

**AN ASSESSMENT OF  
AN ARCHAEOLOGICAL  
EXCAVATION AND  
WATCHING BRIEF AT  
KING'S CROSS CENTRAL,  
NORTHERN AREA BLOCKS,  
ROUNDHOUSE  
EXCAVATION,  
LONDON BOROUGH OF  
CAMDEN N1 0AZ**

**KXR09**

**SEPTEMBER 2012**



# **An Assessment of an Archaeological Excavation and Watching Brief at King's Cross Central, Northern Area Blocks, Roundhouse Excavation, London Borough of Camden N1 0AZ**

**Site Code: KXR09**

**Central National Grid Reference: TQ 3003 8401**

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## DOCUMENT VERIFICATION

Site Name: King's Cross Central, Northern Area Blocks,  
Roundhouse Excavation, London Borough of Camden  
N1 0AZ

Type of project: Excavation & watching brief

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## 1 ABSTRACT

- 1.1 An archaeological excavation and watching brief were undertaken by Pre-Construct Archaeology Ltd. at the site of the former Midland Railway Roundhouse, Northern Area Blocks, King's Cross Central, London Borough of Camden N1 0AZ. The investigations were commissioned by King's Cross Central General Partner Limited.
- 1.2 The site comprised an area of 731.53m<sup>2</sup> and was located at the north end of the proposed Canal Street. It lies within Northern Area Plots S3, S4, S5, and T5, and in the roads between these plots. It was bordered by the Channel Tunnel Rail Link (CTRL) to the north, by York Way to the east, by Regents Canal to the west and to the south by the former King's Cross Eastern Goods Yard complex. The archaeological works involved one open area excavation and a watching brief on the excavation of service runs along the proposed line of Canal Street.
- 1.3 The archaeology was multi-phase, with the deposits dating to two historic stages defined here as post-medieval to c.1849, and c.1850 to the present day. The second of these corresponds with the period during which the site was developed and used by the Great Northern and Midland Railway Companies, the London and North Eastern Railway Company and British Railways and its subsidiaries and successors. The latter period has been further subdivided into three sub-phases, namely: ground preparation (1849-50), Roundhouse construction (1858-1859), and modifications and additions (1859-1931).
- 1.4 The underlying geology consists of London Clay. This was observed in the watching brief trench and in the main excavation trench at the base of a large modern truncation.
- 1.5 The earliest archaeological deposits encountered consisted of post-medieval soil horizons observed in both trenches. These predated the development of the site by the Great Northern Railway Company in the mid 19th century.
- 1.6 A thin layer of burnt clay observed in the excavation trench represented the earliest phase of construction, when the land was levelled in advance of the construction of the Great Northern King's Cross Goods Yard and Locomotive Depot in the early 1850s. The remains of the exterior wall of the Roundhouse, the central locomotive turntable, seven engine pits, six pillar bases and its interior ring drain were observed during the investigations. A corner of a brick building was identified abutting the exterior wall of the Roundhouse to the west.
- 1.7 Demolition elements were recorded in three of the engine pits, probably laid down shortly after the building was pulled down in 1931. A large cast iron pipe truncated the exterior

Roundhouse wall to the south and appeared to postdate the demolition. The remains of the Roundhouse were sealed by a deposit of dark blackish grey ashy gravels with clinker. This in turn was sealed by approximately 2.5m of modern made ground, deposited during the construction of the CTRL.

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## 2 INTRODUCTION

- 2.1 This report describes the results and working methods of an archaeological excavation undertaken by Pre-Construct Archaeology Ltd at the site of the former Midland Railway Roundhouse, Northern Area Blocks, King's Cross Central, London Borough of Camden N1 0AZ. The work was carried out in accordance with the Written Scheme of Investigation prepared for the project (Hawkins, 2011). The works were conducted in advance of the proposed redevelopment of the site. The site central National Grid Reference is TQ3003 8401. The excavation was conducted between 12th September and 7th October 2011.
- 2.2 The trenches were located within Northern Area Plots S3, S4, S5, and T5, and in the roads between these plots. The site was bounded by York Way to the east, an open area to the south and east and by the CTRL to the north (**Figures 1 and 2**).
- 2.3 The project was commissioned and monitored by King's Cross Central General Partner Limited. The excavation was supervised by Shane Maher, and was project managed by Helen Hawkins. The work was additionally monitored for the local planning authority by Kim Stabler of the Greater London Archaeology Advisory Service (GLAAS).
- 2.4 A Written Scheme of Investigation for an Archaeological Excavation was prepared by Helen Hawkins (Hawkins, 2011) prior to the fieldwork commencing.
- 2.5 The completed archive comprising written, drawn and photographic records and artefacts will be deposited with the London Archaeological Archive and Research Centre (LAARC), Mortimer Wheeler House, Eagle Wharf Road, London N1 7ED.
- 2.6 The site was allocated the site code KXR 09.





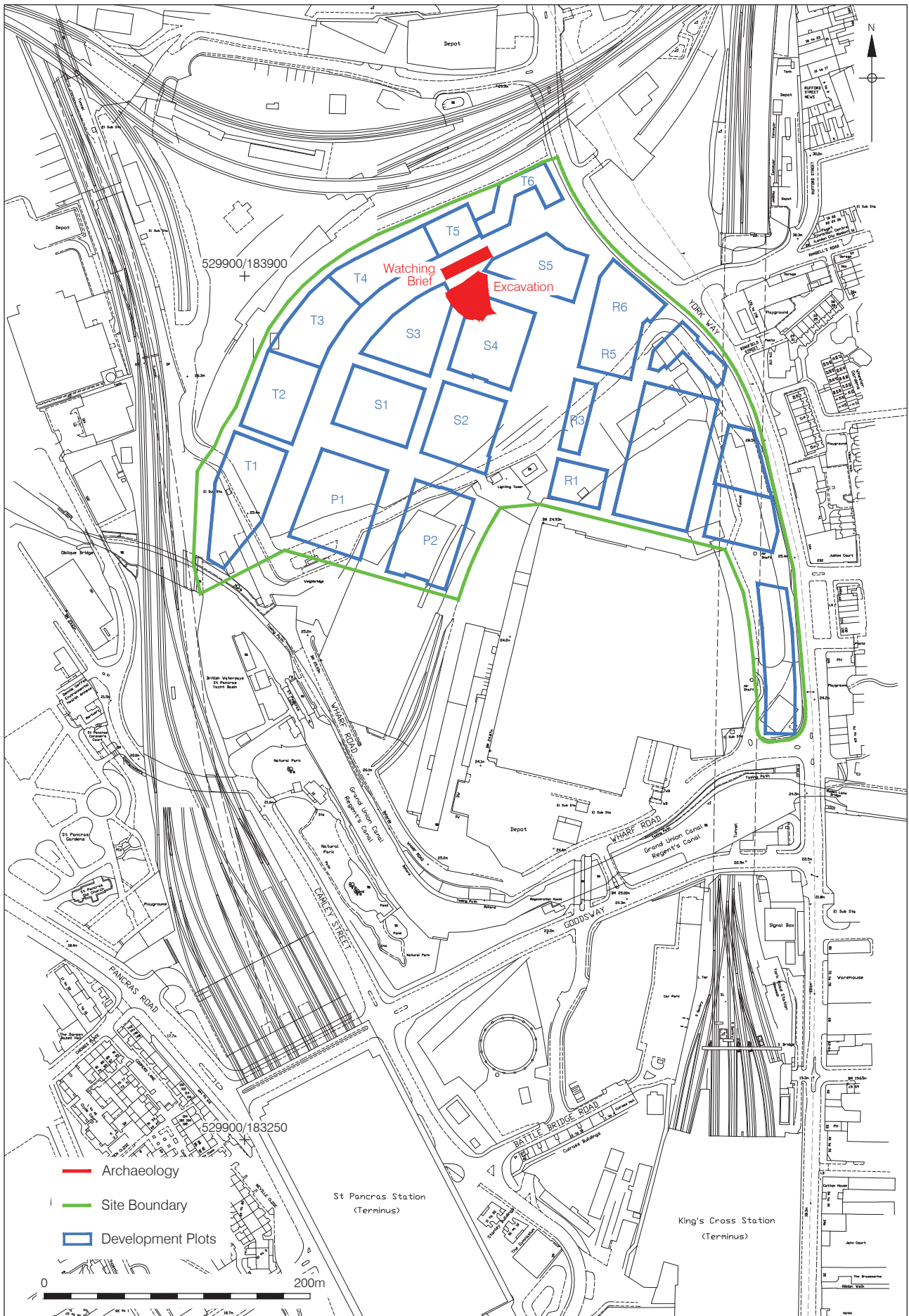
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04/07/11 HB

Figure 1  
Site Location  
1:12,500 at A4





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 04/11/11 HB, updated 23/01/12 JS

Figure 2  
 Trench Location  
 1:4,000 at A4

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### 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. After the project commenced, the Department for Communities and Local Government replaced this guidance with Planning Policy Statement 5 (PPS5) in March 2010. This was again replaced by Section 12 (Conserving and enhancing the historic environment) of the National Planning Policy Framework on 27th March 2012 - <http://www.communities.gov.uk/documents/planningandbuilding/pdf/2116950.pdf>.
- 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 Section 12 on the National Planning Policy Framework, by current Structure and Local Plan policy and by other material.
- 3.3 The Development Plan framework is provided by the Camden Replacement Unitary Development Plan (2006) which 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:

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*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.*

- 3.5 In accordance with the Camden Replacement Unitary Development Plan (2006) and local policy KC11, the Outline Planning Permission for the project (granted by Camden Council) stipulated that a programme of archaeological and built heritage recording was required. This is detailed in Outline Planning Permission Condition 56 (Archaeological Investigation and Mitigation), which states:

*No development shall take place in relation to each phase of the 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 of 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 minimize damage to them in accordance with the Environmental Impact Assessment, in accordance with the policies policy B8 of the London Borough of Camden Replacement Unitary Development Plan 2006.*



## **4 GEOLOGY AND TOPOGRAPHY**

### **4.1 Geology**

- 4.1.1 The British Geological Survey of England and Wales 1:50,000 scale map of the area (Sheet 256 *North London*) indicates that the Eastern Goods Yard is underlain by London Clay. This in turn seals the Woolwich and Reading and Thanet Formations, which sit above Upper Cretaceous Chalk.

### **4.2 Topography**

- 4.2.1 The site lies within the King's Cross Railway Lands, an area which has been artificially landscaped on several occasions between the mid 19th century and the present day. The modern topography is therefore entirely man-made and is a result of the CTRL enabling works. Ground level was found to be at a maximum height of 26.98m OD in the west and at a minimum height of 26.32 OD in the east of site.

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## 5 METHODOLOGY

### 1.1 Archaeological Methodology

- 1.1.1 A Written Scheme of Investigation (Hawkins 2011) and a Health and Safety Method Statement (Hawkins 2011) were prepared before the excavation took place. The Written Scheme of Excavation detailed the methodology required for the excavation of the specified areas.
- 1.1.2 The archaeological works involved one open area of excavation and a watching brief on the excavation of service runs along the route of the proposed Canal Street (**Figure 2**).
- 1.1.3 The main excavation was targeted on a south-west segment of the Roundhouse and a later exterior building, visible on the Second Edition Ordnance Survey map of 1894 (**Figure 8**). It was agreed to reduce the size of the main trench because what appeared to be live services were encountered. Owing to the depth of the services in the watching brief trench, the archaeological deposits were recorded from the trench edge.
- 1.1.4 The excavations were undertaken with 360 degree mechanical excavators fitted with toothless buckets. Spoil was removed by mechanical dumper to a designated area. It was known that over 2.0m of modern overburden material sealed the site. When this was removed machine excavation continued in spits of approximately 200mm until archaeologically relevant material was observed. The trench was in places stepped twice to provide a safe environment to record the archaeology. An area of 731.53m<sup>2</sup> was excavated to a maximum depth of 4m.
- 1.1.5 In accordance with the Written Scheme of Investigation, following the removal of the modern overburden, all archaeological deposits were hand cleaned by archaeologists using appropriate hand tools.
- 1.1.6 Archaeological features were recorded using the single context recording system, with individual descriptions of all archaeological features and strata excavated and exposed entered onto pro-forma recording sheets. All detailed plans and sections of archaeological deposits and features were recorded on polyester based drawing film, the plans being drawn at a scale of 1:20 and the sections at 1:10 and 1:20. The OD height of all principal strata was calculated and indicated on the appropriate plans and sections. Features that were evidently modern were not given context numbers, and were recorded as modern intrusions in plan.

- 
- 1.1.7 The archaeological features encountered and the limits of excavation were surveyed using GPS survey equipment. More detailed plans of Engine Pits 4 and 5 were drawn by hand at 1:20 on polyester based drawing film.
- 1.1.8 In the main excavation trench GPS survey equipment was used to establish a temporary Bench Mark (TBM) on outer column base [186] (value 24.27m OD). Levels for the watching brief trench were established at the top of the trench edge with GPS survey equipment.
- 1.1.9 Photographs, on colour slide, black and white print film and in digital format were taken of the archaeological features and deposits where relevant. A professional archaeological photographer visited the site when required in order to take large format shots of areas or specific features. Site staff used 35mm and digital cameras on a day-to-day basis, and the professional photographer used 35mm, medium format (120mm) and digital cameras.
- 1.1.10 Two bulk samples were taken during the excavation in order to recover environmental information from deposits pre-dating railway activities on site.
- 1.1.11 In this report contexts are shown by square brackets, e.g. [100].

## **1.2 Documentary Research**

- 1.2.1 Archival research was carried out at the British Library, Camden Local Studies and Archive Centre at Holborn Library, The National Archives (TNA) at Kew and the Network Rail Records Group in York (NRRG). The online catalogue of the Cambridge County Record Office (CCRO) was consulted via *Access to Archives*. Historic maps and documents, minutes and papers of the Great Northern Railway (GNR), the London and North Eastern Railway (LNER), and British Railways (BR), contemporary accounts, newspaper and magazine articles were consulted. The results of this research are presented throughout the following report. Additional research material was also provided by IHCM.

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## 6 ARCHAEOLOGICAL BACKGROUND

### 6.1 Introduction

6.1.1 A specialist archaeological report was prepared by heritage consultancy IHCM for Argent (King's Cross) prior to the archaeological fieldwork (IHCM 2010). The key findings of this report and other research are summarised in the Archaeological Background section below.

6.1.2 Documentary research into the development of the King's Cross Great Northern Goods Yard and Locomotive Depot was undertaken by Guy Thompson of Pre-Construct Archaeology Ltd and is presented in the Historical Background section of this report.

### 6.2 Prehistoric (450,000 BC – AD 43)

6.2.1 The King's Cross Central site is located on London Clay. This intractable and poorly drained soil was not conducive to cultivation, in contrast to the Thames gravel terraces, which attracted early settlers. No archaeological features or findspots relating to this period were recorded by the HER within the study area.

### 6.3 Roman (AD 43 – AD 410)

6.3.1 The site is approximately 2km north-west of the Roman city of *Londinium*. Following its foundation in the mid-1st century AD, the city flourished during the 1st and early 2nd centuries, before contracting in the 3rd and 4th centuries, when it became much less densely populated, prior to its abandonment in the early 5th century following the Roman withdrawal from Britain.

6.3.2 The site lay in the hinterland of the city, although it is not certain whether the intractable London Clay soils of the area were cultivated during the period. A number of finds originating from the Roman period were recorded by the HER within the search area. These included a road to the eastern boundary along York Way, and finds of an iron vessel, and a tombstone, deriving from Wharfdale road to the south-east.

### 6.4 Early Medieval/Saxon (410 – 1066 AD)

6.4.1 A possible Saxon settlement existed in the vicinity of the Old St Pancras graveyard, while excavations carried out in 1979 at 250 Euston Road revealed evidence of a possible 6th or 7th century Saxon farmstead. In the 18th and early 19th centuries antiquarians became excited by a reputed 6th or 7th century altar at the church of St Pancras, however nothing earlier than what was described as a 'Norman' altar was discovered when the church was restored in the mid-19th century (Walford, 1878: 324-340).

6.4.2 In the late Saxon period the county of Middlesex was subdivided into six regions or "hundreds", the one adjoining the northern boundary of the City of London named Ossulstone after Oswulf's Stone, the meeting place at which local business was discussed and judicial trials held. The hundred is commemorated in the name of Ossulston Street which lies between Euston and King's Cross.

## 6.5 **Medieval (1066-1539)**

6.5.1 At the eve of the Norman Conquest the site was located in the manor of St Pancras, which was an administrative sub-district of Ossulstone Hundred. The manor was recorded in the Domesday Book as *Sanctus Pancratius*, and was held by the Canons of St. Paul's before and after 1066; Canon Walter of St. Paul's was the lord of the manor in 1086. The manor of St Pancras was a large one, with a total population of 35 households (<http://domesdaymap.co.uk/place/TQ3083/st-pancras/>). The former manorial and parochial boundary corresponded 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 of the Bishop of London.

6.5.2 The ancient boroughs of St Pancras and Islington had been established by the late medieval period, although both remained rural settlements, the former consisting of little more than a hamlet.

6.5.3 By the late 15th century little in the way of urban development had spread northward towards St Pancras from the main part of London. A settlement had begun to develop to the north in Kentish Town, which from the mid-15th century contained a chapel for the use of parishioners, who were obstructed by the frequently flooding Fleet River from attending the old parish church of St. Pancras.

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## 7 HISTORICAL BACKGROUND

### 7.1 Introduction: St Pancras, Battle Bridge and King's Cross to 1851

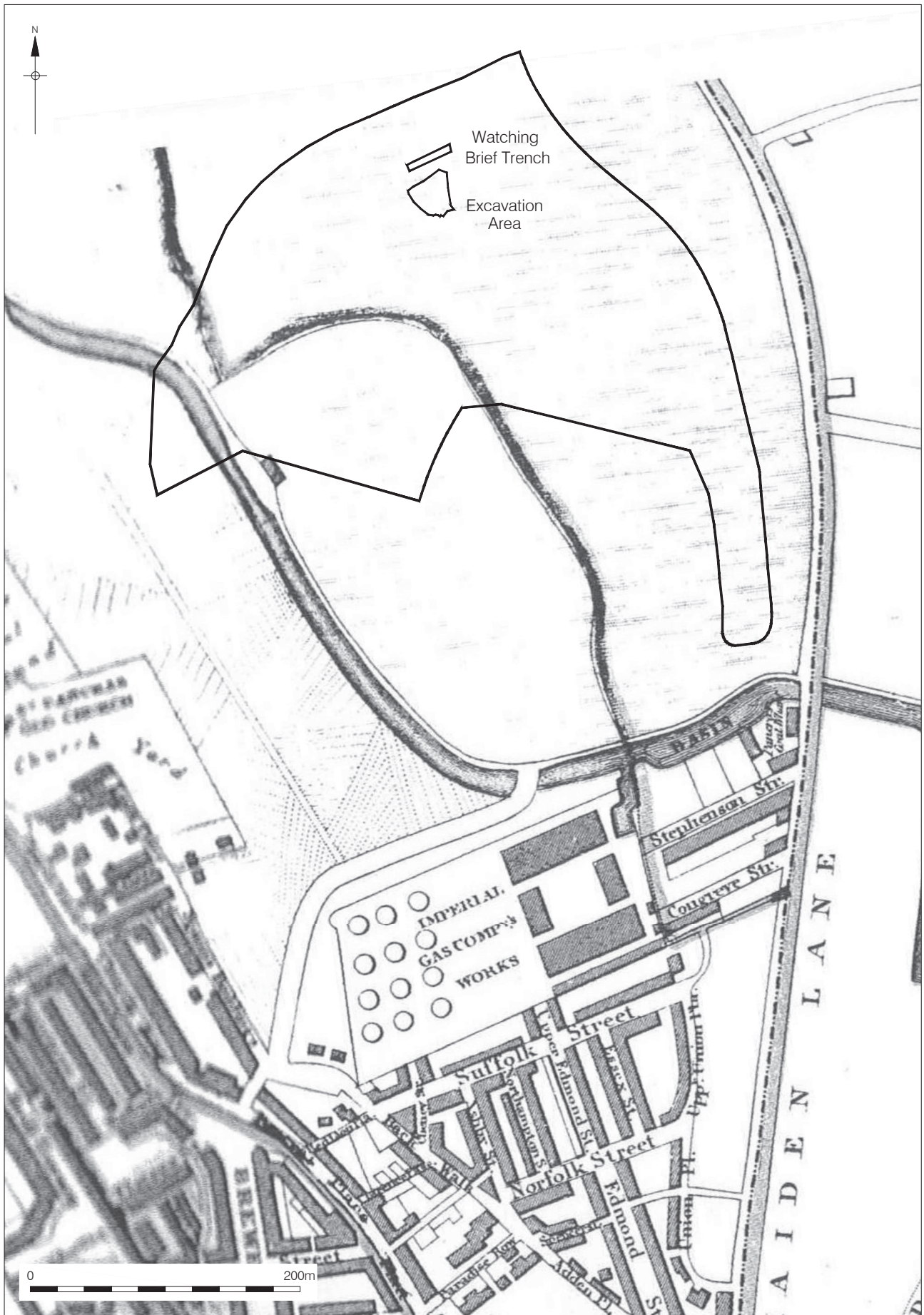
- 7.1.1 Straddling the borders of the old boroughs of St Pancras and Islington, the modern district of King's Cross is centred upon the ancient hamlet of Battle Bridge, which developed around a crossing of the River Fleet. The manor of Pancras was described in the Domesday Book of 1086, when it was held by the Canons of St Paul's Cathedral (Walford, 1878: 324-340). The "ancient and diminutive" church of St Pancras was first mentioned in 1183, and was subsequently rebuilt in the mid-14th century. The church stood at the centre of the manor, which was reported as being sparsely populated in the mid-13th century (*ibid*).
- 7.1.2 The poverty and desolation of the area between St Pancras church and Battle Bridge persisted into the post-medieval period, prompting John Norden to describe the church in 1593 as "all alone, utterly forsaken, old and weather-beaten" and the area as a notorious haunt of thieves (*ibid*; Stamp, 1990: 19). As late as 1777 the locality was described as being almost entirely rural, the church commanding uninterrupted views of the countryside from Tottenham Court Road to Highgate (Walford, 1878: 324-340).
- 7.1.3 The earliest shoots of urbanisation in the area began with the opening of the New Road between Paddington and Islington in 1756 (Stamp, 1990: 13). The north side of the stretch now known as the Euston Road between Tottenham Court Road and Battle Bridge became a magnet for developers and by the 1770s was lined with residential properties. The area later known as Somers Town was developed by Jacob Leroux on land belonging to Baron Somers during the following decade (*ibid*: 14). By the early 19th century the value of property in the latter development had fallen considerably, and although construction of new terraces and squares continued, parts of Somers Town had already taken on the appearance of a slum.
- 7.1.4 A short distance to the east of Somers Town, the Smallpox Hospital moved to gardens north of Battle Bridge in 1767 (*ibid*: 14, 38). The new hospital stood a short distance to the east of St Pancras Road/Pancras Place, and was comprehensively rebuilt in 1793-94. In 1802 the separate Fever Hospital was built over gardens between the Smallpox Hospital and St Pancras Road (*ibid*: 13). In the three decades that followed the opening of the Hospital the narrow strip of land to the north between St Pancras Road and Pancras Walk became built-up with small houses laid out alongside a number of narrow transverse passages. By 1800 high density housing stood on Paradise Row, Wellers Place, Duke of Clarence Passage and

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Red Lion Passage, and brickfields now occupied the land on either side of St Pancras Road and Pancras Walk.

