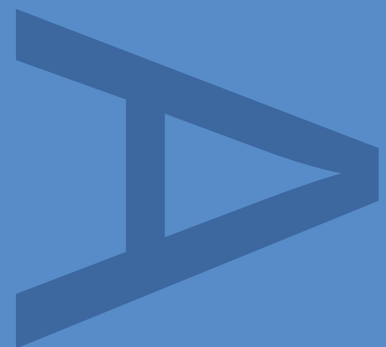


**BUILT HERITAGE
RECORDING OF THE
REMAINS OF A RAILWAY
VIADUCT, KINGS MALL CAR
PARK, GLENTHORNE ROAD,
LONDON BOROUGH OF
HAMMERSMITH AND
FULHAM**

SITE CODE: KMV14

PCA REPORT NO: R11656



**Built Heritage Recording of the Remains of a Railway Viaduct, Kings Mall Car Park,
Glenthorne Road, London Borough of Hammersmith and Fulham**

Written by Adam Garwood

Site Code: KMV14

Project Manager: Charlotte Matthews

Commissioning Client: CgMs Consulting Limited on behalf of St George PLC

Central Ordnance Survey National Grid Reference: TQ 23164 78612

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PCA Report Number: R11656

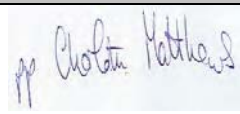
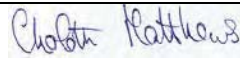
DOCUMENT VERIFICATION

REMAINS OF A RAILWAY VIADUCT,
KINGS MALL CAR PARK, GLENTHORNE ROAD,
LONDON BOROUGH OF HAMMERSMITH AND
FULHAM

BUILT HERITAGE RECORDING

Quality Control

Pre-Construct Archaeology Limited	
Project Number	K3432
Report Number	R11656

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1 NON-TECHNICAL SUMMARY

- 1.1.1 Pre-Construct Archaeology Limited was commissioned by CgMs Consulting Limited on behalf of St George PLC to undertake built heritage recording of a small section of a redundant 19th century railway viaduct, adjacent to Kings Mall Car Park, Glenthorne Road, London Borough of Hammersmith and Fulham, prior to its demolition.
- 1.1.2 The work was carried out in response to planning conditions (33 and 34) imposed by the Local Planning Authority (London Borough of Hammersmith and Fulham) on the planning permission 2012/03546/FUL and on the advice of the Greater London Archaeological Advisory Service (GLAAS). The proposed development involves the demolition of the existing West 45 office building, Kings Mall Car Park and small section of railway viaduct, and the redevelopment of the site with a single building to provide a replacement public car park, commercial floor-space and new homes.
- 1.1.3 The viaduct was originally constructed in 1869 as part of the London and South Western Railway (LSWR) Kensington to Richmond line. The route went from Turnham Green to Grove Road Station (Hammersmith) and on to stations at Shepherds Bush and Addison Road, Kensington. The viaduct lay to the east of the Studland Road Junction (by Ravenscourt Park) and provided the elevation needed to cross Beadon Road and Grove Road on the approach to LSWR's station at Hammersmith Grove Road.

2 INTRODUCTION

2.1 Background

- 2.1.1 Pre-Construct Archaeology Limited was commissioned by CgMs Consulting Limited on behalf of St George PLC to undertake built heritage recording of a small section of a redundant 19th century railway viaduct, adjacent to Kings Mall Car Park, Glenthorne Road, London Borough of Hammersmith and Fulham, prior to its demolition.
- 2.1.2 The work was carried out in response to archaeological planning conditions (33 and 34), imposed by the Local Planning Authority (LPA), the London Borough of Hammersmith and Fulham, on the planning permission 2012/03546/FUL.
- 2.1.3 The built heritage recording was undertaken in accordance with a Written Scheme of Investigation (WSI) agreed in advance of the work with Gillian King, the Greater London Archaeological Advisor to the Local Planning Authority (Garwood, 2014). The works are in accordance with National Planning Policy Guidance, specifically National Planning Policy Framework (2012) and the LPA's policy towards built heritage and archaeology (Policy EN7 of the Unitary Development Plan and Policy BE1 of the Core Strategy).

2.2 Site Location

- 2.2.1 The remains of the viaduct are located within a site currently occupied by Kings Mall Car Park and the West 45 Office Block on Glenthorne Road, Hammersmith, W6. The remains are centred on Ordnance Survey National Grid Reference TQ 23164 78612 (**Figures 1 and 2**). The proposed development area is approximately 1.04 hectare (ha) in size and is located close to Hammersmith Broadway. It is bounded by the Piccadilly and District London Underground Lines to the south, Glenthorne Road to the north, Leamore Street to the west and Beadon Road to the east. Whilst the site does not contain any nationally designated heritage assets, the remains of the viaduct are regarded as a local heritage asset. Although it does not lie within a Conservation Area, the site is situated to the east and adjacent to the Bradmore Conservation Area and borders the King Street Archaeological Priority Area to the west.
- 2.2.2 The site lies within the parish of Hammersmith which historically lay within the county of Middlesex prior to its absorption into the administration of the London Borough of Hammersmith and Fulham. The topography of the site is generally flat with ground levels skirting the buildings on the site at between c.3.75m OD and c.4.5m OD. The wider area surrounding the site slopes gently down to the south and to the River Thames.

3 PLANNING BACKGROUND

3.1 Introduction

- 3.1.1 National legislation and guidance relating to the protection of historic buildings and structures within planning regulations is defined by the provisions of the *Town and Country Planning Act 1990*. In addition, local planning authorities are responsible for the protection of the historic environment within the planning system and policies for the historic environment are included in relevant regional and local plans.

3.2 Legislation and Planning Guidance

- 3.2.1 Statutory protection for historically important buildings and structures is derived from the *Planning (Listed and Conservation Areas) Act 1990*. Guidance on the approach of the planning authorities to development and historic buildings, conservation areas, historic parks and gardens and other elements of the historic environment is provided by the National Planning Policy Framework (NPPF), which was adopted on 27 March 2012 and Planning Policy Statement 5 (PPS5) Historic Environment Planning Practice Guide (2010).
- 3.2.2 Historic buildings are protected through the statutory systems for listing historic buildings and designating conservation areas. Listing is undertaken by the Secretary of State; designation of conservation areas and locally listed buildings is the responsibility of local planning authorities. The historic environment is protected through the development control system and, in the case of historic buildings and conservation areas, through the complementary systems of listed building and conservation area control.
- 3.2.3 The proposed development approved under planning permission 2012/03546/FUL involves the demolition of the existing West 45 Office Building, 950 space public car park (Kings Mall Car Park) and a small section of railway viaduct, and the redevelopment of the site with a single building with heights ranging from 4 to 17 storeys, plus 2 basement levels, to provide a mixed use development comprising a 700 space replacement public car park, 529 square metres of ground floor commercial floor-space (use classes A1-A4, D1 and D2) and 418 new homes, with associated hard and soft landscaping, private open space, vehicular accesses and servicing facilities, residential parking (53 spaces), and cycle parking (460 spaces).
- 3.2.4 Gillian King, English Heritage Greater London Archaeological Advisor to the London Borough of Hammersmith and Fulham, has requested that the remains of the viaduct are recorded at English Heritage (2006) Level 2. The relevant conditions attached to the consented scheme (Planning ref: 2012/03546/FUL) state:

Condition 33

A) No development shall take place until the applicant 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 in writing.

B) No development or demolition shall take place other than in accordance with the WSI approved under part (A)

C) The development shall not be occupied until the site investigation and post excavation assessment has been completed in accordance with a programme set out in the WSI under part (A) and the provision made for the analysis, publication and dissemination of the results and archive deposition.

Reason: To ensure that the archaeological heritage of the application site is properly investigated in accordance with Policy EN7 of the Unitary Development Plan and the NPPF (Chapter 12)

Condition 34

No development shall commence until a full photographic survey of the application site, including the buildings to be demolished, has been completed and copies submitted to the county archivist

Reason: To record the historic interest of the site in accordance with Policy BE1 of the Core Strategy

4 METHODOLOGY

4.1 Aims and Objectives

4.1.1 The objectives of the built heritage recording as set out in the Written Scheme of Investigation (Garwood, 2014) were to compile a record of the remains of the viaduct prior to their demolition. The purpose of the project was to record the viaduct and understand its historical background. This record was to accord with those requirements defined by an English Heritage Level 2 survey. The aim was to provide a better understanding of the structure, to compile a lasting record and to provide a review of its local and regional historical context. In addition the objective was to produce a high quality, fully integrated archive suitable for long-term deposition.

4.2 Documentary Research

4.2.1 A search of relevant primary sources was carried out at the Hammersmith and Fulham Archives and Local History Centre. The results of historical research are provided in Section 5 of this report.

4.3 On-Site Recording

4.3.1 The built heritage recording of the viaduct was carried out prior to demolition works on the 27th February 2014. Survey drawings of the north and south elevations of the viaduct and a topographical survey of the site showing the viaduct in plan by E.L.S. Land Consultants Limited (August 2011) were provided by the CgMs Consulting. These surveys were annotated on site with relevant historic details and used as a basis for the illustrations in this report (**Figures 9 to 11**).

