

**An Archaeological Watching Brief at King's Cross Central –
Road Bridge, Retaining Wall and Granary Square, Wharf
Road, London Borough of Camden**

Site Code: WFI 07

Central National Grid Reference: TQ 3010 8349

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June 2007**

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June 2007**

CONTENTS

1	ABSTRACT	3
2	INTRODUCTION	4
3	PLANNING BACKGROUND	7
4	GEOLOGY AND TOPOGRAPHY	10
5	ARCHAEOLOGICAL AND HISTORICAL BACKGROUND	11
6	ARCHAEOLOGICAL METHODOLOGY	15
7	SUMMARY OF THE ARCHAEOLOGICAL SEQUENCE	17
8	INTERPRETATION	42
9	CONCLUSIONS	44
10	ACKNOWLEDGEMENTS	46
11	BIBLIOGRAPHY	47

FIGURES

Figure 1	Site Location	5
Figure 2	Location of Trial and Observation Pits	6
Figure 3	Sections of Trial Pits 5, 6, 7, Observation Pits 1, 2, 8, 9	32
Figure 4	Trial Pit 4: Plan and Section	33
Figure 5	Observation Pit 10: Plan and Section	34
Figure 6	Observation Pit 11: Plan and Section	35
Figure 7	Observation Pit 12: Plan	36
Figure 8	Observation Pit 12: Section 10 and 11	37
Figure 9	Trial Pit 12: Plan and Section	38
Figure 10	Trial Pit 13: Plan and Section	39
Figure 11	Overlay of Plan showing turntable	40
Figure 12	Trial and Observation Pit Locations superimposed onto 3 rd Ed OS Map	41

APPENDICES

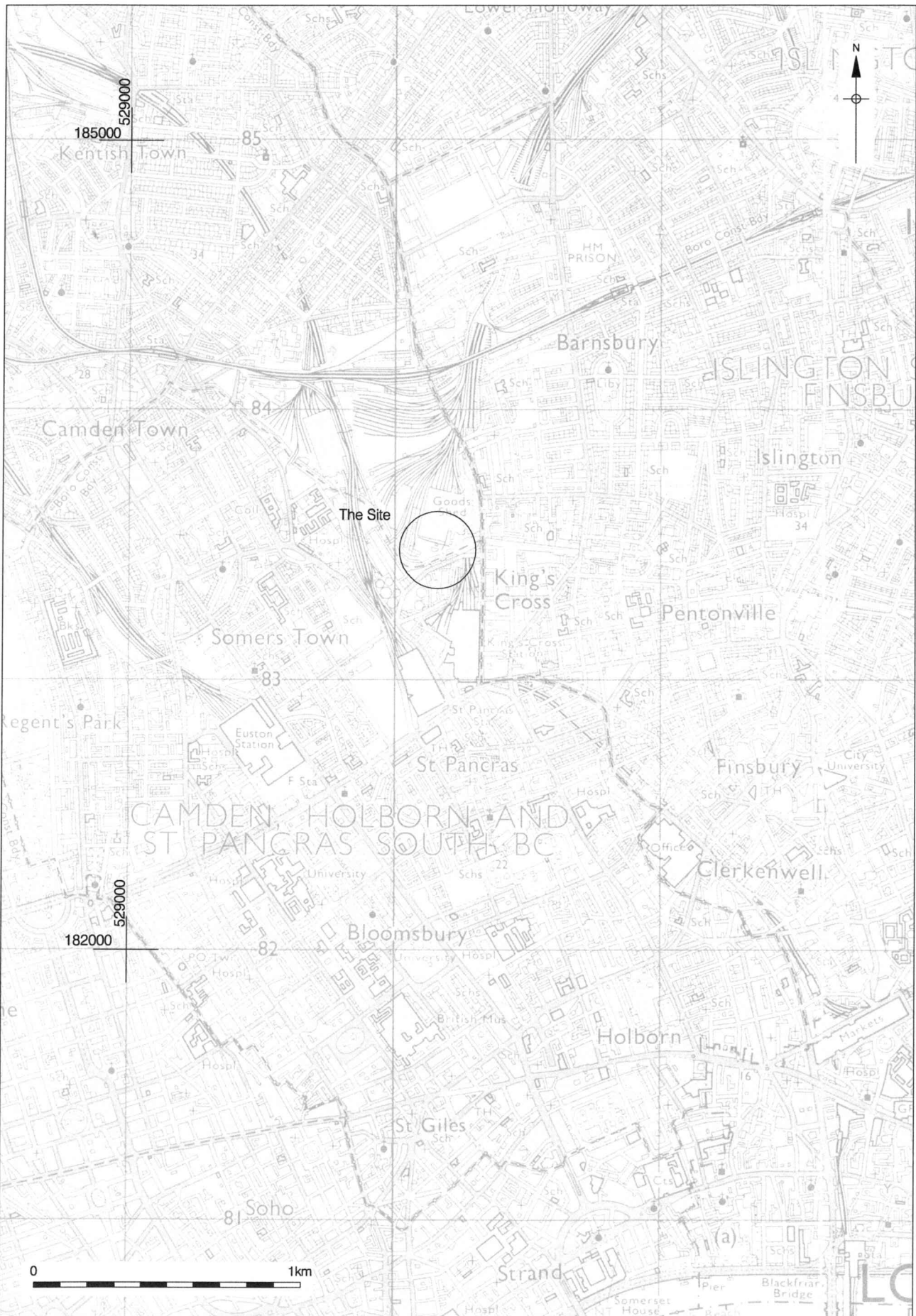
Appendix 1:	Context Index	48
Appendix 2:	Site Matrices	52
Appendix 3:	Oasis Form	54
Appendix 4:	Photographic Record	57

1 ABSTRACT

- 1.1 This report details the results and working methods of an archaeological watching brief of geotechnical trial pits carried out at King's Cross Central – Road Bridge, Retaining Wall and Granary Square, as part of a ground and existing structures investigation. The watching brief was commissioned by Norwest Holst Ltd. on behalf of Argent (King's Cross) Ltd. and took place between 15th May and 14th June 2007. This was one of a series of watching briefs to support the designs of King's Cross Central, in response to Camden planning requirements.
- 1.2 Natural geology was recorded in trial pits 5, 6, 7, 202, 204 and in observation pit 9, consisting of a clean yellow clay. In all pits, barring OP2, this was sealed by a series of 19th century made ground layers. The 19th century footings for still extant walls were recorded in OP1 and OP9, and walls dating to the same period were observed in OP2, OP10, OP11 and TP12. Possible C19th walls were observed in pits 201 and 205, and may relate to the Regent's Canal. Remains of the former canal basin retaining wall were recorded in OP8 and TP13. Sealing all pits was a further series of 20th century made ground/levelling deposits. All recorded deposits suggest large-scale redevelopment of the area during 19th and 20th centuries.

2 INTRODUCTION

- 2.1 An archaeological watching brief of geotechnical trial pits was undertaken between 15th May and 14th June 2007 by Pre-Construct Archaeology Limited at King's Cross Central (figure 1). This was one of a series of watching briefs supporting the designs of King's Cross Central in response to Camden planning requirements.
- 2.2 The site is bounded by Goods Way to the south, Wharf Road to the north and York Way to the east, and is located within the Regent's Canal Conservation Area.
- 2.3 The site is located at National Grid Reference TQ 3010 8349.
- 2.4 The maximum depth of ground reduction was 2.5m in all observation and trial pits, or until natural clay was observed. An exception to this was OP2, where works had to be abandoned after 0.96m due to the obstruction of a concrete pile. Additional works included three boreholes, thirteen coreholes and three service trenches. The trial and observation pits were recorded as an archaeological watching brief.
- 2.5 Norwest Holst Ltd, on behalf of Argent (King's Cross) Ltd commissioned the work. The project was managed for Pre-Construct Archaeology by Gary Brown and supervised by the author.
- 2.6 The site was assigned the code WFI 07.



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Figure 1
 Site Location
 1:20,000

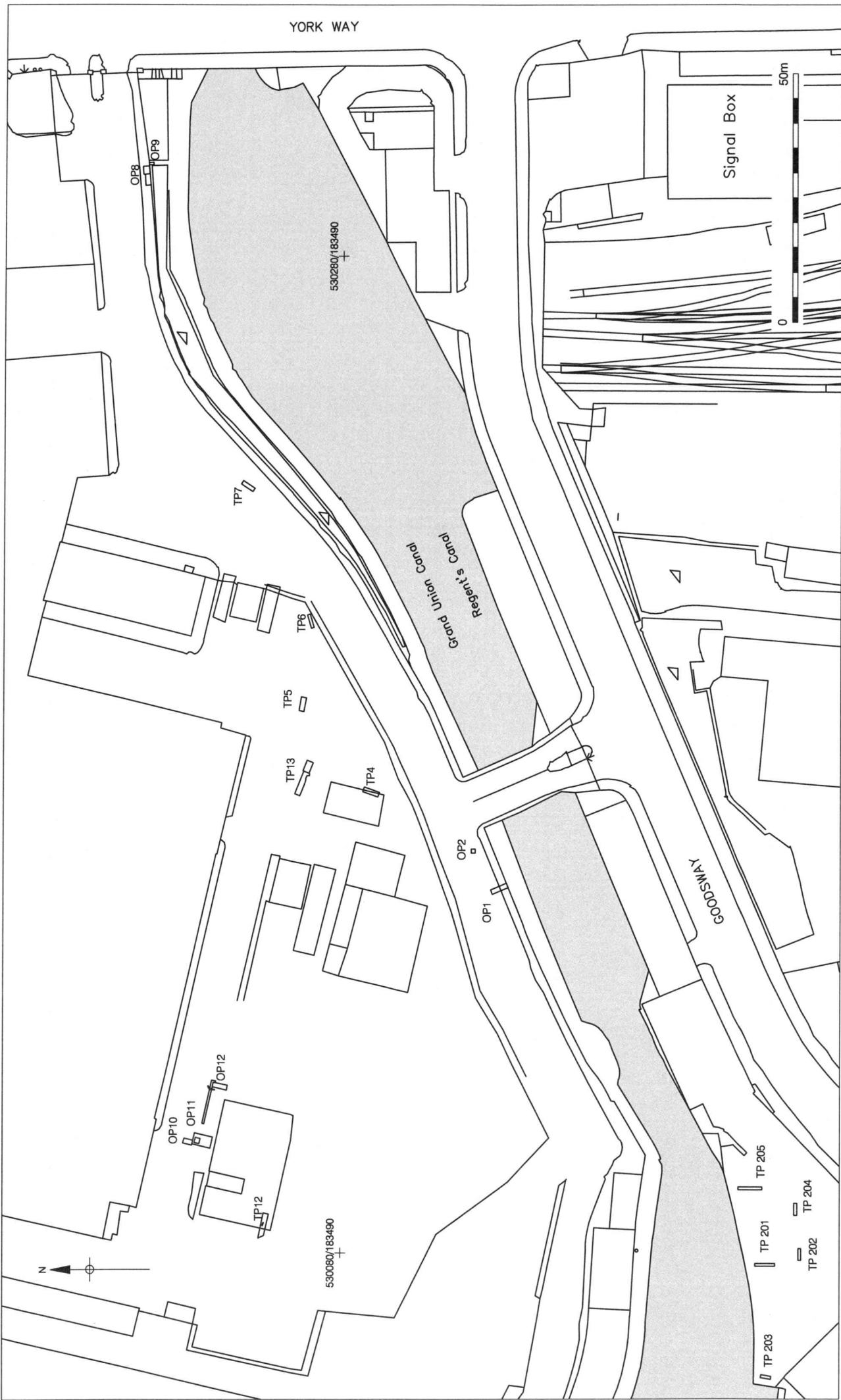


Figure 2
 Trial Pit and Observation Pit locations
 1:1,000 at A4

3 PLANNING BACKGROUND

- 3.1 In November 1990 the Department of the Environment issued Planning Policy Guidance Note 16 (PPG16) "Archaeology and Planning" providing guidance for planning authorities, property owners, developers and others on the preservation and investigation of archaeological remains.
- 3.2 In considering any planning application for development, the local planning authority is bound by the policy framework set by government guidance, in this instance PPG16, by current Structure and Local Plan policy and by other material.
- 3.3 The relevant Development Plan framework is provided by the Camden Unitary Development Plan. The Camden Replacement Unitary Development Plan (2006) states:

B8 – ARCHAEOLOGICAL SITES AND MONUMENTS

A – SITES AND MONUMENTS OF NATIONAL ARCHAEOLOGICAL IMPORTANCE:

WHEN CONSIDERING DEVELOPMENT CLOSE TO SITES AND MONUMENTS OF NATIONAL ARCHAEOLOGICAL IMPORTANCE, INCLUDING SCHEDULED ANCIENT MONUMENTS, THE COUNCIL WILL SEEK THE PHYSICAL PRESERVATION OF THE ARCHAEOLOGICAL FEATURES AND THEIR SETTINGS.

B – SITES AND MONUMENTS OF ARCHAEOLOGICAL IMPORTANCE:

THE COUNCIL WILL ONLY GRANT CONSENT FOR DEVELOPMENT WHERE ACCEPTABLE MEASURES ARE UNDERTAKEN TO PRESERVE REMAINS OF ARCHAEOLOGICAL IMPORTANCE AND THEIR SETTINGS. DEVELOPERS SHOULD ADOPT MEASURES THAT ALLOW SUCH REMAINS TO BE PERMANENTLY PRESERVED IN SITU. WHERE THIS CANNOT BE ACHIEVED, NO DEVELOPMENT SHALL TAKE PLACE UNTIL SATISFACTORY EXCAVATION AND RECORDING OF THE REMAINS HAS BEEN CARRIED OUT.

- 3.4 Also of relevance is local policy KC11:

KC11 - HERITAGE

THE COUNCIL WILL GRANT PLANNING PERMISSION FOR DEVELOPMENT PROPOSALS FOR THE KING'S CROSS OPPORTUNITY AREA, WHICH SEEK TO ENSURE THAT:

- A) PRESERVE LISTED BUILDINGS OR STRUCTURES AND THEIR SETTING
- B) PRESERVE OR ENHANCE BUILDINGS, STRUCTURES AND OTHER FEATURES OF CHARACTER AND HISTORIC INTEREST, AND THEIR SETTING, WITHIN THE CONSERVATION AREAS
- C) PRESERVE THE REMAINS OF SIGNIFICANT ARCHAEOLOGICAL IMPORTANCE AND THEIR SETTINGS.

9.67

The Opportunity Area has a diverse and unique character with a distinct sense of place. It is of outstanding national, architectural, historical and industrial archaeological importance. Because the Opportunity Area contains one of the more important and complete Industrial Archaeology sites in the country, this is an area of archaeological potential. The St Pancras Archaeological Priority Area is also partly located within the Opportunity Area. The Council will require development to meet the requirements set out in policy B8A and B8B on archaeology and of PPG16.

9.69

Heritage buildings and features are a positive asset. Re-using heritage buildings and bringing disused properties into use is an integral part of the sustainable regeneration of the area. Furthermore, redevelopment may provide the opportunity to salvage and re-use historic items of streetscape and street furniture on the site. Developers will have to demonstrate the balance between the protection of heritage buildings against other social and economic considerations to fulfill wider policy objectives and, as such, to justify any proposal for the removal of heritage buildings and other features in the context of PPG16.

