06.12.12			
TO BE READ IN CONJUNCTION WITH: Method Statement								
Hazards	Initial Risk Rating			Persons Affected	Control Measures	Remaining Risk L/M/H	Action By (initials)	Reviewed/amended On site (date & initials)
	L	M	H					
Eye Injury		X		Staff Contractors Visitors	All hand tools to be bought from reputable supplier and to industry safety standard?	L	CM SA A PC	Weekly review required on project by SA or HSM, amend control measures when circumstances change if required
Injury to hands, feet limbs and torso		X			Hand tools to be delivered to site in good condition by equipment officer			
Manual handling/Back injury		X			Supervisor to inspect tools on delivery			
Direct impact from tool		X			Appropriate PPE to be worn – eg eye protection and gloves as well as standard PPE			
Impact from flying debris		X			Staff to be task briefed where applicable			
Covers use of: Mattock, Shovel, spade, pick axe, trowel, draw hoe, garden fork, hand shovel, brush, lump hammer, sledge hammer, chisel, bolster and similar simple non mechanical tools				Staff to be fit and able to use tools, Staff to be experienced in the use of tools				
				Adequate training and supervision to be given to inexperienced staff				
				Adequate breaks/rest periods				
				Manual handling risk assessment?				
All persons affected by this hazard must be made aware of the contents of this Risk Assessment								

MOLA RISK ASSESSMENT				ALL AREAS/TRENCHES	REFERENCE NO: 0017			
PROJECT: Victoria Dock Portal								
ACTIVITY/TASK/HAZARD: CONTAMINATED LAND				COMPLETED BY: L Davies	DATE COMPLETED: 06.12.12			
TO BE READ IN CONJUNCTION WITH: Method Statement								
Hazards	Initial Risk Rating			Persons Affected	Control Measures	Remaining Risk L/M/H	Action By (initials)	Reviewed/amended On site (date & initials)
	L	M	H					

Presence solid/liquid form of contaminants	X			Staff Contractors Visitors	Copy of contamination report for site will be obtained. If no contamination report is yet available the site history will be reviewed to identify likely ground contaminant sources and contaminants assumed to be present where applicable. Individual COSHH assessments will be produced for specific contaminants as applicable	L	CM SA A PC	Weekly review required on project by SA or HSM, amend control measures when circumstances change if required
Gas/fumes/odour/airborne particles	X				Contact with and damage to water table/drainage will be avoided			
Ingestion, inhalation, dermal contact	X				Staff will be briefed on the known or suspected contaminants and resulting safe system of work at induction			
Pollution of water table, drains, water supply	X				High standard personal hygiene will be required. Wash hands before eating drinking smoking			
Pollution of atmosphere	x				There will be no eating, drinking, smoking, in contaminated areas			
					Gloves will be worn in the contaminated areas			
					Supervisor will conduct basic health surveillance of staff. Staff will report all ill health immediately to supervisor			
					Staff will report all suspected contaminants – strange smells, strange looking deposits, liquids etc to supervisor. Work will cease in that area until the contaminant is identified and a safe system of work in place			
					Exposure time to contaminants will be reduced by staff rotation/breaks			
All persons affected by this hazard must be made aware of the contents of this Risk Assessment								

MOLA RISK ASSESSMENT				ALL AREAS/TRENCHES	REFERENCE NO: 0018			
PROJECT: Victoria Dock Portal								
ACTIVITY/TASK/HAZARD: WEILS DISEASE (LEPTOSPIROSIS)				COMPLETED BY: L Davies	DATE COMPLETED: 06.12.12			
TO BE READ IN CONJUNCTION WITH: Method Statement								
Hazards	Initial Risk Rating			Persons Affected	Control Measures	Remaining Risk L/M/H	Action By (initials)	Reviewed/amended On site (date & initials)
	L	M	H					
<p>Leptospirosis: bacteria transmitted by rat faeces and urine surviving in standing water, damp ground</p> <p>Fever like symptoms (leptospirosis) can lead to organ failure/death – Weil's Disease</p> <p>Transmission via broken skin or ingestion</p> <p>Rats also cause: Bites and scratches Damage to food and property</p> <p>Identify and deal with any significant rat presence on site prior to commencement of works where possible?</p>	x			<p>Staff Contractors Visitors</p> <p>All staff to be briefed on hazard at general induction and site induction where applicable</p> <p>All staff to carry HSE G 406 instruction card</p> <p>All staff will: wear gloves, maintain high standard of personal hygiene, clean and cover any cuts or abrasions promptly with a waterproof plaster and wash hands before eating or drinking</p> <p>There will be no eating drinking and smoking outside designated areas,</p> <p>Welfare facilities will be kept dry, tidy and secure</p> <p>All food will be kept covered and secure all food</p> <p>Supervisor will maintain basic visual surveillance of staff for flu like symptoms. Staff to report ill health to supervisor</p> <p>Staff should register with their doctor that they work in environments where Weil's disease may be a problem</p>	L	<p>CM SA A PC</p>	<p>Weekly review required on project by SA or HSM, amend control measures when circumstances change if required</p>	
All persons affected by this hazard must be made aware of the contents of this Risk Assessment								