- 7.1.5 At around the same time, local landowners began to let large areas of land in the vicinity to building contractors such as Thomas Cubitt for brick making, and brickfields and ancillary works became a distinctive feature of the landscape between Copenhagen Fields and the Euston Road (Baker & Elrington, 1985: 24, 30-31).
- 7.1.6 The already unsavoury reputation of Battle Bridge waned still further following the arrival in the area of a variety of noxious industrial processes, which began to flock to the comparatively sparsely inhabited vicinity of Maiden Lane during the early decades of the 19th century. Local directories listed a feather dresser, a mustard manufactory and a brewery at the southern end of Maiden Lane in 1811, while John Nelson's *The History and Antiquities of the Parish of Islington* listed a varnish factory, a patent yellow paint factory and premises for boiling animal bones at Battle Bridge in 1829 (*ibid*: 3-8).
- 7.1.7 A short distance to the south-east of the Smallpox Hospital stood Smith's 'Dust Ground' at the junction of the Euston Road and Gray's Inn Road, the location of vast heaps of ash that was mixed with the local brickearth to make the bricks necessary for urban development. The heap was finally removed in 1826 and the site developed for housing, which comprised the final stage of a tide of development, which had been advancing north-east from Bloomsbury since the end of the 18th century (Stamp. 1990: 17).
- 7.1.8 The completion of the Regent's Canal in 1820 further contributed to the increasingly industrial character of the area. A little over a year after the canal opened the newly-founded Imperial Gas Light and Coke Company purchased a plot of land on the south bank of the waterway, upon which it was planned to build a new gasworks serving the northern districts of London (**Figure 3**). The Pancras Gasworks opened in 1824 and remained the largest in the capital until the development of Beckton in 1869. Following the death of the local landowner William Agar in 1840, his widow sold off small plots of his estate on short-term leases to poor labourers, prompting the rapid development of the notorious slum of Agar Town to the south and west of the gasworks. Condemned by an associate of Charles Dickens as a "disgrace to the metropolis," Agar Town was described by the prolific Victorian publisher John Weale as "that awful rookery at the back of St Pancras Road" (Weale, 1851: 811). Residents of Agar Town were described as being assailed from one side by the clouds of 'mephitic vapours' that belched from the chimneys of the gasworks and from the 'rheumatic dampness' that rose up from the canal on the other.





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Figure 3  
 Davies' map of the Parish of Marylebone, 1834  
 1:4,000 at A4



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7.1.9 In 1846 the Great Northern Railway Company received Parliamentary Assent to develop a new line linking London and York. Prohibited by the judgement of a recent Royal Commission from building its London terminus south of the Euston Road, the company decided instead to build the Passenger station on the site of the Smallpox Hospital. With the nearby Regent's Canal offering a conduit for the onward transport of goods and coals received by rail, the company chose to build its Goods Station, Coal Depot and Locomotive Depot on the north bank of the canal in Maiden Lane, where it purchased several acres of former brick fields (**Figure 4**).

7.1.10 Working under the supervision of Joseph Cubitt, the Engineer of the line, and Lewis Cubitt, the architect of the London termini, contractors began to level the ground on the north side of the canal in 1849, while construction of the buildings began in the spring of 1850 and continued into the following year. The Goods Station buildings were largely complete by March 1851, although fitting-out of the Granary continued into the summer of that year and possibly beyond.

## **7.2 The brick and tile industry in Islington and St Pancras in the early 19th century**

7.2.1 Although the extraction of clay for the purpose of brick manufacture in the vicinity was recorded as early as the 14th century, brick and tile making only became widespread on the heavy London Clay soils of St Pancras and Islington in the 17th and 18th centuries (Baker & Elrington, 1985: 3-8). By the early 19th century a number of brick makers had established premises in the vicinity.

7.2.2 Tile making also became established in the fields on either side of Maiden Lane in the early decades of the 19th century. In 1810 Adams's tile kilns were making garden and chimney pots at Belle Isle; by 1829 the company's premises had grown to include 8 acres of land used for tile making and brick burning, a large kiln, a smaller one temporarily used as a storehouse, sheds and cottages (Baker & Elrington, 1985: 3-8).

## **7.3 The construction of the Great Northern Goods Station and Locomotive Depot at King's Cross, 1849-1851**

7.3.1 In 1848 the Great Northern Railway awarded the contract to develop the site of the future King's Cross Goods Yard and Locomotive Depot to John Jay, who was unable to commence preparatory works until the following spring owing to the slow progress of negotiations to acquire the land from a number of owners which included the Governors of St Bartholomew's Hospital (TNA RAIL 236/273: 18/04/1849). In April 1849 Joseph Cubitt (GNR Chief Engineer) informed the Board of the Great Northern that Jay was "prepared and anxious to make a beginning, and [was] prepared to start work without delay" (*ibid*). The following month

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Jay gained access to part of the site and commenced "levelling the same down for a station", although the railway company did not gain formal possession of the land owned by St Bartholomew's Hospital until the end of August 1849 (*ibid*: 31/05/1849; TNA RAIL 1189/1424, 29/08/1849).

7.3.2 By the following winter site preparation works were well advanced. On 17th January 1850 Cubitt reported that nearly 15 acres of the Goods Station site had been "dressed-off to formation level, and 25,000 cubic yards of... clay [had] been burnt for ballast, ready for spreading as soon as the surface is prepared for it" (RAIL 236/273: 17/01/1850). Less than a month later Cubitt noted that more than 30,000 cubic yards of "good burnt clay ballast" were ready to be spread across the station ground once the necessary drains and sewers were completed (*ibid*: 13/02/1850).

7.3.3 By the end of March construction of the foundations of the new Goods Station buildings was already well advanced, whilst preparations were underway to attach the iron roofing to the Temporary Passenger Station (*ibid*: 27/03/1850). Five weeks later Cubitt reported that the Station Ground in the vicinity of the Goods Sheds and Temporary Passenger Station was "nearly formed... and a portion thereof [was] ballasted" (*ibid*: 09/05/1850).

7.3.4 Much of the clay stripped from the ground surface was later burnt and spread across the site in order to raise the ground and form the level surface necessary for railway working, a process described by John Weale in 1851 as a "most admirable contrivance for getting rid of a troublesome material" (Weale, 1851: 811). Joseph Cubitt's correspondence suggested that this process only began after construction of the foundations of the Granary Complex was well underway, and was at its height in May 1850.

#### **7.4 Construction of the King's Cross Locomotive Depot**

7.4.1 The Locomotive Depot was built to the north-west of the Goods Station, in an area bordered to the north by the embankment of the East and West India Docks and Birmingham Junction Railway, by the mainline of the Great Northern to the east, by the northernmost terraces of Agar Town to the west and by the Great Northern Goods and Coal Depots to the south and south-east.

7.4.2 Plans of the proposed locomotive shops were prepared as early as February 1849, however these were subsequently revised in order to accommodate twenty-five (rail) roads as opposed to the thirteen originally envisaged (Townend, 1989: 6). The principal locomotive shed was a striking building, with a concave curved front containing twenty-five arches, one for each of the railway tracks that entered the building (*ibid*: 8). The shed was completed in 1850/1, and the Locomotive Depot became known subsequently as 'Top Shed'.

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7.4.3 The following year Archibald Sturrock, the Locomotive Superintendent of the Great Northern requested that a 40' diameter turntable be provided in order that locomotives and tenders could be turned whilst coupled. The new turntable was built some distance to the east of the depot, although this was subsequently removed in 1855 to permit the development of the Potato Market from the site of the original Maiden Lane temporary passenger terminus (*ibid*: 8-12). A new turntable of the same diameter was ordered as a replacement, and it was decided to install it at a location as far as possible from the existing goods yard lines in order to leave room for additional tracks (*ibid*: 12). The chosen location was much closer to the Locomotive Depot than that of its predecessor, a short distance from the site of what was subsequently to become the Midland Roundhouse.

## **7.5 The construction of the Midland Roundhouse, 1858-1859**

7.5.1 In contrast to the Great Northern Railway, which had been established in order to provide railway services between the capital and the provinces, the Derby-based Midland Railway had originated as an entirely provincial concern. In order to gain a foothold in the capital the company made arrangements first with the London and North Western Railway (LNWR), and subsequently with the Great Northern, to allow its passengers to travel to the London termini at Euston and King's Cross respectively. Although the Midland company was initially prohibited by the Great Northern from running its own trains into King's Cross, in the second half of 1857 the directors of the two companies agreed to allow the Midland to run trains on Great Northern tracks into both the Goods and Passenger Stations at King's Cross (Biddle, 1990: 62, 65). In December of that year the directors of both companies visited the Goods Yard to inspect the site earmarked by the Great Northern for the proposed new engine shed for the Midland Company (TNA RAIL 236/280: 10/12/1857). The visitors approved the proposed accommodation, subject to the final approval of Matthew Kirtley, Superintendent of the Midland Locomotive Department (*ibid*).

7.5.2 Preparations for the remodelling of those areas of the Goods Yard allocated to Midland traffic began in earnest in January 1858. That month the Resident Engineer at King's Cross submitted a request to the Company's Stores Department for 1,620 tons of Mount Sorrell or Markfield Granite for the "new works ordered at King's Cross for Midland Traffic", in addition to 2,000 middle chains and 3,000 pairs of fish plates for "the sidings of the new works for the Midland company's accommodation" (TNA RAIL 236/227: 13/01/1858).

7.5.3 At the beginning of June 1858 representatives of the two companies signed a formal agreement for "the interchange of Traffic and for the use of the Great Northern line between London and Hitchin and of the London Terminus by the Midland Railway" (TNA RAIL

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236/280: 01/06/1858). The provision of facilities for the Midland's locomotives was guaranteed by Article 15 of the agreement:

*The Midland Company shall be entitled to the free, separate and exclusive use at the Goods Department of the London Terminus of sheds to be provided by the Great Northern Company, proper, convenient and sufficient for the accommodation and repair of the engines used by the Midland Company, and the Great Northern Company will accordingly from time to time appropriate such engine sheds and approaches thereto for such uses by the Midland Company, and will keep in repair and renew the Engine Sheds so appropriated, provided that the situation, number, extent, mode of construction and conveniences of the engine sheds to be appropriated, shall, in case of difference, be determined by arbitration (TNA RAIL 236/280, 'Agreement for interchange of traffic, and for use of the Great Northern line between London and Hitchin and of the London Terminus by the Midland Railway': 01/06/1858).*

- 7.5.4 In order to reimburse the Great Northern for the cost of building the new engine shed, a joint fund was established to pay the company 6% interest per annum on the original outlay, in addition to covering the cost of any repairs, taxes and rates charged for utilities such as gas and water (*ibid*: Article 34).
- 7.5.5 The agreement was accompanied by a draft specification and bill of quantities for the construction of the new engine shed, coke shed, engine pit and water crane, which although undated was presumably prepared by Walter Marr Brydone (GNR Engineer) following the directors' visit to King's Cross the previous December (*ibid*: 'Engine Shed, Coke Shed, Engine Pit into Drains &c' n.d. reproduced in Appendix 1 of this assessment). The estimated total cost of these works was £10,482, of which the cost of building the shed would account for £6,000, which included the removal of an existing 40' turntable, but excluded the excavation of an estimated 27,045 cubic yards of spoil and its removal by train to Holloway and Hornsey, the cost of which was estimated to be around £2,366.8.9 (*ibid*). The turntable in question was the replacement for the one relocated in order to make way for the enlargement of the King's Cross Potato Market four years earlier (TNA RAIL 236/21: 176 18/12/1855; Townend, 1989: 12).
- 7.5.6 The conversion of the former Great Northern carriage shed into the Midland Goods Shed was approaching completion by the end of the summer (TNA RAIL 236/25: 290). In contrast, progress at the site of the new engine shed was slow, and excavations for the foundations had barely been completed by August 1858 (Townend, 1989: 16). The name of the

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contractor employed to build the new engine shed is unknown, although it is likely that John Jay, the original contractor for the King's Cross Goods and Passenger Stations carried out the work. Although the Great Northern's engineers had anticipated that it would be necessary to extract substantial quantities of spoil from the site, unexpected problems were encountered at Holloway and Hornsey where the material was eventually deposited.

7.5.7 A record of additional works carried out at King's Cross for the Midland company noted that the total cost of the engine shed amounted to £20,830.5.6 at the end of December 1859, towards which the shed's user had yet to contribute (TNA RAIL 236/280 'Cost of additional works at King's Cross for the accommodation of the Midland Company to 31st December 1859'). The roundhouse was eventually completed in February 1859, and it was first depicted on Edward Stanford's *Library Map of London and its Suburbs*, published in 1862 and reproduced here as **Figure 5**.

7.5.8 Minutes of a meeting of the Joint Committee of the two companies held in February 1860 indicated that the cost of the excavations associated with the new shed caused friction between the parties (*ibid*: 'Minutes of the Meeting of the Joint Committee', 17/02/1860). The principal problem arose *not* at King's Cross, but at Hornsey, where the spoil was deposited. At the February meeting John Crossley (Chief Engineer of the MR) argued that the sum that Great Northern proposed to charge for earthwork and excavation at King's Cross was excessive, and in particular questioned the charges for draining the banks where the spoil was deposited (*ibid*). In response, Walter Brydone explained that costs were a consequence of "the peculiar nature of the works, and the necessity that existed for expenditure in draining the banks where the earth was deposited", and promised to satisfy Crossley that the amount charged was indeed correct (*ibid*). The measures taken by the Great Northern to reinforce the banks of redeposited clay at Hornsey do not appear to have been altogether successful; they were reported to have slipped in September 1860, and again exactly nine years later in September 1869 (Townend, 1989: 16; TNA RAIL 236/170: 48-9).

## **7.6 The Roundhouse in Midland service, 1859-1868**

7.6.1 The volume of goods and mineral traffic carried by Midland trains on Great Northern lines into the capital grew rapidly at the beginning of the 1860s. As early as November 1859 the Midland company took steps to acquire possession "of a piece of land [at St Pancras]... adjoining the North London Railway on one side and the land and premises of the Great Northern Railway on another" in order to accommodate the anticipated overflow from the company's facilities at the King's Cross Goods Yard (TNA RAIL 236/280/M310, 15/11/1859). Throughout the course of 1861 the Midland complained repeatedly about the delays that its

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goods and passenger trains were subject to on the line between Hitchin and King's Cross, which the company attributed to the Great Northern prioritising its own traffic at the expense of Midland trains. The problem became even worse the following year, when it was reported that 3,400 trains operated by the Midland were subject to delays on the Great Northern network (Stretton, 1901: 175). The Midland also expressed dissatisfaction at what it perceived to be the tendency of senior officers of the Great Northern to ignore requests for additional goods and coal accommodation at the Goods Yard (TNA RAIL 236/28: 336, 344, 357; TNA RAIL 236/285 MR to Clarke, 12/02/1861; MR to Clarke, 18/12/1861). As the relationship between the two parties cooled, in 1861 the Midland announced its intention to build its own goods-handling facilities on the site of the former slums of Agar Town (Townend 1989: 16). The new Midland Goods Station was completed in 1862, and the company vacated its premises at King's Cross Goods Yard that July (*ibid*). A detailed plan of the Goods Yard, prepared by the engineer William Humber a few years after the departure of the Midland is reproduced here as **Figure 6**.

- 7.6.2 Despite the cessation of Midland goods traffic, the latter company continued to use the roundhouse in the Great Northern Goods Yard until St Pancras Station was opened to passenger traffic in October 1868 (*ibid*: 20-22; TNA RAIL 236/29: 222). In December 1862 the Midland requested that seven additional pits be constructed in the roundhouse, the cost of which was estimated by Richard Johnston (GNR Chief Engineer) to be £637 (TNA RAIL 236/30: 222). The Great Northern agreed to pay the cost, subject to the Midland paying an annual rate of 6% on the outlay (*ibid*). Completion of the new pits took the total number of engine pits in the shed to eleven. A statement of accounts of expenditure on the Midland company's facilities at the Goods Yard from May 1863 noted that this additional expenditure showed that "work is still going on for the Midland Company", and that the cost was to be added to the £20,645.10.10 already spent by the Great Northern on the engine shed (TNA RAIL 236/280 'Statement of Amounts Expended at King's Cross Station for Accommodation of Midland Company Traffic', 15/05/1863).
- 7.6.3 The following year the Midland submitted a request for further changes to be made to the roof of the coke stage, a simple slated and boarded structure which had formed part of the original Midland specification (Townend, 1989: 16-18). The directors of the Great Northern refused to pay for the works, which were instead carried out at the expense of the Midland company (*ibid*: 18).
- 7.6.4 On 17th February 1863 the Midland gave formal notice of its intention to terminate the seven-year Traffic Agreement (TNA RAIL 236/280: 13/11/1868). The date of the company's departure was brought forward by the completion of St Pancras Station at the end of



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September 1868, when Midland services into King's Cross ceased. A letter dated 13th November 1868 describing the handover of the keys to the roundhouse to the Great Northern by a Mr Mills of the Midland company suggests that the Midland vacated the building a few days earlier (*ibid*). By the time of the Midland company's departure, the total cost of the shed had risen to £21,380.13.10 and the rent outstanding for the 18 months of the tenancy remaining totalled £1,924.5.3 (Townend, 1989: 18). Despite the departure of its original occupants in 1868, the roundhouse continued to be known as the Derby Shed until it was demolished in the early 1930s.

## **7.7 The Midland Roundhouse in Great Northern service, c.1868-c.1900**

- 7.7.1 It is not entirely clear whether the Great Northern found a use for the roundhouse immediately following the departure of the Midland Company. In mid-May 1870 a Mr Morgan of the Great Northern Traffic Committee proposed that the "old Engine Shed, once used by the Midland Railway should be converted" into a warehouse for bottled beer (TNA RAIL 236/144: 95). Although the Great Northern Goods Manager at King's Cross was instructed to investigate the feasibility of the suggestion, nothing further seems to have come of the scheme. The First Edition Ordnance Survey map of 1871, reproduced here as **Figure 7** shows the building shortly after it had returned to Great Northern use.
- 7.7.2 Peter Townend has suggested that the shed was initially used for accommodating carriage and wagon repairs by the Great Northern, although the principal primary documentary sources for this period lack clarity with regard to the history of the shed during the last three decades of the 19th century (Townend, 1989: 19). The apparent absence of references to the Midland shed during the decades that followed its return to Great Northern service is curious, especially in light of the reorganisation of the various committees of Directors in 1867, which led to the establishment of separate Locomotive, Way and Works and Traffic Committees, each of which had a clearly defined area of responsibility (TNA RAIL 236/170: 4-6). Following the reorganisation, the Locomotive Committee became responsible for the internal management of the Locomotive Department, while the Way and Works Committee was made responsible for identifying "the necessity of new or additional works and to supervise the construction of the same", suggesting that the records of the two committees are the best place to look for evidence of any works that took place at the shed after 1867 (*ibid*). Interestingly the minutes of the Locomotive Committee appear to contain no reference to the Roundhouse during the period 1866 to 1889; similarly the shed does not appear once in the regular reports supplied by the Locomotive Department to the Board of Directors between 1865 and 1891 (TNA RAIL 236/194, 236/195, 236/196, 236/197, 236/198, 236/199, 236/208 and 236/209). Likewise the minutes of the Way and Works Committee appeared to contain

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no reference to the building during the period 1867 to 1883 (TNA RAIL 236/170, 236/171, 236/172, 236/173, 236/174 and 236/175).