4.3.2 A photographic survey comprising high resolution digital images was carried out to record the external elevations of the viaduct and any significant features. A selection of the photographs is included in this report (**Plates 1 to 12**). **Figure 9** shows the location and direction of these photographs.

4.4 Project Archive

4.4.1 The project archive is currently held at the offices of Pre-Construct Archaeology Limited in Brockley, London, under the site code KMV14. It is anticipated that the archive (copies of the report, drawings and photographs) will be lodged with the LAARC (London Archaeological Archive and Research Centre) in due course. The report will be submitted to CgMs Consulting, the Client, English Heritage (GLASS), GLHER (Greater London Historic Environment Record) and the London Borough of Hammersmith and Fulham.

4.5 Guidance

4.5.1 All works were undertaken in accordance with standards set out in:

- Association of Local Government Archaeological Officers (1997) *Analysis and Recording for the Conservation and control of works to historic buildings*
- British Archaeologists and Developers Liaison Group (1986) *Code of Practice*
- British Standards Institution (1998) *Guide to the Principals of the Conservation of Historic Buildings (BS 7913)*
- English Heritage (2000) *The presentation of historic building survey in CAD*
- English Heritage (Clark, K.) (2001) *Informed Conservation: Understanding historic buildings and their landscapes for conservation,*
- English Heritage (2006) *Understanding Historic Buildings: A Guide to Good Recording Practice*
- English Heritage Greater London Archaeological Advisory Service (2009)

Standards for Archaeological Work. External Consultation

- IfA (1996, revised 2001 and 2008) *Standards and guidance for the archaeological investigation and recording of standing buildings or structures*

5 HISTORICAL BACKGROUND

5.1 The London and South Western Railway

5.1.1 The London and Southampton Railway opened its main line between London and Southampton progressively from 1838, completing the route on 11 May 1840 with its London terminal at Nine Elms (to the south-west of Waterloo Station). It soon changed its name to the London and South Western Railway (LSWR) and was immediately successful, especially for passenger traffic, and quickly extended south-west and west to Gosport, Dorchester and Salisbury. At the same time it energetically developed its suburban branch lines towards Richmond, Windsor and Epsom (Williams, 1968). The LSWR opened its line from Nine Elms to Richmond on 27 July 1846 with stations along its route at Wandsworth, Putney, Barnes and Mortlake.

5.1.2 Nine Elms station was never intended to be a permanent London terminal, and in 1845 the LSWR obtained powers to extend eastwards to a new terminal station, called Waterloo Bridge, from its proximity to the river crossing (its name changing to the more familiar Waterloo in 1886). After the extension to Waterloo Bridge in 1848, the Company had at last got a terminal reasonably close to the commercial areas of London.

5.2 Kensington to Richmond Branch

5.2.1 The North and South Western Junction Railway (NSWJR) opened a short railway line in 1853 connecting Willesden on the London and North Western Railway line with Brentford (actually Kew Junction) on the LSWR line.

5.2.2 In the 1860s, numerous new schemes were promoted for railways to reach Richmond, and the LSWR and the North and South Western Junction Railway (NSWJR) were worried that their dominance in this area would vanish. After much wrangling, the LSWR obtained an Act on 14 July 1864 for a line from the north end of Kensington through Hammersmith to Richmond. The West London Extension Railway line had opened in 1863, connecting to the LSWR line at Clapham Junction, where it faced east towards Richmond. The LSWR had subscribed one-sixth of the capital cost of the new line, which was operated as a joint line (Brown, 2010). In 1863 the east facing spur to West London Junction (a station to the south-east of Willesden Junction) opened, giving direct access from Waterloo to Kensington. Kensington station had been slightly relocated, considerably expanded, and renamed Kensington, Addison Road (White, H. 1963). As a minority partner in the West London Extension Railway, the LSWR's right to run north of Kensington, even for a few hundred yards, was contentious. This Bill had been hastily prepared and further Acts were obtained in 1865, 1866 and 1867 making a number of improvements.

5.2.3 The LSWR's new route opened on 1 January 1869 from Richmond Junction, which lay between Kensington (Addison Road) Station and Shepherds Bush (Uxbridge Road) Station on the West London Joint Railway (WLJR) line. The new LSWR line turned north-west to LSWR's Shepherds Bush Station and then south to LSWR's Hammersmith (Grove Road) Station (**Figure 3**). This part of the line ran parallel with the Hammersmith and City Railway (H&CR) line. The new LSWR line then turned west (on the viaduct which is the subject of this report; **Figure 4**) along the alignment that is now followed by the Piccadilly and District lines from Hammersmith to Ravenscourt Park and Turnham Green. Trains then turned south-west through Brentford Road Station (now called Gunnersbury), crossing the Thames, to Richmond. A short spur was also opened from Acton Junction (later known as South Acton Junction) on the North and South Western Junction Railway line to a junction at Brentford Road, giving the North London Railway (NLR) direct access to Richmond.

5.2.4 The LSWR station at Grove Road (Hammersmith), just to the north-east of the site, also opened on 1 January 1869. This station was built on the eastern side of Grove Road and on a curving viaduct that is the same viaduct that is the subject of this report. The station was built with two platforms and a two storey brick built entrance

building. A covered footbridge connected it to Hammersmith Station on the H&CR line and to the south-west a lattice girder bridge, carried the line across Grove Road and on towards Studland Road Junction (to the south-west). This bridge was demolished in c.1954.

- 5.2.5 A new spur was opened from south of Brentford Road to the LSWR Brentford line, referred to as 'The Chiswick Curve' and also a connection was made at Hammersmith with the Hammersmith & City Railway; these probably opened on 1 June 1870. The LSWR now ran trains from Waterloo to Richmond via Kensington (Addison Road) and Hammersmith, and also from Ludgate Hill to Richmond (Williams, R.A, 1968).
- 5.2.6 In addition to North London trains from Broad Street in the City of London, there were soon (from 1 June 1870) Great Western Railway trains arriving from Bishops Bridge Road via the Hammersmith & City Railway. In 1875 the Metropolitan District Railway made a short connection westward from its Hammersmith station to the LSWR line at Studland Road Junction enabling its trains to reach Richmond. This forms the present-day Hammersmith to Richmond section of the District Line. Trains started running on this line on 1 June 1877. This line is not shown on the 1871 Ordnance Survey map but is shown on the 1894-96 Ordnance Survey map with the label 'Metropolitan District Railway Richmond Extension' (**Figures 4 and 5**).
- 5.2.7 Loss of traffic to street tramways was increasingly felt at the turn of the century, due to their convenience, frequency and cheap fares. Coupled with competition from the electrified Metropolitan District Railway (MDR) and London and North Western Railway (LNWR), this led to loss of traffic and a loss-making operation on the more indirect LSWR routes, such as the Richmond service via Kensington and Hammersmith, and the Ludgate Hill service via Streatham.
- 5.2.8 The LSWR service was never electrified and relied on steam until its closure in 1916. On the 3rd June 1916 all LSWR services over the Kensington to Richmond line, including the stations at Shepherds Bush, Grove Road and northern platforms at Turnham Green, were closed. The track remained in place between Turnham Green and Kingston until 1926 and up until the Southern Railways Board authorised the recovery of the permanent way (Disused Stations website). The tracks are shown on the 1921 Ordnance Survey map (**Figure 6**).
- 5.2.9 At the grouping of the railways in 1922, the LSWR was absorbed into the Southern group, which became the Southern Railway. On 10th June 1926 a new agreement was made between the MDR, Southern Railway and the London Electric Railway. The London Electric and Metropolitan District Railway Companies Act authorised the underground companies to take over and electrify the disused pair of LSWR tracks to the west of the viaduct that is the subject of this report which ran towards Ravenscourth Park and Turnham Green. These two tracks were linked to a new pair of east-west tracks, which were laid on each side of the viaduct to the south of the site. In addition, the viaduct was rebuilt just to the west of the viaduct remains within the site in order to form a bridge over the track on the north side of the viaduct so that it could pass under the viaduct and on to Hammersmith Station (**Plate A**). This new pair of railway tracks is not shown on the 1921 Ordnance Survey map but is shown on the 1951 Ordnance Survey map (**Figures 6 and 7**). The Piccadilly line from Hammersmith to South Harrow opened in 1932 and the viaduct alterations therefore date between 1926 and 1932.
- 5.2.10 The viaduct to Grove Road Station was fully restored over the northernmost line, so that if required, it could carry tracks (**Plate A**). However any speculation about the future use of this section of the old Kensington to Richmond line, were dispelled in 1937, when a block of flats was built across the alignment of LSWR's Shepherds Bush Station and again around 1950 when an office block was constructed across the line at LSWR's Hammersmith (Grove Road) Station. The lattice railway bridge which crossed Grove Road was demolished around 1954 and it is thought that the Hammersmith (Grove Road) Station was also demolished at this time or slightly beforehand.

