Gasholder Triplet re-erection site (formerly the site of the Western Goods Shed) Kings Cross Central London N1

London Borough of Camden

Written Scheme of Investigation for an archaeological watching brief

National Grid Reference: 530001 1836315

Project Manager *David Divers*

Mortimer Wheeler House, 46 Eagle Wharf Road, London N1 7ED
tel 0207 410 2200 fax 0207 410 2201 email enquiries@mola.org.uk
Company number 7751831; Charity number 1143574

13 May 2014

Gasholder Triplet re-erection site (formerly the site of the Western Goods Shed) Kings Cross Central London N1

Written Scheme of Investigation for an Archaeological Watching Brief

Site code – KGA11

Sign-off History:

Issue No.	Date:	Prepared by:	Checked/ Approved by:	Reason for Issue:
1	07-04-2014	Pat Miller	David Divers	Draft for client comment
2	07-05-2014		David Divers	Revised following client comment
3	13-05-2014		David Divers	To be issued

Mortimer Wheeler House, 46 Eagle Wharf Road, London N1 7ED
tel 0207 410 2200 fax 0207 410 2201 email generalenquiries@mola.org.uk

Non-technical summary

The purpose of this 'written scheme of investigation' is to present an archaeological strategy for a programme of archaeological work to be undertaken in order to discharge condition 56 attached to the Kings Cross Central Outline Planning permission for the redevelopment of the Gasholder Triplet re-erection site (formally the site of the Western Goods Shed).

The document has been prepared by Museum of London Archaeology (MOLA) at the request of the applicant, Kings Cross Central General Partner Ltd.

The programme of archaeological work that will be undertaken on the Gasholder Triplet re-erection site (formerly the site of the Western Goods Shed) Kings Cross Central is detailed in this document and comprises a watching brief during any ground reduction and groundworks that could affect archaeological remains.

Accordingly, this document sets out the methodology that MOLA will employ to achieve the research aims and discharge the planning condition.

Contents

Figures

1 Introduction

1.1 Objective of this Written Scheme of Investigation

This Written Scheme of Investigation (WSI) for archaeological investigation is submitted in support of the Reserved Matters submission for the Gasholder Triplet re-erection site (formerly the site of the Western Goods Shed) forming part of the Kings Cross Central development site.

Specifically this WSI is submitted pursuant to Condition 56 (archaeology) attached to the King's Cross Central (KXC) Outline Planning Permission dated 22 December 2006 (ref. 2004/2307/P). It has been commissioned from Museum of London Archaeology (hereafter MOLA) by the applicant, King's Cross Central General Partner Ltd.

Volume 2, parts 9 and 10 of the Environmental Statement (ES) submitted with the KXC outline planning application comprise the Cultural Heritage Specialist Report and Archaeology Specialist Report, respectively. Part 10 includes an account of the known archaeological conditions within KXC, and determines archaeological potential. It discusses mitigation objectives incorporated within the development proposals based on anticipated effects.

This document provides the strategy for archaeological investigation and mitigation of the potential effects on the site for the ground reduction and any other groundworks forming part of the proposals for the Gasholder Triplet re-erection site (formerly the site of the Western Goods Shed). It commits to undertaking appropriate specified archaeological works in a manner prescribed by the method statement contained herein. As such, the document fulfils the requirements of Condition 56 of the Outline Planning Permission in so far as it applies to the Gasholder Triplet re-erection site (formerly the site of the Western Goods Shed).

1.2 Site Context and Development Proposals

The approved KXC scheme comprises the phased, mixed-use development of the former King's Cross Railway Lands to include commercial, cultural, educational and residential uses, together with new public realm and associated infrastructure. In this context, the proposed scheme for this part of the site is for the construction of a basement, over which the Gasholder Triplet will be re-erected and new buildings constructed within their frames. Associated groundwork will include ground reduction and localised excavations for piles and new foundations. Details of the groundworks associated with these proposals are set out in Section 1.5 of this WSI. Fig 1 shows the location of the site in the wider context of the KXC development.

The site comprises the area within the KXC development site previously occupied by the Western Goods Shed, and is bounded by the Regent's canal to the southwest, the Western Coal Drop building to the east and a temporary road and development plots P1 and P2 to the north. The centre of the site lies at National Grid reference 530001 183631.

The site is currently occupied by the lower floor level and retaining walls of the Western Goods Shed. The immediate locality is fairly level, generally just below 21m

OD, while the surrounding ground slopes very gradually from the north-east down to the south-west. Fig 1 shows the site boundary of the area covered by this document.

1.3 KXC Outline Planning Permission

Condition 56 of the Kings Cross Central Outline Planning Permission requires a programme of 'Archaeological Investigation and Mitigation' to be carried out during the implementation of the scheme. Details of Condition 56 are as follows:

> *No development shall take place in relation to each phase of Development as notified under condition 21 until the applicant, their agent or successors in title has secured the implementation of a programme of archaeological work in accordance with a written scheme for investigation which has been submitted by the applicant and approved by the local planning authority.*
>
> *Reason: Important archaeological remains may exist on the site. The requirements of this condition are to secure the provision of archaeological investigation and the subsequent recording of the remains prior to development and to minimise damage to them in accordance with the Environmental Impact Assessment, in accordance with the policy B8 of the London Borough of Camden Replacement Unitary Development Plan 2006.*

This condition was imposed as a means of securing the mitigation measures identified and proposed within the KXC Environmental Impact Assessment and the resulting ES.