MOLA RISK ASSESSMENT				ALL AREAS/TRENCHES	REFERENCE NO: 0024			
PROJECT: Victoria Dock Portal								
ACTIVITY/TASK/HAZARD: MANUAL HANDLING				COMPLETED BY: L Davies	DATE COMPLETED: 06.12.12			
TO BE READ IN CONJUNCTION WITH: Method Statement								
Hazards	Initial Risk Rating			Persons Affected	Control Measures	Remaining Risk L/M/H	Action By (initials)	Reviewed/amended On site (date & initials)
	L	M	H					
Spinal/back injury		x		Staff Contractors Visitors	Remove the need for manual handling where possible by using mechanical aids e.g wheel barrows on site and use hoists and lifts for vertical lifts Reduce horizontal and vertical distances by delivering load as close to delivery point as possible Reduce size and weight of individual load items where this will not render task more harmful – e.g. excessively prolong duration Ensure that team assigned is sufficient in number to avoid overloading individuals – e.g. two people to an object where necessary Ensure that route is planned well lit, obstruction free, and as dry as possible with the minimum amount of stairs possible Liaise with other contractors on site to ensure route kept safe, use lookouts as appropriate Avoid excessive manual handling tasks in poor weather conditions Assess staff for physical fitness and suitability before commencement Rotate staff and/or ensure suitable and sufficient breaks for prolonged tasks Use gloves and other PPE as appropriate Assess weight before lifting item and stay comfortably within personal lifting capacity When picking up load: stand close with feet slightly apart, crouch do not bend at waist,	L	CM SA A PC	Weekly review required on project by SA or HSM, amend control measures when circumstances change if required
Sprain/ strain injury to other body parts		x						
Puncture/abrasions/cuts from dropped loads		x						
Falls of person from height and on level – slips trips		x						
Repetitive strain/upper limb disorders		x						

				<p>keep head up and maintain natural curvature of spine, thrust/lift through hips, keep object close to body, maintain clear field of vision and do not run</p> <p>Use MOLA Manual handling check lists for all significant manual handling tasks 0024a-e : Planks, ladders and boards Drums/round containers Bags and sacks Finds/irregular shaped objects on site Office work – boxes etc</p>			
All persons affected by this hazard must be made aware of the contents of this Risk Assessment							

MOLA RISK ASSESSMENT				ALL AREAS/TRENCHES	REFERENCE NO: 0027			
PROJECT: Victoria Dock Portal								
ACTIVITY/TASK/HAZARD: NOISE				COMPLETED BY: L Davies	DATE COMPLETED: 06.12.12			
TO BE READ IN CONJUNCTION WITH: Method Statement								
Hazards	Initial Risk Rating			Persons Affected	Control Measures	Remaining Risk L/M/H	Action By (initials)	Reviewed/amended On site (date & initials)
	L	M	H					
Damage to hearing Loss of hearing – temporary or permanent Headache/nausea Nuisance to public	X			Staff Contractors Visitors	Use less noisy equipment or process where practical, contain noise levels where possible, ensure equipment is inspected and well maintained to reduce noise levels Ensure that all mufflers and baffles are fitted correctly and working Minimise staff exposure to noisy areas – rotate staff, plan work to avoid noisy times/work areas if possible Restrict hours, Minimise duration and frequency of excessively noisy operations where possible and necessary Minimise nuisance /distress to public Staff to wear appropriate ear protection for task – e.g Zone 3 rated ear defenders for high noise levels – not Zone 1-2 or ear plugs	L	CM SA A PC	Weekly review required on project by SA or HSM, amend control measures when circumstances change if required

					Staff to report all unwell symptoms to supervisor immediately			
					Staff to consult medical practitioner for any hearing problems (loss of hearing, tinnitus and other distortions)			
All persons affected by this hazard must be made aware of the contents of this Risk Assessment								