9.70

The Regent's Canal is of strategic importance and is a key feature of the King's Cross Opportunity Area. Specific policies relating to Regent's Canal are contained in section 10. It is important that the redevelopment of the area captures the potential that the Canal offers. In particular the Council will seek development that achieves a successful balance of:

- the protection of the historic canal environment

- the enhancement of the canal's biodiversity
- access to and along the canal for pedestrians
- the use of the canal for recreation
- the use of the canal for transportation, especially during the construction of development

4 GEOLOGY AND TOPOGRAPHY

- 4.1 The British Geological Survey map 256 of the area (1:50,000 series) indicates that the King's Cross site is underlain by London Clay. This is underlain by the Woolwich & Reading Formation, Thanet Formation and Upper Chalk.

- 4.2 The monitoring of the geotechnical trial pits revealed natural clay at heights of between 21.20m and 22.42m OD. The site is generally flat, with ground level being recorded at between 24.20m and 25.03m OD across the areas being investigated.

5 ARCHAEOLOGICAL AND HISTORICAL BACKGROUND

5.1 GENERAL OVERVIEW

A specialist archaeological report was prepared by Archaeological Consultancy IHCM for Argent (King's Cross) Ltd. prior to the archaeological fieldwork. The following represents a summary of the archaeological and historical background to the site, as represented within this document, including a summary of past fieldwork in the vicinity. It appears that C19th and C20th redevelopment of the study area has truncated much of the evidence for earlier, pre-industrial periods, in some instances impacting underlying natural soils.

5.2 PREHISTORIC (450,000 BC – AD 43)

5.2.1 The King's Cross Central site is generally located on London Clay. The poorer drainage associated with this soil would therefore have not been as conducive to occupation by early settlers as in surrounding areas. Furthermore, any gravel deposits likely to yield material such as flint axes of this date, as have been produced elsewhere in London, have eroded away. No SMR entries relating to this period were noted in the vicinity.

5.3 ROMAN (AD 43 – 410)

5.3.1 The study site lies approximately 2km north-west of *Londinium*. Founded within a decade of the arrival of the Romans in AD 43, the city flourished during the 1st and early 2nd centuries. The city contracted in the 3rd and 4th centuries, becoming much less densely populated, inhabited by the wealthy and influential, and was finally abandoned in the early 5th century following the Roman withdrawal from Britain.

5.3.2 A number of finds relating to this period are noted in the proximity of the site. These include a road [SMR 080540] to the eastern boundary along York Way, and finds of an iron urn [SMR 080365], and a tombstone [SMR 080382], deriving from Wharfdale Road to the south-east of the study site.

5.4 EARLY-MID SAXON (AD 410 – C9th)

- 5.4.1 Little evidence pertaining to the general character of the area in this period exists. A possible settlement [SMR 082063] is documented from the Old St Pancras graveyard, in addition to a 6th or 7th century altar [SMR 081792] from the same location. This, however, lies some way to the south of the study site.

5.5 LATE SAXON-MEDIEVAL (C10th – 1485)

- 5.5.1 The 9th and 10th centuries saw the city becoming increasingly reoccupied, with a presumed farming expansion in north London and therefore most probably into King's Cross. Such activities however, may only leave ephemeral traces in the landscape. The present boundaries of the London boroughs were virtually reached by the 13th centuries, with rural villages existing at St Pancras and Islington. The site itself, according to the *Domesday*, lay within the Ossulstone Hundred; with the land to the west of York Way being in the Prebendal Manor of St Pancras. The Medieval settlement around St Pancras church also lay to the west of the study site. The former manorial and parish boundaries correspond with the present York Way, a portion of the King's Cross Central site laying within the manor of Barnsbury, a property held by Hugh de Berners, from the Bishop of London.
- 5.5.2 Structures from this period were predominantly constructed from timber. High status buildings however, such as churches [e.g. SMR 082053], often utilised more durable materials such as masonry. Such structures may be used to infer the location of past settlements. No such buildings however are documented from the study site itself, the above entry deriving from the south of the site at St Pancras.

5.6 POST-MEDIEVAL (AD 1485 – 1750)

- 5.6.1 The general layout of London did not significantly change during this period, the population however quadrupled in size. Neighbourhoods around Islington, Shoreditch and Clerkenwell began to be occupied by the poor, as the suburbs began to consume districts between the commercial areas and those beyond the city walls.

5.6.2 Documentation from this period denotes small pox and fever hospitals, to the south of the study site, north of the Great Northern Hotel. Other structures of note include the Brill settlement [SMR 080447], under St Pancras station, and three burial grounds under the former Goods depot to the west of St Pancras, partly excavated by Pre-Construct Archaeology in 2004.

5.7 INDUSTRIAL (1750-1900)

5.7.1 The previously open landscape of the study area during the C18th altered drastically with the urbanisation of London. King's Cross began to be utilised for quarrying and the manufacture of brick and tile; plus the construction of the Regent's Canal in 1820 facilitated yet further commercial development. A major gas manufacturing works was constructed to the south of the canal, with additional terraced housing and smaller commercial properties. Further industrialisation derived from the construction of railway termini at King's Cross, completed in 1852, and then St. Pancras completed c1868, with associated hotels, sidings, maintenance depots and goods handling shed.

5.7.2 Documentary sources reveal the construction of the Great Northern Railway steam locomotive shed at c1850, to the north of Goods Yard, in addition to the Midland Railway Roundhouse at c1860. The canalside boundary wall, currently bordering Wharf Road, was constructed c1850 and included an arched opening in the wall to accommodate the canal inlet leading to the granary basin. This was bricked up during 1920s after the basin had gone out of use, with the associated towpath bridge over the entrance demolished. A greater part of the arch was later dismantled during preparatory work for a temporary road haul bridge in late 2001 as part of the CTRL works at St Pancras.

5.7.3 Archaeological evaluations and watching brief's have confirmed the extent to which the study site was redeveloped during the industrial period. Evaluations by Oxford Archaeology and AOC during works for CTRL and LUL observed nothing other than modern and industrial soils, or structural features of a contemporary date.

5.8 MODERN (1900- PRESENT)

5.8.1 The most significant change to the area resulted from the demise of the gas industry, followed by the railway yards. This led to the demolition and subsequent reconstruction of large areas, including new housing estates, the British Library and the establishment of the Camley Street natural park along the south bank of the Regent's Canal. More recently works for CTRL and LUL have altered and truncated the previous industrial landscape.

6 ARCHAEOLOGICAL METHODOLOGY

6.1 The areas to be investigated were laid out by the groundwork contractors in accordance with the proposed development plan and verified on-site by representatives from Ove Arup and Norwest Holst Ltd. Each of the trial pits were machine excavated where possible, allowing for services, and observation pits hand dug up to 1.20m and extended by machine where necessary. All ground reduction was monitored by both an archaeologist and the attendant geotechnical engineer.

6.2 The trial and observation pits were excavated across the site in order to investigate ground conditions and establish the location of existing structures or any possible obstructions. Of the works originally planned, observation pit 3 and trial pit 11 were abandoned. The former was considered unnecessary and information gained from trial pit 12 made pit 11 redundant. All other ground reduction of trial and observation pits, 18 in total, were observed as an archaeological watching brief.

6.3 The dimensions of the trial pits (TP) and observation pits (OP) were:

OP1	3.50m (NE-SW) x 0.96m (NW-SE) x 1.80m (maximum depth).
OP2	0.80m (NE-SW) x 0.80m (NW-SE) x 0.96m (deep).
OP3	Abandoned.
TP4	3.20m (N-S) x 1.00m (E-W) x 2.10m (maximum depth).
TP5	2.80m (E-W) x 1.00m (N-S) x 2.20m (maximum depth).
TP6	2.80m (NE-SW) x 0.70m (NW-SE) x 2.50m (maximum depth).
TP7	2.80m (NE-SW) x 0.80m (NW-SE) x 2.20m (maximum depth).
OP8	1.30m (N-S) x 1.60m (E-W) x 1.66m (maximum depth).
OP9	0.96m (N-S) x 0.46m (E-W) x 0.51m (deep).
OP10	1.86m (N-S) x 1.00m (E-W) x 1.05m (maximum depth)
OP11	1.06m (E-W) x 1.00m (N-S) x 0.75m (deep)
TP11	Abandoned.
OP12	2.94m (N-S) x 0.96m (E-W) x 1.65m (maximum depth)
TP12	4.30m (E-W) x 0.90m (N-S) x 2.20m (maximum depth).
TP13	5.00m (E-W) x 1.10m (N-S) x 1.30m (maximum depth)
TP201	4.00m (N-S) x 0.54m (E-W) x 2.00m (maximum depth)

TP202	2.40m (E-W) x 0.54m (N-S) x 2.30m (deep)
TP203	2.10m (N-S) x 0.60m (E-W) x 2.50m (deep)
TP204	2.40m (E-W) x 0.54m (N-S) x 2.40m (deep)
TP205	4.70m (N-S) x 0.54m (E-W) x 0.90m (deep)

- 6.4 Individual descriptions of all archaeological strata and features excavated and/or exposed were entered onto pro-forma recording sheets. All plans and sections of archaeological deposits were recorded on polyester based drawing film, the plans being drawn at a scale of 1:20 and the sections at 1:10. The recording system used was "single context". The pits were backfilled loosely by JCB with the same material as was excavated and later resurfaced with concrete or tarmac as appropriate. All trial and observation pits were photographed before backfilling, in both digital and slide formats, colour and black and white film.

7 SUMMARY OF THE ARCHAEOLOGICAL SEQUENCE

7.1 OP1 (Figure 3)

7.1.2 Observation pit 1 was located to the south of Wharf Road, abutting the north face of the canal retaining wall and was excavated to a maximum depth of 23.14m OD. Natural was not observed.

7.1.3 Footing [63] consisted of one course of brickwork, encased in sloping concrete to a maximum depth of 0.80m, from 24.54m OD. Of the brickwork, all were red brick, measuring an average of 110mm x 110mm. This was interpreted to be the remains of the C19th footing for the canal retaining wall.

7.1.4 At the northern limit of OP1, C20th pile cap [62] was exposed at 23.84m OD. This consisted of a concrete, stepped pile measuring 70mm deep, with each step measuring 30mm and 40mm deep respectively. The northern limit was left largely unexplored due to live electric cables extending E-W across the top of [62]. Sealing [62] and [63] was layer [61]. Comprising mid grey coarse sandy silt, with frequent inclusions of medium angular pebbles and medium CBM fragments (red brick) in addition to large fragments of concrete and tarmac, this was interpreted as C20th made ground. The layer measured 1.30m thick, and extended beyond the limit of excavation. The quantities of red brick found within this layer suggest that the original footing for the canal retaining wall may have been truncated and later reinforced with concrete. Sealing [61] was a compacted layer of mid brown-grey coarse sandy silt. This contained frequent medium-large angular pebbles and red brick fragments, and measured 0.38m thickness from 24.83m OD. Layer [60] was interpreted as C20th made ground and was sealed by [59] with a sharp, flat boundary. Layer [59] was a black, compact, tarmac pavement surface. This measured 0.12m thickness from 24.94m OD, and was also interpreted as C20th made ground, possibly the same as deposit [54] which sealed OP2 to the east of OP1.

7.2 OP2 (Figure 3)

7.2.1 Observation pit 2 lay to the immediate east of OP1, to the north of the canal retaining wall and along the pavement to the south of Wharf Road. This pit was intended to expose and confirm the presence of a C20th pile and was excavated to a maximum depth of 24.07m OD.

7.2.2 The pile [58] was reached at a depth of 24.07m OD. The full dimensions are unknown, as it appeared the pile caps had been left in place. It is probable that this is the same as pile cap [62] exposed in OP1. Sealing [58] were a series of made ground layers. Layer [57] consisted of a compact, mid grey coarse sandy gravel, containing moderate inclusions of medium-large CBM fragments and fragments of tarmac. This measured 0.51m thickness at 24.57m OD and was sealed by [56]. Layer [56] comprised friable, dark yellow coarse sand, containing moderate inclusions of chalk flecks. This deposit was observed from 24.63m OD, measuring 0.05m thickness. Sealing [56] was layer [55], which consisted of a compact, mid pinkish grey, coarse sandy gravel, with moderate inclusions of medium CBM fragments. This layer measured 0.28m thickness from 24.91m OD and was sealed by tarmac surface [54]. Surface [54] was observed from 25.03m OD, measuring 0.12m thickness, and consisted of a compact, black tarmac. Layer [54] may, as stated previously, be equated with [59] from OP1. Layers [54], [55], [56] and [57] were all interpreted as C20th made ground.

7.3 TP4 (Figure 4)

7.3.1 Trial pit 4 lay to the north of Wharf Road, within the DHL compound, to the east of the former canal basin and to the south of the Granary complex, roughly parallel with former railway tracks. This pit was excavated to a maximum depth of 22.41m OD, with no further excavation possible due to ground water at 22.66m OD.

7.3.2 The earliest feature observed was structure [3]. This consisted of a concreted top with red-brick corbelling. Thirteen steps were observed up to the limit of excavation, descending from north to south from 24.11m OD to 22.61m OD. The brick-work then appeared to become vertical. The full depth was not reached. Each brick measured approximately 120mm x 100mm and was bonded with a concreted grey mortar. Each of the thirteen steps measured approximately 80-100mm deep x 50mm N-S. With only a 1.00m metre E-W observation window, the nature or exact orientation of this structure is difficult to determine. A review of historical maps did not appear to show any structures in this vicinity. It is likely that this structure functioned with the canal basin given its location, but it may represent a later addition or reinforcement.

7.3.3 Sealing [3] from a height of 23.99m OD lay deposit [5]. This consisted of a mid yellow/greyish brown silty clay with no inclusions. This layer extended 1.50m

thickness, continuing below the limit of excavation to an unknown depth. Layer [5] was therefore interpreted as redeposited natural, possibly used as backfill during the construction of [3] and therefore of a probable C19th date. Sealing this, with a sharp, flat boundary was deposit [4]. Consisting of a firm, red, coarse silty sand containing frequent inclusions of small-medium angular pebbles, this layer extended from 24.11m OD to a maximum thickness of 0.25m. Layer [4] was interpreted as a possible C19th levelling/made ground deposit.

7.3.4 Layer [2] was observed at a height of 24.23m OD, sealing [4]. This comprised weakly cemented black, coarse sandy silt with frequent inclusions of angular pebbles and moderate CBM fragments (brick). The layer measured 0.12m thick and was interpreted to be C20th made-ground/levelling for surface [1]. Layer [1] sealed the trial pit and consisted of grey concrete extending from 24.51m OD to a maximum thickness of 0.26m.

7.4 TP5 (Figure 3)

7.4.1 Trial pit 5 lay to the south-east of the Granary complex and south-west of the current security hut, to the north of Wharf Road. Natural was observed at a depth of 22.23m OD and recorded as deposit [15], extending 0.30m in thickness up to the limit of excavation. Layer [15] consisted of a firm mid yellow/blue clay with no inclusions and was sealed by a dirty clay layer [14].