- 7.7.3 In January 1882 the Great Northern Traffic Committee read (somewhat ambitious) proposals to move the Locomotive Sheds to Holloway or Hornsey, in order to provide additional space for goods traffic at King's Cross and greater space for the Locomotive Department (TNA RAIL 236/148: 79). Although the proposals received a favourable hearing from the Directors, the estimated cost of the works appears to have forestalled further discussion of the matter, and the Locomotive Department remained at King's Cross (*ibid*: 94-5). It is conceivable that the roundhouse was returned to its original function as a locomotive shed following this decision, and new pits were provided for a further eleven roads at this time, taking the total to twenty two.
- 7.7.4 The Second Edition Ordnance Survey map of 1894 revealed that a rectangular structure had been built adjacent to the south-west side of the roundhouse since the First Edition map was surveyed more than twenty years earlier (**Figure 8**). Photographs taken in the early 20th century indicate that the building was a brick-built single storey structure, with tall chimneys at both gable ends, with a brick lean-to structure at its south-east end (Townend, 1989: 20-21). The building was lit by tall metal-framed windows in the south elevation, which flanked a doorway. The appearance of the other elevations remains unknown. The presence of fireplaces at either end of what was a rather small building suggests that some kind of industrial process using heat took place there. It is possible that it was used as a forge or smithy for parts used in minor repairs undertaken in the shed.

## **7.8 Renewal of the Roundhouse roof, c.1906**

- 7.8.1 In March 1902 Alexander Ross (Richard Johnson's successor as GNR Chief Engineer) presented the results of an inspection into the state of repair of the roofs of locomotive department buildings across the Great Northern network to the Locomotive Committee (TNA RAIL 236/203: 80). Ross estimated that a budget of approximately £5,000 ought to be set aside for the repair of these structures, a proposal approved by the Committee a few days later (*ibid*). The proposals were submitted to the Board for consideration the following month and it was subsequently agreed to expand the scope of the works and the budget, which was increased accordingly to £26,138 (*ibid*: 180).
- 7.8.2 In late November 1903 Ross reported that £6,600 had been spent on the repair of locomotive department buildings during the previous eighteen months, and proposed "to commence at once the repair of the Locomotive Workshops at King's Cross during the year 1904", the cost of which he estimated would amount to £5,170 (*ibid*: 181). In February 1904, a contract for



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replacing the “old roof and sides” of the cart shed in the King's Cross Goods Yard was awarded to a Mr T. Cole for £653 (*ibid*: 194). Records of the Locomotive Committee indicate that just over £5,000 was spent on repairing engine shed roofs in 1904, and only £300 was set aside for department roof repairs in the southern district of the network in 1905 (*ibid*: 241). An early 20th century photograph of the Midland Roundhouse indicates that the distinctive ornate lantern of the roof was still *in-situ* when the picture was taken in 1904 (Townend, 1989: 19; Plate 1). The roof renewal programme recommenced in January 1906, when it was decided to authorise expenditure of a further £3,835 to replace the roofs of locomotive department premises at King's Cross (TNA RAIL 236/203: 282-3). The following January the Locomotive Committee recommended that a further £2,500 be spent on the renewal of department roofs at King's Cross (*ibid*: 310). It is probable that the lantern of the roof of the Midland roundhouse was removed during the execution of these works.

## **7.9 The Midland Roundhouse in London and North Eastern service, 1923-1931**

- 7.9.1 The introduction of larger tender locomotives, notably the 4-6-2 ‘Pacifics’ that began entering service from King's Cross in the early 1920s, signalled the beginning of the end for the old Midland Roundhouse. In 1921 the Locomotive Committee of the Great Northern approved the construction of ten new Nigel Gresley-designed A1 class ‘Pacific’ locomotives for introduction the following year (TNA RAIL 236/204: 372). The first of the new locomotives entered service in 1922, only months before the Great Northern was ‘grouped’ into the new London and North Eastern Railway (LNER) the following January (Townend, 1989: 33). These locomotives were far too long for the 40’ turntable in the Roundhouse, so shortly before grouping the Great Northern authorised the purchase of a new 70’ locomotive turntable from Ransomes and Rapier of Ipswich (*ibid*). The following year the new turntable was installed south of the Regent's Canal at a brand new locomotive depot close to the southern end of the Gasworks Tunnel leading into King's Cross Passenger Station (Hunter & Thorne, 1990: 152).
- 7.9.2 The Roundhouse remained in use throughout the 1920s, principally to accommodate class N2 0-6-2 tank engines, which had little use for the shed's turntable (Townend, 1989: 19). In June 1929 Sir Ralph Wedgewood, Chief General Manager of the London and North Eastern, informed the Traffic Committee that the Locomotive Depot at King's Cross had become “so congested that movement of engines is only carried out with difficulty and considerable expense” and that he proposed to do something about it (TNA RAIL 390/61: No. 1318, 25/04/1929). Wedgewood planned to create sufficient stabling accommodation for as many as 200 locomotives at King's Cross, however before his plans could be realised certain hurdles had to be overcome. Chief amongst the obstacles identified by Wedgewood were the 1850s carriage repairing shop and the Midland Roundhouse (*ibid*; Townend, 1989: 33).

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Wedgewood calculated that for an estimated outlay of £96,350 the following could be achieved:

- The conversion of the carriage repairing shop into a locomotive shed for seventeen tank engines previously housed in the Roundhouse;
- This would permit the demolition of the Roundhouse to make way for new roads and inspection pits;
- The replacement of the 50' engine turntable in the locomotive yard with a 70' model;
- The construction of a mechanical coaling plant;
- The enlargement of the water storage tank to compensate for the loss of the water tank at the Roundhouse;
- The introduction of electric power and lighting at Top Shed (TNA RAIL 390/61: *ibid*).

7.9.3 Two months after Wedgewood had published his proposals, the Locomotive Committee of the LNER approved expenditure of £108,643 for improvements to the Locomotive Department at King's Cross (TNA RAIL 390/115: 27/06/1929). The contract to build the new mechanical coaling plant was awarded to the Mitchell Conveyor and Transporter Co. Ltd in late September, while a contract for making alterations to the existing locomotive shops and the construction of new mess rooms for the department was awarded to G.A. Pillatt & Son in June 1930 (*ibid*: 26/09/1929; TNA RAIL 390/70: No. 1883, 26/06/1930).

7.9.4 While private contractors were employed to convert the existing buildings and construct the new facilities for the department, the demolition of the Midland Roundhouse appears to have been carried out in-house. This might explain the apparent absence of accounts of its demolition in official company documents; however an eyewitness account written by Peter Townend and a number of historical 'before and after' photographs illustrate the dramatic destruction of the building. Townend wrote that in 1931 an Ivatt N1 tank locomotive and a Stirling J52 tank were fastened to opposite ends of the shed at 45° to one another and instructed to steam away from the building, which was brought down "in an enormous cloud of black dust" (Townend, 1989: 19). During the demolition process the radiating roads and turntable were protected and were apparently used subsequently for stabling locomotives for a short while after the demolition (*ibid*).

7.9.5 Photographs of the King's Cross Locomotive Depot taken in 1932 from the top of the new coaling plant indicated that the building had been removed completely, while a caption appended to a photograph of the site published in the *LNER Magazine* of May 1932 stated

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that the “old roundhouse was demolished some time ago” and that it had been replaced by the new suburban tank shed which stood just behind the main line shed (TNA ZPER 17/6 *LNER Magazine* Volume 22 No. 5: 239; Plate 4). Following demolition the turntable and tracks were ripped out and seven long parallel tracks and engine pits for standing locomotives were built in the place of the former shed. Known as the ‘Back Pits’, these tracks and pits were shown clearly on an LNER plan of 1933 (**Figure 9**).

#### **7.10 After the Roundhouse: the site since 1931**

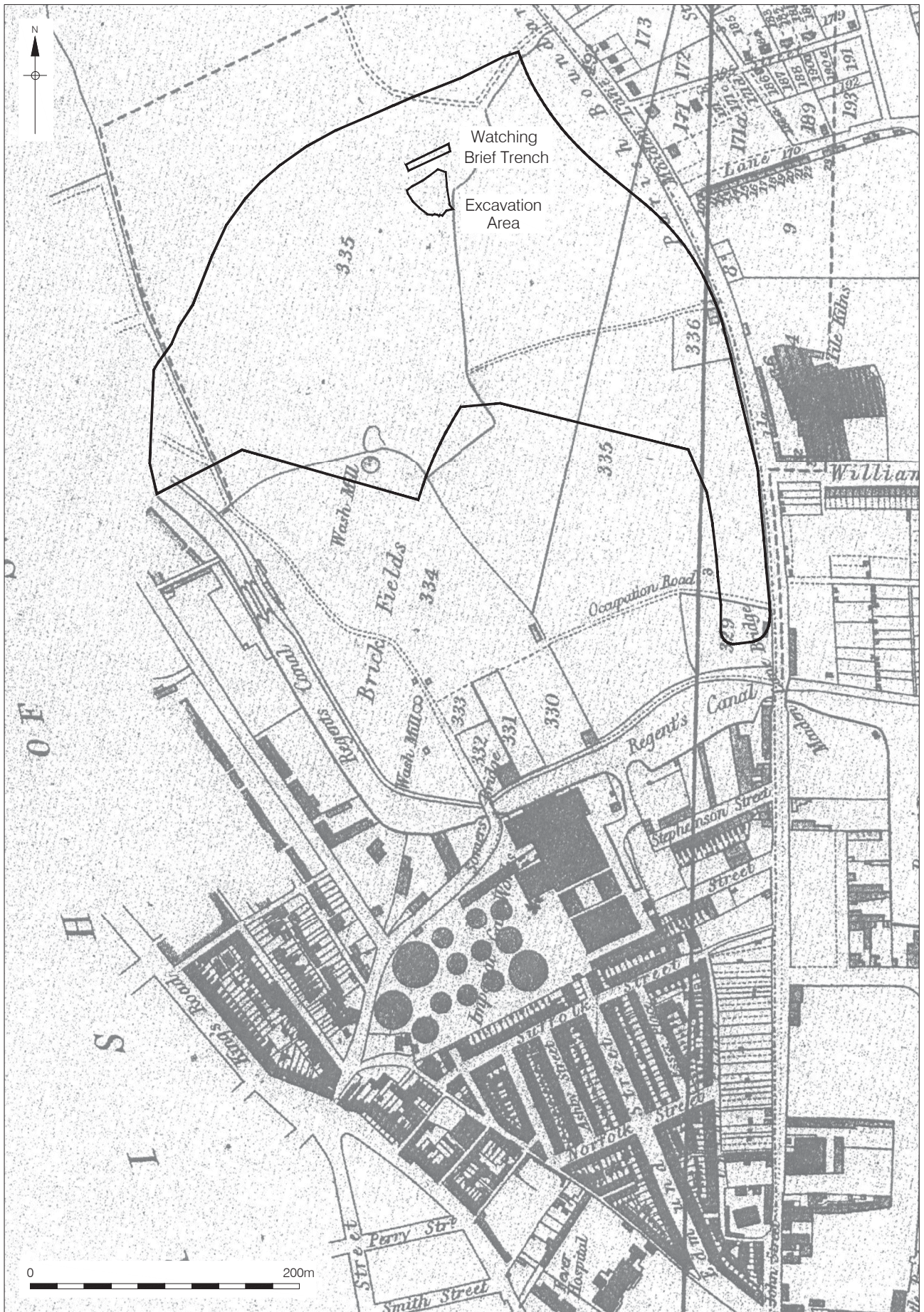
- 7.10.1 The ‘Big Four’ railway companies were nationalised with effect from 1st January 1948, and the King’s Cross Locomotive Depot was placed in the hands of the Eastern Region of British Railways. Following several years of post-war austerity, in 1955 the British Transport Commission (BTC) unveiled a 15-year plan to modernise and re-equip British Railways (TNA AN 8/4; TNA AN 8/9). Although primarily concerned with the elimination of steam traction, the plan also proposed to transform freight traffic policy by concentrating wagon load traffic in fewer and more efficient goods terminals and new ‘Freight Transfer Depots’ which would streamline transshipment of goods from rail to road and vice-versa (TNA AN 8/4: 30; TNA AN 8/136).
- 7.10.2 The decision to replace steam traction across the Eastern Region of British Railways in the late 1950s signalled the end for Top Shed. Despite having a complement of 107 locomotives in 1959, the King’s Cross Locomotive Depot was closed in June 1963 and demolition of the buildings began soon afterwards. The closure of the depot rendered the back pits redundant, and they had been removed by 1968, when the Ordnance Survey map reproduced here as **Figure 10** was published.
- 7.10.3 In November 1965 British Railways launched its inaugural ‘Freightliner’ service from the newly completed container terminal at York Way (TNA AN 115/237: 19/03/1971). During the first three years of Freightliner operations British Railways built facilities for the new service at key points across the rail network, including a further three terminals in the capital at King’s Cross, Stratford and Willesden. The new King’s Cross Freightliner terminal was built in the north-west corner of the Goods Yard and on the site of the former Locomotive Depot. While the terminals at Stratford and Willesden were the “largest and most modern” built by the company, the facilities at King’s Cross were much more modest, reflecting the latter’s status as a ‘mini-terminal’ (*ibid*; TNA AN 156/613).
- 7.10.4 Although the Freightliners concept was a sensible response to the problems posed by containerised rail freight, the fortunes of the new depots varied considerably. York Way was the first to go, closing in August 1971, following which the site was sold to Camden Council

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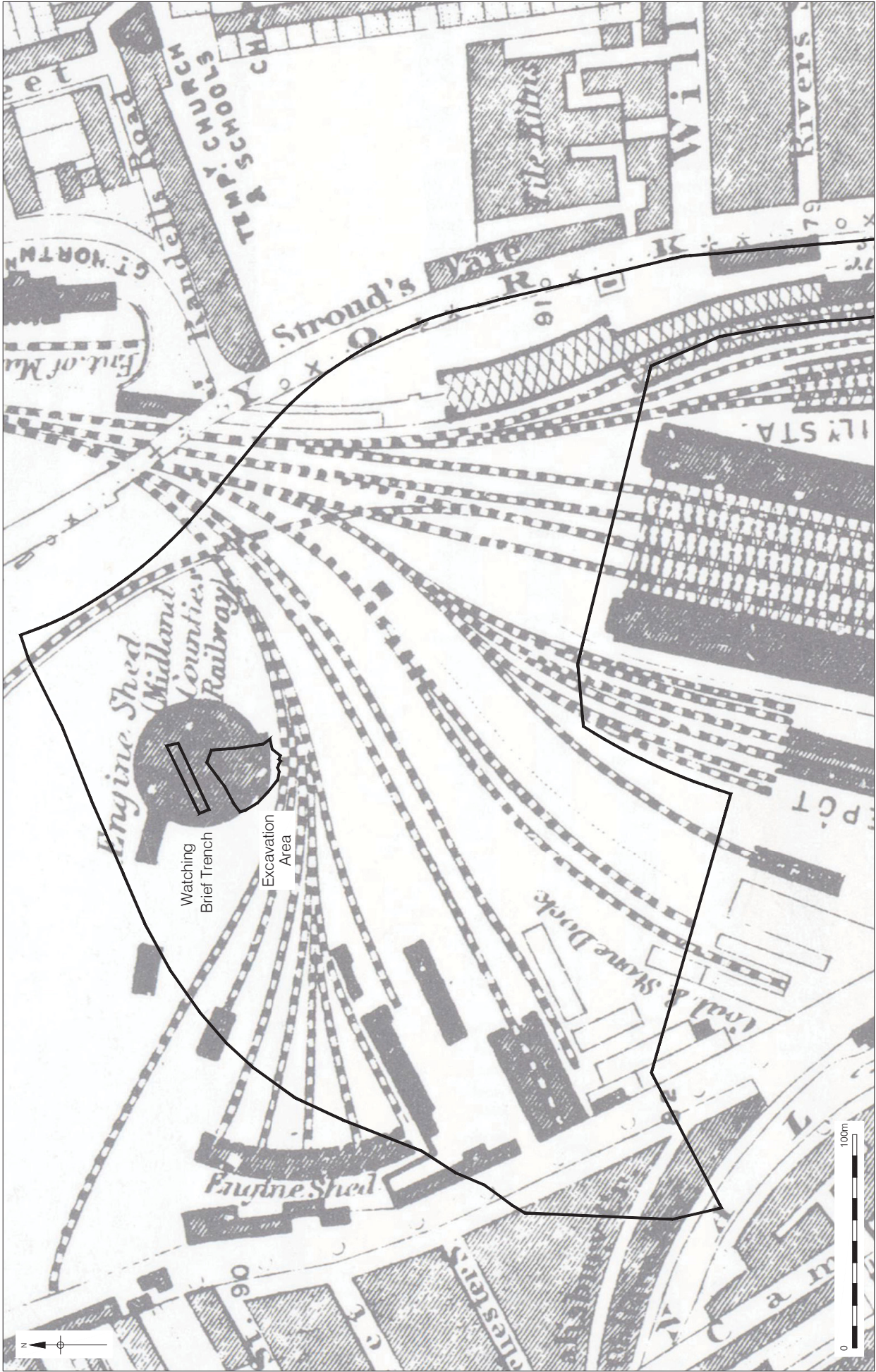
for residential development (TNA AN 115/51: 15/05/1972). Despite its small size, the King's Cross Freightliner terminal survived the 1970s, receiving many of the bulk goods previously handled by the Goods Station, including bricks from the London Brick Company's brickworks at Stewartby in Bedfordshire and beer brewed by Scottish & Newcastle Breweries (TNA AN 209/19: 18/10/1984).

- 7.10.5 In September 1984 the London Brick Company gave notice of its intention to terminate services from Stewartby to King's Cross with effect from the end of the following January, prompting Freightliners to consider closing the terminal and relocating the staff and the remaining business to Stratford (*ibid*: 01/10/1984). Although it was initially proposed to close the terminal with effect from 1st February 1985, in November 1984 Freightliners decided to keep King's Cross running with a reduced complement of 25 staff. By the end of 1985 the terminal handled only one service per day in each direction between Edinburgh, Newcastle and London and was clearly no longer economically viable (*ibid*: 07/01/1986). King's Cross Freightliners terminal ceased operating in 1986.
- 7.10.6 Following the passing by Parliament of the Channel Tunnel Rail Link (CTRL) Act in December 1996, Rail Link Engineering was established in order to design and project manage the construction of the High Speed railway link between the Channel Tunnel and the new international terminus at St Pancras (CTRL 'Background and Chronology', 04/07/2001).
- 7.10.7 As part of Section 2 of the CTRL works, companies were invited to tender for civil engineering works in the King's Cross Railway Lands, including the construction of new tracks and railway connections to the north of King's Cross and St Pancras Stations. The contract (no. 103) for these works was awarded to Kier Construction Ltd and Edmund Nuttall Ltd JV in April 2001, with construction commencing in the autumn of that year (CTRL: 'Section 2: St Pancras', 10/06/2001). The contract necessitated considerable disturbance in the vicinity of the former Freightliners depot and groundworks impacted upon the site of the former Midland Roundhouse.











