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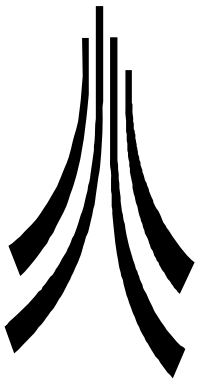

February 1996

BERKLEY STREET GASWORKS, BIRMINGHAM

Historic Building Survey

Commissioned and funded by:

Gas Street Developments Ltd

Berkley Street Gasworks, Birmingham, West Midlands

Historic Building Survey

Checked by Project Manager. ..... Date
Passed for submission to client. ..... Date

Storey Institute
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Lancaster
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February 1996

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1.**ACKNOWLEDGEMENTS**

Thanks go to the staff of Birmingham City Planning Department for the use of research documents produced for this site, together with Mike Hodder and Toni Demidowich for their assistance. Acknowledgement must also be made of the help of the staff of the Engineering Company on the southern part of the site.

The site survey was carried out by Robert Hill (Project Manager, Hill Beild Associates) and Ian Scott (LUAU Project Supervisor). The analysis of the iron rail was carried out by David Dungworth of the Department of Archaeology, Durham University. This report has been edited by Jeremy Ashbee. The project has been under the overall Project Management of Mark Fletcher.

2.EXECUTIVE SUMMARY

A fabric survey of historic buildings on the site of the Berkley Street gasworks, Birmingham was carried out in April 1995 by LUAU staff. The objectives were to determine the extent of survival of the original gasworks buildings on the site and to elucidate the development of the building complex over the course of the nineteenth and twentieth centuries. This work has benefitted from previous documentary and cartographic research, made available by the Birmingham City Planning Department.

The survey indicated that parts of the original gasworks buildings had been incorporated into later structures, but that the present appearance of the site owed far more to subsequent developments. In particular, considerable changes had occured on the site during the twentieth century, when a narrow-gauge railway was introduced.

3.**INTRODUCTION**

An historic building survey was undertaken by Lancaster University Archaeological Unit (LUAU) on behalf of Gas Street Developments Limited, in advance of partial clearance and preparation of the site for future development. Work was undertaken during April 1995 following a specification provided by Birmingham City Department of Planning and Architecture, and a Project Design compiled by LUAU (Appendix 1). The numbering and lettering of individual buildings and areas of the site follows the scheme set out in the Birmingham City Council plan (1993).

The recording of the buildings consisted of a survey, both dimensional and photographic, of certain parts of the building, prior to demolition and other works undertaken in advance of a partial re-development of this site. The survey was to show by analysis, the development of the front part of the site, and to determine the level of survival of the buildings and boundary wall of the first gasworks.

4.BACKGROUND

Birmingham Gas Works (SP 0624 8650)

The site under consideration is part of the the oldest surviving commercial gasworks site built in the United Kingdom (the first such plant was commissioned in London in 1813). The first buildings of the gasworks on this site were built in 1818 by John Gostling, a pioneer of the gas supply industry. The designer of the Birmingham gas works was Samuel Clegg, an independent gas engineer; he had previously worked for the Chartered Gas Light and Coke Company which established the London Gas Works in 1812. Clegg had moved to Birmingham in 1817; after leaving the city, he was to design and build gas production plants in several other cities around the country.

Most of the buildings within the study area appear to have been built originally within the period 1822 - 1828; the site was later to undergo considerable redevelopment in the first quarter of the twentieth century. The original gasworks were built in the north-west part of the area under consideration, along Gas Street and adjacent to the main canal basin.

Number 39 Gas Street, the wall of which forms the northern boundary of the site, was formerly the retort house. This was built in 1822 together with a new gasometer and was described as having an 'iron roof and slates'. Originally it was on the upper (west end) of the site. By 1827 a spur of the canal had been built under Gas Street, across the western end of the gas works site towards Berkley Street. This spur may later have been extended to the south under Berkley Street; this is suggested by a rise in the level of the road surface which may be the result of the former presence of a brick arch or culvert. It may then have continued through the gap between the buildings on the south side.

In March 1828, shortly after the completion of these works, the company took out a lease on land in and around Berkley Street for extensions to the buildings. The first of these projects was an enlargement of the retort house (site plan area **IIC**). Two months later a further piece of land was leased between the west side of the retort house and the extended canal basin (**IIH**) and on this ground another building (**IID**) was constructed for use as a coal store.

Documentary sources indicate that areas **IIG** and **IIF** may formerly have been the yard of the lime store. This parcel of land was leased off at £50 per annum in 1850. By this date, the gasworks were in decline; the Gas Light and Coke Company had opened two other gasworks in Birmingham and production ceased on this site. However, the gasometers were retained in use, fed by the other stations, until the 1870s, when the company was taken over by the City authorities. At some time in the later nineteenth century, the site was divided into two parts: a property facing Gas Street was leased to the Imperial Tube Company and the land and buildings on the Berkley Street side were occupied by a manufacturer of iron roofs . In the 1870s, the gasholders were removed: their site was later occupied by the factory and showrooms of a carriage works (Trueman and Krupa 1994, 28).