Generally for the Central Area of the KXC development (as defined in the Cultural Heritage Specialist Report and Archaeology Specialist Report in the ES), an Archaeological Watching Brief process was determined to be the most appropriate mitigation measure, due to large areas having been just used as railway sidings

This document sets out the strategy to ensure that archaeological objectives set at the outline stage are achieved.

1.4 Archaeological Background

1.4.1 Summary History of the Site

The findings of the KXC Environmental Impact assessment and other research indicate that no pre-industrial aged archaeological remains have been found on the Kings Cross Central site. Furthermore, the history of development shows the site to have 'no', or just local, archaeological potential related to all pre-industrial periods.

The character of activity on the site relating to the pre-industrial period can be summarised as follows:

- Wooded landscape in prehistoric times with increasing small scale clearance for farming from the Neolithic period onwards.
- Agricultural landscape from the Roman through to the post-medieval period on the eastern flanking slope of the Fleet Valley.
- Shallow quarrying for weathered clayey soils for brickmaking during the 17th and 18th century.

The site lay on the London hinterland before development in the 18th century following the building of the New Road from Paddington to Islington in 1756. Cartographic evidence shows the progressive development of the rural area by urban expansion, culminating in industrial colonisation associated with the Regent's Canal, opened in 1820, and two major railway termini, King's Cross built in 1851-2 and St Pancras built in 1863-8. The canal interchange was an integral part of the mid-19th-century goods yards and depots which lay to the north of Kings Cross Station.

The mid-19th century creation of the Great Northern Railway Goods Depot saw the following activities develop in the northern part of the Kings Cross Central site:

- In the north, the terracing back of the gentle south facing slopes to create a sub-horizontal ground surface.

- In the south, the raising of ground level with spoil from the north end of Kings Cross Central, to complete the level landscape as it approaches the Regent's Canal.

- Construction of an arrangement of buildings and structures servicing the railway industry.

- Construction of a vast network of railway tracks throughout the northern part of the site.

The site is bounded to the south-west by Regent's Canal, which was constructed in 1812–20 and named in honour of the Prince regent (later King George IV). As the site possessed good road and canal communications, it was chosen for the site of King's Cross station and its goods yard. The Great Northern Railway Company goods yard opened in 1850. Initially the goods yard included a stone and coal basin connected to the Regent's Canal by a portal, the site of which is located in the south-east corner of the site.

The next major phase of development on the site saw the infilling of the canal basin and the construction of the Western Goods Shed. Work on the latter began in 1897, and it was opened in July 1899. The building had rail and road access at two levels. The lower level was at the same level as the former canal basin. Road vehicles could gain access to loading platforms or 'banks' via cart-roads at both levels, whilst railway wagons entered the building on tracks from the north. The wagons were pulled into and around the building by hydraulic capstans.

Railway functions continued on the site from the mid-19th century through to the period after World War II with some damage sustained by structures as a result of German bombing. The period between the 1960s–1980s marked a decline of the railway for the transportation of goods, resulting in the phased demolition of some of the buildings in the northern part of the KXC site and the removal of most of the railway sidings. Save for the listed buildings within the Eastern Goods Yard, the Western Goods Shed, Regeneration House, the Coal Drops and the Fish & Coal Offices/wharf Road arches, all residual railway related infrastructure was subsequently removed as part of the CTRL works between 2001 and 2003.

1.4.2 Structures/features in the Vicinity of the Proposed Works

The eastern majority of the site had originally been occupied by the Coal and Stone Canal Basin which was constructed as part of the first phase of the Goods Yard's development during the first years of the 1850's. The basin which is shown on the Ordnance Survey map of 1871 was U-shaped with railway tracks on a central spur into the basin from the north. The western arm of the basin is shown to be partially backfilled on the 1895 edition of the Ordnance Survey map, presumably in preparation for the construction of the Western Goods Shed.

The western Goods Shed was built 1897–99 for the Great Northern railway in order to provide a building to house outward goods traffic at the Kings Cross Goods Yard as until then outwards and inwards traffic had been mixed together in the Granary and its two adjoining transit sheds which caused delays. The Western Goods Shed was a large two-level shed which originally had tracks entering on both floors. The early steel framed building, which relied on load bearing brick walls and the adjacent Western Coal Drops building and the walls of disused canal basin.

All manner of goods from road to rail were transferred and sent from the building, until 1938, when it was transferred to cater for inwards goods traffic, swapping roles with the Granary and transit sheds of the eastern goods yard. The building was converted into light industrial use after British Rail abandoned the site in the 1980s.

1.4.3 Previous archaeological work on the site

An evaluation and sample excavation took place on the site in January and February 2014 under site code KGA11 (MOLA 2014). The work included the excavation of two archaeological trenches. Initially the trenches were cleared of recent demolition debris and in some areas make-up dumps used in the construction of the Western Goods Shed were exposed. In other areas concrete and cobble surfaces visible prior to excavation were left intact until they were recorded. During the second stage, areas of slab/ground surfaces were broken out and the trenches were excavated to a depth of generally *c* 0.5m In addition, the excavation of fourteen geotechnical test pits for investigation by BAM was monitored and recorded. Some were dug as part of the geotechnical investigation, but were also used to investigate structural features of archaeological interest. The locations of the trenches and test pits is shown superimposed on the 1871 and 1930 Ordnance Survey maps (Fig 2 and Fig 3).