5.3 Cartographic Evidence

- 5.3.1 The first map to show the viaduct in detail is the First Edition 25 inch Ordnance Survey map of 1871 (**Figure 4**). This shows the railway line and the familiar curve of the viaduct turning north-east towards the station at Hammersmith Grove Road labeled as 'London and South-Western Railway'. The line crossed Bradmore Lane (later called Beadon Road). The line thereafter crossed Grove Road to the station and then continued north to LSWR's Shepherds Bush Station. It is noticeable that the present route of the Piccadilly and District Lines to the south of the site (connecting Hammersmith Station MDR with the LSWR line) has yet to be completed. The area around the site is mainly undeveloped at this date with open fields and gardens.
- 5.3.2 The second edition Ordnance Survey map of 1894 graphically shows the urban development of the area that took place by the end of the 19th century (**Figure 5**). The site is no longer open fields but is densely built with streets of terraced houses set perpendicular to the railway and viaduct. The viaduct has changed little and the station at Grove Road is still in active use by LSWR. The Metropolitan District Line to the south has been constructed by this date (by 1877 in fact) and linked into the LSWR at the Studland Road Junction. A single tramway is shown running along Beadon Road and continuing along Glenthorne Road to the north of the site.
- 5.3.3 The third edition Ordnance Survey map of 1914 (not illustrated) shows very little difference to that depicted on the previous edition. Grove Road Station is still in use and owned by the LSWR and the general residential character of the area remains the same. The tramways along Beadon and Glenthorne Road have increased to two lines running parallel along the roads, only narrowing to a single track to pass below the viaduct as it crosses over Beadon Road.
- 5.3.4 The Ordnance Survey map extract of 1921 (**Figure 6**) shows little difference to that depicted on the previous map except that the tramways along Beadon and Glenthorne Road have been removed.
- 5.3.5 The 1:2500 Ordnance Survey map extract of 1951 (**Figure 7**) clearly depicts the viaduct as 'Disused' and no longer shows the LSWR tracks along it. Following the disuse of the viaduct and Grove Road Station, a pair of tracks was added to the north side of the Metropolitan District line. The 1951 map shows a new track immediately to the north of the viaduct and the other immediately to the south. The northernmost one loops under the viaduct on route to the MDR station at Hammersmith, where the viaduct starts to curve north-east to the Hammersmith (Grove Road) Station (**Plate A**). This resulted in the reconstruction of this part of the viaduct to facilitate the underpass in the 1920s. The concrete beam section of the viaduct immediately to the west of the remains of the viaduct within the site marks this alteration. The viaduct is still extant in 1951 and crossed Beadon Road to the east of the site and continued to the site of Grove Road Station. This station appears to have been demolished by this date and buildings have been constructed along the railway line and in the area of the station.
- 5.3.6 The 1:2500 Ordnance Survey map extract of 1976 (not illustrated) shows a considerable change in the character of the area with the demolition of the Victorian terraced houses within the site boundary and the western half of the site is labeled as 'Under Development'. This map also shows that the section of viaduct over and to the east of Beadon Road had by this date been removed.
- 5.3.7 The 1:2500 Ordnance Survey map extract of 1987 (**Figure 8**) shows that by this date the current Kings Mall Car Park had been built with its north-south link footbridges over the viaduct and east-west tracks immediately to the south of the site. The present West 45 office building, which was constructed during the early part of the 1980s, is also shown in the eastern part of the site. The viaduct within the site has been cut back to its present extent. This presumably took place in the early 1980s when the eastern part of the site was developed.

6 DESCRIPTION OF THE REMAINS OF THE VIADUCT

6.1 Introduction

- 6.1.1 The following descriptive text provides objective information on the remains of the redundant railway viaduct within the site at the time of the survey (27th February 2014). Interpretations about the phasing of the structure are based upon information gathered during the fieldwork, analysis of the historic fabric and documentary information.
- 6.1.2 The length of viaduct within the site boundary and the focus of the built heritage recording comprised an arch of the 1869 viaduct that formed the easternmost remaining bay of the extant viaduct and the north elevation of the rebuilt 1920s section to the immediate west. Inspection of the viaduct to the south was restricted by the route of the Piccadilly and District lines, which ran parallel to the site's boundary without any safe access (**Figure 9**). At the time of the survey, access within the site was also limited by the Health and Safety constraints of the demolition of the buildings on the site and to a lesser extent the location of a large static generator and some rubbish bins. Accordingly many of the photographs were taken from an acute angle and ground level or from the second or third storey of the adjacent office building (West 45).

6.2 General Description

- 6.2.1 The viaduct lies between the Studland Road Junction, just east of Ravenscourt Park and Studland Road, north of the District line and to the south-west of the former Hammersmith Grove Road Station. For the most part the viaduct runs parallel with the Piccadilly and District lines before curving north and east to cross Beadon Road and Grove Road, on route to Hammersmith Grove Road Station and the loop to Shepherds Bush Station. The viaduct across Beadon Road, the Bridge over Grove Road, Grove Road Station and the former LSWR rail loop to Shepherds Bush Station and onto Kensington Addison Road Station, have all been demolished and their sites redeveloped. Today only the stretch of viaduct that lies to the east of Studland Road junction, to the south of the Kings Mall Car Park and Office Block West 45 and to the west of the Beadon Road, remains.
- 6.2.2 The viaduct has long since been redundant and now survives as a monument to the former LSWR railway and local railway heritage. The integrity of the structure has been compromised with the loss of its eastern approach to Grove Road Station and along its length, particularly in the area adjacent to the south-east corner of Kings Mall Car Park, where a significant length of the viaduct has been rebuilt in the 1920s, partly in concrete and brick, to enable a new track to pass below it (**Plates 3 and 4**). This length of the viaduct extends for eight bays in total and includes a three bay area where the concrete track bed has been removed, leaving just the brick piers standing and a five bay section, 'book-ended' by original single bay sections. The area of later rebuilding, which is concentrated towards the eastern end of the remaining viaduct, is also crossed by the easternmost of two 1980s link bridges which span the railway tracks to connect the Kings Mall Car Park with buildings fronting Kings Street to the south (**Figure 8**). The rebuilt section is clearly a departure from the traditional construction of a series of in-line brick arches and comprises a simpler construction of concrete bridging beams set onto brick piers and cross walls. The viaduct returns to its original arched form at its easternmost remaining end, with the remains of a single arched bay, though this bay only comprises part of the full arch, the north-eastern pier and north wall cut back and removed to enable access to the rear of West 45 (**Plates 1 and 2**). All that remains of the easternmost arched bay is a 2.8m wide section along the southern side, including the blocked up arch vault and part of the cut back eastern pier.
- 6.2.3 The proposed development includes the removal of a short length (c.0.75m) of the eastern end of the remaining viaduct (**Figures 9 to 11; Plate 6**). This truncation is clearly within an area already much compromised by alterations described above, but

will impact upon the historic fabric of the original structure.

6.3 South Elevation of the Eastern End Bay of the Viaduct (Figure 10)

- 6.3.1 At the time of the recording, the original viaduct arch was clearly visible within the south-facing elevation, despite later alterations and blocking (**Plate 5**). The eastern half of the viaduct arch was still extant with a brick voussoir of four courses of brick-on-edge. The bricks for the main structure of the viaduct and the voussoir were the same London stocks, a mixture of red, pale red-pink and yellowish bricks measuring on average between 220-225mm x 60-65mm x 105mm. The brickwork was laid in English Bond and held using a firm lime rich mortar. The very base of the arch voussoir to the next opening (mainly removed) to the east was present close to the truncated end (**Plate 6**). This arch took the same form as that described already, springing from the same level with a four course voussoir. An impost brick band of four courses was present just below the arch springing (2.2m from ground level), extending north-south along what was the inner face of the west side of the removed arch to the east (**Plate 7**). This comprised a band of three plain bricks, with two over-sailing upper courses capped by a chamfered brick coping. A brick plinth of four brick courses deep and capped by a yellow brick chamfered brick coping was present along the base of the wall continuing for 2.8m north-south along the base of the arch to the point where the viaduct was formerly demolished.
- 6.3.2 The head of the voussoir of the western arch within the site was truncated to the west by the later insertion of a concrete lintel, which formed the bridging beam for the rebuilt track bed (**Plate 9**). This rebuilding also removed the original brick coping along the top of the wall, which similar to the impost banding, was stepped with over-sailing upper courses. The coping above the later lintel and to the west, was a facsimile built in the style of the original, but joined, on end, just above the junction of the voussoir and lintel.
- 6.3.3 All of the brickwork below the arch voussoir was a later brick blocking, comprised of hard yellow coloured stock bricks (210-215mm x 60mm x 100mm) laid in English Bond. The bricks exhibited signs of horizontal pressure markings and were not over-fired or burnt. They were laid in a hard cementitious mortar and most likely manufactured during the first half of the 20th century and part of the 1920s rebuilding works. A straight construction joint was present between the lower courses of later yellow brick blocking and the original arch wall. This joint (which showed that the pier between the arches measured 1.3m) disappeared higher in the wall and this part of the original arch pier had been rebuilt as part of the 1920s alteration and blocking works.
- 6.3.4 The blocking yellow brickwork continued to the west and returned north to form the structural walls below the 1920s (non-arched) rebuilt viaduct section and also forms the boundary wall along the south side of the site with the railway tracks beyond.