7.4.2 Layer [14] was recorded from a height of 22.77m OD and consisted of a 0.55m thick deposit of firm, dark grey clay. This was therefore interpreted to be a levelling layer, possibly redeposited natural utilised during the construction of the complex to artificially raise the ground level during the C19th. Deposit [13] sealed [14] from a height of 23.08m OD, with a diffuse, undulating boundary. The layer consisted of dark brownish black, ashy, sandy, silt, containing inclusions of occasional medium and large CBM fragments (red frogged bricks) and moderate angular pebbles. Layer [13] measured 0.37 thick and similarly to [14] was interpreted as a C19th levelling deposit. Overlying this was firm, brownish yellow clay containing occasional angular pebbles. Observed from a height of 23.33m OD and extending to a maximum thickness of 0.25m, layer [12] was interpreted to be further evidence of C19th dumping/levelling. Sealing [12] with a sharp boundary lay deposit [11], a loose brownish red coarse silty sand with gravel. This measured 0.38m thick from 23.72m OD and was interpreted as a further C19th makeup layer. The remains of two railway sleepers were found immediately above [11], timber sleeper [9] to the east and [10] at the western limit of

TP5. [10] measured 240mm x 150mm from a height of 23.82m OD, and was left in situ being in poor condition. Sleeper [9] measured 190mm x 130mm and was only viewed in section from 23.83m OD. It was also in poor condition. Both sleepers appear to follow a NW-SE alignment, and therefore followed the projected path of the still extant tracks extending east from the turning circle seen in current maps of the area. Both [9] and [10] were therefore interpreted to be C19th in situ deposits rather than inclusions within a dumped layer. Overlying both [9] and [10] lay a brown-grey coarse sandy silt. Layer [8] was observed from a height of 23.93m OD, to a maximum thickness of 0.27m. This was sealed by a layer of granite setts, [7], and was therefore interpreted as a bedding layer, a possible late C19th redevelopment of the area. Cobblestones [7] measured 0.13m thick from 24.05m OD, with each stone being approximately 100mm x 120mm x 120mm. These were only loosely concreted but not bonded, suggesting a C20th truncation of some sort. The cobblestones were only observed in section and did not extend into the main area of the trial pit.

- 7.4.3 Sealing [7] lay C20th surface [6] which was observed at a height of 24.13m OD, with an even 0.08m thickness. This consisted of a compacted black tarmac.

7.5 TP6 (Figure 3)

- 7.5.1 Trial pit 6 was located on the pavement to the north of Wharf Road, at the eastern limit of the fence-line demarcating the DHL car park. Natural was reached at a depth of 22.11m OD, consisting of a firm yellow clay [34]. This was excavated to a depth of 22.01m OD.
- 7.5.2 Overlying this was soft, dark brown-grey silty clay with occasional flecks and small fragments of red brick. Layer [33] measured 1.50m thick from 23.61m OD and was interpreted as C19th redeposited alluvial material utilised for levelling the area. Overlying this was [32], a brown-red sandy gravel layer, 0.09m thick from 23.70m OD. This was interpreted as a levelling layer of probable C19th date.
- 7.5.3 Concreted sand layer [31] sealed [32], measuring 0.27m thick from 23.97m OD. Above this lay concrete surface [30]; recorded from 24.11m OD and 0.14m thick, this contained frequent gravel inclusions. Compacted coarse sand and concrete [29] overlay this and contained moderate inclusions of CBM. This measured 0.25m thick and was observed from a height of 24.36m OD. Layer [29] was sealed by a 0.04m thick tarmac layer extending from 24.38m OD and was recorded as deposit [28].

Sealing the trial pit was concrete surface [27], recorded from a height 24.51m OD and 0.13m thick. Layers [27], [28], [29], [30] and [31] were therefore interpreted as a series of C20th levelling/made ground deposits.

7.6 TP7 (Figure 3)

7.6.1 Trial pit 7 was located on the south side of Wharf Road, to the north-east of the Regent's Canal. This was excavated to a maximum depth of 22.22m OD. Natural was observed at 22.42m OD, consisting of firm mid blue/grey clay layer [42].

7.6.2 Alluvial layer [41] sealed natural clay, and consisted of soft brown-black silty clay with rounded pebbles and CBM flecks. Observed at 22.92m OD and 0.50m thick, layer [41] was interpreted as a C19th levelling deposit, similar to [33] as found in TP6. Overlying this was soft, mid grey-yellow silty clay layer [40], containing occasional inclusions of small chalk fragments. This was recorded from 23.42m OD, measuring 0.50m thick and interpreted as C19th made ground. Layer [39] sealed this deposit, and consisted of a dark brown-red silty sand and gravel. This was observed at 23.87m OD and measured 0.45m thickness. This layer was also interpreted to represent C19th made ground.

7.6.3 Compacted gravel layer [38] sealed this from 24.02m OD and was 0.15m thick. Overlying this was 0.10m thick concrete surface [37], recorded at 24.12m OD. Tarmac and rubble layer [36] sealed this, measuring 0.25m thick from 24.37m OD. This was interpreted as a bedding/levelling layer for road surface [35]. Layer [35] was recorded from 24.42m OD and consisted of a 0.05m thick compact black tarmac. Layers [35], [36], [37] and [38] were therefore interpreted as a series of C20th made ground deposits.

7.7 OP8 (Figure 3)

7.7.1 This observation pit was located to the south of Wharf Road and abutted the northern face of the canal retaining wall. Excavated to a maximum depth of 22.73m OD, natural was not observed.

- 7.7.2 The earliest deposit recorded consisted of the C19th footing for the E-W canal retaining wall. This comprised red brick footing [48], with thirteen courses visible in English Cross bond, measuring 1.14m deep from 23.87m OD, with a steep slope extending to a maximum of 80mm N-S. The bricks measured either 100mm or 220mm x 90mm and were bonded with a cemented grey mortar. The footing extends below the limit of excavation.
- 7.7.3 Sealing this was made ground layer [47], a red-brown silty sand with frequent inclusions of gravel and CBM (brick and tile). This was recorded at 23.87m OD and 1.19m thick, extending below the limit of excavation. This trial pit abutted a modern brick hut housing electricity cables at its western limit. This yellow brick hut was recorded as structure [49]; its relationship to [47], however, is unclear due to obstructions from live services. Overlying both [47] and [49] was yellow-grey sandy gravel [46]. This was observed from a height of 24.03m OD, measuring 0.15m thick and was interpreted as a bedding layer for tarmac [45]. Surface [45] was recorded from 24.12m OD and measured 0.10m thick, sealing layer [46]. This was sealed by [44]. This consisted of a grey-brown sandy gravel, 0.20m thick from 24.33m OD. Overlying this was tarmac surface [43], 0.15m thick from 24.48m OD. Deposits [43], [44], [45], [46] and [47] were therefore interpreted as a series of C20th made ground/resurfacing layers.

7.8 OP9 (Figure 3)

- 7.8.1 Observation pit 9 was located to the north of the Regent's Canal, abutting the southern face of the canal retaining wall, to the west of York Way. This was excavated to a maximum depth of 21.18m OD. Natural yellow clay was recorded at 21.34m OD and was sealed by masonry [52].
- 7.8.2 Deposit [52] consisted of red brick footing for the canal retaining wall, measuring 0.21m N-S x 0.33m thick, and included four stepped corbels. Each step measured an average of 80mm thick x 50mm N-S. No construction cut was visible; the wall therefore appears to have been founded directly on natural. Sealing [52] was grey-yellow clay layer [51], with moderate inclusions of CBM flecks and small fragments. Layer [51] was recorded from 21.51m OD and 0.13m thick. This was interpreted as a C19th made ground layer and was sealed by topsoil [50].

7.8.3 Topsoil [50] was recorded from 21.69m OD, and consisted of a 0.23m thick layer of clayey silt.

7.9 OP10 (Figure 5)

7.9.1 This observation pit was located to the south of the Granary complex, and included the area of the former railway turntable. The pit was intended to investigate any remaining structures associated with the turntable, and to explore a line of still extant coping stones. The maximum depth of ground reduction was 1.05m, to 23.14m OD. Natural was not observed.

7.9.2 The earliest observed deposits consisted of structures [99] and [102] to the south and north respectively. Structure [102] comprised a steel turntable [92] and its footing [91]. The turntable was divided into quadrants by two sets of steel tracks running N-S and E-W. The SE quadrant was investigated, measuring 0.90m (N-S) x 0.80m (E-W), with outer steel bars of 100mm thickness. The circle appeared to consist of this outer ring and an inner steel structure, that presumably would have been the mobile element. The outer face of the structure consisted of a vertical steel cylinder, which was observed to a depth of 1.18m (23.51m OD), where a concrete footing began. This extended 0.34m vertically from structure [92] and was investigated to a 0.15m depth, marking the limit of excavation. To the south of OP10 was the external face of structure [99]. This is described in full detail under OP11.

7.9.3 Sealing both [99] and [102] was a layer of made ground [88]. This comprised a mid-brown clayey sandy silt with frequent fragments of concrete, CBM and sub-rounded pebbles, measuring 0.66m thick from 23.85m OD and extending below the limit of excavation. Contained within this layer were two pipes, [89] and [90]. Cast iron pipe [89] measured 200mm diameter at 23.50m OD and ceramic pipe [90] measured approximately 100mm diameter from 23.15m OD and was not fully exposed. Both pipes were orientated E-W, and were of a probable late C19th date.

7.9.4 Above [88] rested timber sleeper [87]. This was in good condition and measured 260mm (N-S) x 360mm (E-W) x 130mm (thickness). On an E-W orientation, the west facing edge appeared blackened, which may suggest treatment of the wood; no tool marks were visible. The sleeper lay directly below steel tracks running N-S towards the Granary building, across the turntable, and probably represents an in situ sleeper associated with these tracks. Sleeper [87] was sealed by, and set in, concreted layer

[86]. This measured 0.16m thickness from 23.98m OD and contained frequent angular pebbles. The southern part of OP10 was then sealed by a 100mm thick cobbled surface [84], observed from 24.19m OD.

7.9.5 To the north of OP10, the internal quadrant of turning circle [92] was investigated. It appears that the inner workings were infilled with concrete layer [101], obscuring finer detail of the structure. This layer was excavated to a maximum depth of 0.60m from 24.09m OD and was overlain by 0.07m thick tarmac layer [83], recorded from 24.19m OD. These layers were both interpreted to be C20th made-ground/levelling deposits, following the closure of the depot.

7.10 OP11 (Figure 6)

7.10.1 This observation pit lay immediately to the south of OP10, and followed the line of still present coping stones visible above ground. Excavated to a maximum depth of 0.74m to 23.44m OD, natural was not reached.

7.10.2 The earliest observed deposit was structure [99]. This comprised E-W wall [93] and its N-S return [100]. Wall [93] was recorded from 23.89m OD, with 9 courses of brickwork visible on the northern face (within OP10), followed by one step, and 4 courses visible on its southern face. The bricks measured a maximum of 170mm x 70mm and a minimum of 110mm x 70mm and were arranged in English bond. They were bonded with a pink sandy mortar with frequent small angular pebbles, and within this on the southern face, a thin slate line was visible above the top course of bricks, presumably a damp-proofing measure. The southern face appeared severely damaged, possibly a later truncation. The N-S return [100] was also arranged in English bond, with red bricks ranging in size from 110-190mm x 70mm. This wall was observed to a depth of 0.40m, with 4 courses visible. Similarly to [93], the bricks were bonded with a pink sandy mortar. The southern face of [93] and eastern face of [100] were interpreted as the internal faces of some form of internal chamber or structure. Its exact function however is unclear. Both walls were capped by a line of coping stones, observed from 24.19m OD. These stones measured 0.38m in width x 0.31m thickness with a 0.07m wide step at 0.09m.

7.10.3 Sealing structure [99] was made ground layer [96]. This was observed from 23.78m OD, measuring 0.32m thickness, extending beyond the limit of excavation. The layer comprised a brown sandy-silt with moderate CBM fragments, including whole bricks,

small glass fragments and clay lenses. Within this layer were pipes [97] and [98]. Cast iron pipe [97] measured 200mm diameter from 23.43m OD and was orientated N-S. Smaller pipe [98] was observed from 23.55m OD on a NW-SE orientation, measuring 90mm diameter, and was possibly made of lead. The exact dating of these features is unclear; however, the damage to the southern face of wall [93] suggests that these represent a later development than structure [99]. The pipes and backfill layer were therefore interpreted as late C19th/early C20th additions.

7.10.4 Sealing OP11 was cemented layer [95]. Observed from 24.18m OD, this comprised a mottled dark yellow-brown/grey concrete with frequent sub-rounded pebbles and CBM fragments. This measured 0.40m thick and was interpreted as C20th made ground.

7.11 OP12 (Figure 7)

7.11.1 Observation pit 12 was located to the south of the Granary complex, along a line of still extant coping stones to the north of the present car park. It is believed that these stones demarcate the former boundary of the canal basin, and this pit was intended to investigate whether any access points down to the former basin level existed. The maximum depth of ground reduction was 1.65m, to 22.66m OD; natural clay was not reached.

7.11.2 The earliest observed deposit was structure [82]. The lowest deposit was a red brick floor [80], but unfortunately the depth of the pit and instability of modern backfill prevented access to gain further information. The floor was observed at 22.87m OD and appeared to have a slight downward slope from east to west. Overlying this were three walls; E-W walls [72] and [78] to the north and south respectively, and N-S wall [73]. These were all constructed of red bricks, measuring from 110-180mm x 80mm, arranged in English bond using pinkish-grey mortar. The southern face of [72] appeared to have been repaired at a later date with [77]. This covered an area 0.60m (depth) x 0.38m (E-W), using red and yellow bricks approximately 210mm x 80mm. These bricks were much smoother in appearance than the original brick-work, and visible signs of chisel marks from these repairs remained in the surrounding masonry. The northern face of [72] appeared to be stepped, with one step of seven courses, and one step of nine courses of brick; each step extending 0.12m (N-S). These steps were abutted by [69], a red brick footing bonded with grey-yellow mortar, measuring 0.73m (N-S) x 0.30m (E-W) x 0.38m (thick) from 23.69m OD. Abutting walls [72], [73] and [78] to the south of OP12, along the western face of [73], was footing [74]. Formed of red brick, bonded with a grey-yellow mortar, [74] extended 0.20m from the

face of [73], and measured 1.05m (depth) to the top of floor [80]. The coursing, however, was obscured by timber beam [75], which ran N-S, parallel with footing [74]. The beam measured 110mm (E-W) x 1.70m (N-S) x 200mm (thickness) from 23.26m OD. The northern limit projected into a void measuring 0.35m (depth) x 0.32m (E-W) built into wall [72], while the southern limit projected into a similar void 0.32m (E-W) x 0.38m (depth) at the base of wall [78]. Footing [74], timber beam [75], floor [80] and the southern, western and northern faces of walls [72], [73] and [78] respectively, were interpreted as the internal area of an unknown C19th structure, possibly an internal chamber associated with the timber cranes used along the former canal-side. The northern face of [72] and associated footing [69] therefore representing external elements to structure [82]. The structure was capped by a line of coping stones, still visible above ground. These were observed as deposit [81] and measured 0.44m (width) x 0.30m (thick) with a step of 0.08m at 0.08m from the surface level of 24.31m OD. Chisel marks were visible on the western face of these stones, and the blocks appeared squared with no bonding material.

7.11.3 Sealing structure [82] to the north of OP12 was deposit [67]. This comprised a soft, mid brown-yellow silty clay containing fragments of CBM and concrete. Layer [67] measured 0.90m (thickness) from 23.51m OD, extending beyond the limit of excavation, and was interpreted as made ground/levelling deposit of probable C19th date. This was sealed by deposit [66], a mottled yellow/red-brown coarse clayey-sandy-silt, with frequent fragments of CBM, some in cemented lenses, and frequent medium flint nodules. Observed from 24.17m OD to a depth of 0.65m, this was similarly interpreted as levelling/made ground of a comparable date. Overlying [66] and abutting the northern face of capping stones [81] lay cobbled surface [68]. This comprised grey stone cobbles of 180mm x 130mm (thick) from 24.30m OD. These cobble sets were interpreted as part of the C19th surface opposite the southern face of the Granary complex.