The archaeological trenches revealed walls of a canal basin (built in c 1850) associated with the former railway goods yard on the north side of Regent's Canal. The walls were made of brick and represented a quay projecting into the basin. The area enclosed by the wall was filled with clay dumps. The upper courses of the brick wall and surfaces associated with the quay had been completely removed prior to the construction of the Western Goods Shed (built 1897–9). The goods shed was built over the canal basin, which had been infilled with clay. Several features associated with the lower level of the goods shed were recorded in both trenches and geotechnical test pits across the site, including stanchion bases, make-up dumps and fill, railway lines, a wagon turntable, a wall probably associated with a platform within the building, and surfaces cobbled with granite setts and in parts, concrete.

The tops of walls generally lay at depths of *c* 0.30m below ground level and stanchion bases at *c* 0.60–0.80m below ground level. These structures generally extended down to depths of between *c* 1.4 and 2.5m below ground level.

Natural deposits were not definitely identified in any of the trenches or test pits. There was no evidence of activity pre-dating the canal basin, which is unsurprising as the

construction of the canal basin would probably have completely removed any evidence for earlier activity on the site.

The evaluation indicated potential for survival of structures, and deposits relating to the canal basin and the lower level of the Western Goods Shed on the site is high. However, while the lower part of the canal basin wall survives, the potential for the survival of surfaces relating to it appears very low due to horizontal truncation, presumably during the construction of the goods shed. The evaluation provided a representative sample of the archaeological remains on the site, and the results of the investigation correspond closely to information on historic maps and plans. The evaluation results suggest that there would be high potential for similar industrial archaeological remains across the entire site.

1.4.4 Quantification of the Archaeological Resource

Late 19th/early 20th-century structural remains relating to the Western Goods Shed included concrete and cobble surfaces, railway tracks, turntables and other features that survived at or just below current ground level. Generally, the surface of the Western Good Shed was at ground current level, or just below, and make-up dumps. Remains relating to the Western Goods Shed included concrete and cobble surfaces, walls, foundations, rails, a turntable and other equipment. Generally, railway tracks and surfaces were present in the top 0.30m and make-up dumps in the top 0.60m. The turntable, which was partly visible at ground level, extended down to a depth of *c* 0.50m. The deepest structures were walls of the canal basin and foundations of the goods shed that could extend down to depths of *c* 2.5m below current ground level.

The structural evidence relating to the canal basin and the goods shed, and railway infrastructure relating to the latter were the most significant remains. They possess considerable group value as an integral part of the railway goods yard at King's Cross, which in its entirety formed a unique and nationally important industrial landscape covering some 59 acres. The make-up dumps and fill provide information about the sequence of construction and demolition, but otherwise have relatively little archaeological value.

The evaluation results suggest that the impact of the proposed redevelopment on the industrial archaeological remains would be variable. Surfaces, make-up dumps and railway equipment relating to the Western Goods Shed, which generally survive in the top 0.60m, would all be removed during ground reduction along with the upper parts of the canal basin walls and the deeper walls and foundations relating to the goods shed, leaving only the lower parts unaffected by ground reduction. However, any deeper archaeological remains in the location of new foundations and piles, or buried services, would be either partially or completely removed.

1.5 Outline of Proposed Groundwork's

As noted in Section 1.2, the proposals involve ground-reduction and groundworks within the Gasholder Triplet re-erection site (formerly the site of the Western Goods Shed).

The proposed redevelopment at the site will comprise the construction of a basement, over which the Gasholder Triplet will be re-erected and new buildings constructed within their frames, the proposals for the site are shown on Fig 4 (Arup Drawing KX_ARP219694_S_N1_0998, issue P1 undated). Associated groundwork

will include ground reduction across the site, and localised excavations for new piles and foundations.

The proposed groundworks within the scope of this WSI can be summarised as follows:

- Ground reduction of approximately 1.0m across the majority of the site.
- Isolated deeper excavations for piles and foundations.

1.6 Status of Document

This document forms the Written Scheme of Investigation for archaeological investigation and mitigation in respect of development groundworks on the site of the Gasholder Triplet re-erection site (formerly the site of the Western Goods Shed), as required under Condition 56 of the Kings Cross Central Outline Planning Permission. The archaeological objectives set out in Section 2 of this document are based on the anticipated archaeological potential within the area of the proposed works, as assessed at the outline planning stage and set out in the Kings Cross Central ES.

This document sets out the methodologies which will be followed during the on-site works and during the post-excavation analysis and reporting stages. These will follow the Standards and Code of Practice laid down by the Institute for Archaeologists.

1.7 Museum of London Archaeology

Museum of London Archaeology is a company limited by guarantee registered in England and Wales with company registration number 07751831 and charity registration number 1143574. Registered office: Mortimer Wheeler House, 46 Eagle Wharf Road, London N1 7ED.

2 Objectives of the archaeological work

2.1 General considerations

2.1.1 Watching brief

The purpose of an archaeological watching brief as defined by the Institute for Archaeologists (IFA, 2008) is to

"record the archaeological resource during development within a specified area using appropriate methods and practices. These will satisfy the stated aims of the project, and comply with the Code of Conduct, Code of approved practice for the regulation of contractual arrangements in field archaeology, and other relevant by-laws of the Institute for Archaeologists."

A watching brief is further defined by the Institute for Archaeologists as:

"a formal programme of observation and investigation conducted during any operation carried out for non-archaeological reasons. This will be within a specified area or site on land, inter-tidal zone or underwater, where there is the possibility that archaeological deposits may be disturbed or destroyed. The programme will result in the preparation of a report and ordered archive.