MOLA RISK ASSESSMENT				ALL AREAS/TRENCHES	REFERENCE NO: 0028			
PROJECT: Victoria Dock Portal								
ACTIVITY/TASK/HAZARD: DEEP EXCAVATIONS				COMPLETED BY: L Davies	DATE COMPLETED: 06.12.12			
TO BE READ IN CONJUNCTION WITH: Method Statement								
Hazards	Initial Risk Rating			Persons Affected	Control Measures	Remaining Risk L/M/H	Action By (initials)	Reviewed/amended On site (date & initials)
	L	M	H					
Collapse of sides		x		Staff Contractors Visitors	Staff will be given a task specific briefing before commencement	L	CM SA A PC	Weekly review required on project by SA or HSM, amend control measures when circumstances change if required
Striking existing services	x				Depth at which shoring or battering back of trench must be implemented to be determined by competent person			
Persons falling in		x						
Plant, bucket, and materials falling in		x						
Flooding		x			Shoring or battering back to be undertaken by competent contractor and inspected daily/before each shift			
Hazardous atmosphere	x				Access ladders/scaffolding must be installed and inspected by competent contractor. Edge protection – eg fixed scaffolding barrier – will be installed around trench by a competent person			
				'Danger Deep Excavation' Warning signs will be displayed where appropriate ie site boundary/entrance, trench edge protection				
				Where appropriate a fixed hoist will be used to remove spoil rather than				

					<p>a crane or mechanical excavator being used as a hoist. See RAs 0032-0033</p> <p>Hoist and plant operators will be briefed on MOLA the works and operating procedures for deep excavations by the supervisor</p> <p>The size and shape of the bucket or skip used for spoil disposal will be suitable for the size of trench, shoring, and other obstructions (eg services)</p> <p>Only staff physically fit and suitable will work in deep excavations</p> <p>The supervisor will carry out basic health surveillance of staff</p> <p>Staff will report all unwell symptom to the supervisor immediately</p> <p>A mechanical pump(s) will be made available where necessary and will be of sufficient power to keep the excavation dry. It will be inspected and maintained by a competent person</p> <p>Gas monitoring equipment will be used where appropriate</p>			
<p>All persons affected by this hazard must be made aware of the contents of this Risk Assessment</p>								

MOLA RISK ASSESSMENT				ALL AREAS/TRENCHES	REFERENCE NO: 0039			
PROJECT: Victoria Dock Portal								
ACTIVITY/TASK/HAZARD: HAND AUGER				COMPLETED BY: L Davies	DATE COMPLETED: 06.12.12			
TO BE READ IN CONJUNCTION WITH: Method Statement								
Hazards	Initial Risk Rating			Persons Affected	Control Measures	Remaining Risk L/M/H	Action By (initials)	Reviewed/amended On site (date & initials)
	L	M	H					
Manual handling Injury		x		Staff Contractors Visitors	<p>Staff using the hand auger will be trained and supervised</p> <p>Hand auger will be visually inspected before use</p> <p>Obviously faulty equipment will not be used</p>	L	CM SA A PC	Weekly review required on project by SA or HSM, amend control measures when circumstances change if required
Puncture/abrasion injury			x					
Contact with underground service	x							

				<p>Staff will be assessed for physical fitness to use of the hand auger</p> <p>Suitable rest breaks will be taken during prolonged periods of use</p> <p>Staff will not overstrain themselves driving the auger into the ground</p> <p>The augering location will be assessed prior to commencement to ensure that there is sufficient room to use the auger safely, and that the deposits are suitable for augering</p> <p>Augering will cease if an obstruction is encountered and the location moved</p> <p>PPE will be worn including robust work gloves</p>			
All persons affected by this hazard must be made aware of the contents of this Risk Assessment							

MOLA RISK ASSESSMENT				ALL AREAS/TRENCHES	REFERENCE NO: 0041			
PROJECT: Victoria Dock Portal								
ACTIVITY/TASK/HAZARD: ADVERSE WEATHER				COMPLETED BY: L Davies	DATE COMPLETED: 06.12.12			
TO BE READ IN CONJUNCTION WITH: Method Statement								
Hazards	Initial Risk Rating			Persons Affected	Control Measures	Remaining Risk L/M/H	Action By (initials)	Reviewed/amended On site (date & initials)
	L	M	H					
Slippery/ muddy surfaces = slips trips and falls		x		Staff Contractors Visitors	Monitor reliable weather forecasts - cancel site work in advance if this seems sensible and warn staff accordingly – particularly remote sites with poor transport links	L	CM SA A PC	Weekly review required on project by SA or HSM, amend control measures when circumstances change if required
Snow/ ice covered ponds holes full of water = falls into water	x							
freezing temperatures, = chill blains frost bite, reduction of immune system)		x						
Frozen ground – risk of injury using hand tools		x						
Snow, sleet, hail, rain, - soaking wet and cold – sores, poor visibility risk of falls etc		x						
high winds - wind chill, risk of falls and flying objects	x				Ensure staff can get to and from work safely in reasonable time – send home early if necessary to ensure safe arrival			
					Consult with other contractors where applicable e.g. principal contractor			
					Ensure drying and heating in welfare facilities			
					Assess site conditions before commencement of			