7.11.4 Filling structure [82] to the south of OP12 lay deposit [71]. This layer comprised a loose, mid brown-yellow coarse, silty-sand with frequent inclusions of CBM fragments, concrete, and worked stone. Observed from a height of 23.81m OD, measuring 1.00m (thickness), this was interpreted as early C20th demolition material. Sealing this was layer [70], a compacted dark grey-brown sandy silt with frequent fragments of broken concrete, CBM and flint nodules. This was observed from 24.31m OD, measuring 0.50m (thickness) and was interpreted to be a C20th made ground/levelling deposit.

7.11.5 The north of OP12 was sealed by a 0.08m thick tarmac surface [64], observed from 24.31m OD, whereas the southern extent was sealed by rough concrete surface [65]. Layer [65] measured 0.20m thick from 24.50m OD. Both these surfaces were interpreted to be C20th redevelopments of the area.

7.12 TP12 (Figure 9)

7.12.1 Trial pit 12 was located to the south of the Granary complex, on the eastern edge of the former canal basin in what is now the car park. Excavated to a maximum depth of 22.00m OD, natural clay was not observed.

7.12.2 The earliest deposit recorded consisted of brick wall [26]. Wall [26] is constructed from red bricks with shallow frogs, each brick measuring approximately 230mm x 100mm x 70mm. These were bonded with a pinkish yellow sandy mortar, flush with the brickwork. The eastern face extended 0.30m deep, three courses, from 23.90m OD, forming an overhang of 50mm before continuing vertically beyond the limit of excavation. Of this face, nineteen courses were visible, 1.60m deep, arranged in English bond. The western face was formed of five steps, each two or three courses deep, to a maximum depth of 1.20m from 23.90m OD, and continued beyond the limit of excavation. Each step measured either 0.20m or 0.30m deep x 0.13m E-W, with an irregular coursing. This was interpreted to be the C19th retaining wall for the former canal basin. The eastern face therefore would have overlooked the canal, explaining the overhang on this side. The western face would probably have been covered, up to the former ground level. The location of this wall appears to contradict historical maps which suggest it lay several metres further to the west. The western face of [26] is sealed by yellow-grey clay layer [24], 0.73m thick from 23.44m OD, extending below the limit of excavation. This was interpreted to be C19th redeposited natural, used as backfill/levelling, to raise the ground level following the construction of the canal basin, and was overlain by red-brown sandy silt and gravel [23]. This was recorded from 23.74m OD and 0.27m thick and was interpreted as further C19th made ground. Sealing this was brown-red silty sand [22] which measured 0.36m thick from 23.90m OD. This was truncated to the west by cut [21].

7.12.3 This N-S cut measured 0.15m E-W x 0.20m deep, and was recorded from 23.86m OD. Cut [21] was filled by lead pipe [20], with a 70mm diameter from 23.74m OD, and chalk fill [19], 0.20m thick from 23.86m OD. These features were therefore interpreted as C20th intrusions for services. Overlying the eastern face of [26] was yellow/grey clay layer [25]. With no inclusions, and measuring 1.51m thick, extending

below the limit of excavation from 23.51m OD, this was interpreted as early C20th redeposited natural, used as backfill for the former canal basin. This was sealed by C20th made ground [18]. Observed from 23.90m OD, and measuring 0.39m thick, this consisted of a mottled black-brown sandy silt with frequent inclusions of angular pebbles and medium CBM fragments. Overlying both [18] and [19] was dark black-brown sandy silt/rubble layer [17], 0.20m thick from 24.06m OD. This contained frequent inclusions of medium and large CBM fragments, and was interpreted as a made ground/levelling layer for surface [16]. Sealing trial pit 12 was concrete surface [16], measuring 0.14m thickness and observed from 24.20m OD.

7.13 TP13 (Figure 10)

7.13.1 Trial pit 13 was located to the south-east of the Granary complex, bounded by a still extant steel weigh bridge to the east. This was excavated to a maximum depth of 1.30m to 22.93m OD. Natural was not observed.

7.13.2 The earliest feature recorded was structure [136]. This comprised red brick walls [133], [132] and [135]. Wall [133] was orientated E-W and utilised bricks measuring 100-180mm x 65mm, in English bond with a yellow sandy mortar. A void 0.48m thick was built into the wall, in which to house a number of pipes. Eight courses of brickwork were visible above this, and 2 below. This wall measured 1.65m (E-W), extending beyond the limit of excavation to the west, x 1.13m (deep) from 24.07m OD. On a similar alignment was masonry fragment [135]. Observed from 23.98m OD, this measured 0.70m (E-W) x 0.18m (N-S), extending beyond the limit of excavation to the south, x 0.25m (deep). Wall [135] was badly damaged, with no visible coursing. The bricks measured approximately 220mm x 70mm and were bonded with a yellow sandy mortar. To the west of TP13, and abutting the northern face of [133] was N-S wall [132]. This comprised a red brick wall, approximately 6 courses deep (0.50m) from 23.79m OD, arranged in English bond. The bricks measured between 230mm x 80mm and 110mm x 70mm, and were red with shallow frogs. A pink/orange sandy mortar was utilised as bonding material. Much of the brickwork was obscured by pipes [129] and [130] which ran parallel across the eastern face of the wall. Cast iron pipes [129] and [130] were observed from 23.62m OD and 23.53m OD respectively, with diameters of 50mm and 30mm. Running parallel to these, to the east, lay cast iron pipe [128]. This was recorded from 23.10m OD, measuring 100mm diameter. Pipes [128], [129] and [130] were all aligned N-S and extended from the void in the northern face of wall [133]. To the east of [133] lay pipes [127] and [126]. Lead pipe [127] was observed from 23.90m OD, with a 40mm

diameter, and cast iron pipe [126] had a 120mm diameter from 23.77m OD. To the east of these lay a further cast iron pipe [125], which was observed from 23.73m OD, with a 65mm diameter. All pipes followed a N-S alignment and were found within layer [124]. This layer was observed from 24.07m OD and consisted of a 1.14m thick mid-brown clayey silt containing frequent concrete and CBM fragments. The walls were interpreted as representing the south-eastern external corner of the former canal basin retaining wall, with the pipes representing contemporary hydraulics, which were then sealed by made-ground/backfill [124]. All features comprising structure [136] were therefore considered to be of probable C19th date.

7.13.3 At the western extent of TP13 and built directly over wall [132] was feature [131]. Recorded from 24.07m OD, this comprised a section of stepped masonry descending 3 steps from west to east. This feature utilised red bricks with purple cores, bonded with grey mortar. The complete structure measured 0.79m (E-W) extending beyond the limit of excavation to the west, and 0.28m (deep). This feature appeared very rough in construction, with no regular coursing visible. Its location suggested it was part of the C20th manhole which lay to the immediate west of TP13. Both [131] and layer [124] were sealed by layer [134]; a mid-brown sandy, clayey silt containing frequent angular pebbles and CBM fragments. This was observed from 24.23m OD, measuring 0.30m thickness and was interpreted as C20th made ground. Sealing this lay a 0.16m thick concrete surface [123], recorded from 24.23m OD.

7.14 TPs 201-205

7.14.1 Five additional trial pits were commissioned on land to the south of Regent's Canal for geotechnical testing; being narrow, deep trenches, these were logged as core-holes. These pits were all located to the east of the Camley Street natural park, on waste-land bounded by the Regent's Canal to the north and Goods Way to the south.

7.14.2 TP201

Context Number	Context Description	Height mOD	Thickness (m)
108	Grey-Brown silt with frequent roots and sub-angular pebbles: Topsoil.	23.20	0.50
119	Mid-brown sandy silt and gravel, above plastic membrane: c20th Made Ground.	22.80	0.40

120	Dark brown-black silty clay and gravel: c20th Made ground	22.40	0.20
121	Brown-yellow silty clay: Redeposited Natural/Levelling	22.60	1.10
122	Yellow brick footing, with engineering bricks, approximately 3 courses visible: c20th footing	22.30	0.30

7.14.3 TP202

Context Number	Context Description	Height mOD	Thickness (m)
108	Grey-Brown silt with frequent roots and sub-angular pebbles: Topsoil.	23.20	0.55
114	Mid-brown sandy silt and gravel, above plastic membrane: c20th Made Ground.	22.65	0.49
115	Dark brown-black clayey silt with sub-angular pebbles, sandy lenses and frequent CBM fragments: c20th Made ground.	22.16	0.34
116	Dark grey-brown, soft, silty clay: Alluvium	21.82	0.32
117	Black, spongy, peat: Natural	21.40	0.50
118	Firm, mid blue-grey clay: Natural	20.90	0.10

7.14.4 TP203

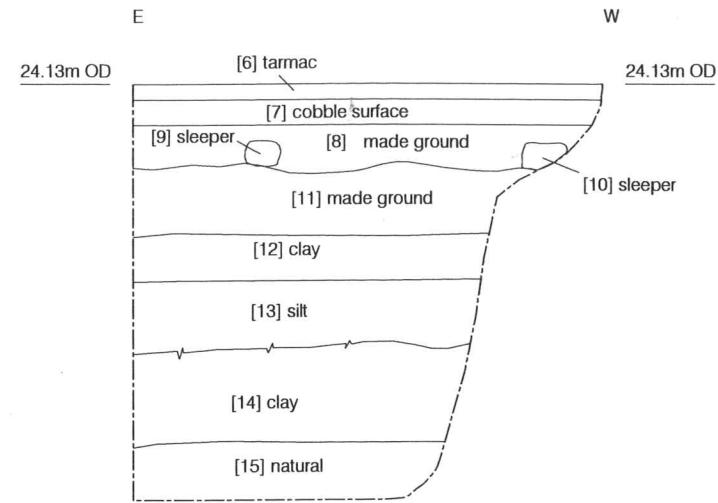
Context Number	Context Description	Height mOD	Thickness (m)
108	Grey-Brown silt with frequent roots and sub-angular pebbles: Topsoil.	23.20	0.32
104	Mottled red/yellow brown sandy silt with frequent CBM fragments: c20th Made ground	22.88	0.28
105	Black clayey silt with flint nodules and CBM fragments: c20th Made ground	22.60	0.78
106	Grey-brown clayey silt: Alluvium?	21.82	0.62
107	Firm, blue-grey silty clay: Redeposited Natural/Levelling	21.20	0.50

7.14.5 TP204

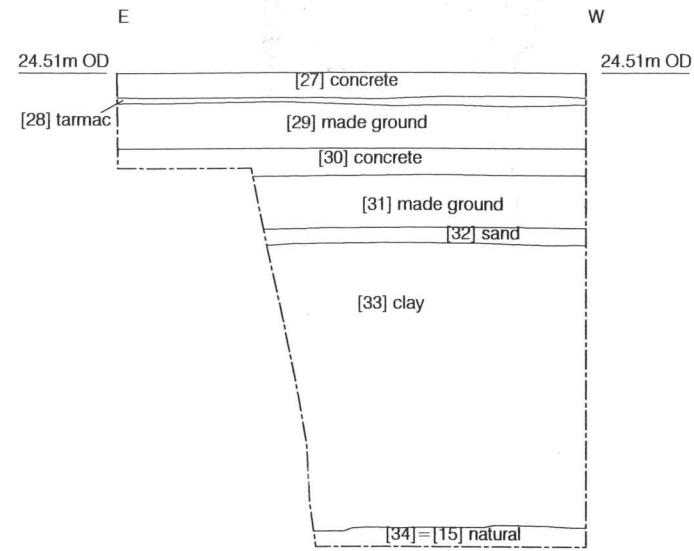
Context Number	Context Description	Height mOD	Thickness (m)
108	Grey-Brown silt with frequent roots and sub-angular pebbles: Topsoil.	23.20	0.36
111	Brown-black sandy silt with sand lenses, frequent angular pebbles and CBM fragments: c20th Made ground	22.84	1.04
112	Soft, brown-yellow silty clay with CBM flecks: Made ground	21.80	0.60
113	Soft, blue-grey silty clay with fragments of peat: Alluvium	21.20	0.40

7.14.6 TP205

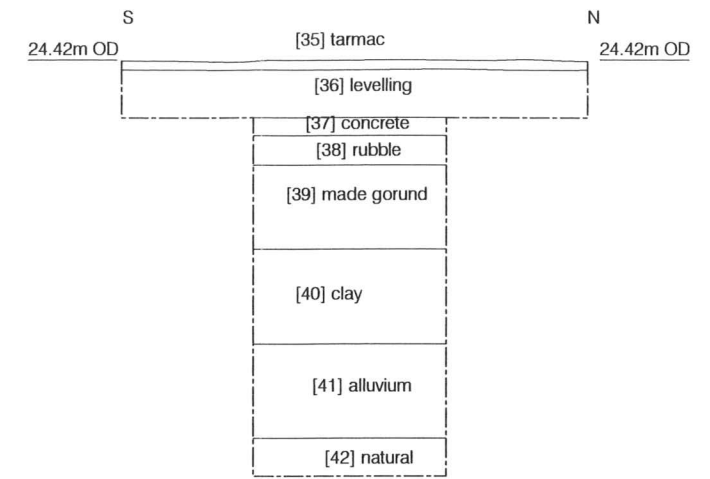
Context Number	Context Description	Height mOD	Thickness (m)
108	Grey-Brown silt with frequent roots and sub-angular pebbles: Topsoil.	23.20	0.50
109	Loose, mid brown clayey silt with few inclusions, above plastic membrane: c20th Made ground	22.80	0.40
110	Rough concrete E-W wall with CBM fragments but no visible coursing: Retaining wall/flood protection for Regent's Canal (lies to north of this pit)	23.18	0.28