This definition and Standard do not include chance observations, which should lead to an appropriate archaeological project being designed and implemented, nor do they apply to monitoring for preservation of remains in situ."

In all cases, a watching brief will be intended:

- *To allow, within the resources available, the preservation by record of archaeological deposits, the presence and nature of which could not be established (or established with sufficient accuracy) in advance of development or other potentially disruptive works.*

- *To provide an opportunity, if needed, for the watching archaeologist to signal to all interested parties, before the destruction of the material in question, that an archaeological find has been made for which the resources allocated to the watching brief itself are not sufficient to support treatment to a satisfactory and proper standard.*

A watching brief is not intended to reduce the requirement for excavation or preservation of known or inferred deposits, and it is intended to guide, not replace, any requirement for contingent excavation or preservation of possible deposits.

The objective of a watching brief will be intended to establish and make available information about the archaeological resource existing on a site.

2.1.2 Excavation

An archaeological excavation as defined by the Institute for Archaeologists (IFA, 2008c) will:

> *examine and record the archaeological resource within a specified area using appropriate methods and practices. These will satisfy the stated aims of the project, and comply with the Code of Conduct, Code of approved practice for the regulation of contractual arrangements in field archaeology, and other relevant by-laws of the IFA. It will result in one or more published accounts and an ordered, accessible archive.*

Excavation is:

> *a programme of controlled, intrusive fieldwork with defined research objectives which examines, records and interprets archaeological deposits, features and structures and, as appropriate, retrieves artefacts, ecofacts and other remains within a specified area or site on land, inter-tidal zone or underwater. The records made and objects gathered during fieldwork are studied and the results of that study published in detail appropriate to the project design.*

2.2 Site specific objectives and research questions

This statement sets out the methods used and approaches taken in dealing with the archaeological resource of the site. The detailed methodology is set in the context of the methods and approaches which are considered most appropriate for an Archaeological Watching Brief on sites in Greater London, in accordance with the advice contained in the English Heritage (GLAAS), *Archaeological Guidance Papers 1-5* (revised 1998) and English Heritage Centre for Archaeology *Guidelines* where appropriate.

All research is undertaken within the priorities established in the Museum of London's *A research framework for London Archaeology*, 2002.

Any data obtained during the proposed engineering/groundworks will be interpreted alongside other information obtained elsewhere in the northern part of the KXC site to provide a holistic picture of archaeological conditions across the development site.

The archaeological brief seeks to establish where, if at all, archaeological deposits may survive (presence/absence), recording where necessary, and to ensure that the proposed groundworks do not involve the destruction of any archaeological deposits of national significance. In addition, the brief can be used to clarify a number of more general research questions, specifically:

What is the nature and level of natural topography?

What are the earliest deposits identified?

Is there evidence of activity pre-dating the first phase of industrial development?

What further evidence is there of railway and canal features associated with the basin that previously occupied the site? Specifically

- Do the railway tracks or associated ground surface associated with the canal basin survive?
- Is there any evidence for lifting machinery of other features associated with the interchange of goods from rail to canal or *vice versa?*
- Do further walls of the canal basin survive, and how were they constructed?

What evidence is there of features associated with the western goods shed? Specifically

- Is there any further evidence for the former platforms (or banks) shown on the 1930 plan of the goods shed (Fig 3)?
- Is there any further evidence for the railway tracks or associated features between the banks?
- Is there any evidence for the cranes shown on the 1930 plan of the goods shed (Fig 3) or as the evaluation suggests have these been removed when the goods shed was demolished?

What are the latest deposits identified?

What is the extent of modern disturbance?

3 Watching brief methodology

3.1 General site methodology

Properly arranged, a watching brief will cause minimal disruption to site works and will take place within agreed constraints. Watching briefs are not recommended in circumstances where important or complex archaeological remains are liable to be discovered, resulting in a risk of conflict between the need to record archaeological finds and the need to allow building works to proceed.

Initial location and breaking-out of areas to be monitored in the watching brief will be monitored by MOLA staff.

In areas of archaeological interest the excavation and removal of deposits will proceed according to the reasonable advice and guidance given by the attending archaeologist.

Archaeologists will be allowed reasonable access in relevant areas of groundworks, so that deposits can be examined and recorded.

Trenches may require temporary shoring and groundworks might need to be temporarily re-scheduled in order to provide a safe environment for archaeological recording.

Provision will be made, at the earliest stage of development programming, for specified blocks of time to be made available for unrestricted archaeological access to areas of groundworks.

In addition to the excavation of man-made deposits, some assessment of any exposed 'naturally deposited' levels will be necessary, especially if these are organically preserved and laid down within archaeological timescales; for example alluvial deposits.

If deep cut features are found, such as pits and wells, they may need to be excavated to a greater depth than anticipated in the construction works, provided this is consistent with site safety.

Any finds of human remains will be left *in situ*, covered and protected. If removal is essential it can only take place under appropriate Faculty jurisdiction, Ministry of Justice (Coroner's Division) licence, environmental health regulations, coroner's permission, and if appropriate, in compliance with the Disused Burial Grounds (Amendment) Act 1981 or other local Act. Prior written notice will also be given to the local planning authority. It will be necessary to ensure that adequate security is provided.