Poor transport links – risk of stranding	x				<p>each shift – if further work is impractical/dangerous call work off for specified period</p> <p>Assess ground – do not instruct staff to use hand tools on heavily frozen ground or in heavy rain</p> <p>Keep walk ways and pedestrian route clear of debris and ice and snow, mud where practicable</p> <p>Deep Snow on ground – check barriers/warning signs still in place around all deep holes</p> <p>Ensure that staff have correct PPE – eg gloves, hi vis waterproofs, padded coats</p> <p>Wear warm clothing beneath PPE</p> <p>Ensure staff are fit and healthy</p> <p>Rotate staff to reduce exposure to extreme conditions</p> <p>If in doubt contact Health and safety compliance manager</p>			
All persons affected by this hazard must be made aware of the contents of this Risk Assessment								

MOLA RISK ASSESSMENT				ALL AREAS/TRENCHES	REFERENCE NO: 0042			
PROJECT: Victoria Dock Portal								
ACTIVITY/TASK/HAZARD: SPOIL MOUNDING				COMPLETED BY: L Davies	DATE COMPLETED: 06.12.12			
TO BE READ IN CONJUNCTION WITH: Method Statement								
Hazards	Initial Risk Rating			Persons Affected	Control Measures	Remaining Risk L/M/H	Action By (initials)	Reviewed/amended On site (date & initials)
	L	M	H					
Plant and materials falling into trench	x			Staff Contractors Visitors	Substantial barriers must be erected around excavation shafts greater than 2m deep	L	CM SA A PC	Weekly review required on project by SA or HSM, amend control measures when circumstances change if required
Dust		x			Spoil and materials must be stacked at safe distance from trench, welfare facilities and similar, occupied premises and site perimeter			
Mudslides	x				Safe distance to be determined by competent person – depends on size of mound, depth of trench etc			
contaminated soil	x							
Slippery barrow runs			x					

Overloaded barrows	x			<p>Spoil not to be mounded in hazardous way - c45 degree slope maximum</p> <p>Edge of excavations to be kept clear of loose rubble, spoil, materials etc</p> <p>Barrow runs to be kept clear and secure, youngmans staging or similar to be used where appropriate, to be fitted with toe boards and guard rails as appropriate</p> <p>Mounded spoil to be covered or damped down in dry dusty conditions</p> <p>Large Spoil heaps to be closed in heavy rain or snow and monitored for slippages</p> <p>Top soil and similar to be stored separately from hazardous waste</p> <p>Contaminated spoil to be removed from site by licensed waste carry only to a licensed tip site and all journeys logged on site and at tip site</p> <p>Do not block drains, sewers, manholes, water courses, with spoil</p>			
<p>All persons affected by this hazard must be made aware of the contents of this Risk Assessment</p>							

7. Health and Safety Control Measures

7.1. Site Access/Vehicle Movements

On arrival at the site, MOLA staff will sign in, establish contact with the nominated Site Manager (or equivalent) attend any inductions etc. in accordance with the required access procedure for the site (to be notified to MOLA in advance by the Principal Contractor). All MOLA staff working on site will carry identification and CSCS cards.

Safe access routes from the site gate to work Areas and any offices and/or facilities will be erected and maintained at all times throughout the course of the archaeological monitoring of the works by the Principal Contractor.

7.2. Services and Ground Hazards

The location and making safe of live services before or during archaeological works is the responsibility of the relevant Principal Contractor in control of the site. MOLA staff will exercise care and due diligence and report any discovery of unexpected services or other ground hazards promptly to the Principal Contractor, Project Archaeologist and MOLA H & S Officer.

8. Safety of Excavations

8.1. Entering the Trench during Evaluations

- MOLA staff will not enter any excavation until the Principal Contractor has issued a Clearance to Enter Permit confirming that it is safe to do so and that there is safe access/ingress to the archaeological investigation areas. The Principal Contractor will also ensure that the excavations are maintained in safe condition for the duration of the archaeological investigation. The Principal Contractor will supply attendances as required in 9.1.

8.2. Confined Spaces

- The trenches may be designated confined spaces if sufficient depth is reached. All MOLA staff working in such designated areas will be trained to work in Confined Spaces. See Appendix, section 6.7.
- The Principal Contractor or appointed specialist sub-contractor is responsible for monitoring and control of Confined Spaces, and for provision of gas monitoring, rescue equipment, and other equipment or procedures required. The appointed PC/sub-contractor 'top man' will carry out an initial assessment of the confined space atmosphere and continually monitor at regular intervals, recording this as excavation progresses. All personnel will be trained in confined space working and deemed to be competent.

8.3. Machine Excavation

- Machine excavation will be monitored by MOLA Senior Archaeologist/ Site Supervisor, but will at all times be under the control of the Principal Contractor.