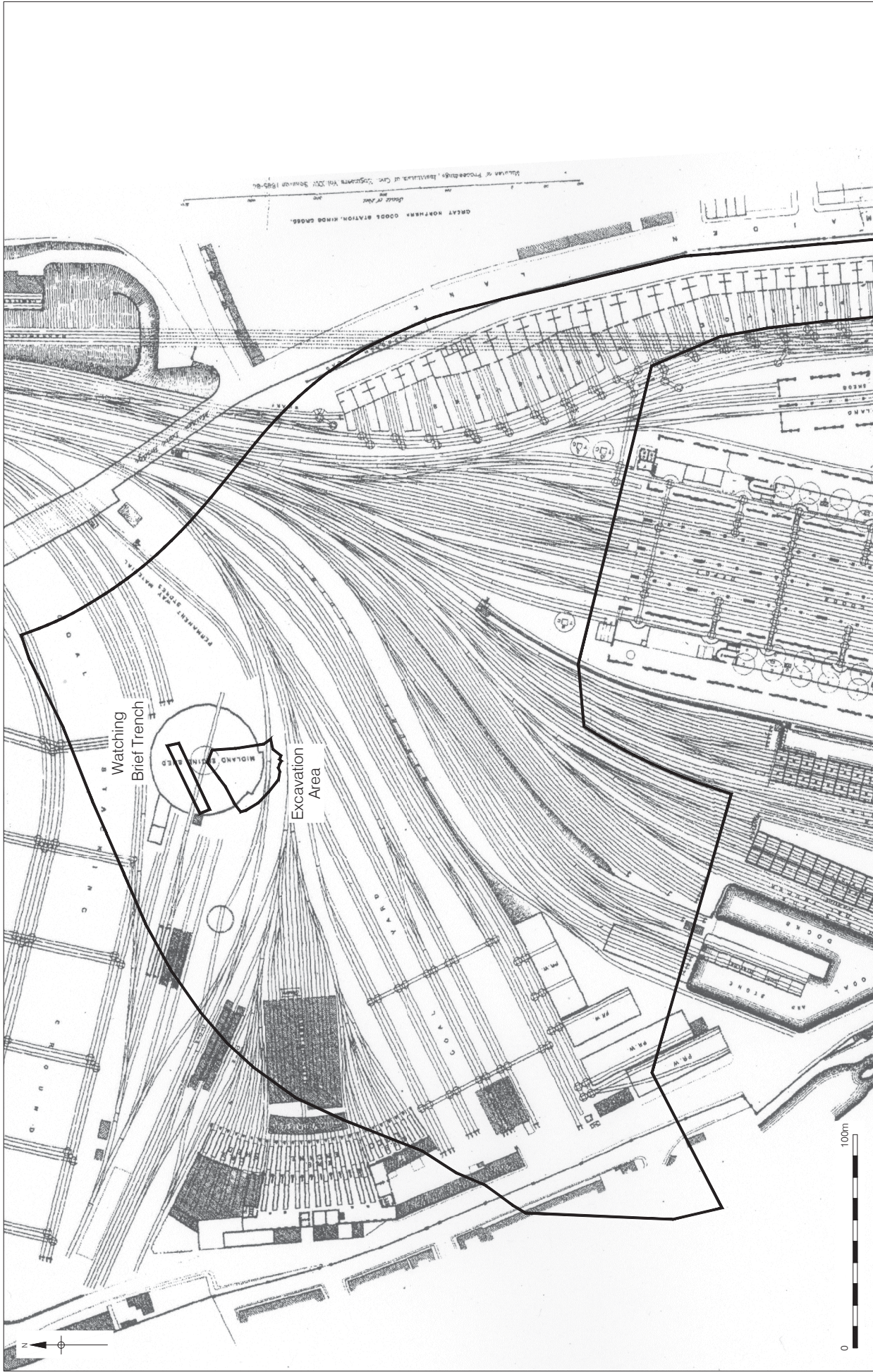
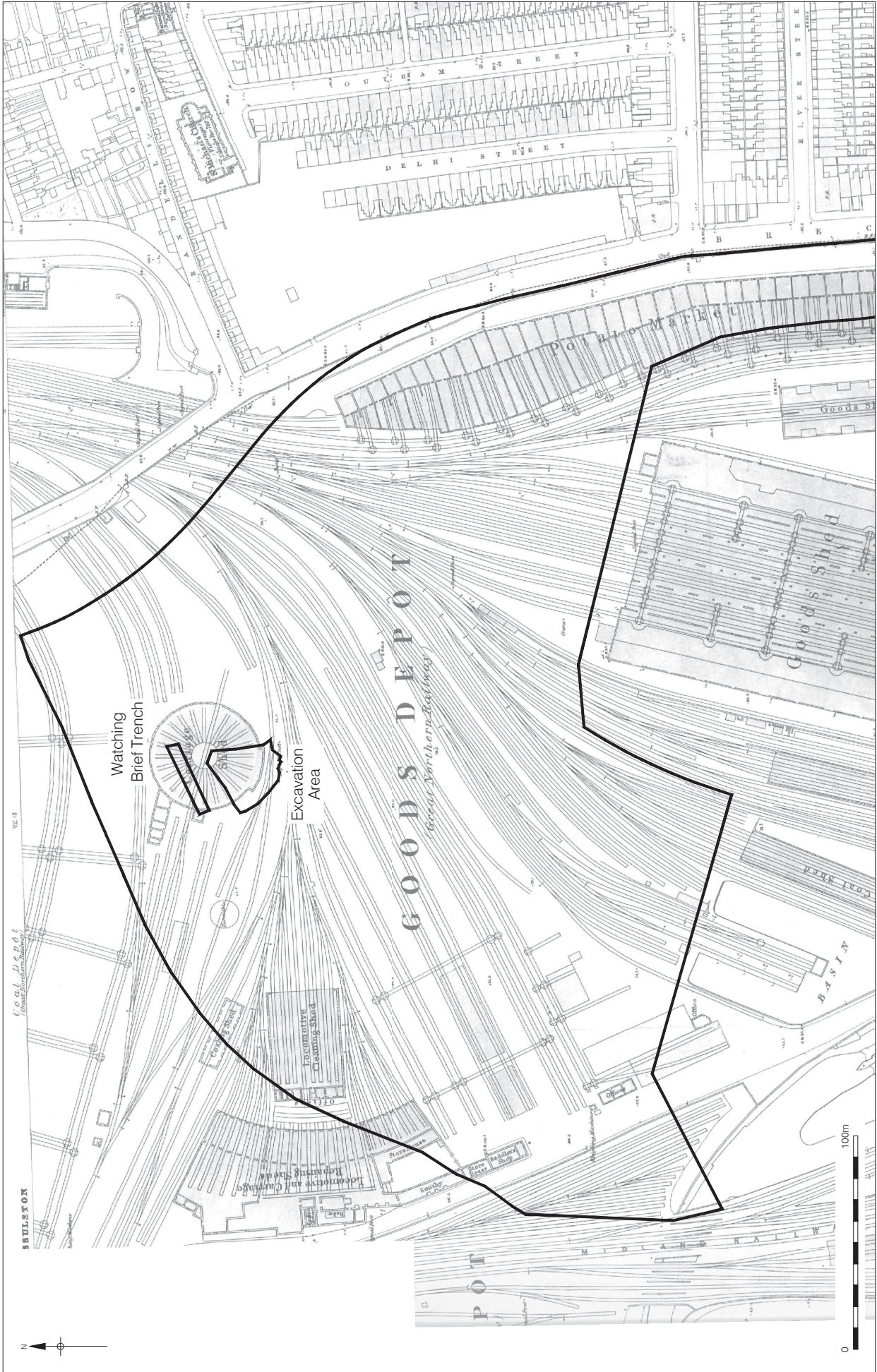


Figure 6  
William Humber's plan of King's Cross Goods Station, 1866  
1:2,500 at A4







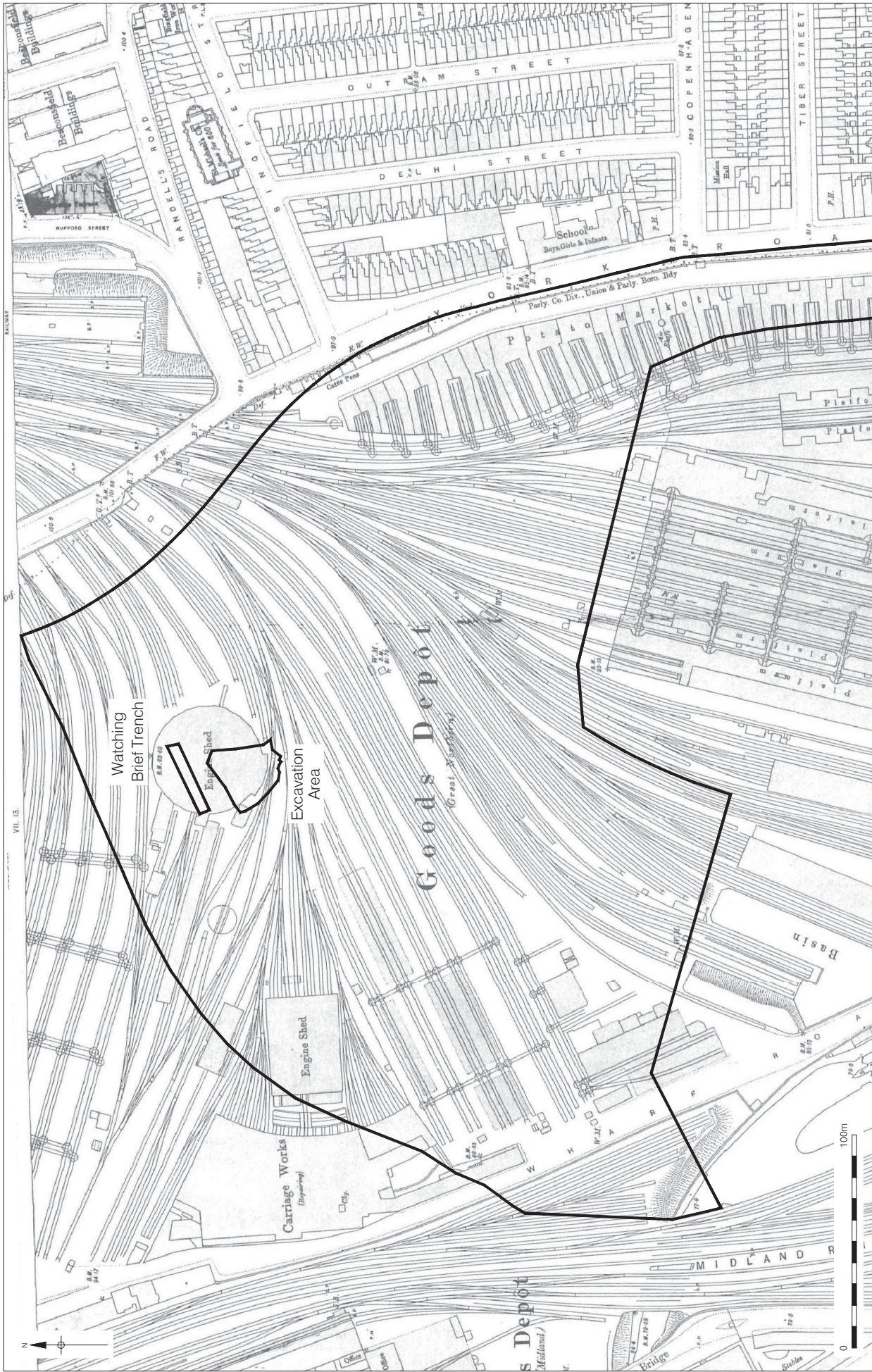


Figure 8  
 Ordnance Survey map, 1894-96  
 1:2,500 at A4



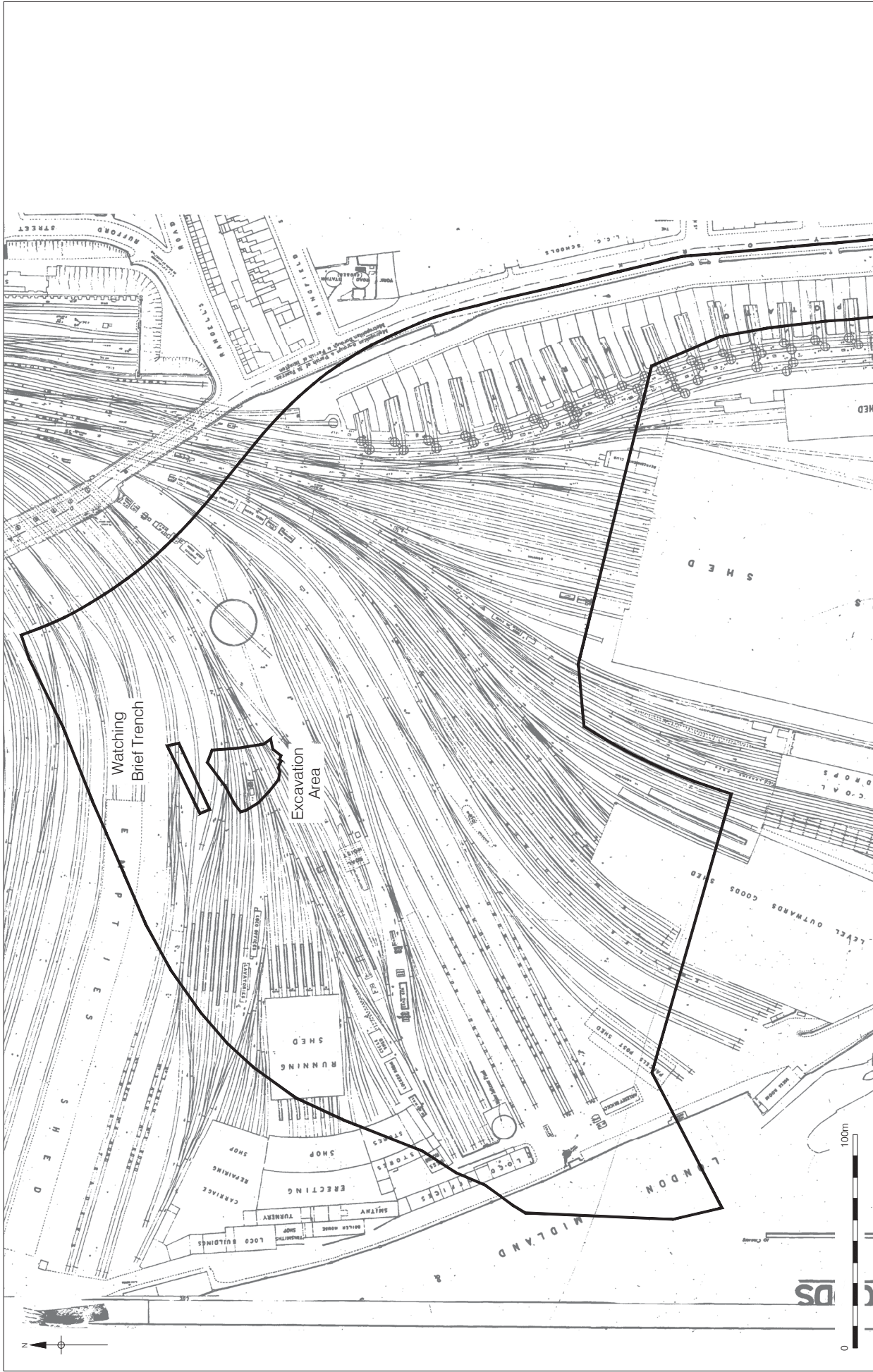
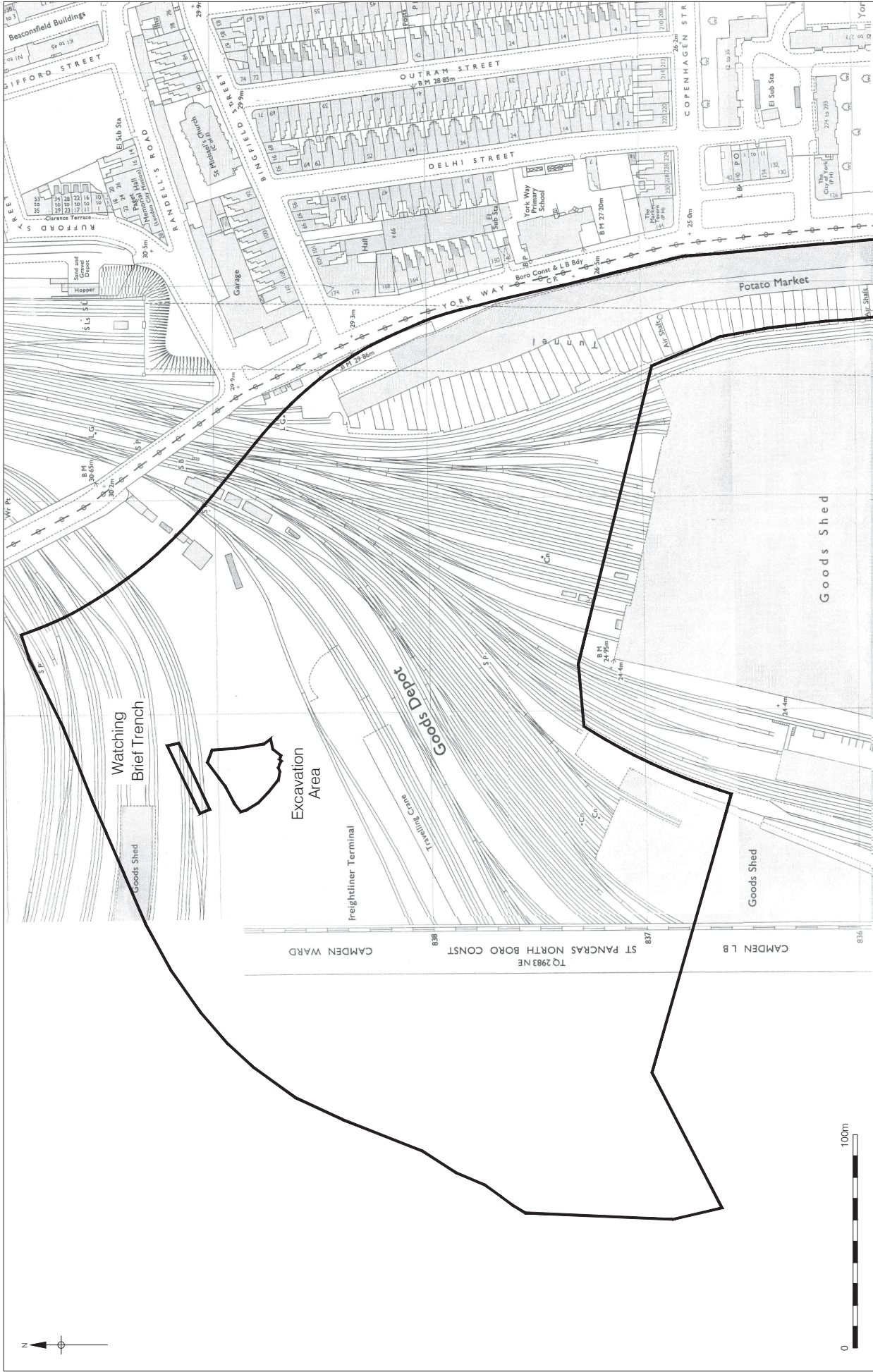


Figure 9  
 LNER plan of King's Cross, 1933  
 1:2,500 at A4





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 10/09/12 MR

Figure 10  
 Ordnance Survey map, 1968  
 1:2,500 at A4

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## 8 PHASED ARCHAEOLOGICAL SEQUENCE

### 8.1 PHASE 1 – NATURAL (Sections 151, 152, 154 & 156)

London Clay - [153], [194], [220], [242]

- 8.1.1 Natural London Clay was encountered in both areas of investigation. A large modern intrusion in the excavation trench exposed the natural clay [194/220/242] between 23.72m OD and 22.94m OD. In the watching brief trench this was represented by [153] which was observed between 24.55m OD and 22.50m OD.

### 8.2 PHASE 2 – Post-medieval to 1849 (Sections 153, 156 and 157)

#### Excavation Trench

Layers - [190], [191], [192], [193], [209]

- 8.2.1 The section edges of the large modern intrusion revealed a sequence of deposits predating the construction of the railway yard.
- 8.2.2 Deposits of mid yellow greenish brown clay [209] and mottled, light brown clay [193] were observed sealing the natural. Layer [209] was seen between 24.32m OD and 23.97m OD measuring up to 1.00m in thickness, and was found to contain pot (spot dated 1630-1700), CBM and animal bone. Mottled clay [193] was observed between 23.80m OD and 23.66m OD to be 0.18m thick.
- 8.2.3 This was sealed by a dump of silty clay [191] and a layer of silty clay [192]. Deposit [191] was a friable, mid reddish brown, silty clay with occasional charcoal flecks and small CBM fragments. It was observed between 23.90m OD and 23.73m OD and measured 0.5m in length and 0.17m thick. Layer [192] was a friable, mid greyish brown, silty clay with occasional charcoal and chalk flecks. This layer was observed between 23.95m OD and 23.75m OD to be 3.86m in length and 0.15m thick.
- 8.2.4 A friable, dark grey brown, silty clay [190], possibly an old topsoil deposit, with occasional small sub-rounded gravels, charcoal and chalk flecks was seen between 24.03m OD and 23.96m OD sealing [191] and [192]. The clay measured 4.63m in length and was 0.30m thick.

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### **Watching Brief**

Redeposited Clay - [227/228]

- 8.2.5 A mid to dark, reddish brown, silty clay [227/228] was identified at 24.48m OD, sealing the natural deposits. The clay was observed to be 1.0m thick and contained small fragments of CBM and occasional flecks of coal and charcoal.

### **8.3 PHASE 3a – 1849-58 (Section 156)**

#### **Excavation Trench**

Burnt Clay layer - [189]

- 8.3.1 The earliest deposit associated with railway activity was a thin layer of mid-reddish brown burnt clay ballast [189]. This sealed [190], was located between 24.09m OD and 24.03m OD, measured 9.60m in length and was 0.10m thick.

### **8.4 PHASE 3b – 1858-60 (Figure 11)**

#### **Excavation Trench**

The initial construction phase of the Roundhouse structure comprised the exterior wall, drains and column bases.

#### **Deposits**

[188]

- 8.4.1 A thin band of light yellow sand [188] was seen in section between 24.11m OD and 24.06m OD measuring 9.57m in length by 0.02m thick, sealing the burnt clay ballast [189]. This represents the remains of a working surface interpreted here as being part of the initial construction phase.

#### **Masonry Structures**

[155], [168], [181]

- 8.4.2 A ring drain [181] was recognized at the base of the modern intrusion between 23.51m OD and 22.85m OD. The drain was sub-oval in cross section, and was constructed using red frogged brick type 3032 measuring 228mm x 105mm x 65mm bonded with Roman Cement mortar. The drain wall was two brick courses or 0.24m wide, laid flat with a bore of approximately 0.42m, and was filled with potentially contaminated water.
- 8.4.3 The exterior wall [155] of the Roundhouse structure was observed between 24.70m OD and 24.30m OD and was near circular in plan measuring approximately 51m in diameter (**Figure**

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14). It was constructed using red frogged brick type 3032, measuring 228mm x 105mm x 65mm and bonded with Roman Cement mortar. The wall had a width of 0.48m and extended beyond the trench limits.

8.4.4 An arc of Millstone Grit blocks [168] represented the earliest recorded remains of the Roundhouse turntable base. The blocks were observed between 23.54m OD and 23.49m OD and were 0.80m wide. This structure is projected to have measured circa 12m across which agrees with the postulated 40' diameter flagged up in the documentary source material. On the blocks were a series of shallow depressions, which were possibly for wooden chocks to attach the turntable drum.

#### **Inner Column Bases (Section 156)**

[169], [171], [180], [184], [195], [196]

8.4.5 A group of four inner column bases were observed between the engine pits.

8.4.6 Column base [169] was heavily truncated and was observed at 23.19m OD. The base measured 1.30m by 1.20m. It was constructed using red brick, Fabric 3032, size 228mm x 105mm x 65mm, and bonded with Roman Cement mortar.

8.4.7 Column base [171] was also heavily truncated. It was observed at 23.14m OD, measured 1.85m by 1.70m and was constructed using the same materials [169].

8.4.8 The construction cut [196] for column base [184] was present in section cutting thin sandy layer [188]. It was encountered between 24.10m OD and 23.38m OD and measured 0.53m wide by 0.72m deep. The sides were seen to be near vertical, but the base was not found. Column base [184] was observed at 24.36m OD to be 1.05m by 1.05m and 1.38m in height. The partial truncation of the column base revealed a drainage pipe running through the middle of its brickwork into ring drain [181]. It was constructed using the same materials as [169] and topped with one course of slate, possibly for damp proofing. This was backfilled with a silty clay [195] with frequent CBM and ash.