Where archaeological remains are to be preserved *in situ* they will be adequately protected from deterioration. Normally this involves covering or wrapping the deposits and features in a geo-textile such as Terram and sealing this with a layer of sand or other suitable soft materials.

All finds of gold and silver, or other objects definable as 'treasure', will be removed to a safe place and reported to the local Coroner according to the procedures of the

Treasure Act 1996 and the Treasure (Designation) Order 2002. Where removal cannot be effected on the same working day as the discovery suitable security measures will be taken to protect the finds from theft.

The contractors will inform MOLA at least one week in advance of the start of the proposed groundworks.

A MOLA Site Supervisor will monitor the work and record any archaeological remains revealed in the appropriate manner (plans, sections, field notes and/or pro-forma 'context sheets'). Observations will be transformed onto the Ordnance Survey National Grid Projection and heights measured in metres above Ordnance Datum, by direct measurement from verified Ordnance Survey control points. Any necessary photographic records will be made using digital or conventional media as deemed appropriate. All recording will be carried out to the format and standards detailed in the *Archaeological Site Manual* (MoLAS, 1994).

If significant archaeological deposits survive in any area of the proposed groundworks, the contractors will allow the MOLA archaeologist(s) to record deposits as required.

On completion of the fieldwork a *Watching Brief Report* will be written. Where appropriate, the report will include specialist reports from, for example, Environmental and Finds team members. A short summary of the results of the work will be submitted to the Greater London HER and NMR (using the appropriate OASIS archaeological report form) and for publication in the appropriate academic journal. It may only be necessary, in fact, for the excavation to be reported in the 'Excavation Round-up' of the *London Archaeologist*. Such summary publication will meet the "minimum standards" set out in Appendix 7 of English Heritage's document *The Management of Archaeological Projects* (1991) and derive from a "phase 2 review" as defined therein.

3.2 Site-specific methodology

All phases of ground reduction within the site will be monitored by an archaeologist. These will include:

- Ground reduction of approximately 1.0m across the majority of the site.
- Groundworks for isolated deeper excavations for piles and foundations.

A watching brief will be maintained during all ground reduction and the localised excavations.

The results of the evaluation fit well with information in documentary records, and on historic maps and plans. This suggests that remains recorded during the evaluation are typical of the industrial archaeological remains on the site and form a representative sample. It is therefore considered that further detailed archaeological recording will add little extra information to what has already been leant during these investigations.

Further detailed recording of deposits and features similar to those already recorded during the evaluation and sample excavation will not be undertaken. However,

should significant archaeological remains be encountered that are unlike those already recorded, these will be exposed as far as is practicable within the area of the groundworks and recorded. A team of MOLA archaeologists will be mobilised if necessary to investigate the area using standard archaeological techniques.

Features such as turntables and any other large items of railway infrastructure will be set aside for detailed recording where practicable but will not be retained.

Where necessary, a local grid or baselines will be set up and tied into the Ordnance Survey by the MOLA Geomatics team.

Further investigation of archaeological levels will be carried out by hand unless the use of machines is specifically requested by MOLA. Manual recording in the form of measured plans, sections and record sheets will be undertaken.

In areas of archaeological interest, the excavation and removal of deposits will proceed according to the reasonable advice and guidance of the attending archaeologist who will be allowed time and access to record archaeological remains when reasonable and safe to do so.

Any temporary works associated with the excavation and recording activity will be supplied by the Principal Contractor. This includes safety guard rails, access equipment, lighting, duckboards and any shoring/battering required within the excavation areas to provide a safe environment for archaeological work.

4 General methodology

4.1 Recording systems

A unique-number site code KGA11 has been issued by the Museum of London Archaeological Resource Centre.

The recording systems adopted during the investigations will be fully compatible with those most widely used elsewhere in London, and those required by the Archive Receiving Body, the Museum of London.

The site archive will be so organised as to be compatible with other archaeological archives produced in the Museum of London. It will follow the Museum of London, *General Standards for the preparation of archaeological archives deposited with the Museum of London*, (2009). This requirement for archival compatibility extends to the use of computerised databases.

A 'site plan', based on the Ordnance Survey 1:1250 map (reproduced with the permission of the Controller of HMSO), will be prepared.

Plans and sections will be drawn on polyester based drawing film at a scale of 1:10 or 1:20. 'Single context planning' is preferred on deeply stratified sites.

4.2 Survey (Geomatics)

MOLA Surveying Standards: Standards of *precision* and accuracy are derived from the accepted standards of accuracy as used by chartered surveyors and defined by the Royal Institution of Chartered Surveyors. The implementation and maintenance of survey standards within MOLA is the responsibility of the Geomatics Manager and the Geomatics team. MOLA Geomatics is responsible for the capture and processing of all survey data, both on and off-site.

Establishment and maintenance of Grids: Planned archaeological data will be recorded with reference to a horizontal MOLA site grid or to baselines, and a vertical temporary Ordnance Datum OD point, implemented and maintained by the Geomatics team. The Site Supervisor(s) will be responsible for relating all planned records to these.

Tying in to National Grid: Sites where significant archaeological remains are uncovered will be tied in to the Ordnance Survey National Grid (OSGB36) by GPS or by establishing or tying-in to existing OS control networks. Tying site grids to features identified on OS mapping will only be used for sites without significant archaeological remains and where no qualitatively preferable survey solution is possible.

Survey Data: collection to archive: Survey data is collected using total stations and differential GPS receivers. . Survey data is processed using the following software: LGO, SCC, SDRMap, TGO, GeoSite, AutoCAD, ArcGIS and Oracle.