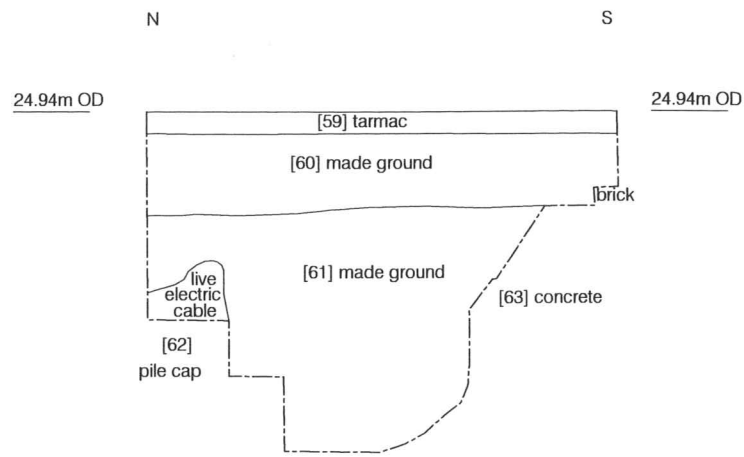
Section 2
North facing
Trial pit 5



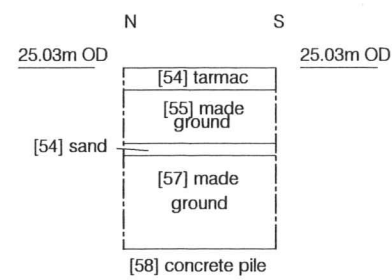
Section 4
North facing
Trial pit 6



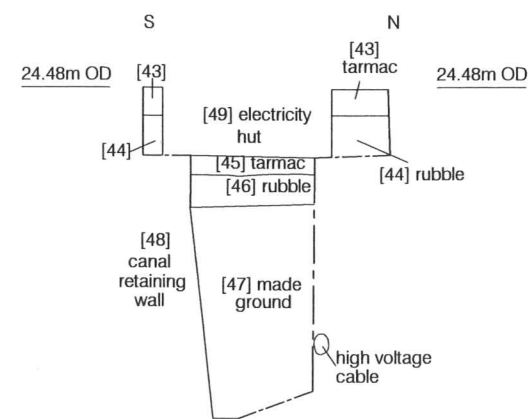
Section 5
East facing
Trial pit 7



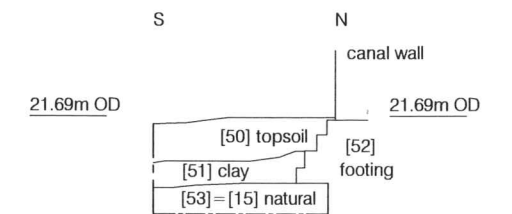
Section 9
West facing
Observation pit 1



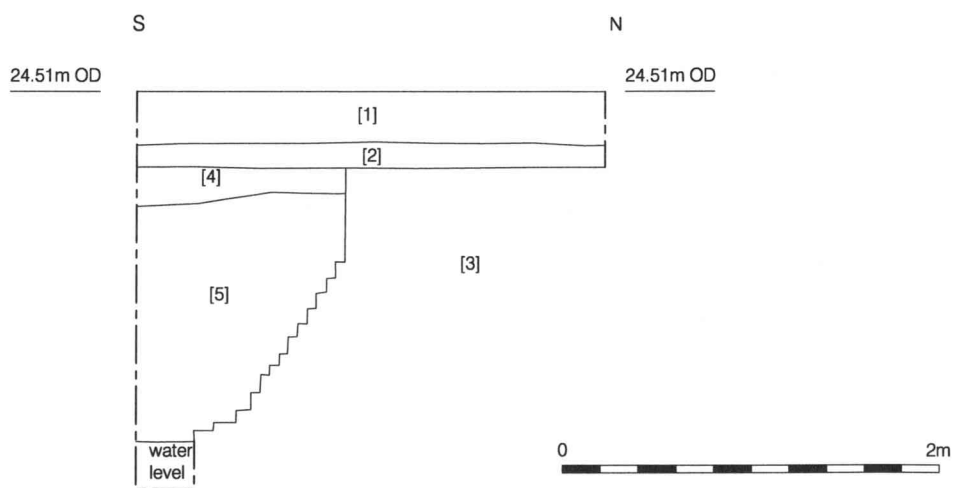
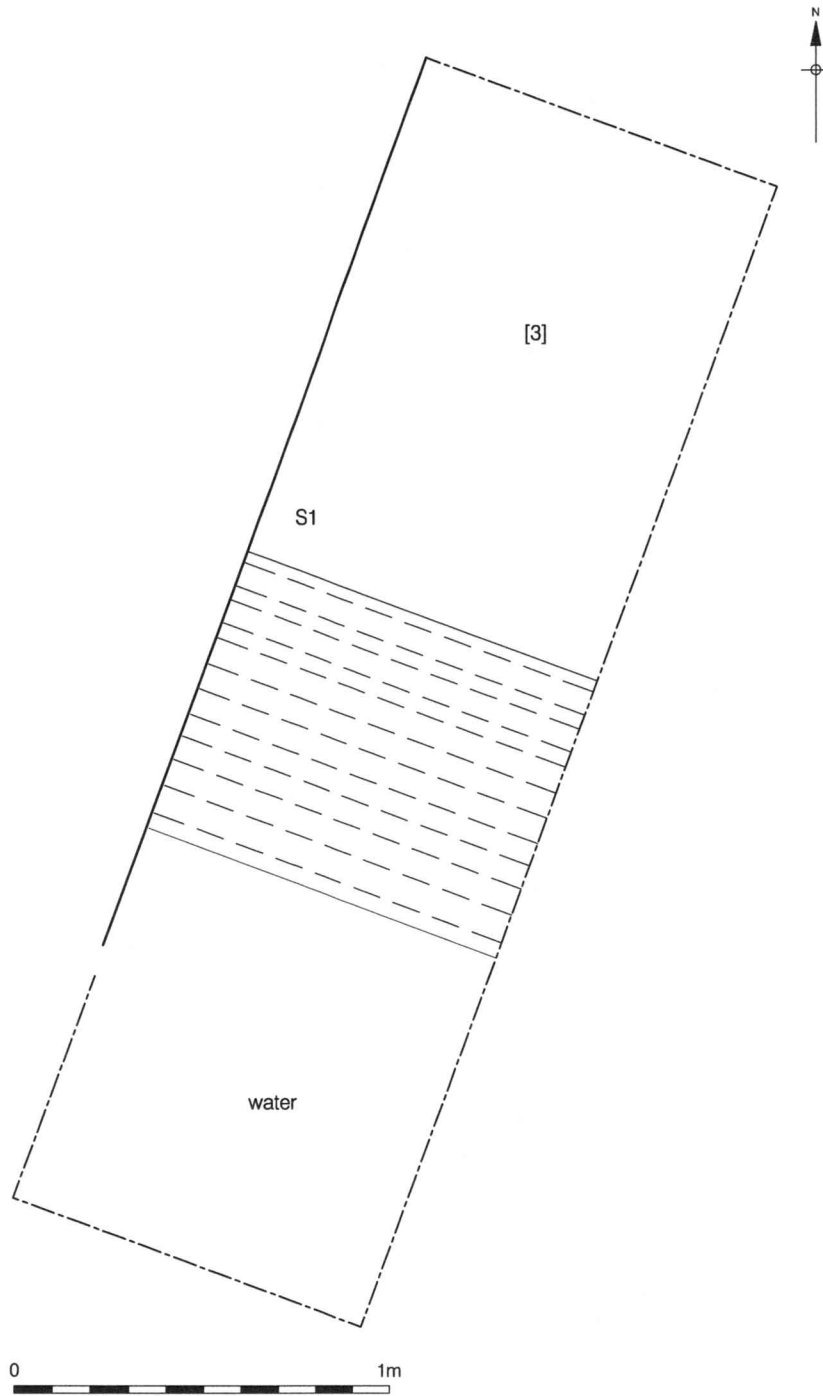
Section 8
West facing
Observation pit 2



Section 6
East facing
Observation pit 8



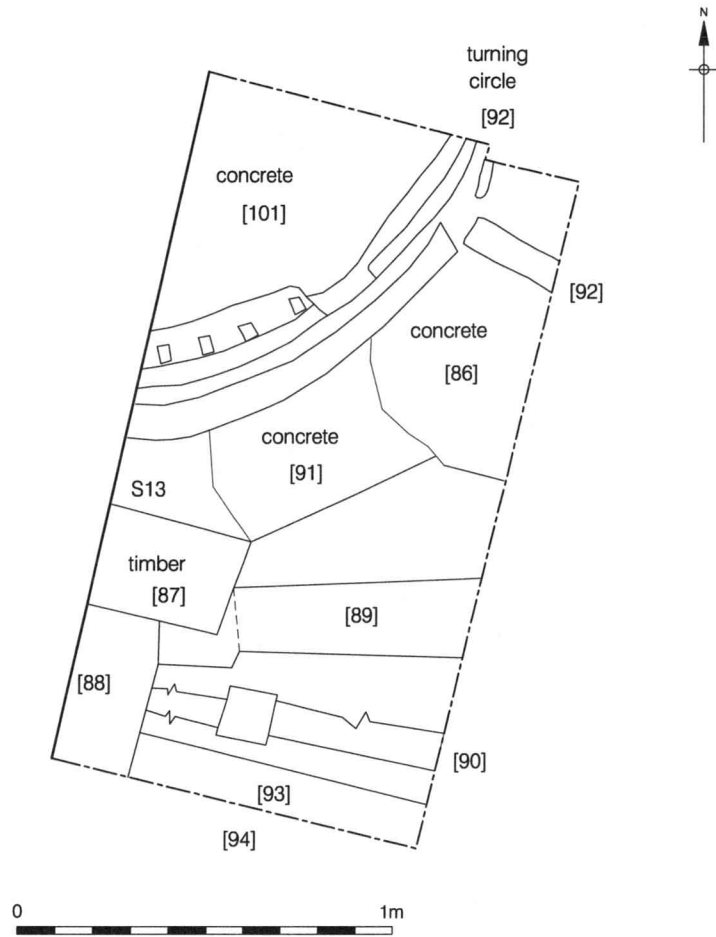
Section 7
East facing
Observation pit 9



Section 1
East facing
TP 4

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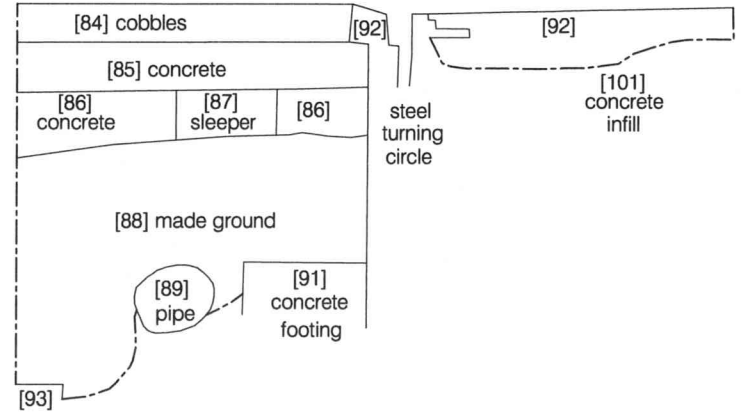
Figure 4
Trial pit 4, Plan and Section
Plan 1:20 at A4, Section 1:40 at A4



S N

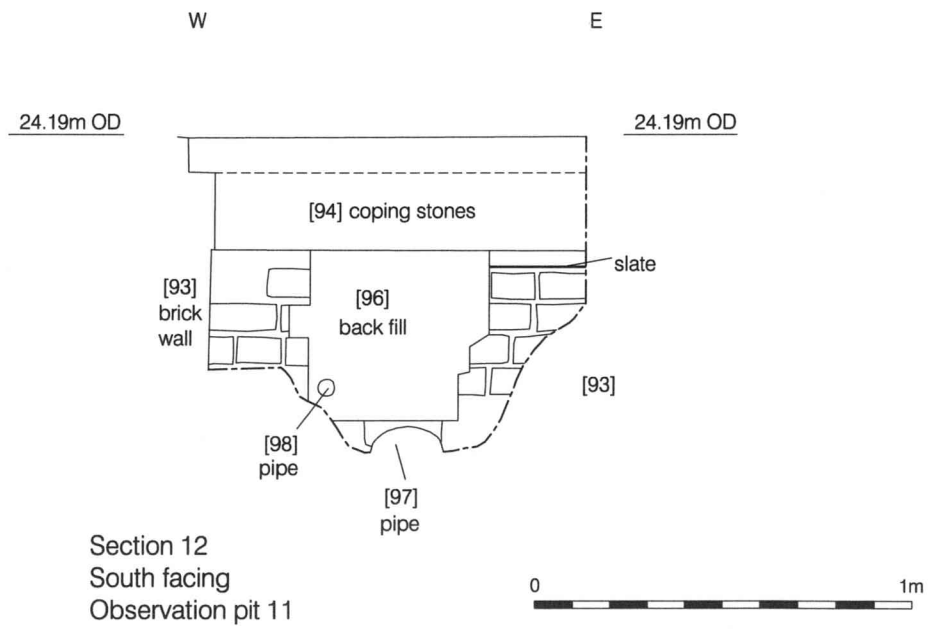
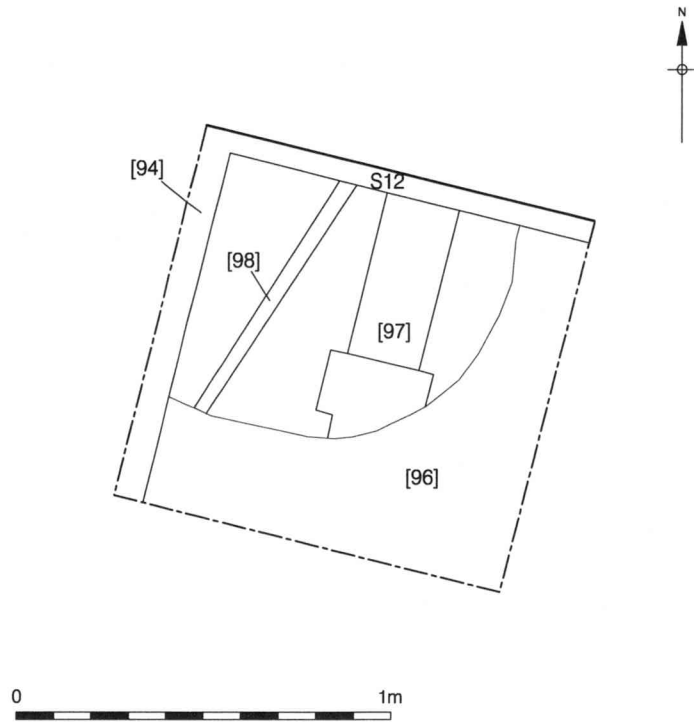
24.19m OD

24.19m OD



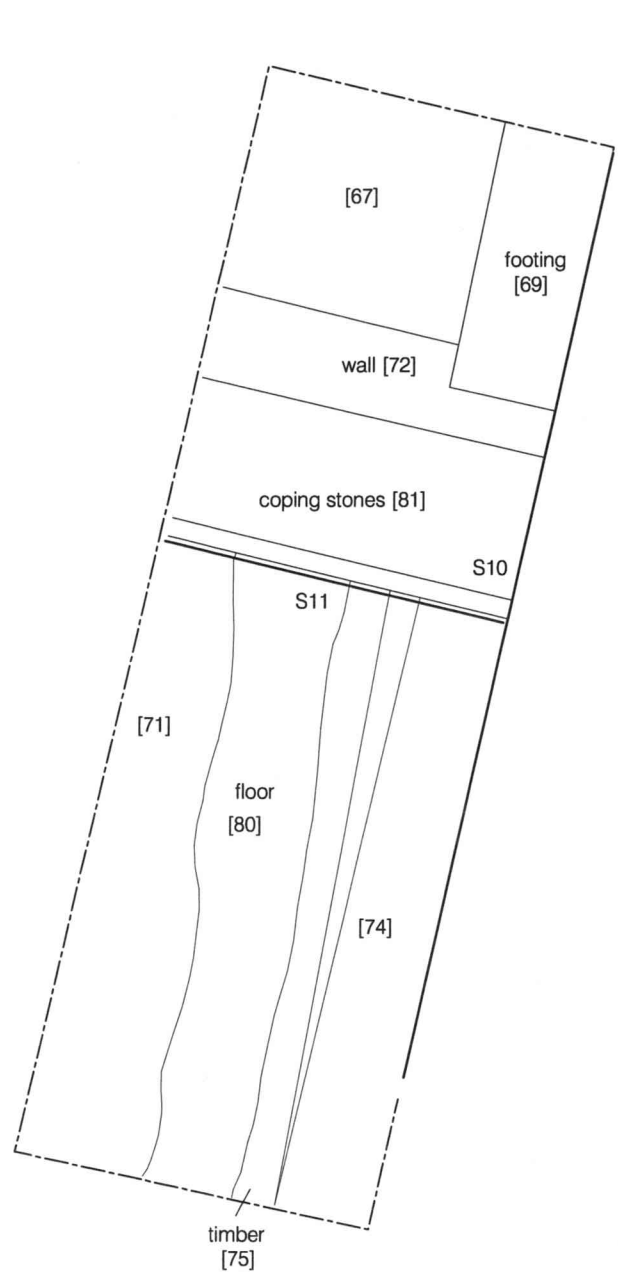
Section 13
East facing
Observation pit 10