8.4. Hand Excavation during Evaluation

- Hand excavation will be limited to selected times/areas defined by the MOLA Senior Archaeologist/ Site Supervisor, with the agreement of the Principal Contractor, and will be properly fenced, demarcated and signed.

8.5. Lone Working

- MOLA Supervisor will not attend works or enter excavations when the Principal Contractor is not present.

8.6. Contamination

- MOLA has been issued with the Contaminated Land Risk Assessment report for Victoria Dock Portal (Doc. No. C340-VIN-T1-RGN-CR144_PT003-50005). Any necessary remedial action will be agreed with the Principal Contractor as part of the H & S Plan and supplied as an attendance item (9.1 below). Wherever possible such action must be undertaken by the Principal Contractor prior to MOLA commencement on site. If this is not done there may be operational constraints on the MOLA safe method of working that could restrict achievement of the archaeological scope of works set out in the SS-WSI.
- The contaminated land risk assessment classes the site as Category 2 Medium Risk. This is defined as “*sites where contamination is suspected to be present although the potential for impact upon receptors is likely to be limited*”.
- This risk assessment identified the main risks as coming from contamination of railway ballast and made ground, and inhalation of gasses and vapours (particularly in confined spaces).

8.7. Ordnance

- In the event of MOLA not having been issued with an Ordnance Report from the Principal Contractor all MOLA Staff shall comply with the PC's rules. If Ordnance is unexpectedly found the MOLA Supervisor shall inform the PC immediately and withdraw to a safe place outside the area designated by the PC.

8.8. Site Rules

- All MOLA Staff will comply with the Principal Contractor's site rules and with the MOLA single person watching brief rules (when applicable).

9. Planning and Resources

9.1. Principal Contractor's Supply of Attendances

The site specific requirements for services, facilities and attendances to be provided by the Principal Contractor, to enable MOLA to undertake the defined archaeological works are set out below. Those items in **bold will be required** for this site – others may be required, depending on site conditions, which will be reviewed on site by the MOLA Supervisor in conjunction with the Principal Contractor's nominated Site Manager:

- **general site security** including hoardings, gateway, warning notices, etc; to create a secure site perimeter, sufficient to prevent unauthorised access. If the Principal Contractor has retained security guards, it is recommended that the archaeological investigation areas be added to their schedule for regular patrols, particularly out of hours.
- **specific site security**: it may be necessary to separately secure individual archaeological trenches via a physical barrier (such as Heras fencing) eg if there are public areas nearby or human remains are encountered.
- **providing safe access** to the site and the specified archaeological investigation areas via separately identified pedestrian routes, signing, safety guard-rails, secure ladders etc. This includes segregating these areas from any vehicles and plant operating nearby eg via a robust physical barrier.
- **adequate ventilation** and protection from noise, fumes and dust where plant is in use, especially within standing buildings
- **managerial services** – nominated points of contact for Principal Contractor and other key members of development team.
- **technical advice** to be available if required (eg via client or Principal Contractor's consulting engineer) re protection of adjacent streets and buildings, removal of obstructions, depth of excavation, live services etc.
- **site accommodation and welfare facilities with electricity and water**. To include at the worksite furnished main base cabin as work space; separate male/female changing areas, toilets and washing facilities; plus additional steel cabin for secure storage of MOLA PPE, equipment, camera and paperwork and finds. For the basic monitoring component of a small watching brief, these facilities would normally be shared with the Principal Contractor's site establishment and separate work space is not normally required. For the general watching brief on combined utilities, shared desk space and lockable storage (eg small cabinet) for site paperwork will be required.

- **site preparation and clearance.** Removal of structures, vegetation, rubbish, spoil heaps, demolition materials, slab, modern obstructions, infill, made ground, etc. as required, prior to and during the archaeological investigation. The majority will be mechanical excavator, under archaeological supervision, but occasional hand work by labourers may be needed (eg clearing individual obstructions or removing spoil from investigation areas if the machine cannot re-enter).
- **transport/mounding/storage of spoil** from archaeological investigation areas. This includes removal from site, if necessary.
- **filling back and reinstatement** upon completion (trenches are normally backfilled, for safety reasons, unless there are client instructions to the contrary).
- **supply of plant and equipment;** principally a mechanical excavator of appropriate size; supplied with driver, breaker, toothed digging bucket and toothless ditching blade. Other plant such as dumpers, compressor/breakers, hoist and pumps may also be needed.
- **accreditation and supervision of operatives, plant and equipment,** including supply of sufficient qualified banksmen/supervisors to control plant movements and adequate certification for plant and operatives.
- **temporary support:** design, installation and maintenance of appropriate temporary support to excavations, where deeper than c 1.2 m (or as required in unstable ground). This will be via benching/battering back and/or shoring, depending on depth and ground conditions.
- **other safety measures in deep excavations:** monitoring of air quality and provision of rescue facilities and equipment in any areas defined by the Principal Contractor as a confined space. Where hoists are used in shored trenches, MOLA staff shall leave the excavation before hoisting of bucket takes place and not under normal operations re-enter until bucket is lowered back into position: Unless:
 - suitable space or protection is afforded within the trench so that staff will not be at risk should the bucket fall;
 - a banksman or topman is constantly present to ensure that the bucket is not re-lowered or suspended over the trench while staff are working in the trench;
 - there is clear agreement that the hoist or machine operating as a hoist will not be in operation for a specified time period at that location and will not in any case recommence operations without the agreement of the MOLA supervisor or suitable deputy.
 - Where mechanical or electrical hoists are in use in larger excavation trenches, the area in which the hoist is in use must be clearly demarcated and no staff will enter this area while the hoist is being raised or lowered or in the interval between these operations except under the circumstance specified above.