4.3 Photographic records

The overall site record will include photographs made using, as appropriate, high end digital, 35mm, medium and large format cameras. The photographic record will illustrate all significant phases, structures, important stratigraphic and structural relationships, and individual items of interest, including artefacts.

All site photographs, except 'working shots', will include a photographic scale of appropriate size.

When film is used, originals will be archivally processed and stored, contact prints will be produced and mounted on contact cards. Cards will be returned to the site supervisors for annotation during the excavation programme. Colour transparencies will be mounted and stored in archival conditions.

A computerised index will be compiled, relating image number, site photograph number, context numbers, excavation area, and other relevant information.

At the request of the client a file of site photographs may be produced and copied digitally to DVD or similar for them.

4.4 Treatment of finds and samples

It is unlikely that there will be many finds or samples removed from the site. Treatment, analysis and subsequent handling of all finds and samples will be carried out by MOLA Specialists.

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 the LPA Archaeological Advisor and the Regional Archaeological Science Advisor throughout the project, as appropriate. Subsequent on-site work and analysis of the processed samples and remains will be undertaken by MOLA Specialists.

Any organic samples will be subject to appropriate specialist analysis. There may be a requirement to submit timbers to dendrochronological analysis and to process some samples to provide C14 dating. Other forms of specialist analysis may also be appropriate.

The finds retrieval policies of the Museum of London will be adopted. All identified finds and artefacts will be retained, although certain classes of building material can sometimes be discarded after recording if an appropriate sample is retained. No finds will, however, be discarded without the prior approval of the curatorial departments of the Museum of London.

All finds and samples will be treated in a proper manner and to standards agreed in advance with the Museum of London. 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.

The programme of ceramic dating and analysis will be undertaken by MOLA Specialists.

Before commencing site works, MOLA will confirm in writing to the Local Authority that arrangements are in hand to cover all necessary processing, conservation and specialist analysis and storage of finds and samples.

4.5 Reports and archives

The integrity of the site archive will be maintained. All finds and records will properly be curated by a single organisation, and be available for public consultation. The finds from excavations provide an immensely valuable research archive, but the bulk of the material is of little or no financial worth.

Appropriate guidance set out in the Museums and Galleries Commission's *Standards in the Museum Care of Archaeological Collections* (1992), and the Society of Museum Archaeologists' draft *Selection, Retention and Dispersal of Archaeological Collections* (1992), will be followed in all circumstances.

The minimum acceptable standard for the site archive is defined in the *Management of Archaeological Projects* (1991) Section 5.4 and Appendix 3, and discussed in detail in the Museum of London, *General Standards for the preparation of archaeological archives deposited with the Museum of London*, (2009). The archive will include all materials recovered (or the comprehensive record of such materials as referred to above) and all written, drawn and photographic records relating directly to the investigations undertaken. It will be quantified, ordered, indexed and internally consistent before transfer to the Museum. It will also contain a site matrix (if generated), a site summary and brief written observations on the artefactual and environmental data. Copyright of the written archive will be vested in the Museum.

The Museum of London's guidance on the needs of digital storage and archival compatibility will be sought and followed.
United Kingdom Institute for Conservation *Guidelines for the preparation of excavation archives for long term storage* (1990), and the Museum of London, *General Standards for the preparation of archaeological archives deposited with the Museum of London*, (2009) will be followed.

Pursuant to these agreements the archive will be presented to the archive officer or relevant curator of the Museum within 12 months of the completion of fieldwork (unless alternative arrangements have been agreed in writing with the local planning authority).

After the completion of the fieldwork a period of off-site analysis of the records and photographs will be undertaken, along with a programme of documentary archive research top an appropriate level. The findings from the fieldwork and the archive research will be given in detail in the subsequent report, to be issued eight weeks after the completion of the site work, which will then be issued to the client.

A short summary of the results of the work will be submitted to the Greater London HER and NAR (using the appropriate archaeological report forms), and for publication in the 'Excavation Round-up' of the London Archaeologist.

It is possible that there will be a requirement by the Local Planning Authority's designated representative/advisor that the results of the survey are to be made available to the academic world in two ways.

First, by means of basic database completion; MOLA stores details of all sites it excavates in a digital form, to permit inclusion of the site data in any future academic researches into the development of London.

Second, by means of publication in either a dedicated site-based monograph report (produced by MOLA), or in one of the relevant national or period-based archaeological journals, and/or as a site summary in the London Archaeologist, within one year (or as near as possible subject to availability of space in appropriate journal) of the completion of work on site.

It is likely that the local planning authority and / or English Heritage will require the results of this work, and the results of any analysis arising from this phase of work, to be integrated into a publication combined with other development plots at Kings Cross Central.

5 Timetable of works, staffing and attendances

5.1 Timetable and staffing

The timing and overall duration of the archaeological watching brief on the groundworks will be determined by the contractor's programme and the nature and extent of any surviving remains. It is envisaged that one Senior Archaeologist will monitor the groundworks, with another Archaeologist coming in to assist with any recording work if required. Other archaeological specialists may be called in if necessary.

5.2 Attendances

For watching briefs, the degree of contractor attendance required by MOLA tends to be minimal as archaeologists are in fact attending the on-site works. However, some provision for welfare and working conditions will need to be anticipated. Some or all of the following attendances may be required.