The front part of the site (**IIG, IIF**) appears to have been developed in its present form at some time around 1915. At that time there was still a canal spur on the western side of the site. The present building originally contained offices for The Birmingham Brass Stamping Company. Contemporary plans show a covered yard at the western end, a hall and a showroom on the street elevation, with an open yard and metal store in the area behind. Since that time these buildings have been used for various purposes and now contain evidence of several campaigns of extension.

Several buildings on this site (**IIC** to **F**) have been used as offices and showrooms. They have been altered by the removal of partition walls and are presently incorporated into one complex. Building **VE** is now in use as the garage and store for a metal-working company that occupies the remainder of site **V**.

5.METHODOLOGY

The initial survey was undertaken during the week commencing 10 April 1995, by a building surveyor and general surveyor from LUAU. The objective, agreed with Dr Mike Hodder (Birmingham City Archaeologist) was to determine the level of survival of the nineteenth century structures and other features within the existing buildings. The positions of these features were to be shown on the finished survey drawings.

A photographic record was also undertaken of the exterior of the building **VE** together with general coverage of salient features internally and externally.

Samples of certain parts of the fabric were also taken for laboratory analysis.

5.1 SURVEY

An instrument-based survey was carried out of specified parts of the historic buildings within zones **II** and **V**, in conjunction with a thorough inspection of the standing fabric. This was intended to permit an understanding of the development of the buildings in the context of the known history of the site. Certain parts of the complex were inaccessible either because doorways were blocked or locked or because there was deemed to be an unacceptable safety risk.

The initial research proposal contained provision for excavation of below-ground deposits. However, this was not carried out, largely because of the risk of encountering contaminated ground or toxic working conditions. Care was taken to avoid any disturbance of the site which might incur such a risk (see LUAU project design para 3.2 for an initial warning on the subject, Appendix 1).

Area IIG

This is a rectangular two-storey building with a pitched roof, on the north side of Berkley Street. A survey was undertaken to establish the floor plan in relation to the internal railway lines and to record an elevation of the wall which connects the building to **VE**. A general photographic record was made of relevant internal features.

Area IIF

This is a part two-storey and part single-storey building, located behind the street facade of building **IIG**. A survey was undertaken to establish the floor plan in relation to the internal railway lines. The elevations of the remainder of the wall to **VE**, **IID** and **IIC** were drawn. A general photographic record was made of relevant features within the building.

Area IIC and IID

A survey was undertaken to establish the floor plan in relation to the railway lines and to record the elevation of the wall connecting the building to **IIF**. A general photographic record was made of relevant features within this area.

Area VE

This is a single-storey building with a pitched roof; it shares a structural wall with **IIG** and **IIF**. A survey was undertaken to record the internal and external elevations of this building. A full photographic record was made of these elevations and other relevant features.

6.HISTORIC BUILDING SURVEY RESULTS

Area IIG

This is a large brick building of the early twentieth century; the Council Plan submission indicates a construction date around the First World War. This is supported by the size and shape of the bricks and by several features of the building's design. Particularly noteworthy are the fine window and door heads, which show the influence of the Arts and Crafts movement. Internally there is further stylistic evidence; the two large fireplaces (partially vandalised) to the first floor offices, originally had large polished oak surrounds and still contain green glazed tile surrounds over polished natural stone hearths. Apart from these details, the building contains no visible indication of its date. A cast concrete floor survives *in situ*: this would appear to be a remarkably early occurrence of this technique in such a small structure. In other respects, its construction appears to be of a traditional nature, with a slate-covered timber roof.

From the plan of the original development, the main building of the gasworks stood on the line of the building presently fronting the street: this was originally free-standing on three sides and on the fourth, used the west wall of **VE** as a base.

On the ground floor the original room layout appears to have been rearranged at the east end adjacent to the loading doors possibly in order to accommodate developments in the pattern of the internal railway tracks. The first floor originally contained a range of rooms on the Berkley Street frontage and a single corridor running along the back wall. Access to the corridor was by means of a flight of stairs from the street entrance at the north end of the building. Other rooms presently lead off on the north side of the corridor, but these seem to relate to a later extension on the adjoining site.

At the eastern end of the building there is a set of large doors; these date to the original construction, but there is some doubt as to whether the opening in the internal wall (to **IIF**) is part of the initial design. The form of this internal wall and the arrangement of its beams would suggest that this opening is an enlargement of a smaller original, possibly during construction of the second phase of **IIF**. The layout of the railway tracks in this area relates awkwardly to the plan of the building; suggesting that they were only laid after the building had assumed its present form. The rails themselves are made of steel and appear to be of fairly recent date, further supporting the theory that they were inserted after the construction of the building.