6.4 Cut Back North Elevation of the Eastern End Bay of the Viaduct (Figure 11)

- 6.4.1 Unlike the southern elevation, which though much altered still exhibited the structural remains of the arch, the northern elevation, as a consequence of the partial demolition and removal of the arch vault along the northern elevation, had been extensively rendered over to obscure the fractured brickwork left exposed following demolition (**Plate 8**). The remains survived to the full height of the vault.
- 6.4.2 The covering render was a sand based application applied to those areas directly affected by the demolition, i.e. the areas above and on each side of the arch vault and the upper wall sections (where the arch sprang from) of the truncated east facing elevations (**Plates 8 and 9**). This obscured all evidence of construction detail. The rear of the brick parapet wall to the viaduct along the southern edge was however not rendered and the make-up for the track bed had been removed exposing the top of the arch vault and base of the parapet wall (**Plate 8**). The arched opening on the northern side was blocked using shuttered concrete rather than the brickwork filling the opening on the other side.

6.5 Cut Back East Elevation of the Eastern End Bay of the Viaduct

- 6.5.1 The east facing end wall exhibited the same rendered treatment as used on the adjacent northern elevation (**Plates 10 and 11**). This was similarly applied to the area of wall impacted by demolition, i.e. the upper wall of the removed spandrel and track bed. The lower wall, up to the spring point was not rendered since this area was not disturbed by demolition. This part of the wall was constructed using the same type of 19th century stock bricks as described above (see south elevation) and also incorporated a stepped over-sailing impost band running along the base of the arch springing and a wall plinth with chamfered brick coping to the base of the wall. This plinth returned along the small stub of the north wall that remained, to be incorporated into the plinth of a later pier to the west. The stub of the original northern elevation (c.0.5m) wide also retained a small section of the western base of the arch voussoir.
- 6.5.2 To the west, the viaduct changes from the original arch vaulting to the 1920s concrete beam and pier construction (**Plate 12**). The structural change is immediate as the stub of the north elevation is clearly abutted by a later (1920s) brick pier added to strengthen and support the addition of the concrete bridging beam. Though the general brickwork of the pier is similar, the use of engineering bricks within the wall plinth of the pier, marks the point of change. Thereafter the next five bays to the west are all 1920s work, characterised by the square openings and concrete beam construction. The presence of a truncated concrete beam located at the top of the northern wall stub and at the same level as those beams to the west, demonstrates that although the original arched vaulting was retained, it was also considerably strengthened as part of the re-engineering works carried out to the viaduct to the west.

7 DISCUSSION AND CONCLUSIONS

- 7.1.1 Documentary evidence has confirmed that the viaduct was first built in 1869 by the London and South Western Railway as part of the construction of a new line between Richmond and Kensington. The viaduct lay to the east of the Studland Road junction and Ravenscourt Park Station. It was gracefully curved and gained height to the north-east as it approached LSWR's station at Hammersmith Grove Road. The LSWR line crossed over Beadon Road and Grove Road. The latter was via a lattice bridge. The LSWR line then continued northwards to the LSWR's station at Shepherds Bush and via a loop back south to Kensington, Addison Road, Station.
- 7.1.2 The viaduct remained in use throughout the late 19th century and early part of the 20th century until the LSWR service between Kensington to Richmond stopped in 1916. At this time Shepherds Bush Station, Grove Road Station and the northern platforms at Turnham Green were closed. This closure was brought about by the increasing competition from rival railway companies particularly the more direct and electrified services that the Metropolitan District Railway (MDR) and London and North Western Railway (LNWR) offered and the convenience, frequency and cheap fares provided by electrified trams.
- 7.1.3 Following the closure of the LSWR line from Kensington (Addison Road) to Turnham Green, an agreement was made in 1926 between the MDR, Southern Railway and the London Electric Railway to take over and electrify the disused former LSWR tracks along the northern side of the lines at Turnham Green and construct two new tracks, one on each side of the east west viaduct, in order to connect to Hammersmith Station to the east. Notably as part of these works the former LSWR viaduct to Grove Road Station was restored, so that if required, it could once again carry rail traffic along the disused loop to Kensington. However, these proposals were never implemented and by 1937 a block of flats had been built across the alignment of Shepherds Bush Station and around 1950 an office block was constructed across the line at Grove Road. The railway line crossed Beadon Road until the 1950s, when the bridge was demolished and the viaduct was cut back level with the western side of Beadon Road.
- 7.1.4 Today the viaduct represents the most visible remains of the Kensington to Turnham Green line, though 'ghosts' of the LSWR loop are still recognisable such as until recently to the north of Sulgrave Road, Minford Gardens and Sinclair Roads, though now it has been redeveloped for commercial and residential use.
- 7.1.5 The viaduct was typical of railway architecture of the period built robustly using London stock bricks with a track bed supported on a series of strong brick arches. The viaduct was a functional structure which appears to have changed little during its active lifetime, the principal alterations occurring after the closure of the LSWR line when it was restored with an eye to bringing it back into use. These works occurred during a programme initiated in 1926 and resulted in the eight bay section of brick pier and concrete beam bridge construction, and the construction of the two new northern tracks on each side of the viaduct, the northernmost one of which looped under the reconstructed viaduct on route to the MDR station at Hammersmith.
- 7.1.6 The proposal is to remove a length of c.0.75m of brickwork from the eastern end of the viaduct, though clearly impacting on original fabric, falls within an area already considerably compromised by earlier removal of the eastern end of the viaduct.

8 ACKNOWLEDGEMENTS

- 8.1.1 Pre-Construct Archaeology Limited would like to thank CgMs on behalf of St George PLC for commissioning the project. Thanks are given to the staff of the Hammersmith and Fulham Archives and Local History Centre for their help and assistance. The project was managed by Charlotte Matthews. The built heritage recording and report was completed by Adam Garwood. Pete Boyer obtained copies of the historic maps at Hammersmith and Fulham Archives and Local History Centre while Hayley Baxter prepared the illustrations.

9 BIBLIOGRAPHY

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www.disused-stations.org.uk/

Historic Cartographic Sources

1st Edition OS map of 1871

2nd Edition OS map of 1894

OS map of 1921

1:2500 OS map of 1951

1:2500 OS map of 1987

APPENDIX 1: OASIS FORM

OASIS ID: preconst1-175343

Project details

Project name	Viaduct Remains Kings Mall Car Park, Hammersmith
Short description of the project	Pre-Construct Archaeology Limited was commissioned by CgMs Consulting Limited on behalf of St George PLC to undertake built heritage recording of a small section of a redundant 19th century railway viaduct, adjacent to the Kings Mall Car Park, Glenthorne Road, London Borough of Hammersmith and Fulham, prior to its demolition. The work was carried out in response to planning conditions imposed by the Local Planning Authority (London Borough of Hammersmith and Fulham) on the planning permission for the demolition of the existing West 45 Office Building, Kings Mall Car Park and small section of railway viaduct, and the redevelopment of the site with a single building to provide a replacement public car park, commercial floor-space and new homes. The viaduct was originally constructed in 1869 as part of the London and South Western Railway (LSWR) Kensington and Richmond line. The route went from Turnham Green to Grove Road Station (Hammersmith) and on to stations at Shepherds Bush and Addison Road, Kensington. The viaduct lay to the east of the Studland Road Junction (by Ravenscourt Park) and provided the elevation needed to cross Beadon Road and Grove Road on the approach to LSWR's railway station at Hammersmith Grove Road.
Project dates	Start: 27-02-2014 End: 27-02-2014
Previous/future work	No / Not known
Any associated project reference codes	KMV14 - Sitecode
Type of project	Building Recording
Current Land use	Other 3 - Built over
Monument type	RAILWAY VIADUCT Post Medieval
Significant Finds	NONE None
Methods & techniques	"Annotated Sketch","Photographic Survey","Survey/Recording Of Fabric/Structure"
Prompt	Planning condition

Project location

Country	England
Site location	GREATER LONDON HAMMERSMITH AND FULHAM HAMMERSMITH Kings Mall Car Park
Postcode	W6 0QB
Study area	0 Square metres
Site coordinates	TQ 23164 78612 51.4925240094 -0.225683875778 51 29 33 N 000 13 32 W Point

Project creators

Name of Organisation	Pre-Construct Archaeology Limited
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Project brief originator CgMs Consulting
Project design originator Adam Garwood
Project director/manager Charlotte Matthews
Project supervisor Adam Garwood
Type of sponsor/funding body Developer
Name of sponsor/funding body St George Plc