8.4.9 Column base [180] was observed at 24.33m OD to be 1.05m by 1.05m and constructed using the same materials as [169]. The upper face had a course of slate, similar to that of [184] with what appeared to be a metal pipe in the centre, possibly another drainage pipe.

#### **Outer Column Bases**

[185], [186]

8.4.10 Towards the exterior wall of the Roundhouse [155] two outer column bases were observed.

8.4.11 A Millstone Grit column base [185] measuring 0.90m by 0.96m was at 24.44m OD. A shallow circular recess measuring 0.25m across in the centre of the base was probably to set a roof column into.

8.4.12 A York Stone column base [186] was identified at 24.34m OD and measured 0.91m by 0.91m.

**Watching Brief**

Masonry structure – [150]

8.4.13 Ring drain [150] was observed at 23.30m OD extending 8.7m north-east to south-west. This was the continuation of drain [181] and was also constructed using the same materials.



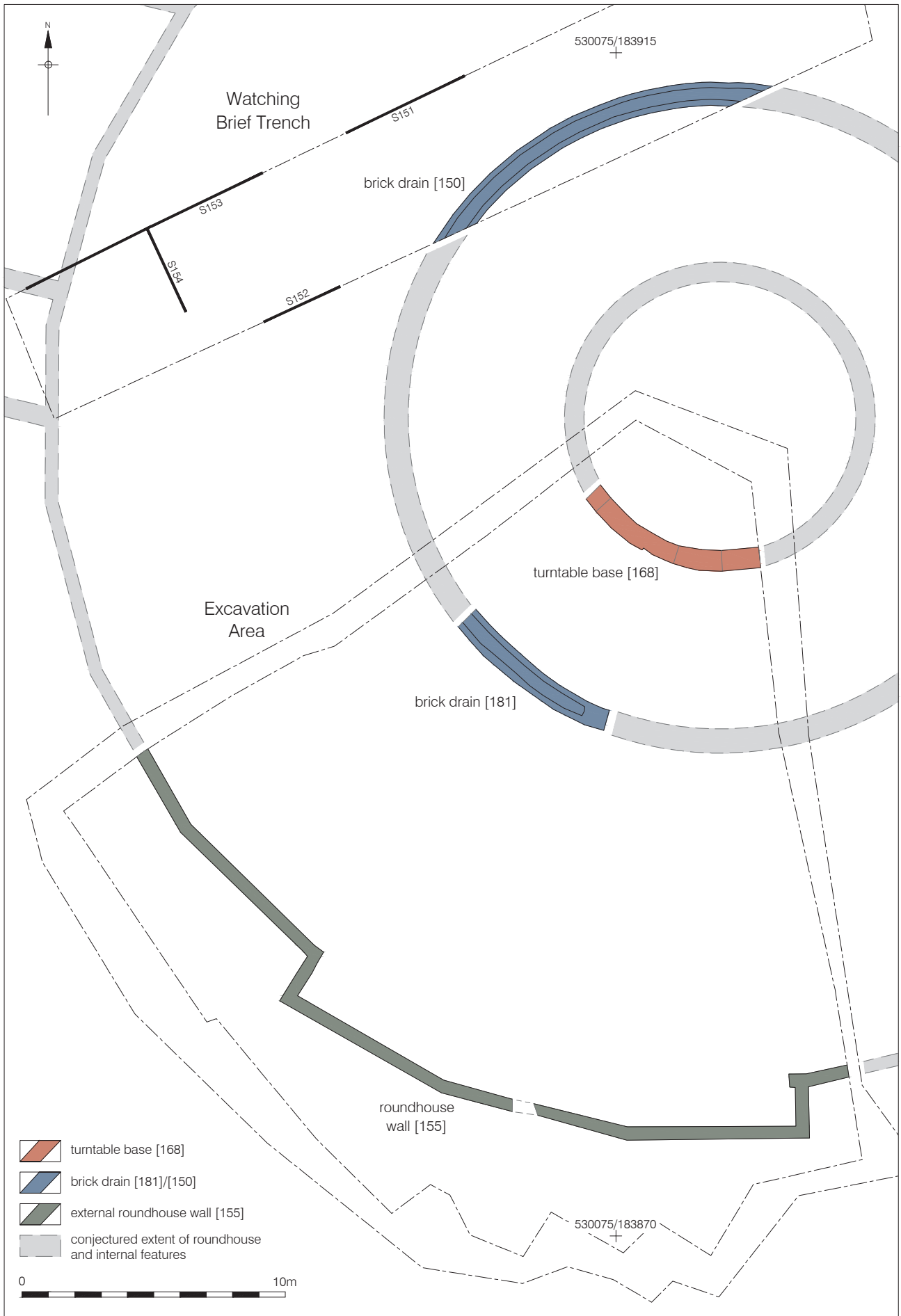


Figure 11  
Phase 3b: Initial Build (Midland Railway)  
1:200 at A4



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## 8.5 PHASE 3c – 1860 to 1931 (Figure 12)

### Excavation Trench

Within the Roundhouse structure a series of truncated engine pits and floor deposits were found radiating from a central turntable area. The remains of a later building and the remnants of a small brick surface were present outside the Roundhouse structure to the south-east. Although the engine pits and turntable brickwork probably represented one structure, it has been decided to group each pit as a separate entity, for ease of discussion.

#### **Engine Pit 1**

[158]

- 8.5.1 Wall [158] was encountered on the western limits of the trench between 22.45m OD and 24.14m OD. It was constructed using red, frogged brick type 3032, measuring 228mm x 105mm x 65mm and bonded with Roman Cement mortar. The wall was 0.52m wide and extended 6.67m to the north-east where it was truncated by a large modern intrusion. The wall's return was present, extending beyond the trench limits leaving it 'L' shaped.

#### **Engine Pit 2 (Section 157)**

[159], [160], [162], [163], [170], [172], [174], [175], [176], [202], [203], [204], [210], [211], [212], [213]

- 8.5.2 The structure of Engine Pit 2 suffered severe truncation, with only remnants of the wall, drainage sump and floor deposits surviving.
- 8.5.3 The construction cut [163] for Engine Pit 2 was between 24.24m OD and 23.34m OD truncating clay layer [209]. This was rectangular in shape with steeply sloping edges and a flat base measuring 3.56m in length by 3.12m wide and 0.9m deep.
- 8.5.4 Walls [160], [174] and [175] are the remnants of what would once have been the rectangular outer wall of the pit. The brickwork and bonding material of these walls were the same as that of wall [155] i.e. brick type 3032, measuring 228mm x 105mm x 65mm, and bonded with a Roman Cement mortar. Engine pit wall [160] was 'U' shaped (due to truncation) and between 24.60m OD and 24.37m OD. It was built in a Flemish Bond and measured 2.6m in length by 2.18m wide, 0.47m thick and 1.06m in height, with an internal width of 1.25m. A drainage pipe, with a diameter of 0.18m, was observed set into the brickwork furthest from the turntable. Abutting the turntable to the north-east of this, wall [174] was observed at 23.45m OD measuring 1.10m long by 0.8m wide and 0.24m in height. Parallel to this wall [175] was present at 23.29m OD and measured 2.1m long by 0.9m wide.

- 
- 8.5.5 What has been interpreted as a drainage sump [170] was present, abutting drain [181], at 23.17m OD; it was 2.2m in length by 1.82m wide and 0.30m deep. The brickwork and bonding material were found to be the same as [160], [174] and [175]. A wooden plank [172] was observed at 22.85m OD, in the base of sump [170] measuring 1.15m in length by 0.30m wide.
- 8.5.6 In the south-west remnant of the engine pit, the interior consisted of a series of bedding deposits overlain by a brick floor. Redeposited clay [213] formed the base of the make-up layers and was observed at 23.64m OD. It was 1.25m wide by 0.30m thick. This layer was overlain by a layer of degraded gravelly concrete [212] which was found between 23.79m OD and 23.70m OD and measured 1.25m wide by 0.15m thick. Sealing layer [212] a thin layer of light yellow brown sand [211] was present, between 23.80m OD and 23.85m OD and 0.05m thick, acting as a bed for floor [159].
- 8.5.7 Floor [159] was constructed from type 3261 kiln bricks, measuring 225mm x 105mm x 75mm. These were laid on edge with a camber, which drained to the sides, and were bonded with Roman Cement mortar. It was located between 23.96m OD and 23.90m OD and measured 2.81m in length by 1.25m wide and 0.11m thick.
- 8.5.8 Toward the turntable area a make-up deposit [176] similar in composition to [212], was observed at 23.23m OD Measuring 2.55m in length by 1.70m wide, this deposit lay between wall remnants [174] and [175].
- 8.5.9 Construction cut [163] was backfilled with a series of fills. The earliest fill was a deposit of mid yellow brown clay, [204] which was observed at 23.54m OD to be 0.21m wide by 0.11m thick, and fill [210] which was observed at 24.23m OD to be 0.40m wide by 0.82m thick. A light grey sandy gravel [162], found at 24.29m OD and measuring 2.10m wide by 0.25m thick was the last of the original construction backfills. Cut [202] seen between 24.29m OD and 23.54m OD and measuring 0.20m wide by 0.70m deep, truncated [162] and [204]. This was filled with a compact mid yellowy white gravelly concrete [203], possibly to repair or to reinforce this part of the engine pit.

### **Engine Pit 3**

[179], [182], [183], [214], [216]

- 8.5.10 Truncation had removed the majority of Engine Pit 3, with only the partial survival of walls, drainage sump and a floor make-up deposit. The walls and sump were constructed from the same materials as [160], i.e. with red brick, Fabric 3032, measuring 228mm x 105mm x 65mm, and set in Roman Cement mortar.

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- 8.5.11 Walls [179], [183] and footing [216] were all that survived of the rectangular outer wall of the engine pit. Wall [179] was observed at 23.29m OD and measured 5.0m in length by 0.6m wide. Parallel to this, at a distance of 1.00m, wall [183] was located at 23.55m OD and measured 5.25m in length by 0.60m. Walls [179] and [183] abutted drain [181] to the north. Footing [216] was at 22.94m OD and measured 1.63m in length by 0.99m wide.
- 8.5.12 Drainage sump [182] was located between 23.06m OD and 22.84m OD and measured 3.0m in length by 2.30m wide and 0.25m deep. This abutted drain [181] to the south.
- 8.5.13 Between walls [179] and [183] a deposit of Victorian concrete [214], similar to layer [212] in Engine Pit 2, was found at 23.25m OD and measured 5.30m in length by 1.0m wide.

#### **Engine Pit 4 (Section 155)**

[164], [165], [178], [201], [243]

- 8.5.14 Engine Pit 4 had been part truncated towards the central turntable area, leaving the majority of the structure upstanding. Towards the exterior wall of the Roundhouse [155] the structure appears to have suffered from subsidence (see **Figure 15** section 155).
- 8.5.15 The outer wall [164], located between 24.53m OD and 23.56m OD, was rectangular in outline. It measured 19.91m in length by 2.25m wide, 0.46m thick and 0.97m in height with an internal width of 1.25m. It was constructed from the same materials as wall [160], namely red brick Fabric 3032, measuring 228mm x 105mm x 65mm, and bonded with Roman Cement mortar in a Flemish Bond pattern. This wall also had a drainage pipe, 0.18m in diameter, set into the brickwork furthest from the turntable. Fourteen sandstone blocks each measuring 0.46m long by 0.07m thick were observed above small truncated recesses set into the walls (see **Figure 15** section 155). Four of the recesses still had metal fixing pins *in situ*.
- 8.5.16 A drainage sump [178] with a metal cover was present at 23.76m OD and was 1.06m in length by 0.55m wide and 0.40m deep. When the metal lid was lifted it revealed the sump to have a metal pipe set within the brickwork nearest to the turntable. The floor of the sump sloped towards the centre. A light yellow brown deposit was seen coating the internal surfaces of the sump. No further investigation was undertaken due to the possible presence of contaminants within this deposit.
- 8.5.17 A deposit of redeposited clay [243] similar in composition to layer [213] in Engine Pit 2, was contained within wall [164] at 23.57m OD. This was found to be 6.25m in length by 1.02m wide and acted as a bedding deposit for floor [201].
- 8.5.18 Floor [201] was made of type 3261 kiln bricks, measuring 225mm x 105mm x 75mm. The bricks were laid on edge with a camber which drained to the sides, and were bonded with

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Roman Cement mortar. The floor was present between 23.87m OD and 23.60m OD and measured 13.0m in length and 1.26m wide and 0.11m thick.

- 8.5.19 A small brick wall [165], located at 24.18m OD blocked off the southern end of the engine pit. It was constructed using red bricks, type 3032, measuring 220mm x 105mm x 75 mm bonded with Roman Cement and measured 1.26m in length by 0.22m wide and 0.54m in height. This additional wall formed what could possibly have been a drainage sump, measuring 1.40m by 1.25m, feeding into the pipe observed in wall [164].

#### **Engine Pit 5**

[166], [167], [177], [206], [207], [244]

- 8.5.20 Engine Pit 5 had, like Engine Pit 4, been part truncated towards the central turntable area, leaving the majority of the structure upstanding. Also towards the exterior wall it appears to have suffered from some subsidence toward the exterior Roundhouse wall [155].
- 8.5.21 The outer wall [166] located between 24.53m OD and 23.49m OD, was rectangular in outline. It measured 18.80m in length by 2.21m wide, 0.48m thick and 1.04m in height with an internal width of 1.25m (**Figure 12, 15**). The wall was constructed from the same materials as [160], with red brick Fabric 3032, measuring 228mm x 105mm x 65mm, and bonded with Roman Cement mortar in a Flemish Bond pattern. This wall also had a drainage pipe, 0.18m in diameter, set into the brickwork furthest from the turntable. Fifteen truncated recesses were observed set into the walls, two of these had metal fixing pins still *in situ*.
- 8.5.22 A drainage sump [177] with a metal cover was found at 23.73m OD. It was 1.06m in length by 0.54m wide. No further structural elements were recorded as it was not possible to remove the metal cover.
- 8.5.23 A deposit of redeposited clay [244], similar in composition to [213], was contained within wall [166] at 23.49m OD. This was found to be 5.30m in length by 1.10m wide and functioned as a bedding deposit for floor [206].
- 8.5.24 Floor [206] was constructed from kiln bricks, type 3261, measuring 225mm x 105mm x 75mm. The bricks were laid on edge with a camber which drained to the sides, and bonded with Roman Cement mortar. It was located between 23.85m OD and 23.75m OD and measured 13.92m in length by 1.26m wide and 0.10m thick.
- 8.5.25 Within floor [206] a small patch of brickwork [207], adjacent to drainage sump [177], seemed to represent a repair, possibly to sump [177]. This was at 23.81m OD and measured 0.91m by 1.08m.

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8.5.26 A small brick wall [167] similar to [165], was located at 24.36m OD, blocking off the southern end of the engine pit. The wall was constructed using red brick type 3032, measuring 220mm x 105mm x 75 mm with a Roman Cement bonding material. The wall measured 1.26m in length by 0.22m wide and 0.54m in height. This additional wall formed what could possibly be a drainage sump, measuring 1.60m by 1.25m, feeding into the pipe observed in wall [166].

#### **Turntable**

[173], [205]

8.5.27 An arc of truncated brickwork [173] was all that remained of the outer wall of the turntable area. This was found at between 23.52m OD and 23.48m OD. The wall was 0.93m wide abutting the stone blocks [168], and constituted a modification of its earlier version [168]. It was constructed using the same materials as the outer walls of the engine pits, i.e. with red brick Fabric 3032, measuring 228mm x 105mm x 65mm, and bonded with Roman Cement mortar.

8.5.28 A light whitish grey gravelly concrete [205] lying within [168] was situated inside the area outlined by the turntable. This was present between 23.59m OD and 23.44m OD and measured 4.40m by 2.0m.

#### **Floor Make-up Deposits**

[187], [219]

8.5.29 A floor make-up layer of clayey ashy gravel [187] was seen between 24.52m OD and 24.35m OD extending to the west from the large modern intrusion to the exterior wall of the Roundhouse [155]. In section it was 0.44m thick and sealed construction cut [196].

8.5.30 A floor make-up layer of compact, yellow white, sandy gravel [219] was found between 24.47m OD and 24.42m OD extending to the east from the large modern intrusion to the exterior Roundhouse wall [155] and the limit of excavation. In section it was 0.23m thick and sealed construction cut [163].

#### **Exterior Structures**

[156], [157]

8.5.31 The north-east corner wall of building [156] was revealed abutting wall [155] and it extended beyond the trench limits. The wall was located between 24.66m OD and 24.50m OD and measured 2.30m by 2.30m in length (measured from wall [155] to trench limits) and was 0.20m high with a width of 0.54m. It was constructed using Craven stamped Fabric 3261

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frogged kiln bricks, measuring 235mm x 106mm x 76mm and bonded with a light grey Portland mortar.

- 8.5.32 A small fragment of a badly truncated brick floor [157] was observed at 24.49m OD, abutting wall [155]. It measured 1.20m by 0.56m and was 0.65m thick and was constructed using Fabric 3261 soap kiln bricks, measuring 152mm x 65mm x 44mm and bonded with a Portland cement mortar.

#### **Watching Brief (Figure -14)**

The watching brief revealed masonry structures associated with the Roundhouse. These included two engine pits, and four other unidentified structures.

#### **Engine Pit 6 (Section 151)**

[152]

- 8.5.33 Engine Pit wall [152] was present at 24.60m OD truncating clay layer [227/228] in the northern section face of the watching brief trench. The engine pit [152] had an outer width of 2.70m and an inner width of 1.30m. It was 1.90m in height and 0.70m thick and was constructed using red brick Fabric 3032, size 228mm x 105mm x 65mm, and bonded with Roman Cement mortar.

#### **Engine Pit 7 (Section 152)**

[231], [232], [233], [234]

- 8.5.34 A brick floor/footing [232] was identified overlying natural London Clay [153] in the southern section of the watching brief trench. This was located at 23.99m OD and measured 3.2m long and 0.5m thick. Above this floor, engine pit wall [231] was located at 25.00m OD, and had an outer width of 2.60m and an inner width of 1.2m. The wall was 2.0m in high and 0.70m thick and was constructed of red brick Fabric 3032, size 228mm x 105mm x 65mm and bonded with Roman Cement mortar.
- 8.5.35 Possible construction backfill deposits of mid to dark reddish brown silty clay, [233] and [234] were recorded at 24.48m OD, sealing the masonry. These were observed to be 2.0m thick and contained small fragments of CBM and occasional flecks of coal and charcoal.



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### **Unidentified Masonry Structures (Section 153)**

[151], [154], [238]

- 8.5.36 The construction materials for masonry [151] and [238] were the same, i.e. red brick Fabric 3032, size 228mm x 105mm x 65mm and bonded with Roman Cement mortar. No bricks were seen in [154] only the mortar.
- 8.5.37 A brick structure [151] was found abutting ring drain [150] in the base of the watching brief trench at 23.30m OD. It measured 5.0m by 2.0m and extended beyond the northern limits of excavation.
- 8.5.38 A deposit of light yellow sandy mortar [154] was present at 22.50m OD, in the base of the trench, measuring 11.70m by 2.0m.
- 8.5.39 The truncated remains of a brick structure [238] were seen in the northern face of the trench, at 24.15m OD. The structure measured 6.2m in length and was 0.5m thick.