- *pumping-out*: a suitable method to keep the trenches dry, eg pumping into a previously investigated trench, to create a sump.
- *temporary roofing (not required)* to archaeological excavations (eg clear plastic sheets on scaffolding frame). Needs to have adequate water drainage and ventilation. Local, portable frames would only be required if significant remains are present. There is no need for routine roofing of all excavation areas.
- **110v. site lighting and power supply** for access routes to excavations, plus individual task lighting within trenches (eg tripod-mounted spotlights) if required. The need for lighting depends on the depth, season and weather conditions or on ambient light level if working inside a standing building
- **locating and making safe any live services or hazardous substances (above or below ground)**: preliminary services searches should be carried out by the Principal Contractor via the statutory undertakers etc, plus on-site inspection and testing where required. Where there is reason to believe from previous uses that the ground or adjacent buildings may be contaminated the Principal Contractor should make arrangements for advance inspection, sampling, testing and where necessary specialist remediation. The results of such surveys should be forwarded to MOLA *prior to commencement on site*. Any identified hazards will be addressed in the health and safety planning. Any unexpected hazards encountered during the investigations will also need to be made safe by the Principal Contractor before archaeological fieldwork may continue. In the event of the accidental disruption of a live service by archaeologists or sub-contractors under archaeological supervision the MOLA supervisor will inform both their project manager and the Principal Contractor and, when appropriate, call the relevant emergency number.
- **development of a safe method of working**: archaeologists will not be able to work within excavations whilst attendances (such as installing temporary support or removing spoil) are taking place, and when demolition, construction or heavy plant activity occurs adjacent or overhead.
- **First Aid**: provision of First Aid facilities, and an emergency plan. On evaluations or watching briefs with small numbers of staff, MOLA may not be able to supply a first aider. In that case, the services of the Principal Contractor's qualified first aider(s) may be required.

9.2. Equipment

Equipment will be supplied by the MOLA equipment central store:

- First Aid Kit
- Hand tools, dumpy levels, stationary, grid pegs, digital camera, etc.

- Power auger if required

Any specialised equipment such as power augers will have certification of maintenance kept at MOLA headquarters.

9.3. PPE

All MOLA staff are supplied with and will wear or use the following PPE where required and as appropriate:

Safety Helmets (EN397)

Ear Defenders (EN 352-3)

Safety spectacles (EN166)

Dust masks plain and valved (EN149 2001)

Hi-visibility vests (EN471)

Gloves Nitrile and latex disposable, PVC, EN374

Safety footwear - steel toecap and mid-sole boots and Wellingtons EN345-47 (No riggers are allowed)

Flame retardant overalls

9.4. Staff

The timing and overall duration of the evaluation and the various watching brief/evaluation tasks listed earlier will be determined by the contractor's programme and the nature and extent of any surviving remains. It is envisaged that General Watching Briefs will be initially carried out by one MOLA Supervisor, with a second archaeologist coming in to assist with any recording work if required. The evaluation will be supervised by one MOLA Supervisor assisted by an adequate number of field staff, depending on the number and size of trenches that are to available to be worked. Other archaeological specialists may be called in if necessary.

10. Briefing Arrangements

10.1. MOLA Staff Induction – New Starters

- All MOLA staff shall receive a full induction including Health and Safety on commencement of their first day of work with the organisation. A record of the induction is kept.
- The MOLA Supervisor will be briefed by MOLA Contracts Manager/Assistant Contracts Manager on all relevant aspects of work before work commences. This briefing will include all SS-WSI, Method Statements (PC's and including this document.
- The MOLA Supervisor will be responsible for briefing any other MOLA staff on site before they commence work on all aspects of the work and documents.