Project archives

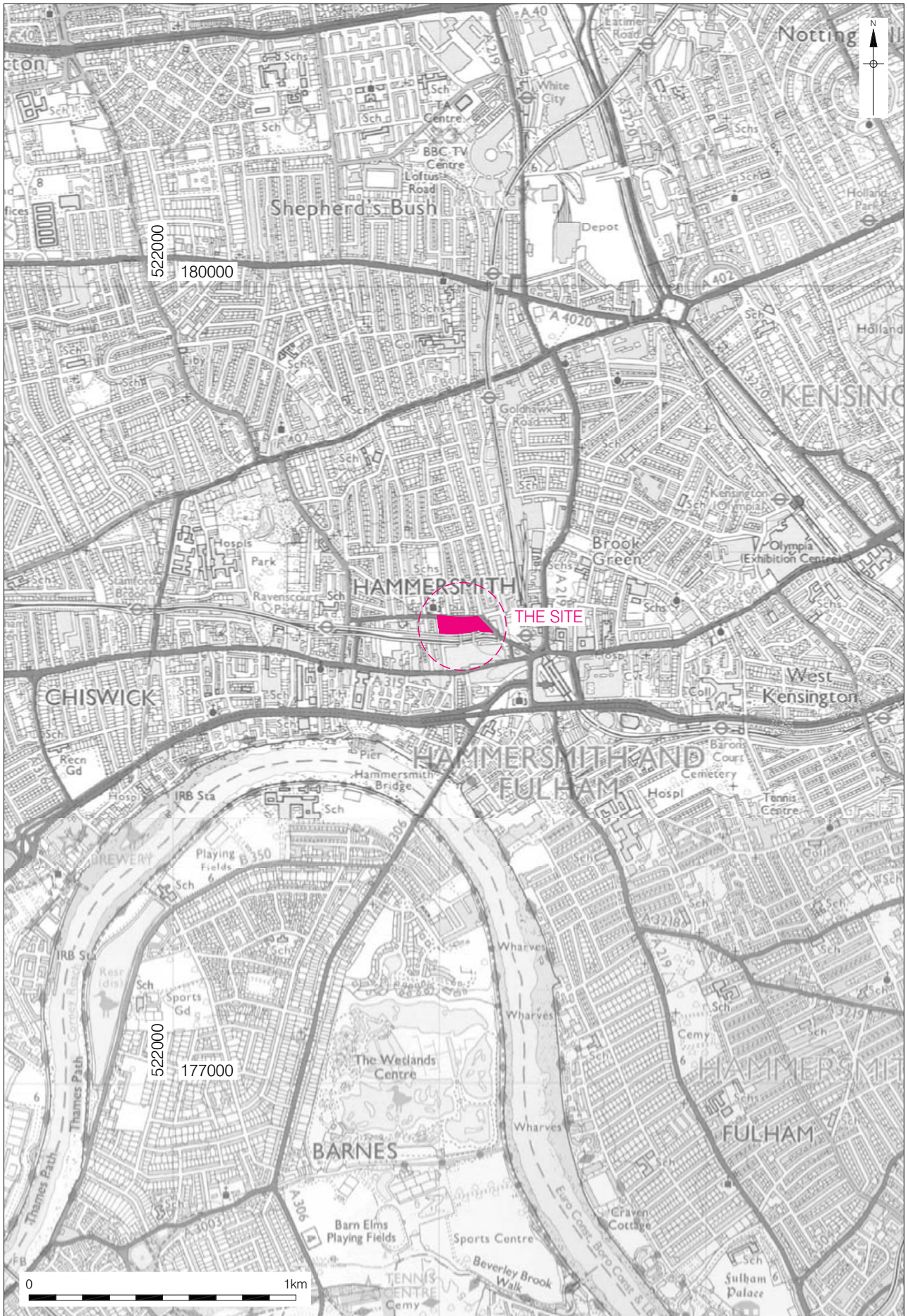
Physical Archive Exists? No
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Project bibliography

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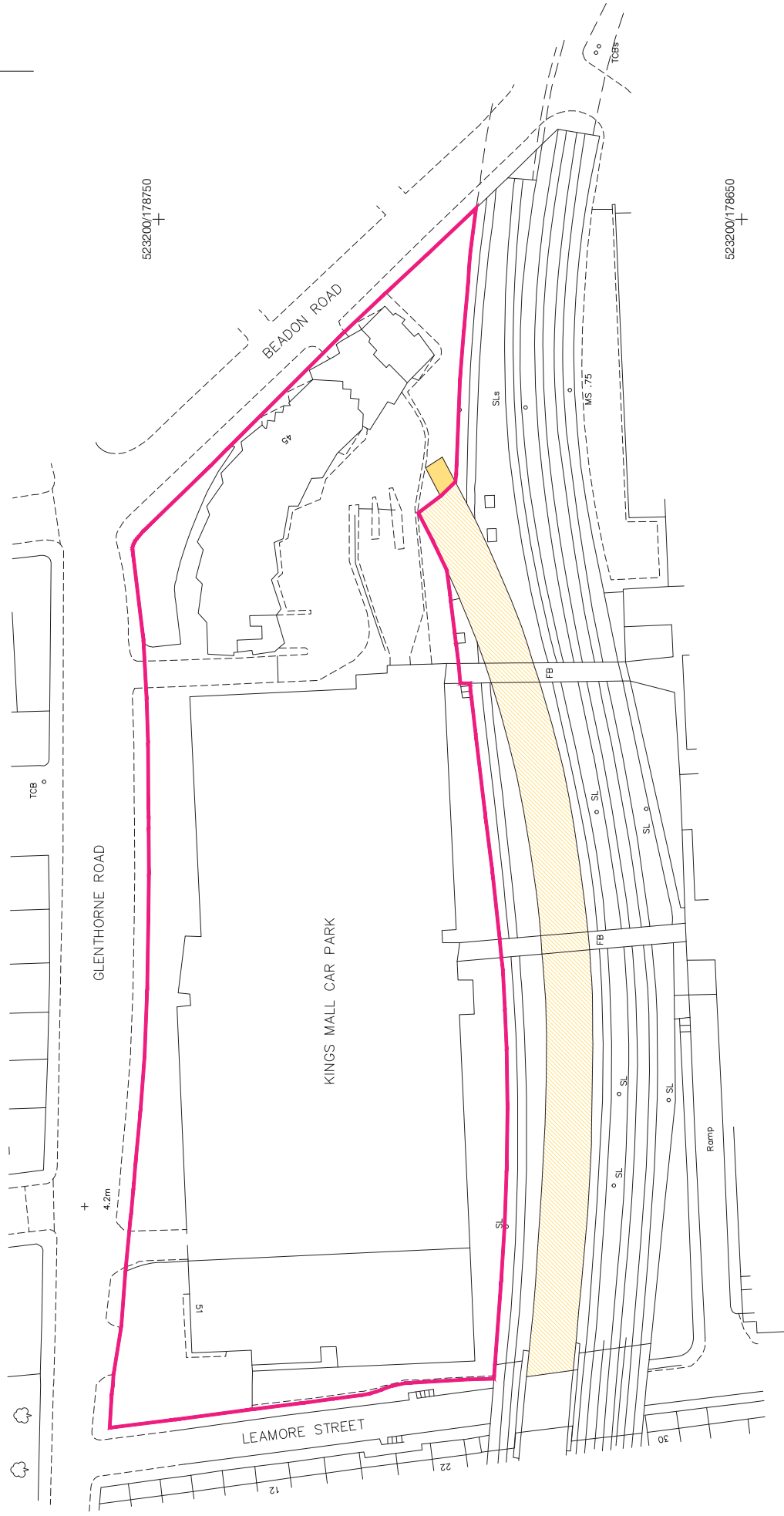
Publication type Grey literature (unpublished document/manuscript)
Title Built Heritage Recording of the Remains of a Railway Viaduct, Kings Mall Car Park, Glenthorne Road, London Borough of Hammersmith and Fulham
Author(s)/Editor(s) Garwood, A.
Other bibliographic details PCA Report Number: R11656
Date 2014
Issuer or publisher Pre-Construct Archaeology Limited
Place of issue or publication Brockley, London
Description A4 document

Entered by Charlotte Matthews (cmatthews@pre-construct.com)
Entered on 20 March 2014



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Figure 1
 Site Location
 1:20,000 at A4