Figure 5
Observation Pit 10, Plan and Section
1:20 at A4



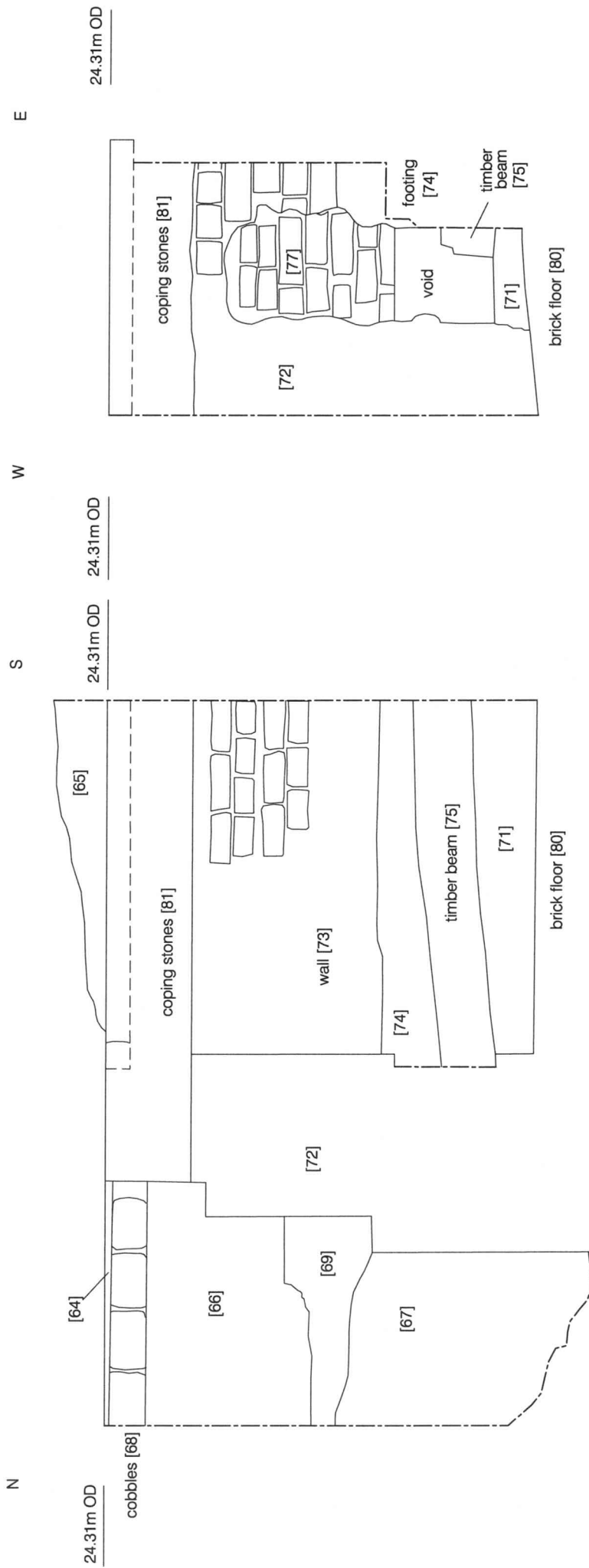
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Figure 6
Observation Pit 11, Plan and Section
1:20 at A4



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Figure 7
Observation Pit 12, Plan
1:20 at A4

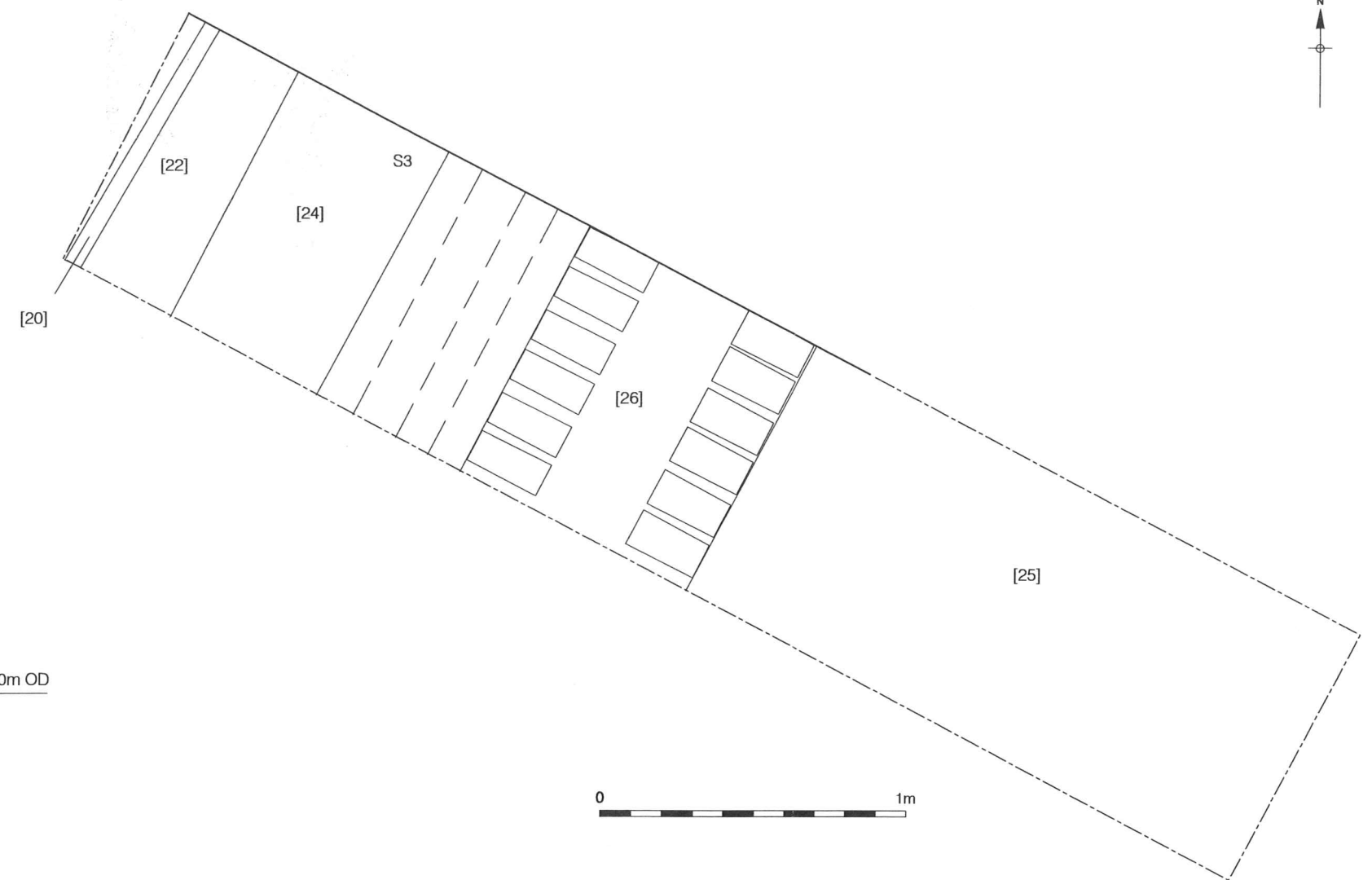
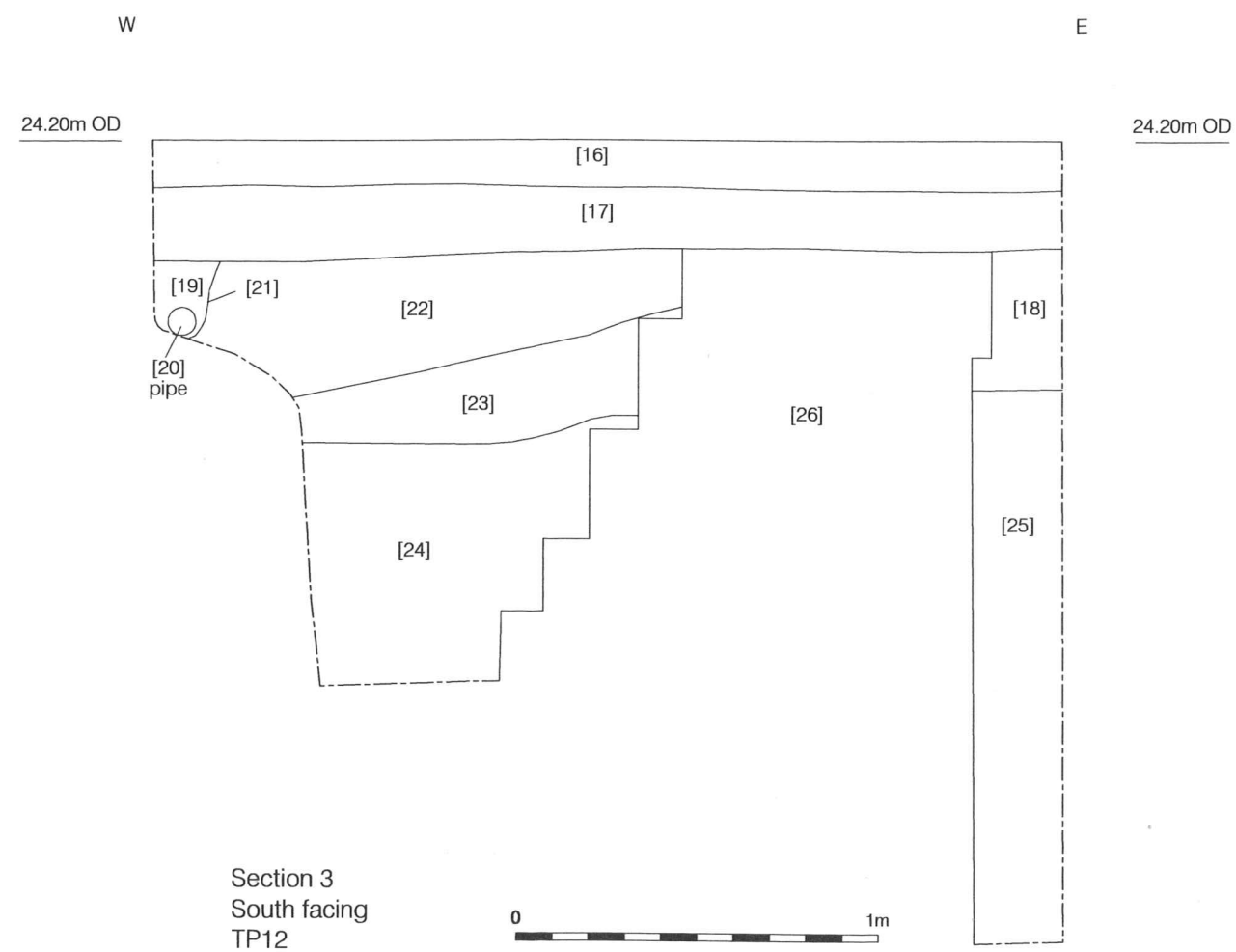


Section 10
West facing
OP12

Section 11
South facing
OP12



Figure 8
Observation Pit 12, Sections 10 and 11
1:20 at A4



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Figure 9
Trial pit 12, Plan and Section
1:20 at A3