- Shoring in all excavations which exceed 1.20 metres in depth, installed in accordance with Safety Regulations and maintained throughout the occupancy of the area in question.
- Safety guard-rails and suitable access points into the site and areas of excavation, away from any site traffic and machinery.
- Ladders into all areas of excavation when the excavated depth requires such access.
- If ground-water is encountered in the trenches, adequate pumps will be required to remove it in order to complete the excavations.
- A suitable security system to operate overnight, weekends and holidays.
- If necessary, an appropriate number of tungsten halogen lamps (500W minimum) with 110-volt transformer, adequate cabling, and power supply.
- Labourers to assist in the removal of spoil from deeper areas of excavation.

6 Funding

The resources required by MOLA to undertake the archaeological works will be agreed following confirmation of the construction design, methodology and programme.

7 Welfare, Health & Safety Method Statement

A Welfare, Health & Safety Method Statement has been prepared by MOLA to accompany this Written Scheme of Investigation but will be printed out and supplied separately as appropriate.

8 Bibliography

English Heritage, 1991 *Management of Archaeological Projects (MAP2)*

English Heritage Greater London Archaeology Advisory Service, 2009 Archaeological Guidance Papers 1-5

English Heritage Centre for Archaeology Guidelines, various

IHCM (International Heritage Conservation Management), April 2004. *King's Cross Central Heritage Baseline Study, Parts 1–4,* unpub. client report

Institute for Archaeologists (IfA) 2008a. *Standard and Guidance for an Archaeological watching brief.*

Institute for Archaeologists (IfA) 2008b. *Standard and Guidance for Archaeological Evaluation.*

Institute for Archaeologists (IfA) 2008c. *Standard and Guidance for Archaeological Excavation*

MOLA 2013, Gasholder Triplet re-erection site (formerly the site of the Western Goods Shed), King's Cross Central, London N1: Written Scheme of Investigation for evaluation and sample excavation, MOLA unpub. document

MOLA, 2014 Gasholder Triplet re-erection site (formally the site of the Western Goods Shed), London, N1, London Borough of Camden, Evaluation and sample excavation report, MOLA unpub. report

Museum of London, 1994 *Archaeological Site Manual 3rd edition*

Museum of London, 2009 *General Standards for the preparation of archaeological archives deposited with the Museum of London*