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11/09/12 MR/JS

Figure 12  
Phase 3c, Roundhouse modifications and additions  
1:200 at A4

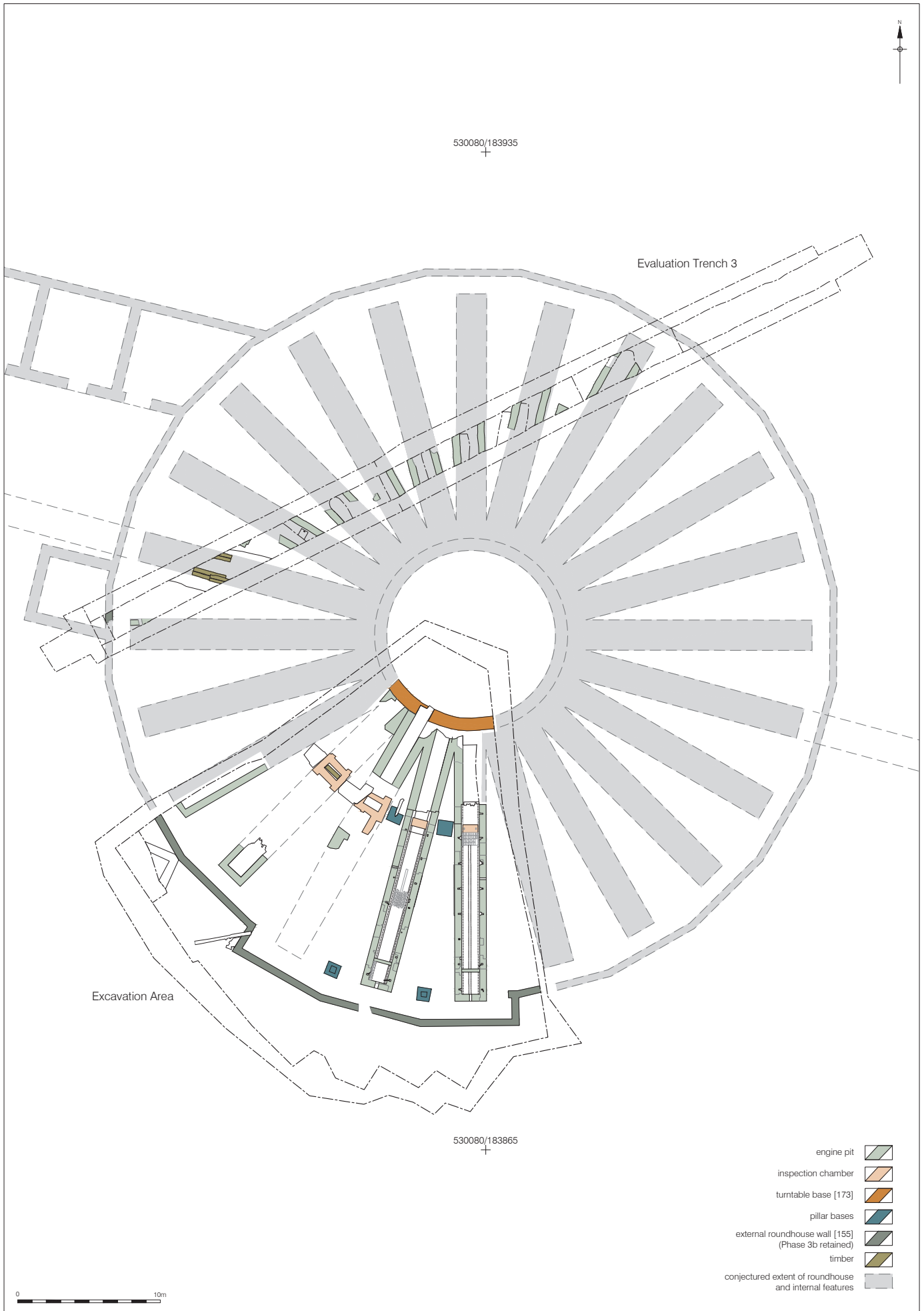
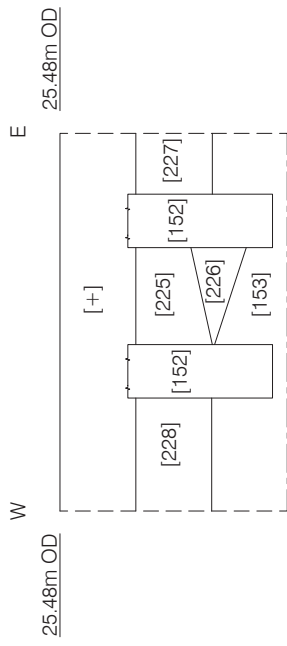
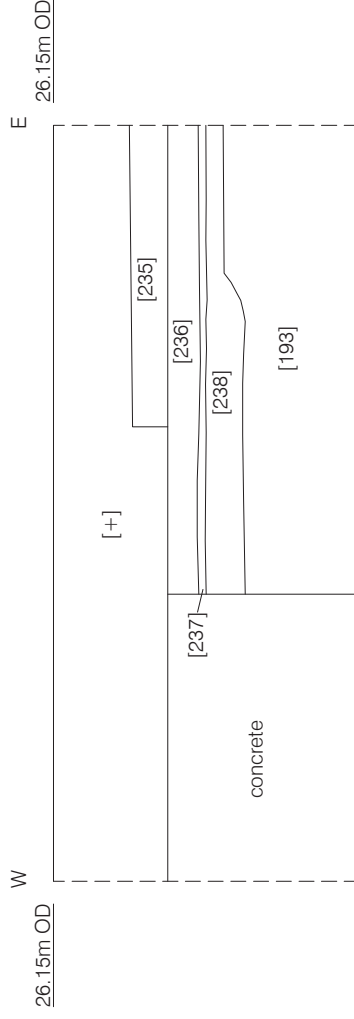


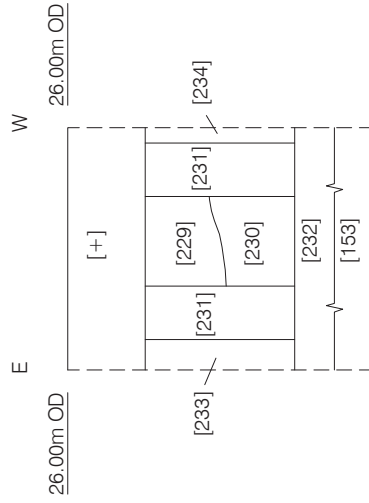
Figure 13  
Phase 3c showing Roundhouse modifications and additions with results from Evaluation Trench 3  
1:250 at A3



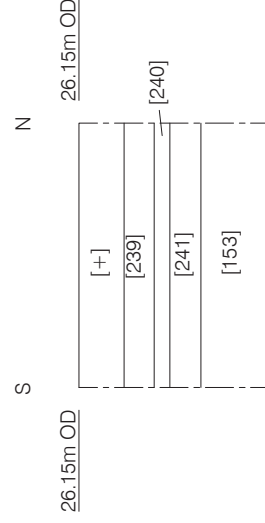
Section 151  
Watching Brief  
South Facing



Section 153  
Watching Brief  
South Facing



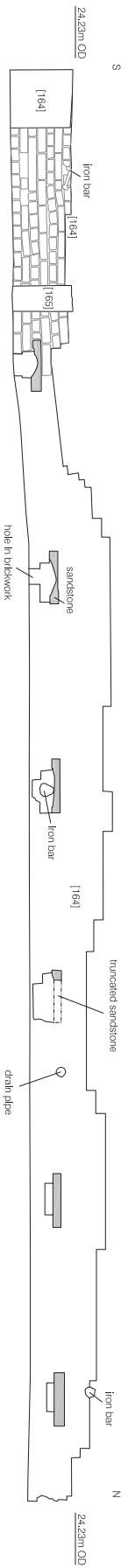
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Watching Brief  
North Facing



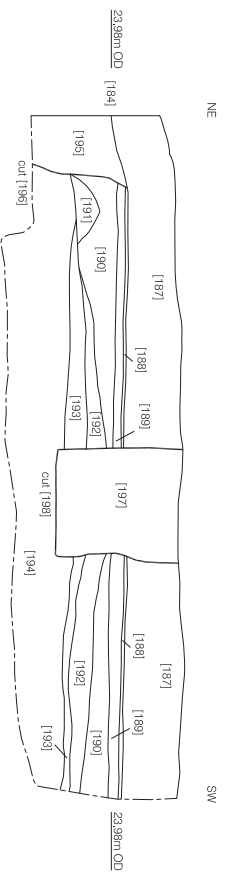
Section 154  
Watching Brief  
East Facing



Section 155  
Excavation  
East Facing



Section 156  
Excavation  
Northwest Facing



Section 157  
Excavation  
Northeast Facing

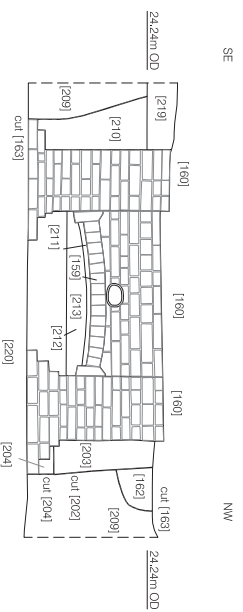


Figure 15  
Sections from Excavation Area  
1:40 at A3

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## 8.6 Phase 4 Post-1931

### Excavation Trench

[161], [197], [198], [199], [208], [215], [217], [218], [221]

- 8.6.1 Compact-to-loose deposits of dark blackish grey silty sand [161], [208], [208] with frequent inclusions of demolition rubble were used to backfill Engine Pits 2, 4 and 5 respectively.
- 8.6.2 Cut [198] (Section 156) truncated floor make-up layer [187] at 24.52m OD; it was 0.85m in length and 0.93m deep. This was filled with a firm, mid blackish brown, gravelly clay [197] with frequent ash, CBM and mortar inclusions.
- 8.6.3 Cut [218] for a cast iron pipe [217], cut floor make-up layer [187], between 24.33m OD and 24.19m OD and measured 11.50m by 0.80m. It ran from the trench limit in a north-westerly direction cutting through Roundhouse wall [155], until it in turn was truncated by a large modern intrusion. The cast iron pipe [217] was recorded at 24.19m OD it was greater than 9.0m in length with a diameter of 0.12m and a bore measuring 0.09m.
- 8.6.4 A cast iron pipe [221] was observed, truncating floor remnant [157], at 24.23m OD. This ran in a north-easterly direction, from the trench limits to the modern intrusion, cutting through [155]. The pipe measured 4.32m in length with a diameter of 0.23m and a bore of 0.21m.
- 8.6.5 A layer of well cemented, dark blackish grey, ash and clinker [199] was seen between 24.80m OD and 24.60m OD sealing the archaeology. This was found to be 0.6m thick and covered the entire trench.
- 8.6.6 Above [199] was a modern made ground layer, deposited during the construction work for the CTRL

### Watching Brief

[225], [226], [229], [230], [235], [236], [237], [239], [240], [241]

- 8.6.7 Engine Pit 6 was backfilled with a light, whitish grey, silty lime deposit [226] at 23.76m OD which was 1.3m wide and 0.72m thick. This deposit was overlain by dark, blackish grey, ashy gravels [225] at a level of 24.48m OD; was and measured 1.3m wide and 1.0m thick.
- 8.6.8 Engine Pit 7 was backfilled with a silty lime [230] similar to [226]. It was at a level of 24.15m OD, and measured 1.2m wide by 1.14m thick. Sealing this, were ashy gravels [229] similar to [225], identified at 25.00m OD, and which were 1.20m wide and 1.08m thick.
- 8.6.9 Above masonry [238] a layer of, light, brownish yellow, sandy gravels [237] was observed at 24.25 m OD, this layer measured 6.20m in length and was 0.10m thick. This functioned as



bedding for a concrete surface [236] at 24.65m OD. The concrete surface measured 6.20m in length and was 0.40m thick. Above this an indurated, dark blackish grey, layer of ash and clinker [235], was found which was similar to [199], it was observed at 25.15m OD, measured 4.0m in length and was 0.50m thick.

- 8.6.10 A deposit of silty lime [241], similar to [226], was identified above the natural London Clay at 24.95m OD. This was 3.50m in length and 0.40m thick. Sealing [241] was a layer of sandy gravels [240], similar to [237], located at 25.15 m OD. The layer measured 3.50m in length and was 0.20m thick. Above this an indurated layer of ash and clinker [239], similar to [199] and [235], was observed at 25.55m OD, it was 3.50m in length and was 0.40m thick.
- 8.6.11 The trench was sealed by approximately 2.20m of modern made ground laid down during the construction work for the CTRL

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## **9 A SUMMARY OF THE ARCHAEOLOGICAL FINDINGS**

### **9.1 Summary of Phases 1 & 2**

9.1.1 The natural horizons observed during both the archaeological excavation and the watching brief comprised London Clay. This was in turn overlain by deposits of green to brown silts and clays which are believed to have represented former topsoil and subsoil horizons. Pottery recovered from one of these layers provided a deposition date range of between 1630 and 1700. The surrounding area remained predominantly rural until the late 18th century, suburban development only taking place after the completion of the New Road in the 1750s. Somers Town was developed in the 1780s, while the Battle Bridge area to the south-east became increasingly built up in the decades before 1800.

9.1.2 During the first decade of the 19th century local landowners began to lease land to building contractors and developers, attracted by the otherwise unproductive London Clay soils in the vicinity. By the mid-1840s the land on the north side of Regent's Canal (completed in 1820) was largely given over to brickfields. The Great Northern Railway came to King's Cross during the second half of the 1840s seeking a site upon which to build its London passenger and goods termini and locomotive depot. Groundworks in advance of the construction of these facilities on the north side of the canal began in 1849.

### **9.2 Summary of Phase 3a**

9.2.1 The only deposit associated with this phase of activity comprised a layer of burnt clay ballast. This horizon had previously been observed across the King's Cross site and is associated with the development of the Great Northern Goods Yard and Locomotive Depot between 1849 and 1852. Much of the natural clay, which had been stripped during the development process, was subsequently burnt and then re-used in order to stabilize the ground and raise its level to a height necessary for railway working.

### **9.3 Summary of Phase 3b**

9.3.1 Phase 3b was associated with the construction of the Midland Roundhouse, a locomotive shed erected in the Locomotive Depot by the Great Northern on behalf of the Midland Railway in 1858/9 as part of an agreement that allowed the latter company to run goods and passenger traffic on the Great Northern mainline into King's Cross. The building itself was represented in the archaeological record by the red brick polygonal external wall of the structure, four red brick inner column bases and two outer column bases, one of which was built of millstone grit and the other of York stone. A brick ring drain was also observed within

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the construction, whilst the base of the internal locomotive turntable was represented by an arc of millstone grit blocks.

- 9.3.2 When first completed the Midland Roundhouse was of substantial size and was originally equipped with four engine pits and a 40ft diameter turntable.

#### **9.4 Summary of Phase 3c**

- 9.4.1 The archaeological evidence relating to Phase 3c comprised a total of seven engine pits, many of which were complete with drainage sumps, radiating from the central turntable of the building. Associated with these were several floor surfaces and their associated make-up layers, whilst the north-east corner of a new building constructed from kiln bricks dating to between 1870 and 1910 was identified outside the Roundhouse in the south-western corner of the excavation area. Historic photographs suggest that this may have been used as a smithy for minor repairs, associated with the maintenance of the locomotives stabled in the adjacent Roundhouse.
- 9.4.2 Dating the construction of the new engine pits proved problematic, given that their build structure was identical to their original outline in the Roundhouse. Although it is known that seven additional pits were introduced into the building for Midland Railway use in 1862, it was unclear which of the pits identified during the archaeological excavation were associated with these later works. Following the departure of the Midland Railway to St Pancras in 1868, the building was used by the Great Northern Railway for carriage and wagon repairs and eventually locomotive accommodation. Although the 40' diameter turntable remained in use, it was slightly modified with the addition of some brickwork and a minor widening of its support wall. As many as eleven further engine pits were subsequently added, giving a final total of twenty two pits and twenty four railroads. Like the seven engine pits introduced in 1862, it has not been possible to demarcate the engine pits found in the archaeological works to the various phases of renovation.
- 9.4.3 The introduction of the Great Northern's first 4-6-2 'Pacific' locomotives shortly before 'grouping' in January 1923 heralded the beginning of the end for the Midland Roundhouse. Larger locomotives required larger turntables and the by now somewhat rundown Midland shed presented an obstacle to the planned enlargement of the adjacent Locomotive Depot, which had been approved by the Board of the LNER in summer 1929. Less than two years later the Roundhouse was pulled down by locomotives based at the King's Cross Locomotive Depot

#### **9.5 Summary of Phase 4**

9.5.1 The only archaeological evidence relating to Phase 4 comprised the demolition deposits associated with the destruction of the Roundhouse, and modern layers and features such as cast iron pipes belonging to later periods of activity on the site.



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## 10 RESEARCH QUESTIONS

### 10.1 ORIGINAL RESEARCH QUESTIONS

The excavation's aims and objectives as outlined in the Written Scheme of Investigation were as follows (Hawkins, 2011):

#### 10.1.1 **Determine the character of the site and landscape prior to first-phase industrial development, including information about the rural topography with evidence of Prehistoric to Post-Medieval land use; the exploitation of soils for brick making; early commercial development as part of the rapidly expanding early to mid 19<sup>th</sup> century industrial fabric of London.**

There is considerable documentary and cartographic evidence to indicate that prior to the first phase of industrialisation the surrounding fields were used mainly for pasture and for the extraction of London Clay for tiles and bricks from around the turn of the 19th century (**Figure 3**). Brick fields and tile kilns continued to dominate the environs of the site when the Great Northern Railway acquired it for development as its London passenger terminus, goods station and locomotive depot in the second half of the 1840s (**Figure 4**).

Archaeological evidence of a series of post-medieval surfaces was revealed in the section profiles of a large modern truncation within the superstructure of the Roundhouse. These layers represent the period immediately prior to the land preparations for the railway development started in 1849.

Remnants of subsoil and old topsoil layers were observed in one of the truncated edges. These deposits were consistent with the land having been used for pasture.

A redeposited clay layer with post-medieval brick inclusions was probably associated with the clay extraction known to have taken place on site. The clay may even have been surplus material dumped or backfilled into one of the many extraction pits that would have pock-marked the area.

No archaeological activity prior to the post-medieval period was encountered on site.

#### 10.1.2 **Understand the mid 18th to early 19th century 'early' urban and commercial land use of the general area, prior to the insertion of the great mid 19th century railway buildings and associated railway facilities.**

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This research question has been addressed in paragraphs 7.1.5, 7.2.1 and 7.2.2

**10.1.3 Examine the area for evidence of the massive soil extraction and the reported slope failure at the general location of the Roundhouse.**

The survival of the post-medieval soil horizons suggest that the entire footprint of the Roundhouse was not excavated. Excavations were probably limited to the foundation footings and internal structures of the Roundhouse.

The original draft specification for the construction of the Midland Roundhouse called for the removal of 27,045 cubic yards of spoil from the excavations, which suggests the foundations of the outer wall were substantial.

No archaeological evidence of a slope failure was observed on site. Detailed documentary research demonstrated that that the 'slope failure' referred to in the research question took place not at King's Cross but at Hornsey, where the surplus clay extracted from the site was deposited (paragraph 7.5.8).

**10.1.4 Reveal and document the original foundations of the Roundhouse and determine their construction and engineering performance.**

It was agreed to abandon a trial hole excavated to reveal the Roundhouse foundations because of flooding. Before the flooding, the foundations appeared to be stepped, but no records could be made due to the speed with which the water rose. The foundations appeared substantial.

**10.1.5 Identify differences attributed to the initial Great Northern Railway design works and modification required for the Midland Railway uses.**

The exterior wall and the turntable footings are the only parts of the Roundhouse that can be attributed to the original Great Northern Railway design of 1857/8. Analysis of the construction materials gave no indication of when modifications took place or for which company they were undertaken.

From what was observed during excavations the engine pits appeared to be part of one structure, built at the same time and radiating out from the central turntable. This is most likely to have taken place after the Great Northern Railway took possession of the Roundhouse in 1868. It should be noted in this context that to date it has not been possible to identify documentary material indication a wholesale rebuild of the structure.

**10.1.6 Locate evidence that would suggest there was modification of superstructure during operations.**

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There is documentary evidence for changes to the roof in the first decade of the 20th century; however there is not much detail on internal changes over the period 1868-1930.

**10.1.7 Identify and map development of encountered structural remains and relate these to documentary evidence.**

There is some documentary evidence concerning additional engine pits from 1862. This question will require further investigation.

**10.1.8 Identify, investigate and interpret features related to the operations in the Roundhouse and after the superstructure was removed.**

No evidence for post-demolition operations was observed during the excavation. A compacted layer of black ashy material was identified sealing the Roundhouse and the exterior structures. This deposit was probably a levelling layer for the sidings and 'back pits' that replaced the Roundhouse. The 'back pits' were almost certainly created fairly soon after demolition because they were needed by the (at the time) recently enlarged Locomotive Department.

**10.1.9 Assess the condition of structural remains and function features, to understand the history of maintenance, repair and upgrading.**

The foundations of the roundhouse in so far as it was possible to observe these appeared in good condition. The remains of the engine pits were well preserved and in a respectable state. There was significant modern truncation which complicated the assessment of the structural remains and their function. Definition of episodes of maintenance, repair and upgrading proved difficult.

**10.1.10 Match evidence of operations to information shown on photographs and described in historic documents.**

Historical photographs reproduced in *Top Shed*, P.N. Townend's volume on the history of the King's Cross locomotive depot, clearly show some of the structures encountered during the excavations. Photographs taken between the 1870s and 1920s show the engine pits and the hollow cast iron columns that supported the roof of the shed, while a series of photographs taken in 1931 depict the demolition of the building. Similarly the outbuilding first depicted on the Second Edition Ordnance Survey map of 1894 is shown in a number of historical photographs.

**10.1.11 Identify artefacts worthy of salvage and with a potential for heritage use.**

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No salvageable artefacts were recovered during the archaeological excavations.

**10.1.12 Combine the results of the archaeological investigation with other archaeological works on the King's Cross Central site.**

This question should be addressed in the analysis stage of this project.

**10.1.13 If possible add archaeological data to that obtained for CTRL development works, at the time the new route passed through the northern areas of the site and also where associated temporary construction activities occurred.**

This question should be addressed in the analysis stage of this project.

**10.2 REVISED RESEARCH QUESTIONS**

Questions arising out of the excavation are as follows:

**10.2.1 What was the purpose of the later ancillary structure shown on the 1894 Ordnance Survey Map to the west of the Roundhouse?**

The south-east corner of this structure was recorded during the excavations. Specialist analysis of the brickwork found that Craven kiln bricks from Wakefield had been used for this building. Its appearance in historical photographs, not least the presence of large chimneys at either end of what appears to have been a fairly small building suggest that it may have been used for some engineering function, possibly a forge or a maintenance workshop.

It is recommended that:

- Further research be undertaken to see if there is any reference to this building and its function in Great Northern Railway records

**10.2.2 What is the purpose of the small dividing walls observed in Engine Pits 4 and 5?**

The small walls observed in Engine Pits 4 and 5 must have a specific purpose relating to the maintenance of locomotives. They may have been used to separate different materials during the cleaning and maintenance processes but at present their function remains unclear.

It is recommended that:

- The Engine Pits be compared to contemporary engine pits to ascertain the purpose of these walls.
- Compare the archaeological evidence with other known Roundhouses, namely the Midland Shed in Derby.

**10.2.3 Brick analysis from the Roundhouse superstructure suggests one phase of construction, is there any archival evidence to suggest that this is not the case?**



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The construction materials used for the exterior wall, engine pits and drains were the same, suggesting one contemporary build. No evidence of modification was observed during the excavation, but it is known that the Midland Railway requested alterations during the brief period that the company used the Roundhouse.