10.2. Site Specific Inductions, Weekly Briefings and Tool Box Talks

- Where a site is under the control of a Principal Contractor (as in this case), MOLA staff will attend all initial site inductions and subsequent toolbox talks as required and managed by the Principal Contractor.
- The MOLA supervisor will attend the daily Principal Contractor's site meeting/briefing at 12pm.
- Irrespective of whether the site is controlled by MOLA or a Principal Contractor, on larger projects, e.g. those with more than 2-3 staff and of a week or longer duration, regular toolbox talks will be given by the MOLA Senior Archaeologist or other suitable member of staff using the CITB: construction site safety tool box talks manual. As a minimum requirement these talks will occur 1-2 times per week and be of 10-15 minutes duration.

11. First Aid

11.1. Trained First-Aid Personnel

During the evaluation there will be at least one MOLA staff, who is a qualified First Aider (i.e. 3 day F.A. at work course) present on site.

11.2. First Aid Documents

The MOLA site safety documents will be located with the first aid kit in the site office/mess hut/canteen. The safety documents will include a minimum of:

- Current Health and Safety at Law Poster for display where legislation requires
- Accident Book compliant with the Data Protection Regulations.

- MOLA Public Liability Insurance & Employers Liability Insurance for display
- Where To Get First Aid poster – to be displayed if required.
- Current MOLA Health and Safety Policy
- A copy of the site Welfare, Health and Safety Method Statement, extracted from the Site WSI, and modified as agreed during the course of the site.

11.3. First Aid Equipment

A MOLA First Aid kit, of an appropriate size for the site, will be located in the site office/mess hut/canteen or in the case of a small watching brief a 'bum bag' will be carried by the MOLA Supervisor at all times.

12. Accident, Incident, Near Miss and Environmental Incident Reporting

12.1. Reporting of Accidents/Incidents and Dangerous Occurrences

The Reporting of Injuries, Diseases and Dangerous Occurrences (RIDDOR) Regulations, 1995 sets out requirements for the reporting of certain types of accidents. RIDDOR notifiable accidents will be reported immediately by the MOLA site supervisor as specified in Section 17.5 (main document).

12.2. Documentation

In order to identify quickly problem areas and allow corrective action to be taken all accidents, dangerous occurrences and near misses, including those that do not cause injury, will be reported immediately to Section 9 (main document):

- Principal Contractor's Site Manager
- MOLA supervisor
- MOLA H & S officer
- MOLA Senior/Contracts Manager
- Crossrail Project Archaeologist
- Crossrail Helpdesk.

The site accident book for both the Principal Contractor and MOLA should be filled in giving details of the incident.

12.3. Investigation of Accidents and Dangerous Occurrences

MOLA will comply with the Principal Contractor's and Crossrail procedures.

MOLA will also initiate internal procedures as follows:

- Initial accident/incident report to MOLA Senior Contract Manager and Field Manager and action taken as appropriate.

- Non Riddors investigated by Senior Contract Manager/Field Manager.
- Riddors investigated and reported on to Senior Management Consultant by MOLA H & S.

12.4. Key MOLA Project Personnel

- George Dennis, Senior Project Manager, MOLA
- David Divers, Project Manager, MOLA
- Mike Smith, Fieldwork Director, MOLA

13. Emergency Procedures – Site General

All MOLA staff will comply with the Principal Contractor's procedures as outlined at the Site Specific Induction.

14. Emergency Services Contact Details

Full Accident and Emergency:

Newham General Hospital
Glen Road
Plaistow
E13 8SL

Tel: 020 7476 4000

The MOLA supervisor will dial 999 for fire, ambulance and police in the case of an emergency if the Principal Contractor's Site Manager or his deputy is not present on site.

15. Route to Hospital

The Principal Contractor will advise on route to hospital at their site specific induction. The location and directions will also be displayed in the site offices and canteen.