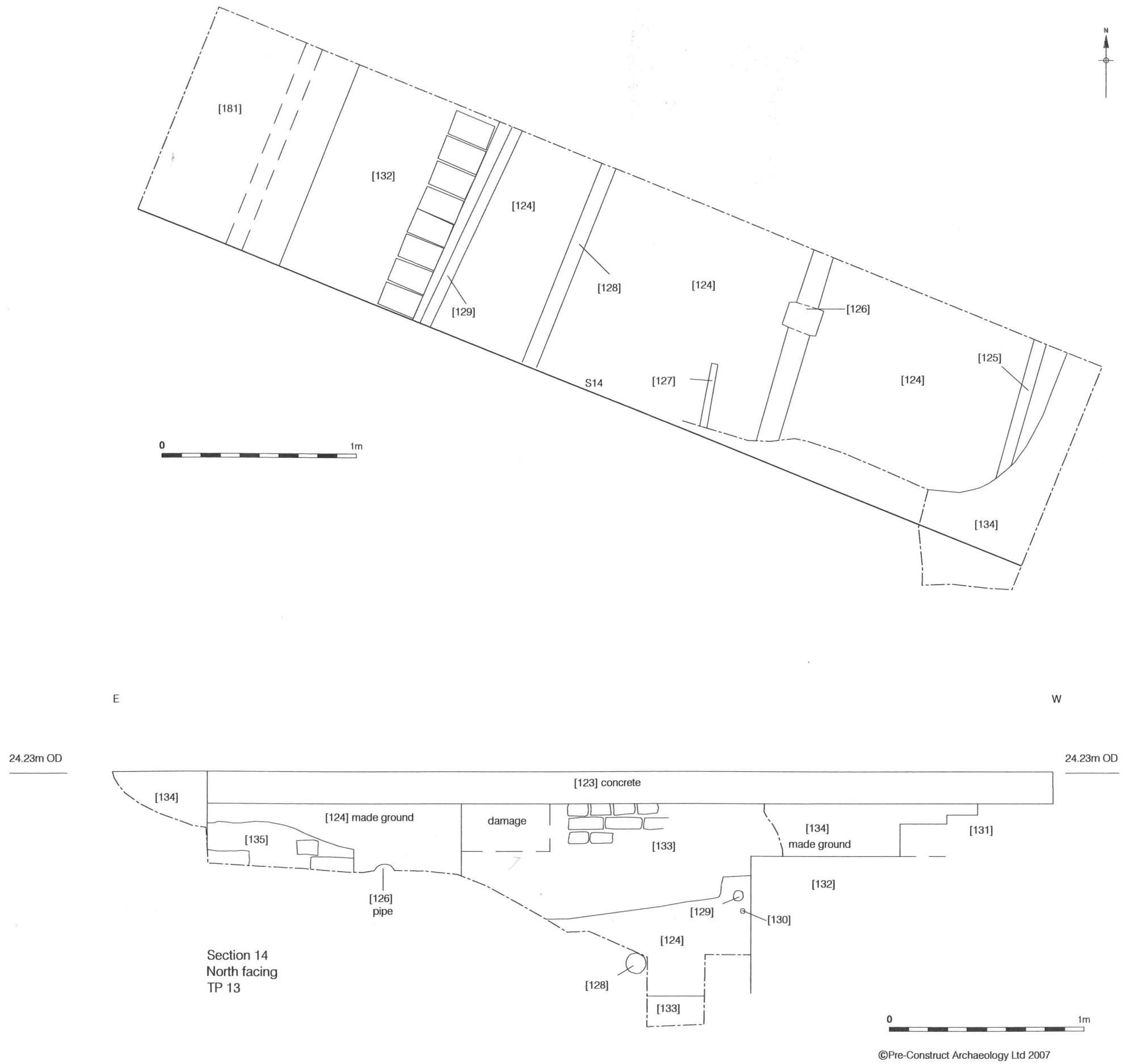


Figure 10
 Trial pit 13, Plan and Section
 1:20 at A3

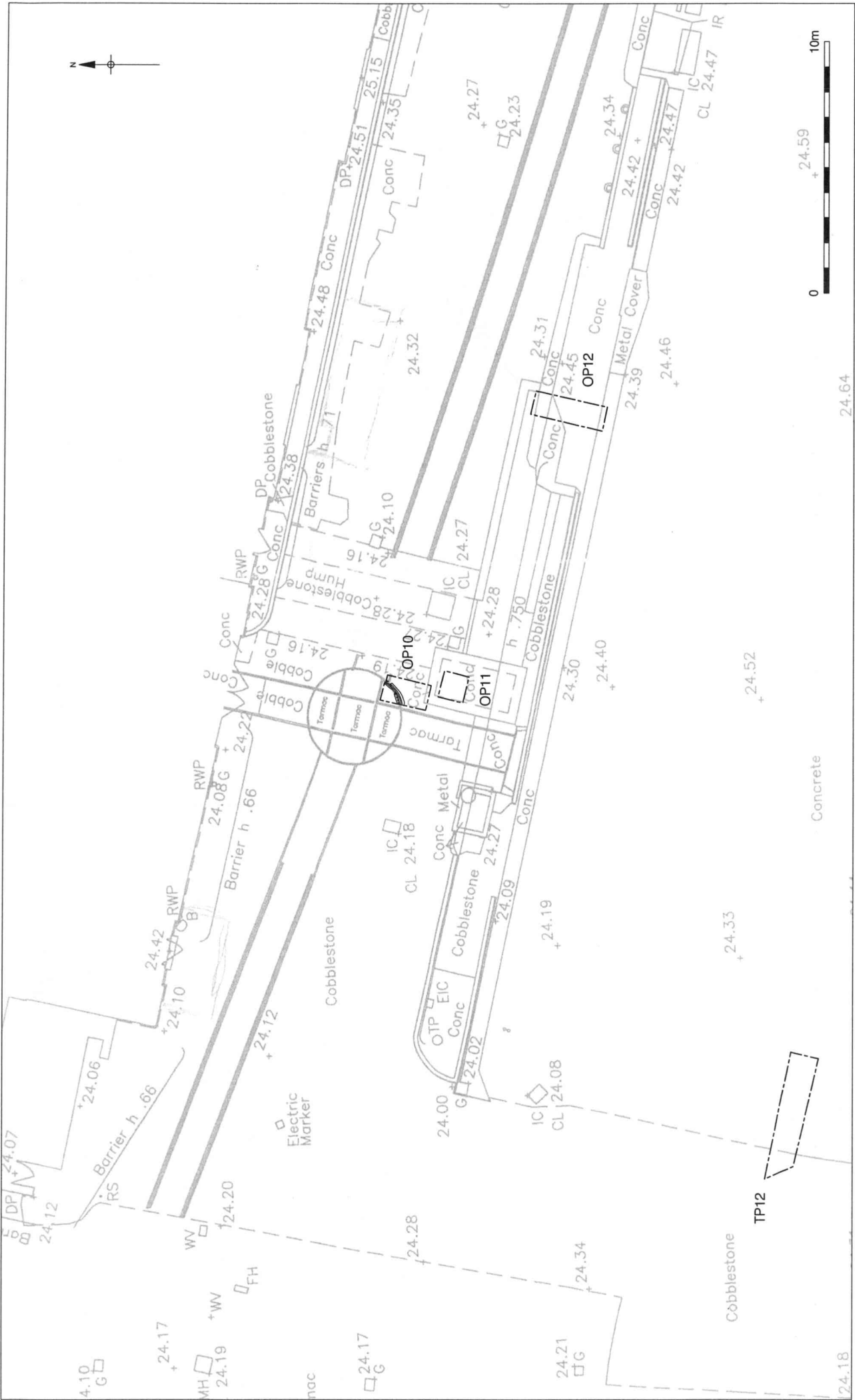


Figure 11
 Overlay of plan showing turntable
 1:200 at A4

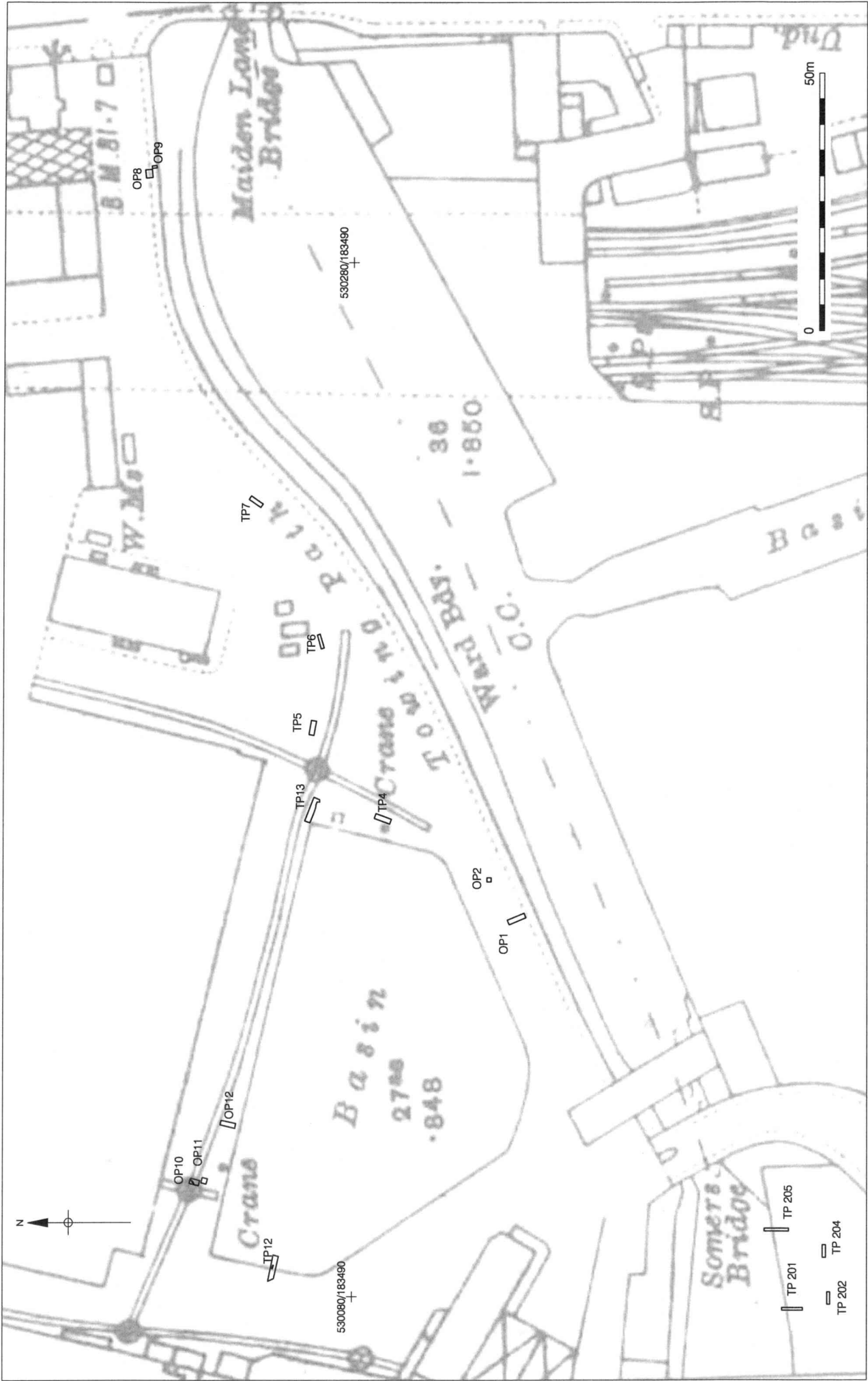


Figure 12
 Trial Pit and Observation Pit locations superimposed onto 3rd edition OS map, 1914
 1:1,000 at A4

8 INTERPRETATION

- 8.1 Natural clay was recorded across the site at heights of between 21.34m OD in OP9 and 22.42m OD in TP7. The lower level observed in OP9 is probably due to a heavier truncation of natural during the redevelopment of the canal area, as this pit directly faced onto the Regent's Canal. Natural clay was recorded at heights of between 21.20m OD and 21.40m OD in the additional geotechnical pits to the south of the main study area. These lower levels may also be due to extensive redevelopment, as the land lay to the immediate south of the Regent's Canal.
- 8.2 The footings for the C19th E-W canal retaining wall, bordering Wharf Road, were observed in a number of trial pits. OP1 exposed a fragment of the north facing footing, as did OP8, with possible indications of a later truncation to that observed in OP1. OP9 exposed the lower courses of the south facing footing, which was founded directly on natural clay. Other C19th structures observed included a structure of unknown function in TP4, possibly related to the canal basin, and a section of the western canal retaining wall in TP12. A possible section of the south-eastern corner of the retaining wall was also uncovered in TP13. In addition a possible chamber was observed in OP12, containing a timber beam. A similar C19th structure was observed in OP11. The relationship of the trial and observation pits to the C19th features may be seen in an overlaid plan on figure 12. Furthermore, features relating to the infrastructure of the former railway were observed in OP10 and TP5. A still extant C19th turning circle was investigated and exposed in OP10 including an in situ railway sleeper, corresponding with connecting steel tracks visible above ground (see figures 11 and 12). In TP5 two possibly in situ sleepers were also identified, similarly corresponding with steel tracks that may have extended from a second turning circle, also still visible above ground. All structures were left in situ.
- 8.3 A layer of relatively clean silty clay was observed in trial pits 4, 5, 7, 12 and OP9. This was interpreted as C19th redeposited natural clay. In addition, trial pits 6 and 7 exposed an alluvial material, also interpreted as redeposited natural. These layers would appear to support historical sources which suggest a great extent of remodelling of the area during the C19th, during which natural deposits from elsewhere were used to create an artificial island. Further evidence of C19th remodelling of the area derived from a distinctive red sandy gravel layer. This was recorded in pits 4, 5, 6, 7 and 12.

8.4 All pits showed evidence of heavy C20th redevelopment and levelling. Layers of concrete and tarmac made ground covered the site. A greater intensity of C20th redevelopment appeared in pits 1, 2 and 9. These pits were all located along Wharf Road and therefore modern services, road and pavement resurfacings appear to have truncated any earlier features.

9 CONCLUSIONS

- 9.1 Natural deposits were recorded across parts of the study site, revealing both London clay and peat. The watching brief revealed no evidence of archaeological remains for the prehistoric, Roman, Saxon or medieval periods.
- 9.2 Extensive evidence was observed for the 19th and 20th century remodelling of the area. Footings were revealed and recorded for the mid 19th century Regent's Canal retaining wall to the south of Wharf Road. These were observed for both north and south faces, with some evidence of modern truncations and damage. This area, most probably due to the proximity of Wharf Road, appeared to suffer the most damage from 20th century remodelling, suggesting a low potential for the survival of archaeological features if future work were to be carried out here.
- 9.3 Many of the trial pits were located in order to ascertain the condition and location of features relating to the retaining wall of the former canal basin. Where sections of these walls were encountered, the masonry was found to be in good condition, preserved just below ground level. In one example, contemporary services were also still surviving in relatively good condition.
- 9.4 Examples of 19th century masonry of uncertain function were also observed. A possible subterranean chamber was identified which included a timber beam in relatively poor condition. A similar construction was observed to the immediate west of this. In addition, large fragments of corbelled masonry were identified of a contemporary date. The location of such structures appeared to suggest a relationship with the canal basin, possible extensions, but size restrictions of the trenches prevented further information from being ascertained. All masonry appeared to have survived in excellent condition, with only minimal damage.
- 9.5 In addition to the canal basin, an important aspect of the study site was the functioning of the railway. Steel tracks and turntables are still present, visible above ground. One of these was investigated in order to determine its underlying structure, and whether it could feasibly be made to function again. Unfortunately concrete backfill within the turning circle obscured much of the finer detail, but its footings and external features were well preserved. In direct relation with this, was an in situ railway sleeper aligned with the steel tracks. This was in excellent condition, probably due to its concrete setting. Such preservation, suggests that in other areas of the site, where tracks are present, there is a high potential for similar industrial archaeology to be encountered.

9.6 Sealing all 19th century features were a series of made ground layers and resurfacings dating from late 19th and 20th centuries. These layers appeared to merely seal the preserving archaeology rather than impacting upon it. The former 19th century industrial landscape appears therefore to have survived relatively intact within the areas investigated. With many features preserved at a comparatively high level, any future groundworks extending below the uppermost made ground layers are likely to have a significant impact upon the archaeology.

10 ACKNOWLEDGEMENTS

- 10.1 Pre-Construct Archaeology Limited would like to thank Norwest Holst Ltd for commissioning the project on behalf of Argent (King's Cross) Ltd, with thanks to Richard Hughes of IHCM for his assistance.

- 10.2 The author would like to thank Gary Brown for his project management and the geotechnical crew for their on-site co-operation. Illustrations were produced by Angelo Indelicato and Josephine Brown.

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Context Number	Trench	Plan Number	Section Number	Phase	Type	Description	Highest	Lowest
1	TP4	TP4	1	3	Layer	c20 made ground. Grey, concrete surface with frequent sub-rnd pebbles	24.51	
2	TP4		1	3	Layer	Made Ground. Weakly cemented, black, coarse sandy silt with gravel	24.23	
3	TP4	TP4	1	2	Masonry	Concreted structure with brick footing, poss related to Basin retaining wall	24.11	22.61
4	TP4		1	2	Layer	Red sandy made ground.	24.11	
5	TP4		1	2	Layer	Yellow/grey clay - Redep Nat?	23.99	
6	TP5	TP5	2	3	Layer	Black tarmac surface	24.13	
7	TP5		2	2	Masonry	Cobbled Surface	24.05	23.93
8	TP5	TP5	2	2	Layer	Mid brown/grey coarse sandy silt with rnd pebbles. Made Ground	23.93	
9	TP5		2	2	Timber	Railway Sleeper	23.83	23.69
10	TP5		2	2	Timber	Railway Sleeper	23.82	23.68
11	TP5		2	2	Layer	Red sandy made ground.	23.72	
12	TP5		2	2	Layer	Redep Nat/Made Ground. Brown/yellow clay	23.33	
13	TP5		2	2	Layer	Dumped/levelling. Brown/black ashy sandy silt	23.08	
14	TP5		2	2	Layer	Redep Nat/Made Ground grey clay	22.77	
15	TP5	TP5	2	1	Layer	Natural yellow clay	22.23	
16	TP12	TP12	3	3	Layer	Concrete surface	24.2	
17	TP12		3	3	Layer	Made Ground. Black/brown sandy silt hardcore	24.06	
18	TP12		3	3	Layer	Made Ground. Black/brown sandy silt with freq pebbles and CBM	23.9	
19	TP12		3	3	Fill	Chalk fill of [21]	23.86	
20	TP12	TP12	3	3	Fill	Lead Pipe, fill of [21]	23.74	
21	TP12		3	3	Cut	Cut for services	23.86	23.65
22	TP12	TP12	3	2	Layer	Made ground. Red silty sand.	23.9	
23	TP12		3	2	Layer	Dump layer, red/brown sandy silt	23.74	
24	TP12	TP12	3	2	Layer	Redep Nat? Yellow/grey clay	23.44	
25	TP12	TP12	3	3	Layer	Redep Nat? Yellow/grey clay	23.51	
26	TP12	TP12	3	2	Masonry	N-S Retaining wall for canal basin	23.9	22
27	TP6	TP6	4	3	Layer	Concrete pavement surface	24.51	
28	TP6		4	3	Layer	Tarmac	24.38	
29	TP6		4	3	Layer	Grey sandy made ground	24.36	
30	TP6		4	3	Layer	Concrete surface	24.11	
31	TP6		4	3	Layer	Concrete/sand levelling	23.97	
32	TP6		4	2	Layer	Brown/Red sandy gravel made ground	23.7	
33	TP6		4	2	Layer	Silt/clay made ground	23.61	
34	TP6	TP6	4	1	Layer	Natural yellow clay	22.11	