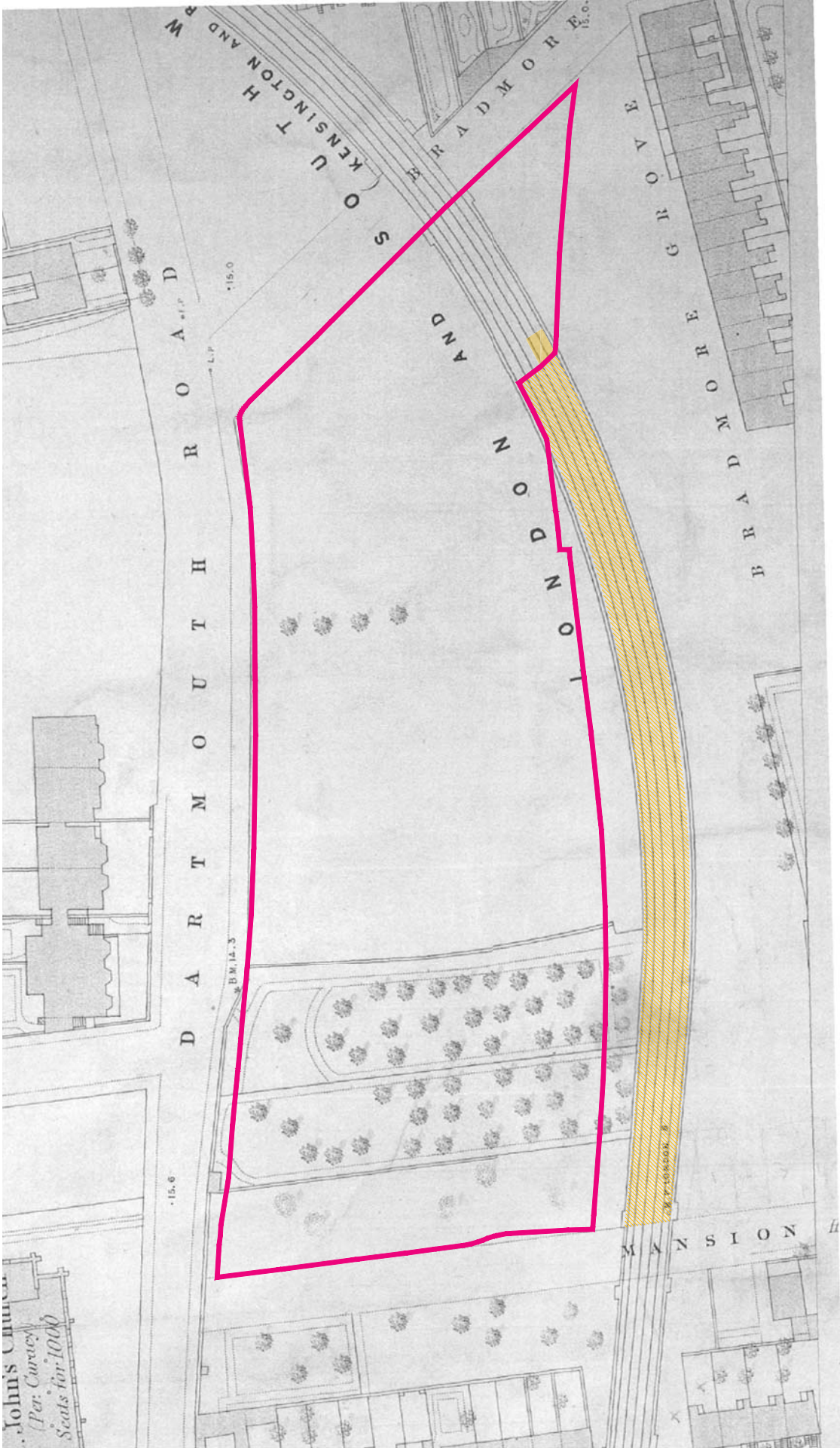
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Figure 2
 Detailed Site Location
 1:1,000 at A4



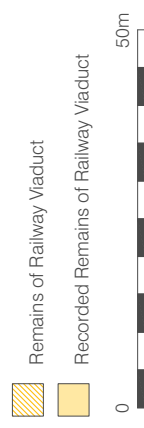
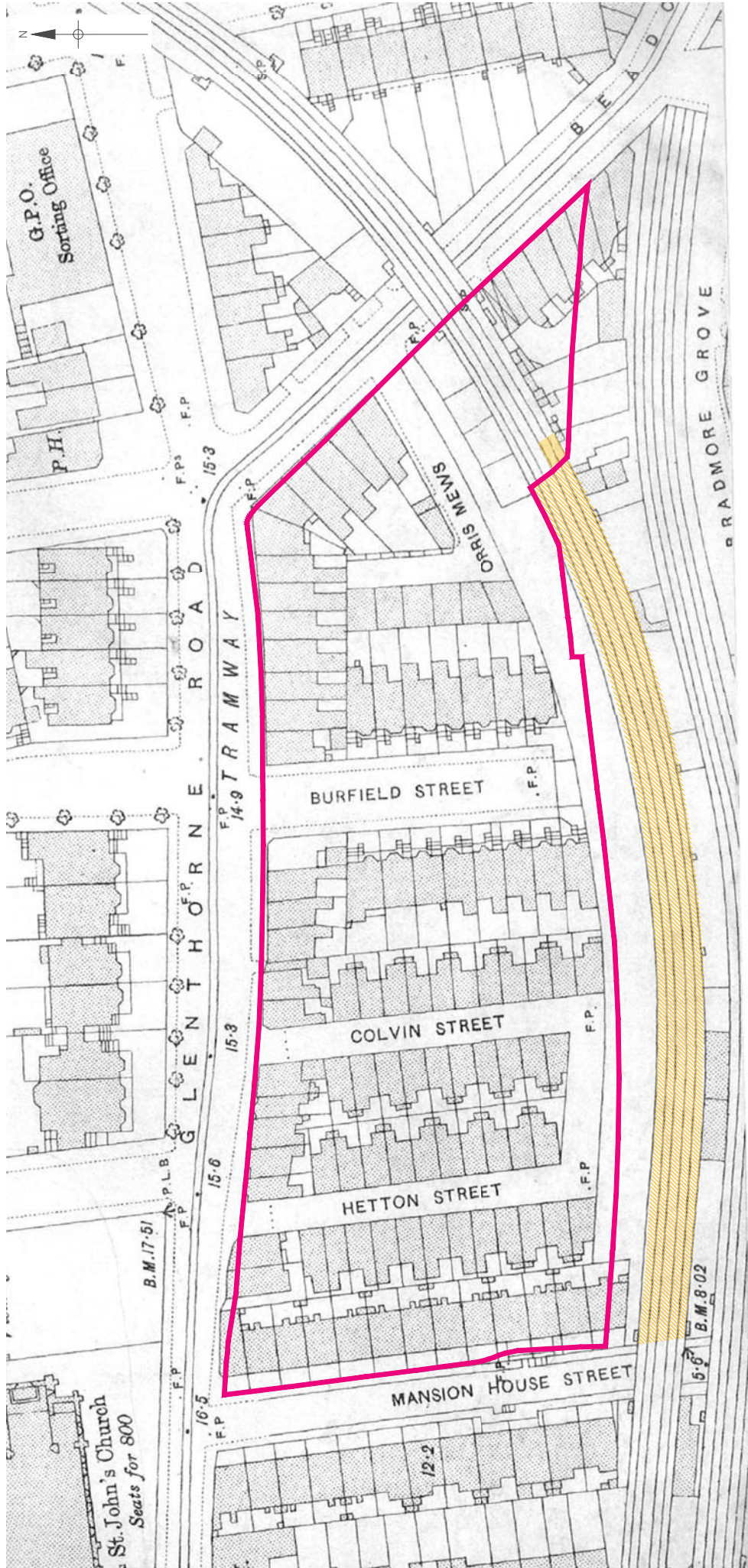
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Figure 3
Map of LSWR loop between Kensington & Grove Road
approx 1:12,500 at A4



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Figure 4
Ordnance Survey 1871
1:1,000 at A4

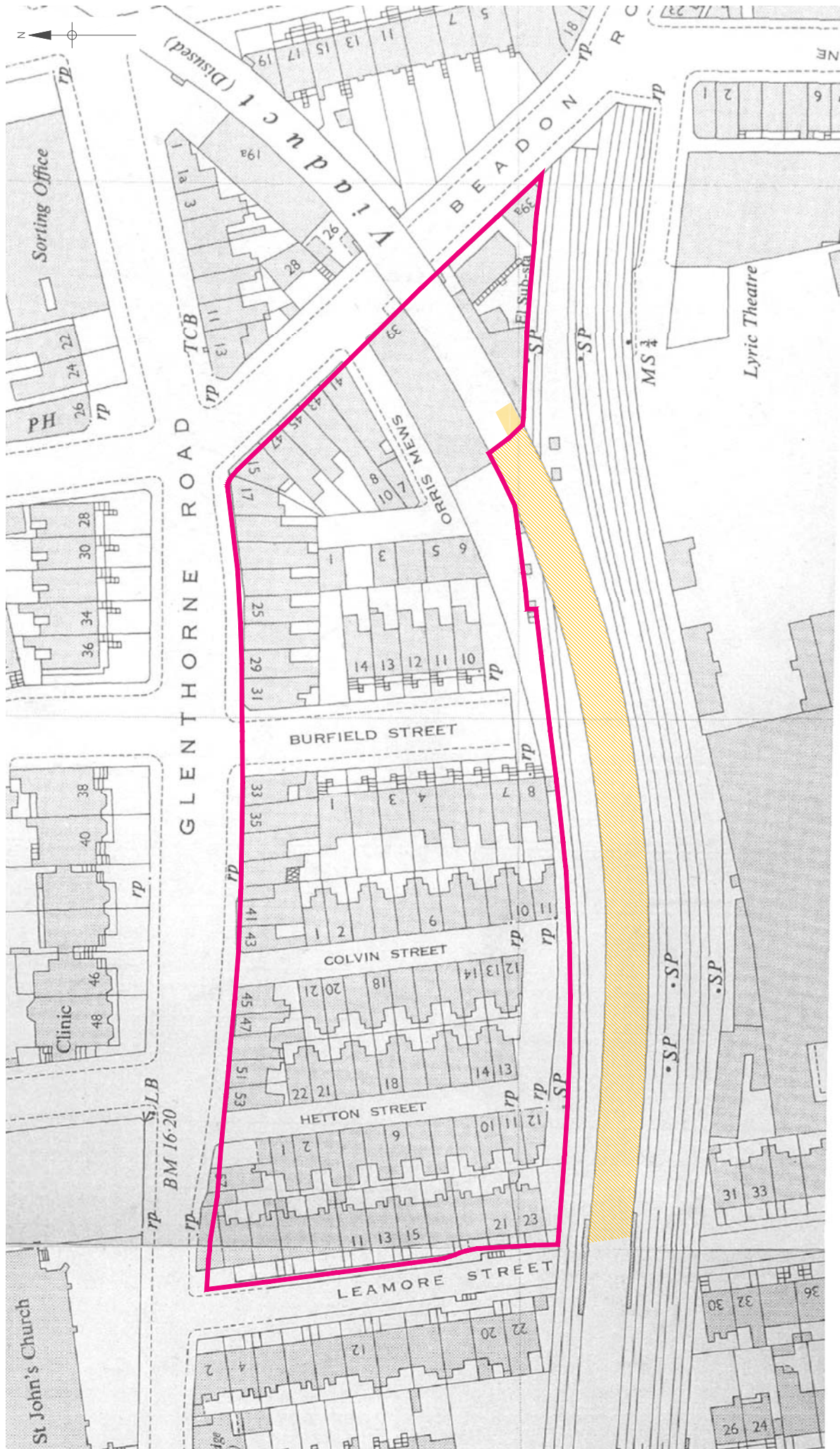


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 Figure 5
 Ordnance Survey 1894-96
 1:1,000 at A4