It is recommended that:

- Structures recorded during excavation are compared to the bills of quantity to see if it is possible to phase the superstructure more accurately. Were the requested modifications ever implemented?

#### 10.2.4 **What is the significance of the construction materials used to build the Roundhouse?**

While the bricks used to build the 1850/1 King's Cross Goods Station were sourced locally, those used in the construction of the Roundhouse appear to have originated elsewhere. Much of the materials used in the Roundhouse, in particular the kiln bricks, came from West Yorkshire. Was these bricks chosen because of their specific properties, or did their use simply reflect the increased availability and access to a wider range of materials following the development of the Great Northern Railway network?

It is recommended that:

- Documentary sources are consulted in an effort to resolve this issue.

#### 10.2.5 **How does the Roundhouse compare in terms of size and structure with other contemporary Roundhouse engine sheds?**

Following the development of dependable turntable technology, several railway companies built engine roundhouses in mid-19th century Britain to stable and turn their locomotives.

It is recommended that:

- The King's Cross Roundhouse is compared in terms of size and structure with other contemporary Roundhouse type engine sheds such as the London and North-Western Railway shed at Chalk Farm and the Midland Shed at Derby.

#### 10.3 **Can we identify the function of the post-demolition pipe? Was it associated with the Back Pits or with another aspect of the Locomotive Department's operations? Or was it something else altogether?**

- It is recommended that further documentary and historical photographic research into the precise function of the Back Pits is undertaken

#### 10.4 **Further questions arising from the documentary research**

10.4.1 What was the nature of the relationship between the Great Northern and Roundwood Brickworks, Wakefield, the manufacturers of 'Craven' bricks used in the construction of the

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Roundhouse? Was the company a preferred supplier to the Great Northern, like the Beart's Patent Brick Company of Arlesey, Bedfordshire and the Leeds Fireclay company?

- This necessitates further research into the financial records of the Great Northern held at The National Archives at Kew.

10.4.2 Can we find out more about the shed's use as a carriage and wagon repairing shed after the Great Northern 'reclaimed' it in late 1868?

- There may be as yet unidentified evidence of this period's history in the records of the Great Northern held by The National Archives at Kew.

10.4.3 When was the Roundhouse returned to use as an engine shed? Was this associated with the doubling in number of engine pits from eleven to twenty two?

- Further evidence regarding the conversion of the Roundhouse back into an engine shed may survive amongst the records of the Great Northern held by The National Archives at Kew.

10.4.4 Are there any 'official records' of the demolition of the roundhouse in 1931?

- To answer this question it will be necessary to conduct further research into the records of the LNER held by The National Archives at Kew. However initial research conducted for this assessment suggested that there was little 'official' material on the demolition described by Townend in *Top Shed*, suggesting that this account may have been based on eyewitness testimony. If this is the correct source for this information can this be confirmed?

10.4.5 What was the precise function of the 'back pits' that succeeded the roundhouse? What use, if any did operations at these pits make of the water supplied by the cast iron pipes discovered during the archaeological excavations?

- Further research into the records of the LNER and British Railways at The National Archives may be of use. Published descriptions of comparable examples should also be sought.

10.4.6 When were the 'back pits' removed?

- Townend's *Top Shed* does not indicate when this took place, although it is likely that they were removed at around the same time that the Locomotive Depot was closed down. The latter event may be documented in British Railways records held by The National Archives at Kew.

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## 11 IMPORTANCE OF THE RESULTS AND PUBLICATION PROPOSAL

### IMPORTANCE OF THE RESULTS

11.1 The most important phases of activity recorded during the excavation and associated watching brief relate to Phase 3, which represents the construction of the Roundhouse itself and the period during which the building was in use. This period of activity has been subdivided into three sub - phases: a) 1849-1858, relating to the period during which the initial ground preparation of the site in association with the development of the Great Northern King's Cross Goods Yard and Locomotive Depot took place prior to the construction of the Roundhouse, b) 1858-1859, related to the construction of the roundhouse itself, and c) 1860-1931, related to modifications and additions within the Roundhouse during its service with the Midland, Great Northern and London and North-Eastern Railway companies, prior to the building's eventual demolition in 1931.

#### 11.2 1849-1858

Activity relating to this period was manifested in a layer of burnt clay ballast. This ballast represented the earliest phase of railway associated development at the site, when the land was levelled in preparation for the building works of the Goods Yard and Locomotive Depot.

#### 11.3 1858-1859

It was during the 1858-1859 phase of activity that the Roundhouse was constructed. The building appears to have been finished in February 1859, and was represented in the archaeological record by a ring drain, a turntable, four inner column bases and two outer column bases. The exterior wall of the Roundhouse was also revealed and was found to be polygonal in plan.

#### 11.4 1860-1931

A number of alterations and modifications are known to have taken place within the Roundhouse following its completion and prior to its eventual demolition in 1931. These were represented in the archaeological record by a total of seven engine pits which radiated from the central turntable of the building. This turntable also appeared to be a modified version of its earlier manifestation belonging to Phase 3b, with its support wall being slightly widened with added brickwork. A new building was erected adjacent to the south-west side of the Roundhouse at some point between 1871 and 1894. Although this structure was only partially revealed, it appeared to abut the external wall of the engine shed itself.

## PUBLICATION PROPOSAL

11.5 The King's Cross Roundhouse site will be published in an appropriate journal article. The format the publication will follow is that of a typical publication report:

- Abstract
- Introduction
- Geological and topographical background
- Archaeological background
- Archaeological evidence, by phase
- Discussion

The illustrations will include:

- Location plans
- Phase plans
- Plans of features and groups of features
- Sections
- Photographs
- Finds illustrations



## 12 CONTENTS OF THE ARCHIVE

The paper archive:

		Excavation / Watching Brief	
		Drawings	Sheets
Context Sheets			90
Plans	1:20	3	20
	1:100	1	1
	Sketch	4	4
Sections	1:10	3	9
	1:20	5	6

The photographic archive:

	Excavation / Watching Brief
Black and White Negative Film (35mm)	28 Frames
Colour Transparency Film (35mm)	28 Frames
Black and White Medium Format	12 Frames
Colour Medium Format	12 Frames
Digital Format	155 Frames

The Finds Archive

CBM / Pottery / Animal Bone	1 Box
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Brick Samples	3 Bricks
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(Box – standard archive box = 0.46m x 0.19m x 0.13m)

## **13 ACKNOWLEDGEMENTS**

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- CCRO 148/2/844 Lease for 14 years: George Thornhill of Diddington, Hunts. Esq. and William Ford Hickman, Henry Hickman, both Bricklayers of Battle Bridge, St. Pancras, Middx 22/12/1821

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## APPENDIX 1 SPECIFICATION FOR THE CONSTRUCTION OF AN 'ENGINE SHED, COKE SHED, WATER CRANE, ENGINE PIT', 1858

Quantity	Units	Description	Rate	£	s	d
<b>Engine Shed</b>						
		Engine shed built with 4 engine pits, drains, shops &c. Removal of 40ft turntable & sundry works		6,000	0	0
<b>Earthwork</b>						
27,045	Cu.	Earthwork removed and run to spoil part Holloway & part Hornsey including engine time &c	1/9	2,366	8	9
<b>Coke Shed</b>						
<b>Excavation</b>						
153	Cu.	Dig & wheel for foundations	1/4	10	4	0
400	Ft	Run 9" glazed socket drainpipe. Trenches dug, pipes laid in & jointed & filled in over. Do. Complete	1/7	31	13	4
<b>Brickwork</b>						
274	Cu.	Brickwork in mortar complete	18/6	253	9	0
<b>Stonework</b>						
144'6"	Cu. Ft	Yorkshire stone in place	4/6	32	10	3
<b>Woodwork</b>						

265	Cu. Ft	Rough framed fir	3/	39	15	0
192	Ft	1¼" [ <i>illegible</i> ] fascia	8	6	3	0
164	Ft	Run Molding [ <i>sic</i> ] to Do. (4" Girt)	5	2	1	0
17¾	Sq.	3" Rough floor laid complete	7%	62	2	6
16/40	Sq.	¾" boarding to Roof	21/	17	4	4
16/40	Sq.	Duchess slating complete	1/7"	22	2	8
62 [?]	Ft	Slate Ridge fixed	1"	4	2	0
<b>Iron Work</b>						
76	?	Wrought Iron in Roof &c	5	1	11	8
164	Ft	Run 6" C[ast] I[ron] OG [?] Guttering, including clips & fixing	1/9	14	7	-
108	Ft	3½" CI Down water pipes, Do. & Do.	1/6	8	2	-
<b>Engine Pit</b>						
116	Cu.Yds.	Dig, wheel & remove earthworks	1/6	8	14	-
33	Cu.Yds	Concrete	7/-	13	6	-
25	Cu.Yds.	Brickwork in Mortar	13/6	23	2	6
33	Cu.Yds.	Brick on edge paving in Mortar	3/-	4	19	-
240	Ft	Run 6" Drain, digging &c as 9" Do.	1/6	18	-	-
?	Cu Ft	Rough framed fir	3/	17	11	-

317	Lbs	Wrought iron Holding Down bolts to curb of engine pit	-	6	12	1
1		Gulley & Grate complete with all drain connections	-	3	10	-
28	Cw (?)	4 Pair 20 feet Bridge Rails & fixed on Engine pit	8/-	11	4	-
<b>Water Crane Foundations</b>						
28	Cu. Yds	Excavate, Dig, Wheel	1/6	2	2	-
10¼	Cu. Yds	Brickwork in Mortar	18/6	9	9	7
30'2"	Cu. Ft	Yorkshire stone in place	4/6	6	15	9
5	Ft	3" <i>Do.</i>	9	-	3	9
1		Gulley & Grate complete with all drain connections		3	10	-
1		Water Crane complete & piping for <i>Do.</i>		70	-	-
<b>Permanent Way</b>						
972	Cu. Yds	Ballast spread	2/9	133	13	-
648	Yds	Run Single Line taken up remove and relay part new materials	20/	648	0	0
7		Sets of new switches complete	23/"	161	0	0
11		New crossing complete	20/	220	0	0
<b>Totals</b>						
				1,162	13	-
Engine Shed a.c. Page 1				6,000	0	0
Earthwork <i>do.</i>				2,366	8	9

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	9,529	1	9
Contingencies 10 per cent	952	18	2
<b>Grand Total</b>	<b>10,482</b>	-	-



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## APPENDIX 2 POTTERY ASSESSMENT

### Chris Jarrett

A small sized assemblage of pottery was recovered from the site (1 box). The pottery dates to the medieval and post-medieval periods. Very few sherds show evidence for abrasion and so were probably deposited fairly rapidly after breakage. The fragmentation of the pottery is as sherd material, although identifiable forms can be recognised. Pottery was recovered from two contexts and individual deposits produced small (fewer than 30 sherds) groups of material.

All the pottery (three sherds, 3 ENVs and weighing 61g. of which none was unstratified) was examined macroscopically and microscopically using a binocular microscope (x20), and recorded in a database, by fabric, form, decoration, sherd count and estimated number of vessels (ENV's). The classification by pottery type follows the Museum of London Archaeology and PCA format. The pottery is discussed by form and fabric type and distribution.

### The pottery types

#### *Medieval*

Essex miscellaneous sandy orange ware (Essex fabric 21), (SOWX), 1200-1550 one sherd, 1 ENV, 2g, form: jug

#### *Post-medieval*

Metropolitan slipware (METS), 1630-1700, one sherd, 1 ENV, 34g, form: bowl, dish

Tin-glazed earthenware with external lead glaze (Orton style D), (TGW D), 1630-1680, one sherd, 1 ENV, 25g, form: bowl; rounded.

### Distribution

Table 1 shows the contexts containing pottery, the number of sherds, the date range of the pottery types in the deposit and a spot date for the group.

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Context	Trench	Phase	Sherd count	ENV	Weight (g)	Date range of pottery types	Date range of the latest pottery	Pottery types	Spot Date
192	EXC	2	2	2	35	1200-1700	1630-1700	METS, SOXW	1630-1700
209	EXC	2	1	1	25	1630-1680	1630-1680	TGW D	1630-1680

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Table 1. KXR09: Distribution of pottery types showing individual contexts containing pottery, what phase and trench the contexts occurs in, the number of sherds, date range of the pottery and a suggested deposition date.

#### Significance, potential and recommendations for further work

The pottery has little significance at a local level, although the medieval sherd of Essex sandy orange ware pottery is rarely found within inner London. The post-medieval pottery types recorded are a characteristic fit for the ceramic profile for mid 17th century London. The main potential of the pottery is to date the contexts it was recovered from. None of the pottery requires illustrating. Considering its dating it appears unlikely that it was in context and contemporary with the 19<sup>th</sup> century railway features. It is recommended that no further work is undertaken on the material and the information from this report should be incorporated into a publication text if required.

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## APPENDIX 3 ASSESSMENT OF BUILDING MATERIAL

Compiled by Dr Kevin Hayward January 2012

### Introduction and Aims

One box of ceramic building material in addition to some loose brick was retained from excavation at the site of the King's Cross Midland Roundhouse (Derby Shed) KXR-09. This in addition to the results obtained from the *in-situ* brick and stone observations during autumn 2011.

This small sized assemblage (18 examples 46kg) was assessed in order to:

- Identify (under binocular microscope) the fabric and forms of the brick structures in order to date the Midland roundhouse structure and any subsequent alterations.
- Identify (under binocular microscope) the fabric and forms of any stone used in the roundhouse structure.
- Make recommendations for further study.

### Methodology

To facilitate interpretation of the features uncovered to inform the project while fieldwork was on-going, *in-situ* recording of the brick, mortar and stone was undertaken on most of the structures in autumn 2011. Two whole brick samples were examined per structure. At same time brick and mortar samples which were retained ensured that representative samples could be examined at the assessment stage.

The fabrics were examined at the offices at Pre-Construct Archaeology Ltd using the London system of classification system with a fabric number allocated to each object. The application of a 1kg masons hammer and sharp chisel to each example ensured that a small fresh fabric surface was exposed. The fabric was examined at x20 magnification using a long arm stereomicroscope or hand lens (Gowland x10).

### Ceramic Building Material

As expected all of the ceramic building material consisted of whole brick samples all of which have a fabric, form and brick stamp consistent with the mid to late 19th century development and alteration. Bricks can be divided up at King's Cross Roundhouse into lighter red-brown, often frogged construction bricks made from an admixture of local brickearth and clinker impurities and very dense high alumina white, pink and red kiln bricks selected for their strength and resistance to high temperatures.

### Construction Brick

Early Post Medieval 3039 (1450-1700)

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### Post Great Fire Fabric 3032 (1664-1900)

Two mottled earthy red-brown sandy 3039 bricks of a fabric characteristic of an early post medieval brick manufactured between 1450 and 1700 were located in a mid 19th century soil horizon adjoining the Roundhouse [209]. It is possible that they are from a later date as red bricks continued to be manufactured just outside the city of London into the 18th century. (Ken Sabel pers obs.) However, their shallower depth 57mm and general abraded condition which would indicate exposure over some period of time would suggest a 17th century date

All the remaining construction bricks either examined from this layer [209] or from the single build of the Midland Roundhouse consist of locally produced purple-red deep frogged clinker rich post great fire bricks (fabric 3032) with a pronounced slit mark in the middle of the frog. Their size (230mm x 108mm x 70mm) and shape (sharp arises) coupled with the pronounced deep frog are consistent with machine made bricks manufactured between 1850 and 1900. They are different to the post great fire bricks encountered in the 1850-1852 Eastern Goods Yard (KXI07) which are poorly made and shallower (60-64mm), with a shallow frog having the marks *JJ* stamped in the interior (Hayward 2010).<sup>1</sup> On the basis of brick form alone the Midland Roundhouse bricks are likely to post date those from the Eastern Goods Yard.

Two mortar types are represented with this brick fabric. The pink Type 1 (see Figure 2) found dumped in a pre-roundhouse soil horizon [209] is common in the 1850-1852 build at the King's Cross Eastern Goods Shed KXI-07 (Hayward 2010) and may represent dumped material from this or another structure built around this time. All the remaining bricks are bonded in a light brown admixture of Roman cement and lime including the Exterior Wall of the Derby Shed [155] the 5 Inspection and Engine pit walls [158] [160] [164] [166] and associated dividing walls [165] [167] and numerous other structures including the inner brick stanchion columns [169] [171] [180] the drains [181] the outer ring wall of the turntable [173] suggesting that all are one contemporary build.

#### **Kiln Brick** (figure 1) Fabric 3261

**Fabrics** *KB1* (CRAVEN) 1862-1910

*KB2* Large Cobbled Kiln Bricks

*KB3* Yellow Kiln Bricks – narrow Soap

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<sup>1</sup> The initials *JJ* almost certainly refer to John Jay, the principal contractor for the construction of the buildings of the Eastern Goods Yard

A sizeable component of the brick assemblage from KXR-09 comprises a quantity of very dense white-pink-red high alumina bricks of varying textures and inclusions. These were all manufactured from fireclays of the Carboniferous coal measures throughout the UK (tropical paleosols deficient in nutrients due to leaching). These clays, which have a high alumina content (as represented by the clay minerals illite and kaolinite) and quartz are suitable heat resistant (refractory) minerals. Their manufacture is therefore normally associated with 19th century high temperature processes such as with boiler rooms and kilns. At KXR-09 their use extends to cobble paving of the Inspection Pits, bonded in the same type of light brown Roman cement that suggests that flooring was contemporary with the walling and turntable. On the basis of fabric, form (thickness) and/or name on brick stamps they have been subdivided into 3 fabric types (KB1-KB3) (summarised in figure 1 below).

#### Brick stamps

As with other industrial and transport related sites of the 19th century the vast majority of the kiln bricks are unstamped (Hayward in prep.) meaning that majority of the kiln bricks can only be discriminated by fabric and form. A listing of brick stamps from KXR-09 and their period of manufacture follows which permits some chronological subdivision.

**CRAVEN** (1862-1910?) Fabric *KB1* The manufacture of Craven bricks from the coal measure clays of the Roundwood brickworks at Alverthorpe, Wakefield commenced in 1862. These distinctive thick kiln bricks are also relatively common from KXI-07 and KXO-08 (Hayward 2010). Their use at the Midlands Roundhouse is restricted to a later ancillary building [156] bonded in a harder light grey Portland type mortar.

#### Cobbled Kiln Bricks

A feature of the kiln brick assemblage at KXR-09 is a number of very large (up to 5kg) elongated, (308x113x34mm) hard stone-like kiln bricks used as cobbling and for heat protection in the paving of the inspection pits. These are all unstamped and made from a maroon fabric KB2 from phase 2 also identified from the 1850-1852 phase 2 cobbling of the East Stables [615] from KXI-07 (Hayward 2010). The edges of the inspection pits are delineated by plinth shaped versions of this kiln brick fabric. Further geochemical analysis may help to pinpoint a more precise coal measure source from the UK.

Kiln Brick Type	Description	Use at KXI-07
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Kiln Brick Type	Description	Use at KXI-07
<i>KB1</i>	Coarse pink to maroon fabric with white shale fragments or blaes, black clinker and hard black brown iron type chunks  All associated with CRAVEN stamp bricks invariably thick and large (230x110x82mm) and very heavy (4.4-4.7kg)	CRAVEN stamps only later Building [156] truncating Exterior Wall of Derby Shed [155] bonded with CRAVEN Kiln Bricks [1862-1910 associated with hard grey Portland mortar Type 3  This fabric and thickness also present in [622] [633] [1222] [1441] [1621] with black mortar type 3
<i>KB2</i>	Coarsely mottled white fireclay alumina and purple blaes chunks  All associated with Inspection floor rectangular and plinthed (for the edges) of inspection floor large cobbled kiln bricks 230mm x 115mm x 79mm 3kg	All associated with Inspection (engine pit) floor large cobbled kiln bricks e.g. [159] [201] [206] mortar type 2 associated with main construction of Roundhouse
<i>KB3</i>	Pale Yellow Small Narrow (165mm x 65mm x 42mm) "Soap" kiln bricks kiln brick with large lumps of white blaes  Possibly Associated with stamp Joseph Cliff & Sons Wortley (1850s-1889+) which are flat soap shaped as at KXO-08 used in flue systems	Just brick floor filling space in kink of Roundhouse Wall [157] adhered to type 3 KB3 Kiln Bricks later 19 <sup>th</sup> century

Figure 1 Table summarising the fabric, form, stamp mortar and distribution of kiln brick from King's Cross Central KXI-07

#### Mortar and Concrete (see Figure 4)

A summary of mortar types and concrete as well as their period of use reflected in the excavations at KXR-09 is given below in figure 4. This may begin to help to provide a chronological framework, around which the various construction phases of KXI-09 developed.