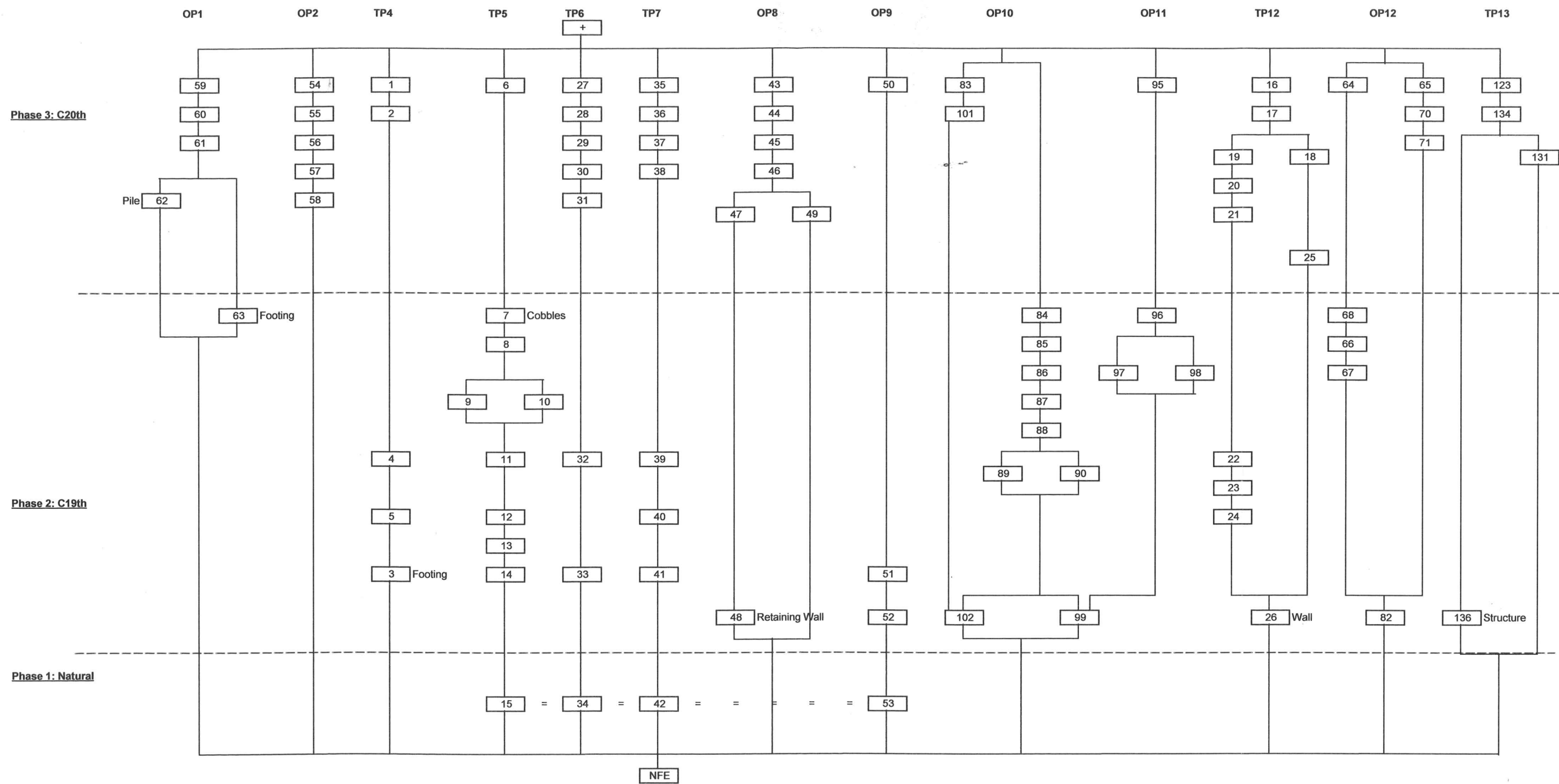
Context Number	Trench	Plan Number	Section Number	Phase	Type	Description	Highest	Lowest
35	TP7	TP7	5	3	Layer	Tarmac surface	24.42	
36	TP7		5	3	Layer	Rubble bedding/levelling	24.37	
37	TP7		5	3	Layer	Concrete surface	24.12	
38	TP7		5	3	Layer	Made ground. Brown/grey sandy rubble	24.02	
39	TP7		5	2	Layer	Red sand made ground	23.87	
40	TP7		5	2	Layer	Grey/yellow silty clay - redep nat?/levelling?	23.42	
41	TP7		5	2	Layer	Alluvium	22.92	
42	TP7	TP7	5	1	Layer	Natural grey clay	22.42	
43	OP8	OP8	6	3	Layer	Tarmac surface	24.48	
44	OP8		6	3	Layer	Made ground/levelling. Grey/brown sandy gravel.	24.33	
45	OP8		6	3	Layer	Tarmac	24.12	
46	OP8		6	3	Layer	c20 made ground. Yellow/grey sandy gravel.	24.03	
47	OP8		6	3	Layer	Made ground. Red/brown silty sand.	23.87	
48	OP8	OP8	6	2	Masonry	Footing of E-W canal retaining wall. C19	23.87	22.73
49	OP8	OP8	6	3	Masonry	c20 brick hut housing electricity cables		24.13
50	OP9	OP9	7	3	Layer	Topsoil	21.69	
51	OP9		7	2	Layer	c19? made ground. Grey/yellow clay	21.51	
52	OP9	OP9	7	2	Masonry	c19 Footing for E-W canal retaining wall	21.67	21.34
53	OP9	OP9	7	1	Layer	Natural yellow clay	21.34	
54	OP2	OP2	8	3	Layer	Tarmac surface	25.03	
55	OP2		8	3	Layer	c20 made ground. Pink/grey sandy gravel.	24.91	
56	OP2		8	3	Layer	c20 made ground. Yellow sand	24.63	
57	OP2		8	3	Layer	c20 made ground. Grey sandy gravel	24.57	
58	OP2	OP2	8	3	Masonry	c20 concrete pile	24.07	
59	OP1	OP1	9	3	Layer	Tarmac surface	24.94	
60	OP1		9	3	Layer	c20 made ground. Brown/grey sandy silt	24.83	
61	OP1		9	3	Layer	c20 made ground. Grey sandy silt and gravel.	24.44	
62	OP1	OP1	9	3	Masonry	c20 concrete pile	23.84	23.14
63	OP1	OP1	9	2	Masonry	Brick and concrete footing for E-W canal retaining wall	24.54	23.74
64	OP12		10	3	Surface	Tarmac surface	24.31	
65	OP12		10	3	Surface	Concrete surface	24.5	
66	OP12		10	2	Layer	Made ground. Mottled yellow-red-brown clayey/silty with CBM	24.17	
67	OP12		10	2	Layer	Made ground. Brown-yellow silty-clay with cement and CBM	23.51	
68	OP12		10	2	Surface	Cobbled Surface	24.3	

Appendix 1

Context Number	Trench	Plan Number	Section Number	Phase	Type	Description	Highest	Lowest
69	OP12	OP12	10	2	Masonry	Red brick footing for [72]	23.69	
70	OP12			3	Layer	Made ground/demo. Dark grey-brown sandy silt and concrete	24.31	
71	OP12		11	3	Layer	Made ground/demo. Brown-yellow silty sand with concrete and CBM	23.81	
72	OP12		10, 11	2	Masonry	c19 E-W red brick wall	24.01	22.81
73	OP12	OP12	10	2	Masonry	N-S return of [72]	24.01	
74	OP12	OP12	10, 11	2	Masonry	Footing for [73]	23.36	
75	OP12	OP12	10, 11	2	Timber	N-S timber beam	23.26	23.04
76	VOID			VOID		VOID		
77	OP12		11	3?	Masonry	Repair to [72]	23.91	23.31
78	OP12			2	Masonry	E-W red brick wall, return of [73]	24.01	
79	VOID			VOID		VOID		
80	OP12	OP12	10, 11	2	Masonry	c19 red brick floor?	22.87	
81	OP12		10, 11	2	Masonry	Stone capping for [72], [73] and [78]	24.31	24.01
82	OP12			2	Structure	c19 internal chamber = [69], [72], [73], [74], [75], [77], [78], [80], [81]		
83	OP10			3	Surface	Tarmac surface	24.19	
84	OP10		13	2	Surface	Cobbled Surface	24.19	
85	OP10		13	2	Layer	Concrete bedding for [84]	24.09	
86	OP10	OP10	13	2	Layer	Made ground. Grey concrete	23.98	
87	OP10	OP10	13	2	Timber	Railway Sleeper	23.97	23.84
88	OP10	OP10	13	2	Layer	Made ground. Brown clayey/sandy/silt with concrete and CBM	23.85	
89	OP10	OP10	13	2	Pipe	E-W cast iron pipe	23.5	
90	OP10	OP10	13	2	Pipe	E-W ceramic pipe	23.15	
91	OP10	OP10	13	2	Masonry	Concrete footing for [92]	23.51	
92	OP10	OP10	13	2	Structure	Steel turning circle	24.19	
93	OP10	OP10	12	2	Masonry	c19 E-W red brick wall	23.89	
94	OP10/11	OP10/11	12	2	Masonry	Capping stones for [93] and [100]	24.19	
95	OP11			3	Surface	Concreted surface of OP11	24.18	
96	OP11	OP11		2	Layer	Made ground/backfill. Brown sandy silt with CBM and clay lenses	23.78	
97	OP11	OP11	12	2	Pipe	N-S cast iron pipe	23.43	
98	OP11	OP11	12	2	Pipe	Lead pipe, within [96] running NW-SE	23.55	
99	OP10,11			2	Structure	Poss internal chamber, comprises [93], [94] and [100]		
100	OP11			2	Masonry	N-S return of [93]	23.89	
101	OP10		13	3	Layer	Concrete backfill of [92]	24.09	
102	OP10			2	Structure	Steel turning circle and footing		

Appendix 1

Context Number	Trench	Plan Number	Section Number	Phase	Type	Description	Highest	Lowest
103		VOID				VOID		
104	TP203			3	Layer	Made ground. Mottled red/yellow brown sandy silt with CBM	22.88	
105	TP203			3	Layer	Made ground. Black clayey silt with flint and CBM	22.6	
106	TP203			2	Layer	Made ground/alluvium? Grey-brown clayey silt	21.82	
107	TP203			2	Layer	Redeposited Nat? blue-grey silty clay	21.2	
108	P201-205			3	Layer	Topsoil	23.2	
109	TP205			2	Layer	Made ground. Brown clayey silt	22.8	
110	TP205			2	Masonry	Rough concrete E-W wall	23.18	
111	TP204			3	Layer	Made ground. Mottled yellow/black sandy silt with CBM	22.84	
112	TP204			2	Layer	Made ground. Brown -yellow silty clay with CBM flecks	21.8	
113	TP204			1	Layer	Natural blue-grey clay	21.2	
114	TP202			3	Layer	Made ground. Grey-brown sandy silt and gravel	22.65	
115	TP202			3	Layer	Made ground. Brown-black clayey silt with gravel	22.16	
116	TP202			2	Layer	Alluvium. Grey-brown silty clay	21.82	
117	TP202			1	Layer	Natural peat	21.4	
118	TP202			1	Layer	Natural clay	20.9	
119	TP201			3	Layer	Made ground. Brown sandy silt and gravel	22.8	
120	TP201			3	Layer	Made ground. Brown-black silty clay and gravel	22.4	
121	TP201			2	Layer	Levelling/redeposited nat. Brown-yellow silty clay	22.6	
122	TP201			2	Masonry	Red and yellow brick, footing?	22.3	
123	TP13		14	3	Surface	Concrete surface	24.23	
124	TP13		14	2	Layer	Made ground. Brown clayey silt	24.07	
125	TP13	TP13		2	Pipe	N-S iron pipe	23.73	
126	TP13	TP13	14	2	Pipe	N-S iron pipe	23.77	
127	TP13	TP13	14	2	Pipe	N-S lead pipe	23.9	
128	TP13	TP13	14	2	Pipe	N-S iron pipe	23.1	
129	TP13	TP13	14	2	Pipe	N-S iron pipe	23.62	
130	TP13	TP13	14	2	Pipe	N-S iron pipe	23.53	
131	TP13	TP13	14	3	Masonry	c20th man-hole addition?	24.07	
132	TP13	TP13	14	2	Masonry	N-S Retaining wall	23.79	
133	TP13	TP13	14	2	Masonry	E-W corner of retaining wall	24.07	
134	TP13	TP13	14	3	Layer	Made ground. Brown sandy silt and gravel	24.23	
135	TP13	TP13	14	2	Masonry	Fragment of E-W wall	23.98	
136	TP13			2	Structure	Retaining wall and pipes [124] - [130], [133], [135]		



APPENDIX 3:

1.1 OASIS ID: preconst1-27934

Project details

Project name King's Cross Retaining Wall

Short description of the project An archaeological watching brief was carried out on a series of geotechnical trial pits intended to locate existing structures or obstructions on land to the north of Wharf road, King's Cross. Natural clay was observed in a number of pits, however the site appears to have been subject to intensive redevelopment during the 19th and 20th centuries. A number of 19th century features were observed, with all pits sealed by 20th century made ground and surfaces.

Project dates Start: 15-05-2007 End: 14-06-2007

Previous/future work Yes / Not known

Any associated project reference codes WFI 07 - Sitecode

Type of project Recording project

Site status Conservation Area

Current Land use Industry and Commerce 1 - Industrial

Current Land use Industry and Commerce 4 - Storage and warehousing

Monument type RETAINING WALL Post Medieval

Monument type RETAINING WALL Post Medieval

Monument type RAILWAY TURNTABLE Post Medieval

Monument type STRUCTURE Post Medieval

Monument type COBBLED ROAD Post Medieval

Monument type COBBLED ROAD Post Medieval

Monument type STRUCTURE Post Medieval
Monument type CANAL BASIN Post Medieval
Significant Finds DISC Post Medieval
Investigation type 'Watching Brief'
Prompt Direction from Local Planning Authority - PPG16

Project location

Country England
Site location GREATER LONDON CAMDEN CAMDEN King's Cross Retaining Wall
Postcode N1
Site coordinates TQ 3010 8349 51.5348091642 -0.124018322582 51 32 05 N 000 07 26 W
Point
Height OD Min: 21.20m Max: 22.42m

Project creators

Name of Organisation Pre-Construct Archaeology Ltd
Project brief originator Norwest Holst Ltd
Project design originator ARUP
Project director/manager Gary Brown
Project supervisor Amelia Fairman

Project archives

Physical Archive recipient LAARC

Physical Contents	'Worked bone'
Digital Archive recipient	LAARC
Digital Media available	'Database', 'Images raster / digital photography'
Paper Archive recipient	LAARC
Paper Media available	'Context sheet', 'Correspondence', 'Map', 'Matrices', 'Photograph', 'Plan', 'Report', 'Section'

Project bibliography 1

Publication type	Grey literature (unpublished document/manuscript)
Title	An Archaeological Watching Brief at King's Cross Central - Road Bridge and Retaining Wall
Author(s)/Editor(s)	Fairman, A
Date	2007
Issuer or publisher	Pre-Construct Archaeology
Place of issue or publication	London
Entered by	Amelia Fairman (afairman@pre-construct.com)
Entered on	9 July 2007

APPENDIX 4:



i - Observation Pit 1



ii - Observation Pit 2



iii - Trial Pit 4



iv - Trial Pit 5



v - Trial Pit 6



vi - Trial Pit 7



vii - Observation Pit 8



viii - Observation Pit 9



ix - Observation Pit 10, detail of turntable.



x - Observation Pit 10



xi - Observation Pit 11



xii - Observation Pit 12, south side



xiii - Observation Pit 12



xiv - Observation Pit 12, north side



xv - Trial Pit 12, east side



xvi - Trial Pit 12, west side



xvii - Trial Pit 13