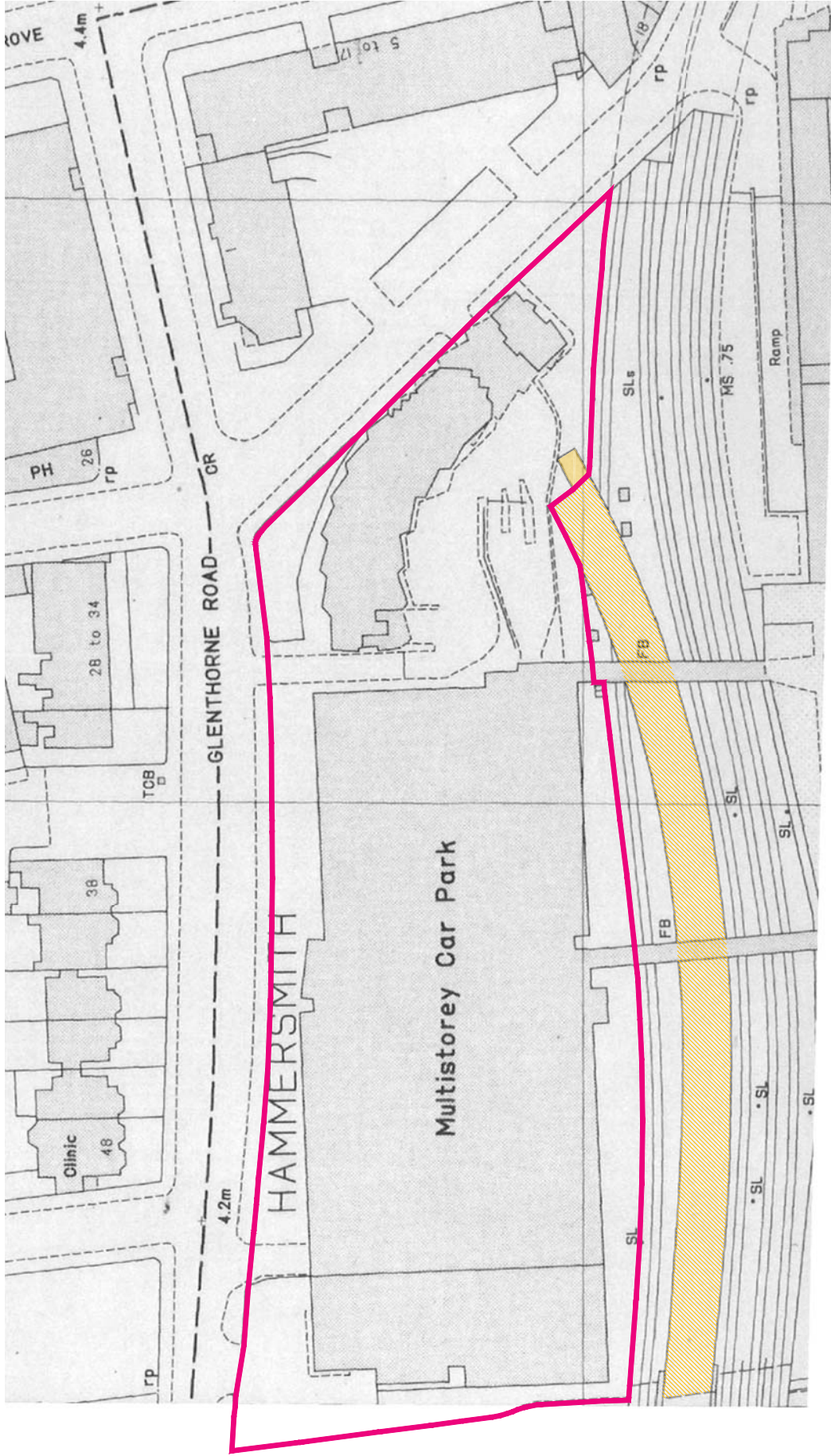
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Figure 6
Ordnance Survey 1921
1:1,000 at A4



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Figure 7
Ordnance Survey 1951
1:1,000 at A4



Remains of Railway Viaduct

Recorded Remains of Railway Viaduct

0 50m

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Figure 8
 Ordnance Survey 1987
 1:1,000 at A4

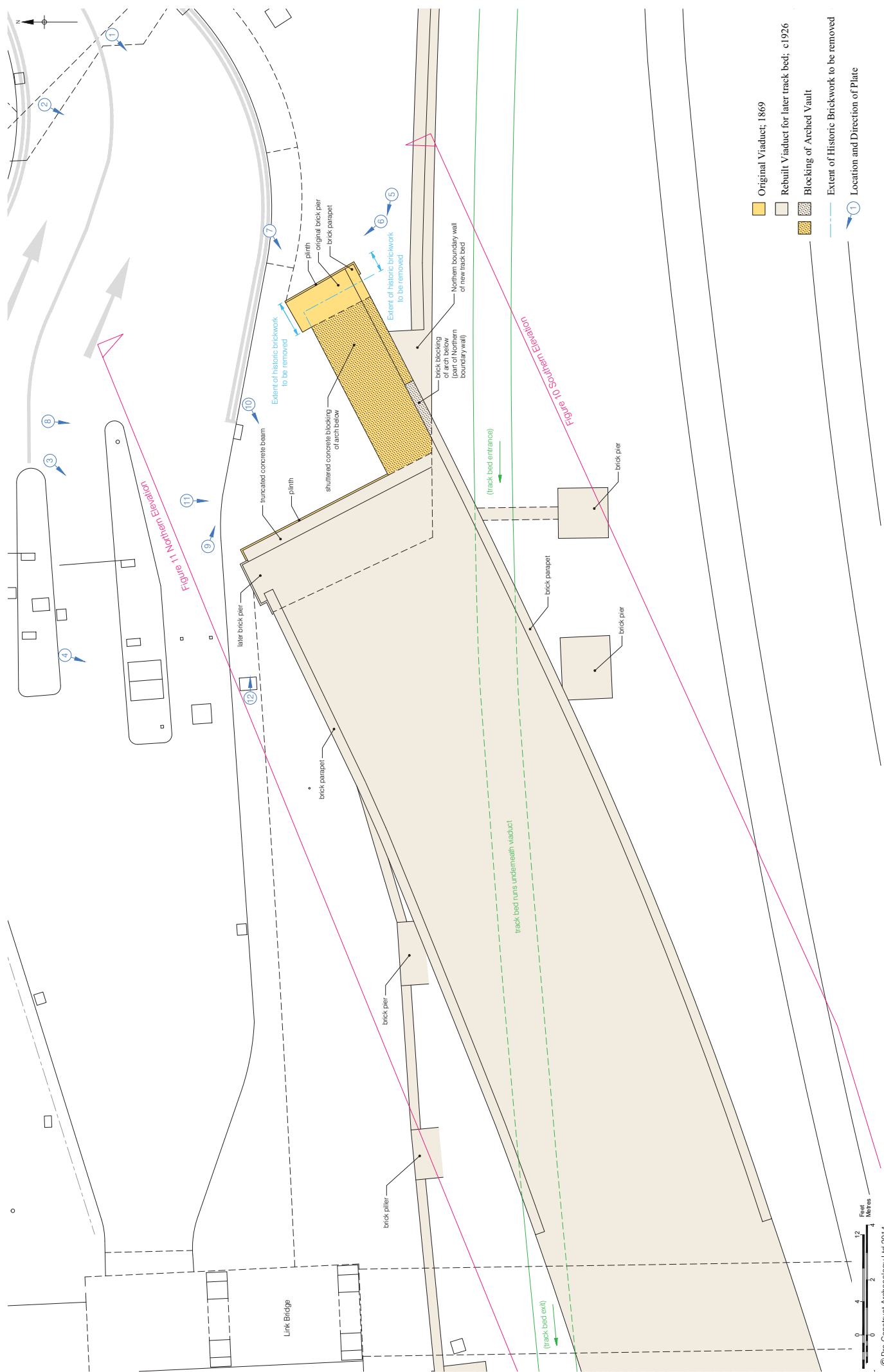
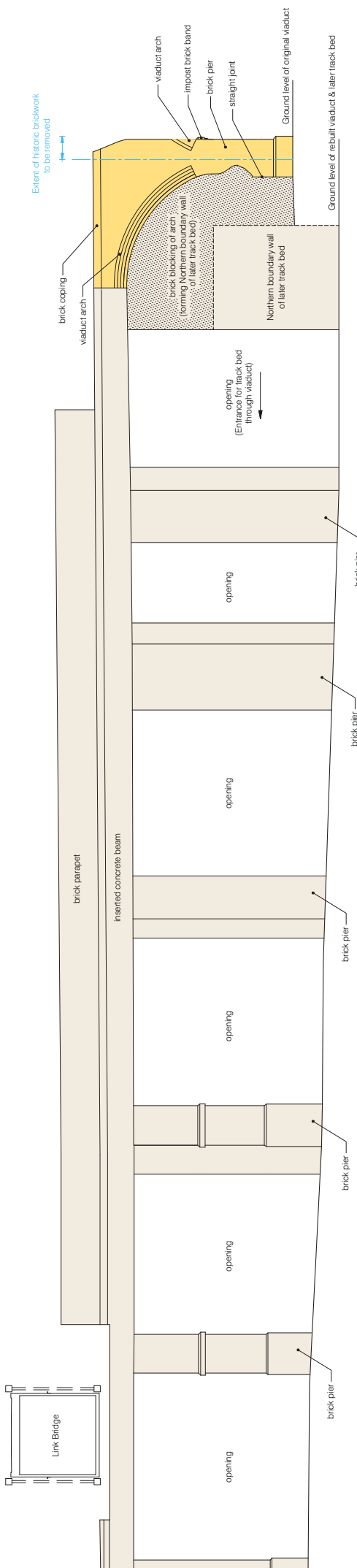