Museum of London, 2002 *A research framework for London archaeology 2002*

Fig 1 Site location

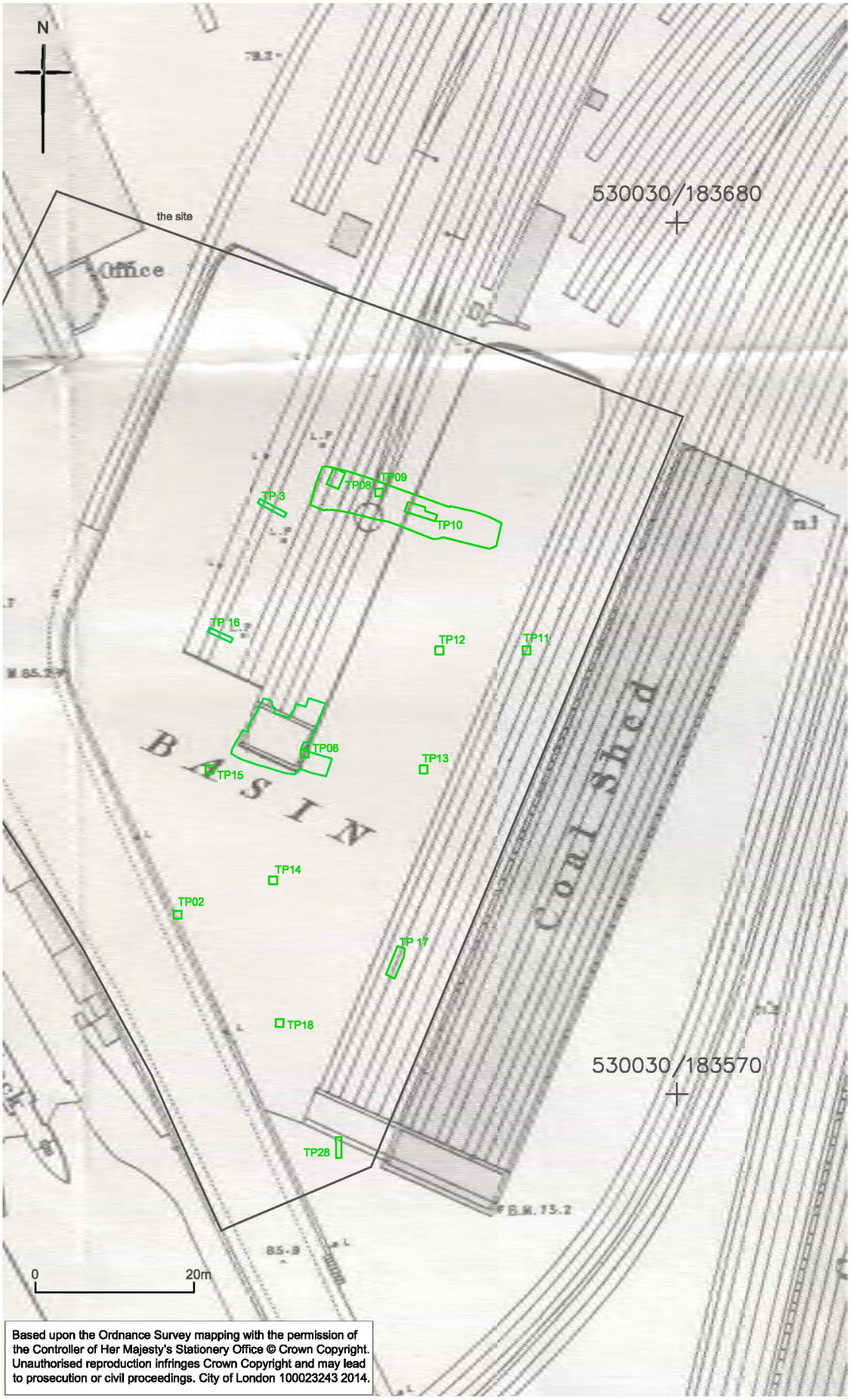

Fig 2 Evaluation trenches and test pits superimposed on the 1871 Ordnance Survey map

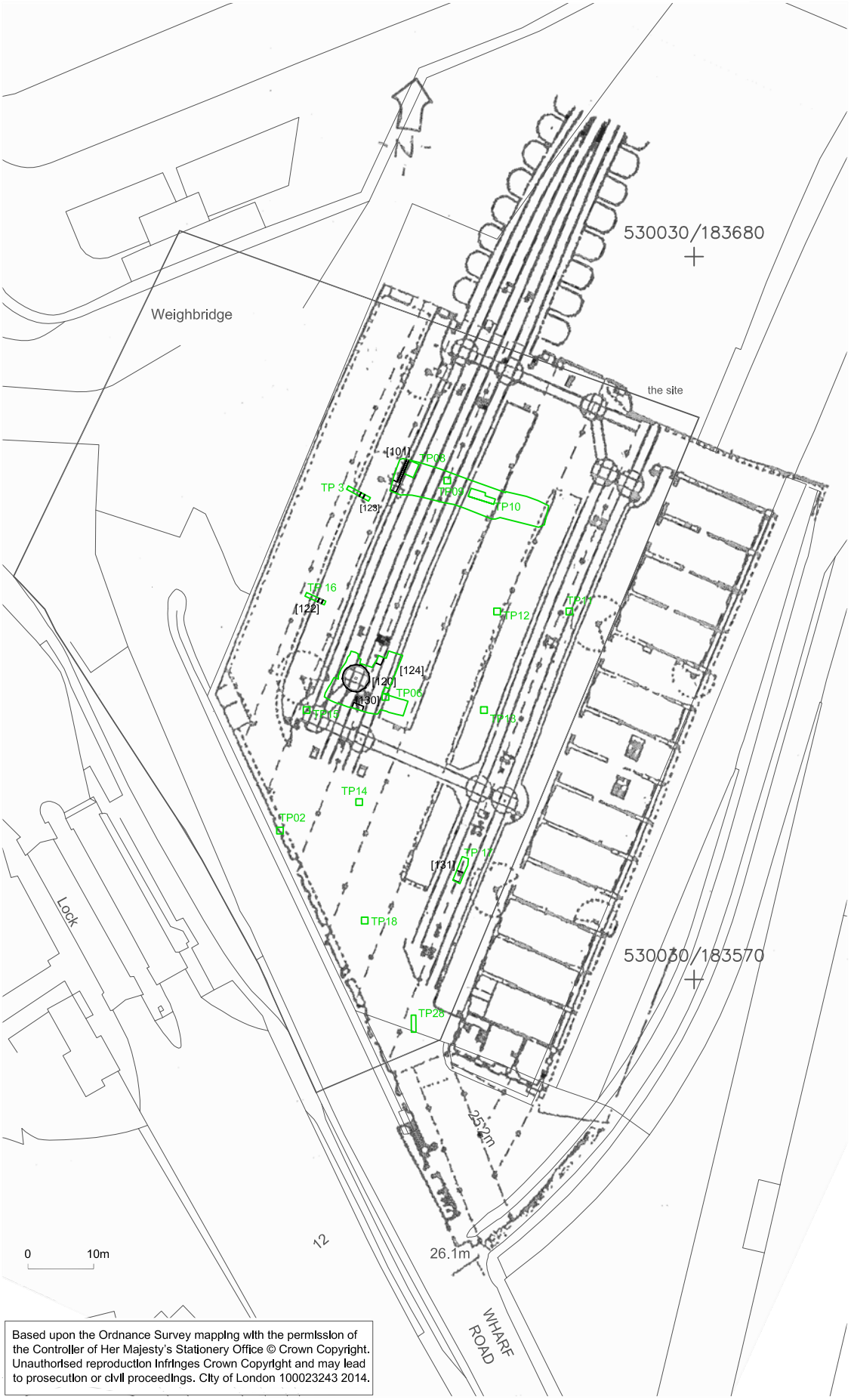

Fig 3 Evaluation trenches and test pits superimposed on the 1930 Ordnance Survey map

Fig 4 Site proposals

DRAFT

Issue	Date	By	Chkd	Appd

ARUP

13 Fitzroy Street
London W1T 4BQ
Tel: +44 (0)20 7636 1531 Fax: +44 (0)20 7580 3924
www.arup.com

Client
Argent

Job Title
King's Cross Gasholder Triplet

General Arrangement
Site Boundary

Scale at A0 1 : 200

Discipline Structural

Job No 219694

Drawing Status For Information

Drawing No KX_ARP219694_S_N1_0998

Issue P1

Do not scale

26/03/2014 14:44:26