Mortar/Concrete Type	Description	Use at KXR-09 and associated brick types
<i>Type 1 Brick Mortar</i>	Cream pink soft to moderately hard mortar with small orange brick frags 2mm across and white chalk 3mm and occasional quartz angular 5mm occasional flecks of black clinker 1mm and flint	Associated just with deep frogged Post Great Fire brick soil layer [209] same mortar as that used in the 1850-1852 construction of various parts of King's Cross e.g. phase 2 KXI-07 (1850-1852)

Mortar/Concrete Type	Description	Use at KXR-09 and associated brick types
<i>Type 2 Roman/Lime Mortar</i>	Compact hard light brown lime recipe with numerous/packed small (less than 1mm) angular quartz inclusions with lumps of chalk (3mm across) and very occasional small (2mm) flecks of black clinker.	Nearly all the structures associated with the primary Roundhouse construction bonding frogged Post Great Fire Bricks 3032 all Inspection Pit Walls e.g. [160] and all cobbled kiln bricks KB2 from Inspection Pit Floor e.g. [159] Exterior Wall of Derby Shed [155] Brick Pillar Bases e.g. [184] Drain associated with insp cham [181] and associated sump [182]
<i>Type 3 Grey Quartz Mortar with clinker Portland</i>	Very hard light grey cement mortar 3mm angular chalk inclusions	Later Building [156] truncating Exterior Wall of Derby Shed [155] bonded with CRAVEN Kiln Bricks KB1 [1862-1910] and in brick floor filling space in kink of Roundhouse Wall [157] adhered to type 3 KB3 Kiln Bricks Later 19 <sup>th</sup> century

Figure 4 Table summarising the mortar fabric and distribution from King's Cross Roundhouse KXR-09

### Stone

Two common robust sandstone materials from the Coal Measures of England, Millstone Grit and York stone were used as pillar bases for the Roundhouse [185] and [186] respectively. In addition eight large ashlar blocks each one measuring 1m x 0.8m or 0.6m x 0.8m formed part of the earliest version of the semicircular turntable base associated with the Roundhouse [168].

Millstone Grit 3120 – Pale cream-grey coarse grained angular sugary quartz sandstone Upper Carboniferous (Namurian) Yorkshire Coal Fields from same group of strata as high alumina clay used to make the kiln bricks from this site.

York stone 3120 – olive-green grey banded micaceous fine sandstone Upper Carboniferous (Namurian) Yorkshire Coal Fields also from the same group of strata as the high alumina clays to make the kiln bricks from this site.

Millstone Grit, like York stone this coarser sandstone derives from the Upper Carboniferous of Yorkshire and South Derbyshire and was widely used in industrial / supply construction

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projects throughout 19th century London. At the KXI-07 (Eastern Goods Yard) similar pillar bases made of this material turn up in the later 19th century structures [791]. York stone is found in flooring, machine bases both at KXI-07 and KXO-08 (Engine House). The Great Northern Railway's access to these stone outcrops in Yorkshire made it feasible to transport huge quantities to the King's Cross Area from the 1850s.

Finally, some North Wales Slate was found at the base of the inner brick pillar [180] and was in place for waterproofing.

## **Phase Summary**

### **Phase 3a Pre 1858 activity**

Evidence of activity pre-dating the construction of the Midlands Roundhouse is restricted to a clay brown earth deposit sealing the natural [209]. Although it contains evidence of poorly made thin red post medieval bricks (in fabric 3039) that may have been manufactured from 17th or 18th century brick pits that dotted the pre-industrial landscape, it also contains much later brick types. Parts of a course of deeply frogged post-great fire bricks from this context set in a pink mortar are typical of the adjoining structures of the 1850-1852 Great Northern Railway Eastern Goods Yard (KXI-07).

### **Phase 3b 1858-1860s**

Homogeneity in brick shape, fabric, mortar type, kiln brick and stone selection show the construction of the 5 engine pits, external and internal column bases and flooring to be one contemporary build. What is more the use of deep-frogged machined post great fire bricks would certainly indicate a post 1850 (or probably slightly later date), broadly contemporary with the known 1858/1859 construction of the Midlands Roundhouse. Finally, it was not possible to distinguish any difference by mortar and brick with the turntable or the exterior wall of the Roundhouse structure [155] suggesting that all were contemporary or very near contemporary.

### **Later Activity**

Later 19th to early 20th century features are restricted to an ancillary building [156] and some kiln brick paving [157]. The use of Craven kiln bricks manufactured in Wakefield from 1862 in the ancillary building [156] would certainly post date the 1858/9 construction of the Midlands Roundhouse, merely confirming the stratigraphic relationship between these two structures. Given that the Craven bricks (Yorkshire) would have been brought down by the Great

Northern Railway Company it is of interest to note whether or not the use of kiln bricks from this region in this building relates in any way to the documented "handing over of the keys" by the Midland to the Great Northern in 1868. The ancillary building was not depicted on the First Edition OS map of 1871 and its construction therefore is likely to be later than this date.

### Distribution

Context	Fabric	Form	Size	Date range of material		Latest dated material		Spot date
155	3032 3101	Deep frogged machine post great fire brick Soft light brown Roman/lime T2 mortar	1	1664	1900	1750	1900	1860-1900
156	3261 3101	KB1 CRAVEN stamp kiln brick T3 hard light grey Portland Mortar	2	1850	1950	1850	1950	1870-1910
157	3261 3101	unstamped KB3 soap kiln brick T3 hard light grey Portland Mortar	3	1850	1950	1850	1950	1870-1910
158	3032 3101	Deep frogged machine post great fire brick Soft light brown Roman/lime T2 mortar	2	1664	1900	1750	1900	1860-1900
159	3261 3101	Large cobble type KB2 kiln brick Soft light brown Roman/lime T2 mortar	2	1850	1950	1850	1900	1860-1900
160	3032 3101	Deep frogged machine post great fire brick Soft light brown	2	1664	1900	1750	1900	1860-1900

Context	Fabric	Form	Size	Date range of material		Latest dated material		Spot date
		Roman/lime T2 mortar						
164	3032 3101	Deep frogged machine post great fire brick Soft light brown Roman/lime T2 mortar	2	1664	1900	1664	1900	1860-1900
165	3032 3101	Deep frogged machine post great fire brick Soft light brown Roman/lime T2 mortar	2	1664	1900	1664	1900	1860-1900
166	3032 3101	Deep frogged machine post great fire brick Soft light brown Roman/lime T2 mortar	2	1664	1900	1664	1900	1860-1900
167	3032 3101	Deep frogged machine post great fire brick Soft light brown Roman/lime T2 mortar	2	1664	1900	1664	1900	1860-1900
168	3120	8 Millstone Grit Ashlar Slabs semicircular Turntable S	1	50	1950	50	1950	1850-1950
169	3032 3101	Base of stanchion block Deep frogged machine post great fire brick Soft light	1	1664	1900	1664	1900	1860-1900



Context	Fabric	Form	Size	Date range of material		Latest dated material		Spot date
		brown Roman/lime T2 mortar						
170	3032 3101	Deep frogged machine post great fire brick Soft light brown Roman/lime T2 mortar	2	1664	1900	1664	1900	1860-1900
171	3032 3101	Base of stanchion block  Deep frogged machine post great fire brick Soft light brown Roman/lime T2 mortar	1	1664	1900	1664	1900	1860-1900
173	3032 3101	Outer ring of turntable Deep frogged machine post great fire brick Soft light brown Roman/lime T2 mortar	2	1664	1900	1664	1900	1860-1900
174	3032 3101	Deep frogged machine post great fire brick Soft light brown Roman/lime T2 mortar	2	1664	1900	1664	1900	1860-1900
175	3032 3101	Deep frogged machine post great fire brick Soft light brown Roman/lime T2	2	1664	1900	1664	1900	1860-1900

Context	Fabric	Form	Size	Date range of material		Latest dated material		Spot date
		mortar						
179	3032 3101	Deep frogged machine post great fire brick Soft light brown Roman/lime T2 mortar	2	1664	1900	1664	1900	1860-1900
180	3032 3101 3115P	Brick stanchion Inner Column Base Deep frogged machine post great fire brick Soft light brown Roman/lime T2 mortar North Wales Slate upper surface – waterproofing	2	1664	1900	1664	1900	1860-1900
181	3032 3101	Drain Deep frogged machine post great fire brick Soft light brown Roman/lime T2 mortar	2	1664	1900	1664	1900	1860-1900
182	3032 3101	Engine Pit Deep frogged machine post great fire brick Soft light brown Roman/lime T2 mortar	2	1664	1900	1664	1900	1860-1900
183	3032	Deep frogged machine post great fire brick	2	1664	1900	1664	1900	1860-1900

Context	Fabric	Form	Size	Date range of material		Latest dated material		Spot date
	3101	Soft light brown Roman/lime T2 mortar						
184	3032 3101	Inner Brick Pillar Base Deep frogged machine post great fire brick Soft light brown Roman/lime T2 mortar	2	1664	1900	1664	1900	1860-1900
185	3120	Millstone Grit column Base hole in middle for Iron Support	1	50	1950	50	1950	1850-1950
186	3120	York stone column base Iron staining	1	200	1950	200	1950	1850-1950
201	3261 3101	Large cobble type KB2 kiln brick Soft light brown Roman/lime T2 mortar	1	1850	1950	1850	1950	1860-1900
206	3261 3101	Large cobble type KB2 kiln brick Soft light brown Roman/lime T2 mortar	1	1850	1950	1850	1950	1860-1900
207	3261 3101	Large cobble type KB2 kiln brick Soft light brown Roman/lime T2 mortar	2	1850	1950	1850	1950	1860-1900

Context	Fabric	Form	Size	Date range of material		Latest dated material		Spot date
209	3039 3032 3101	Early post medieval earthy bricks and Frogged post great fire brick course with pink brick cement	3	1450	1900	1750	1900	1830-1870
214	3032 3101	Deep frogged machine post great fire brick Soft light brown Roman/lime T2 mortar	2	1664	1900	1664	1900	1860-1900
216	3032 3101	Deep frogged machine post great fire brick Soft light brown Roman/lime T2 mortar	2	1664	1900	1664	1900	1860-1900

## Recommendations

### a) Retention

A majority of the bricks sampled have been discarded following assessment. However, representative examples of the construction and kiln brick with their mortars provide an idea of the materials used in the earliest (1858-1859) construction of the Midland Roundhouse.

### b) Significance

It is clear from the construction brick, kiln brick, stone and mortar types that the Midlands Roundhouse was essentially one large contemporary build. The types of mortar, brick (thick, machine, deep frog) are consistent with a mid to late 19th century date but are subtly different from materials used across the Eastern Goods Yard (KXI-07) in a couple of ways. First, the stamp, *JJ* so prominent at KXI-07 is absent as is (apart from some brick from an early soil feature [209]) the distinctive pink cement of the KXI-07 1850-1852 build. Whether these differences relate in some way to a different brick manufacturer or supplier for the construction materials of a Midland instead of a Great Northern structure as seems likely

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remains unconfirmed. The differences of course could relate to the slightly later construction date (1858/1859) of the Midlands Roundhouse. The use of kiln bricks from Yorkshire and Millstone Grit from this area for the column and turntable surface demonstrates the widespread availability of Coal Measure Construction Materials and the early (pre 1858/1859) links with this area via the Great Northern Railway.

The use of robust highly refractive Craven kiln bricks from Wakefield, rather than standard construction bricks just to build the later ancillary building [156] would indicate that this had an industrial purpose or some link with heavy engineering. This makes perfect sense given the later / continued use of these buildings as locomotive sheds and inspection pits.

This assessment forms just one part of our understanding of the building materials used in the King's Cross complex and as such should be incorporated into a future paper on 19th century building material use.

#### **Bibliography**

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Hayward, K.M.J. & Hughes, M. (in prep.) The application of ICP-AES as a means of sourcing the manufacture of unstamped kiln bricks: Case study: 19th century industrial development of the Govan/Rutherglen area.

Hayward, K.M.J. (in prep.) The role of geological materials from central Scotland in the construction and development of industrial and residential complexes of early-mid 19th century Strathclyde.



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## APPENDIX 4 OASIS FORM

OASIS ID: preconst1-130524

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### Project details

Project name King's Cross Central, Northern Area Blocks, Roundhouse Excavation

Short description of the project An archaeological excavation and watching brief took place at King's Cross Central in the Northern Area Blocks between the 12th of September and 7th of October 2011. These works revealed natural clay overlain by post-medieval made ground horizons dating to between 1630 and 1700. Sealing these layers was a horizon of burnt clay representing the formation level for the Midland Roundhouse which was erected between 1858 and 1859. This building was represented by an exterior wall, a ring drain, the central turntable, 4 inner column bases and 2 outer column bases. A total of 7 engine pits are believed to date to between 1860 and 1931. The roundhouse was demolished in 1931, an episode represented by demolition material.

Project dates Start: 12-09-2011 End: 07-10-2011

Previous/future work Yes / Yes

Any associated project reference codes KXR 09 - Sitecode

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Type of project	Recording project
Current Land use	Transport and Utilities 2 - Other transport infrastructure
Monument type	RAIL DEPOT Post Medieval
Significant Finds	POTTERY Post Medieval
Significant Finds	CBM Post Medieval
Investigation type	"Full excavation", "Watching Brief"
Prompt	Direction from Local Planning Authority - PPS

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### Project location

Country	England
Site location	GREATER LONDON CAMDEN CAMDEN King's Cross Central, Northern Area Blocks
Postcode	N1 0AZ
Study area	731.00 Square metres
Site coordinates	TQ 3003 8401 51 0 51 32 22 N 000 07 29 W Point
Height OD / Depth	Min: 22.50m Max: 24.55m

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### Project creators

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Name of Organisation	Pre-Construct Archaeology Limited
Project brief originator	King's Cross Central General Partner Ltd
Project design originator	Helen Hawkins
Project director/manager	Helen Hawkins
Project supervisor	Shane Maher

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### Project archives

Physical Archive recipient LAARC

Physical Contents "Ceramics"

Digital Archive recipient LAARC

Digital Contents "Ceramics", "Stratigraphic", "Survey"

Digital Media available "Spreadsheets", "Survey", "Text", "Database"

Paper Archive recipient LAARC

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Paper Contents "Ceramics", "Stratigraphic", "Survey"  
Paper Media "Context sheet", "Matrices", "Photograph", "Plan", "Report", "Section", "Survey  
available", "Unpublished Text"

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**Project  
bibliography 1**

Publication type Grey literature (unpublished document/manuscript)  
Title An archaeological excavation and watching brief at King's Cross Central,  
Northern Area Blocks, Roundhouse Excavation, King's Cross  
Central, Camden N1 0AZ  
Author(s)/Editor(s) Maher, S.  
Date 2012  
Issuer or publisher Pre-Construct Archaeology Limited  
Place of issue or publication Brockley

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Entered by Shane Maher (fmeddens@pre-construct.com)  
Entered on 17 July 2012

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## APPENDIX 5 CONTEXT INDEX

CONTEXT No	TYPE	AREA	PLANS	SECTIONS / ELEVATIONS	DESCRIPTION	PHASE
150	Masonry	Watching Brief	Watching Brief	N/A	Brick Drain	3b
151	Masonry	Watching Brief	Watching Brief	N/A	Masonry	3c
152	Masonry	Watching Brief	Watching Brief	151	Inspection Bay	3c
153	Layer	Watching Brief	Watching Brief	151, 152, 153, 154	Natural Clay	1
154	Layer	Watching Brief	Watching Brief	N/A	Mortar deposit	3c
155	Masonry	Excavation	Excavation GPS	N/A	Masonry	3b
156	Masonry	Excavation	Excavation GPS	N/A	Masonry	3c
157	Masonry	Excavation	Excavation GPS	N/A	Surface	3c
158	Masonry	Excavation	Excavation GPS	N/A	Engine Pit	3c
159	Masonry	Excavation	Excavation GPS	157	Surface	3c
160	Masonry	Excavation	Excavation GPS	157	Engine Pit	3c
161	Fill	Excavation	N/A	N/A	Backfill	4
162	Fill	Excavation	Excavation GPS	157	Backfill	3c
163	Cut	Excavation	Excavation GPS	157	Construction Cut	3c
164	Masonry	Excavation	Excavation GPS and [164]	155	Engine Pit	3c
165	Masonry	Excavation	Excavation GPS and [164]	155	Masonry	3c
166	Masonry	Excavation	Excavation GPS and [166]	N/A	Engine Pit	3c
167	Masonry	Excavation	Excavation GPS and [166]	N/A	Masonry	3c
168	Masonry	Excavation	Excavation GPS	N/A	Turntable	3b
169	Masonry	Excavation	Excavation GPS	N/A	Masonry	3c
170	Masonry	Excavation	Excavation GPS	N/A	Inspection Chamber	3c
171	Masonry	Excavation	Excavation GPS	N/A	Masonry	3c
172	Timber	Excavation	Excavation GPS	N/A	Timber Plank	3c
173	Masonry	Excavation	Excavation GPS	N/A	Turntable	3c

CONTEXT No	TYPE	AREA	PLANS	SECTIONS / ELEVATIONS	DESCRIPTION	PHASE
174	Masonry	Excavation	Excavation GPS	N/A	Engine Pit	3c
175	Masonry	Excavation	Excavation GPS	N/A	Engine Pit	3c
176	Fill	Excavation	Excavation GPS	N/A	Levelling	3c
177	Metal	Excavation	Excavation GPS and [166]	N/A	Inspection Chamber	3c
178	Metal	Excavation	Excavation GPS and [164]	N/A	Inspection Chamber	3c
179	Masonry	Excavation	Excavation GPS	N/A	Engine Pit	3c
180	Masonry	Excavation	Excavation GPS	N/A	Pillar Base	3c
181	Masonry	Excavation	Excavation GPS	N/A	Drain	3b
182	Masonry	Excavation	Excavation GPS	N/A	Inspection Chamber	3c
183	Masonry	Excavation	Excavation GPS and [164]	N/A	Engine Pit	3c
184	Masonry	Excavation	Excavation GPS	156	Pillar Base	3c
185	Masonry	Excavation	Excavation GPS	N/A	Pillar Base	3c
186	Masonry	Excavation	Excavation GPS	N/A	Pillar Base	3c
187	Layer	Excavation	N/A	156	Floor make up deposits	3c
188	Layer	Excavation	N/A	156	Thin Sandy Working Surface	3b
189	Layer	Excavation	N/A	156	Red Crush Levelling	3a
190	Layer	Excavation	N/A	156	layer	2
191	Layer	Excavation	N/A	156	Dump Layer	2
192	Layer	Excavation	N/A	156	layer	2
193	Layer	Excavation	N/A	156	layer	2
194	Layer	Excavation	N/A	156	Natural Clay	1
195	Fill	Excavation	N/A	156	Backfill	3c
196	Cut	Excavation	N/A	156	Construction Cut	3c
197	Fill	Excavation	N/A	156	Backfill	4
198	Cut	Excavation	N/A	156	Unknown Cut	4
199	Layer	Excavation	N/A	N/A	Dump Layer	4
200	VOID	VOID	VOID	VOID	VOID	Void

CONTEXT No	TYPE	AREA	PLANS	SECTIONS / ELEVATIONS	DESCRIPTION	PHASE
201	Masonry	Excavation	Excavation GPS and [164]	N/A	Surface	3c
202	Cut	Excavation	N/A	157	Construction Cut	3c
203	Fill	Excavation	N/A	157	Concrete	3c
204	Fill	Excavation	N/A	157	Backfill	3c
205	Concrete	Excavation	Excavation GPS	N/A	Turntable	3c
206	Masonry	Excavation	Excavation GPS and [166]	N/A	Surface	3c
207	Masonry	Excavation	Excavation GPS and [166]	N/A	Surface	3c
208	Fill	Excavation	N/A	N/A	Backfill	4
209	Layer	Excavation	N/A	157	Brickfield clay	2
210	Fill	Excavation	N/A	157	Backfill	3c
211	Fill	Excavation	N/A	157	Floor make up deposits	3c
212	Fill	Excavation	N/A	157	Floor make up deposits	3c
213	Fill	Excavation	N/A	157	Floor make up deposits	3c
214	Masonry	Excavation	Excavation GPS	N/A	Floor make up deposits	3c
215	Fill	Excavation	N/A	N/A	Backfill	4
216	Masonry	Excavation	Excavation GPS	N/A	Engine Pit	3c
217	Pipe	Excavation	Excavation GPS	N/A	Metal Pipe	4
218	Cut	Excavation	Excavation GPS	N/A	Construction Cut	4
219	Layer	Excavation	N/A	157	Floor make up deposits	3c
220	Layer	Excavation	Excavation GPS	N/A	Natural clay	1
221	Pipe	Excavation	Excavation GPS	N/A	Metal Pipe	3c
222	VOID	VOID	VOID	VOID	VOID	VOID
223	VOID	VOID	VOID	VOID	VOID	VOID
224	VOID	VOID	VOID	VOID	VOID	VOID
225	Fill	Watching Brief	N/A	151	Backfill	4
226	Fill	Watching Brief	N/A	151	Backfill	4
227	Layer	Watching Brief	N/A	151	Redep clay	2
228	Layer	Watching Brief	N/A	151	Redep clay	2

CONTEXT No	TYPE	AREA	PLANS	SECTIONS / ELEVATIONS	DESCRIPTION	PHASE
229	Fill	Watching Brief	N/A	152	Backfill	4
230	Fill	Watching Brief	N/A	152	Backfill	4
231	Masonry	Watching Brief	Watching Brief	152	Inspection Bay	3c
232	Masonry	Watching Brief	N/A	152	Masonry	3c
233	Layer	Watching Brief	N/A	152	Redep clay	3c
234	Layer	Watching Brief	N/A	152	Redep clay	3c
235	Layer	Watching Brief	N/A	153	Dump Layer	4
236	Layer	Watching Brief	N/A	153	Concrete	4
237	Layer	Watching Brief	N/A	153	Levelling	4
238	Masonry	Watching Brief	N/A	153	Brickwork	3c
239	Layer	Watching Brief	N/A	154	Levelling	4
240	Layer	Watching Brief	N/A	154	Levelling	4
241	Layer	Watching Brief	N/A	154	Levelling	3c
242	Layer	Excavation	Excavation GPS Excavation GPS and [164]	N/A	Natural Clay	1
243	Layer	Excavation	Excavation GPS and [166]	N/A	Floor make up deposits	3c
244	Fill	Excavation	Excavation GPS and [166]	N/A	Floor make up deposits	3c

# PCA

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