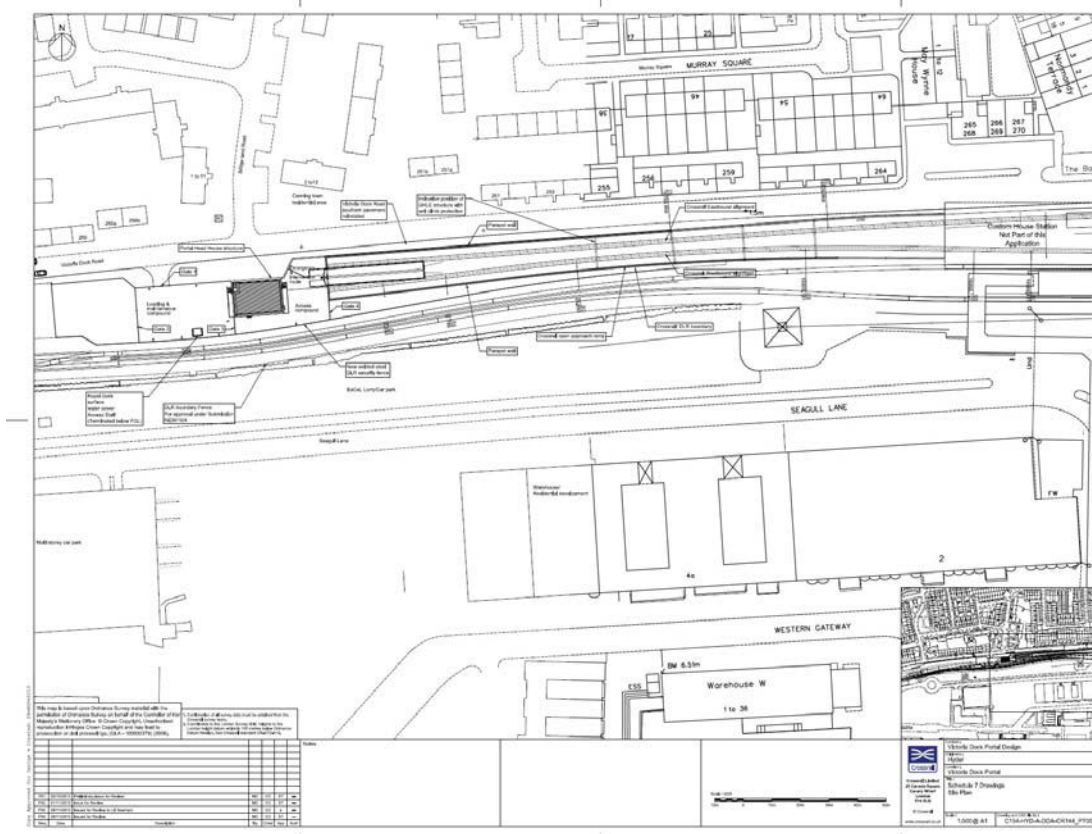


Fig 1: Site location

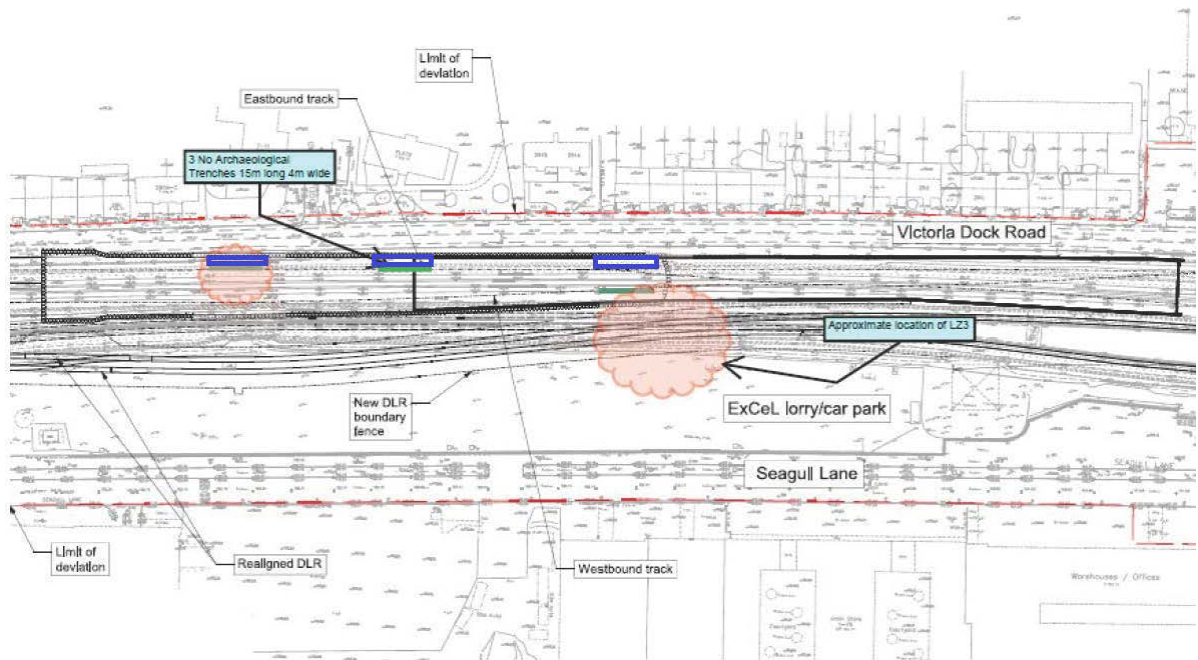


Fig 2: Location of evaluation trenches

Original location shown in green; revised location in blue.