Figure 9
Plan of Eastern End of Viaduct
and Photographic Plates
1:125 at A3

SW

NE



0.00m OD

0.00m OD

- Original Viaduct; 1869
- Rebuilt Viaduct for later track bed; c1926
- Brick Blocking of Arched Vault; c1926
- Extent of Historic Brickwork to be removed

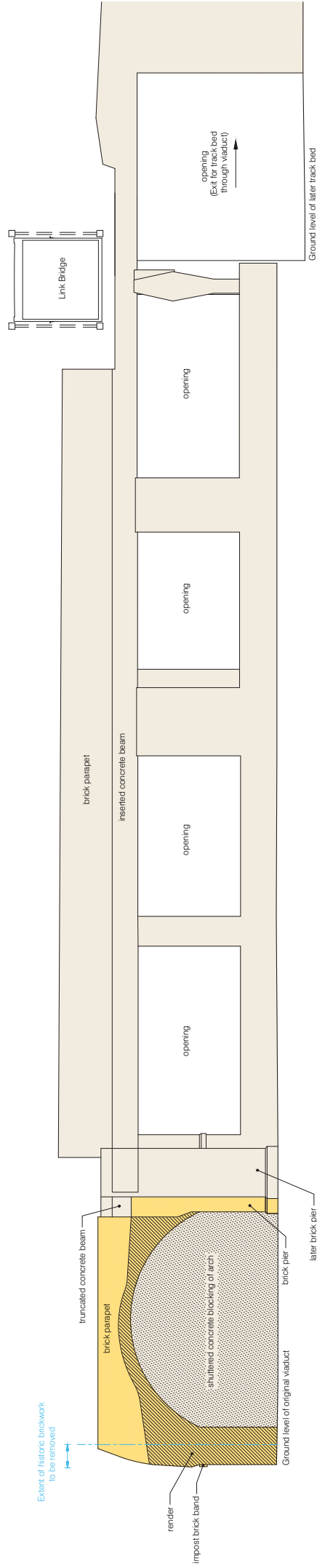
0 4 8 12
Feet
0 2 4
Metres

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Figure 10
Southern Elevation
1:125 at A3

NE

SW



0.00m OD

0.00m OD

- Original Viaduct; 1869
- Rebuilt Viaduct for later track bed; c1926
- Shuttered Concrete Blocking of Arched Vault
- Render; after 1951

--- Extent of Historic Brickwork to be removed





Plate A: Photograph taken in 1980 showing the c.1926 concrete beam bridge section of the viaduct, the northernmost track looping under the viaduct and the construction of West 45 Office Building, looking north-east



Plate B: Photograph taken in 1980 showing the 1869 viaduct, looking west with the Kings Mall Car Park behind (north)



Plate 1: Viaduct and Piccadilly and District railway line, looking west from the 3rd floor of the West 45 Building



Plate 2: Remains of the viaduct within the site, looking south-west



Plate 3: Length of the viaduct rebuilt in the 1920s with concrete beam, looking south-west



Plate 4: Length of the viaduct rebuilt in the 1920s with concrete beam and 1980s link bridge to multi-storey car park, looking south-south-west



Plate 5: Southern elevation of the viaduct within the site showing later brick blocking, looking west



Plate 6: Extent of proposed truncation (to pink line) of the viaduct from eastern end, looking north-west



Plate 7: North-east facing end elevation of the viaduct, looking south-west



Plate 8: Rendered northern cut back elevation of the eastern end of the remaining viaduct, looking south from West 45 Building



Plate 9: Rendered northern cut back elevation, looking east



Plate 10: Cut back, part rendered eastern facing elevation, looking west-south-west

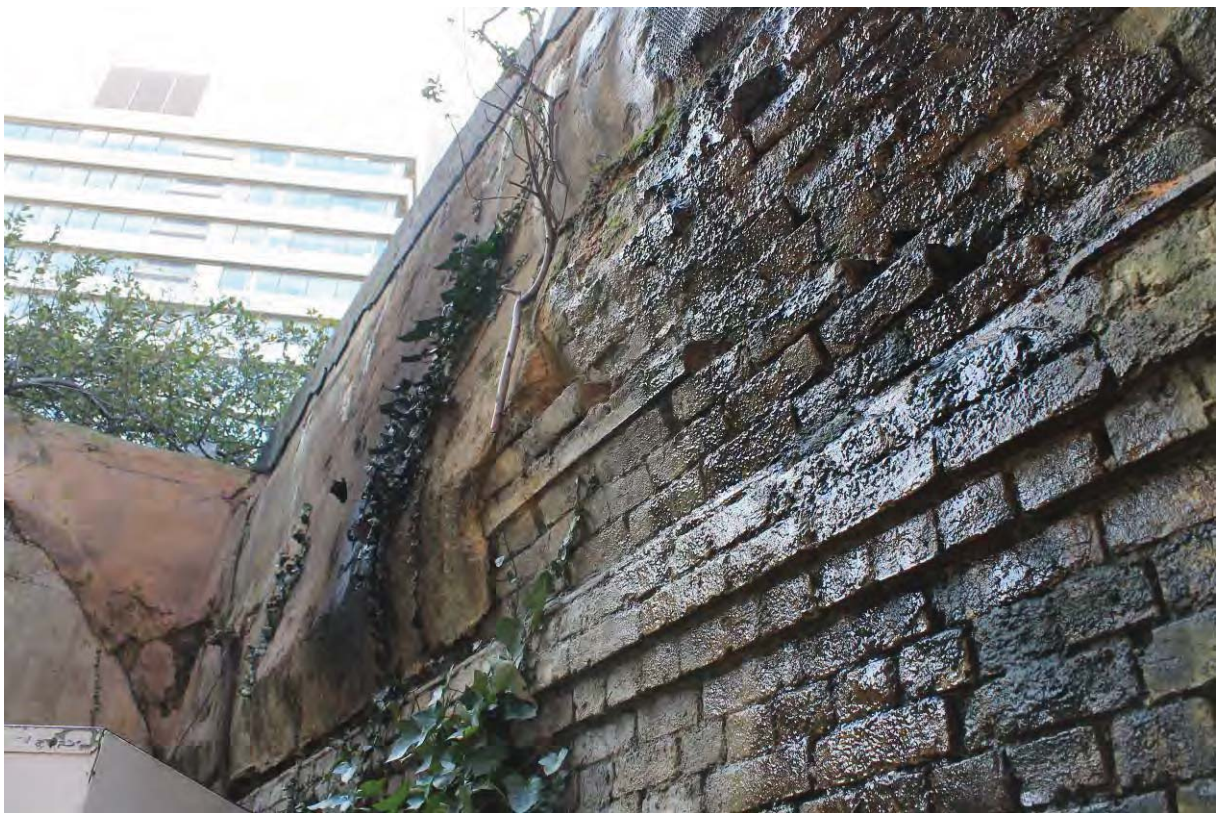


Plate 11: Truncated brick arch and decorative brick impost band along cut back eastern facing elevation, looking south-west



Plate 12: Northern elevation of the 1920s length of viaduct with a rebuilt pier at the junction of the 1869 and 1920s builds, looking south-east

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