IIF

This building is built of brick; internally, it contains a large space whose roof is partly supported on cast iron columns and on the north sides by brick piers, with an external closure wall across the west end. Its flat roof seems to be an imitation of a timber-framed structure.

As mentioned above, the building represents a secondary development of the site. The main two-storey part is located at the west end of the site and is supported in part by the north wall of **IIG**, the top of the south wall of **IID** and part of the same wall of **IIC**.

The dating of the west part of the building can only be surmised from stylistic details and physical evidence for the sequence of construction. It abuts the north wall of **IIG** and is built on the side wall of **IID** and part of **IIC**. This suggests that it is a late building possibly dated to the period between the two World Wars. Plans of the site suggest that the present structure represents a development of an earlier building.

The eastern single-storey part of this site has been inserted into the space between **IIG**, **IID** and **IIC**. It contains a flat roof with a large roof lantern; the roof structure appears to be modelled on a timber-framed prototype and is supported on a cast *in situ* concrete column and beam arrangement. The form of the concrete beam arrangement would suggest that the north-east part of **IIG** was altered at the time of its insertion.

The roof edge is supported by brick piers built against the walls of the adjoining buildings. These have rounded corners in their lower areas (contrasting with the squared brickwork of all other parts of the site).

IIC and IID

These buildings were formerly the coal store and retort house of the gasworks. They date to 1828 and 1822 respectively and survive largely in their original condition. Both structures contain decorative and structural features of interest. The retort house is of particular note, with a cast iron trussed roof.

The buildings on the southern side all rest on the south walls of **IIC** and **IID**, indicating that the latter buildings must pre-date them.

VE

This is a brick building, originally free-standing with one side fronting onto Berkley Street. The bricks are laid in Flemish bond. The roof contains through-purlins supported on braced king-post timber trusses and it is covered with slates. Under the central part of the floor there is a sectional pre-cast concrete air raid shelter. This was not surveyed due to the the risk of gas build-up within the enclosed space.

Internally the building contains an open space. There is no indication that plant or machinery were ever positioned there and its function is uncertain. It does not appear that a first floor was part of the original design of the building. In the west wall there are blocked window and door openings; some of these appear to date to the original construction, while others are evidently of later date.

Railways

Narrow-gauge iron railway tracks are set in the floor of **IIF**, continuing into **IIG** and **IID**; they formerly continued through **IID** and beyond. The track also extended through an opening (now blocked) in the north wall, into **VE** and on into the adjacent yard. Surviving features of the track include two sets of points and a stop-rail set across the track at the western end of **IIF**. The construction of the openings made for the tracks, with steel lintel beams, suggests that they are a relatively modern addition to the site.

A sample of the rails was removed for metallurgical analysis (Appendix II). It proved to contain a low carbon content, similar to that of modern mild steel. This would further support the theory that the railway system was not installed until after the site had ceased to be used for gas production. (The oral testimony of a member of the demolition team suggested that the railway was constructed during the use of the site as a stone polisher's workshop and mason's yard, but this connot be confirmed without further research).

It is clear from the openings in the boundary walls of the site, that the railway formerly served a larger area than that covered by the surviving tracks, although its full extent cannot be known. However, the presence of a stop-block is evidence that the tracks did not continue as far as the canal basin. The poor survival of the tracks on the north side of the site does not permit a reconstruction of the layout in this area.

7.CONCLUSION

The evidence of documentary, cartographic and oral sources indicated that the site passed through several distinct phases of occupation. Between the 1820s and the 1870s, it was used for the production and storage of gas: during this period, the buildings on the site were subject to campaigns of extension and alteration. In the second decade of the twentieth century, the site underwent a radical campaign of redevelopment, during the occupation of an area by a metal-working company. Later in the present century, there is evidence that the site may have been used as a stonemason's yard and polishing-shop: developments during this phase included the installation of a narrow-gauge railway.

The LUAU survey, combined with the results of documentary research, suggested that the present site boundary wall contained fabric *in situ* from the gasworks coal store and the extension to the retort house. The western gable walls of building **VE** also survive incorporated into later fabric. **IF** and **IG** can be seen to be partially supported by fabric from the gasworks phases and were therefore constructed as a secondary development of the site. It is possible that other elements of the gasworks were retained in developments of the later nineteenth and earlier twentieth centuries: however, with the exception of the areas mentioned in the report, all of this fabric has been eradicated by subsequent remodelling of the site.

The narrow gauge railway is of comparatively recent date.

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Birmingham City Council, Planning Department 1915 *Plan submission Nº 23142*

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APPENDIX 1

Design for Historic Building Survey and Report

APPENDIX II

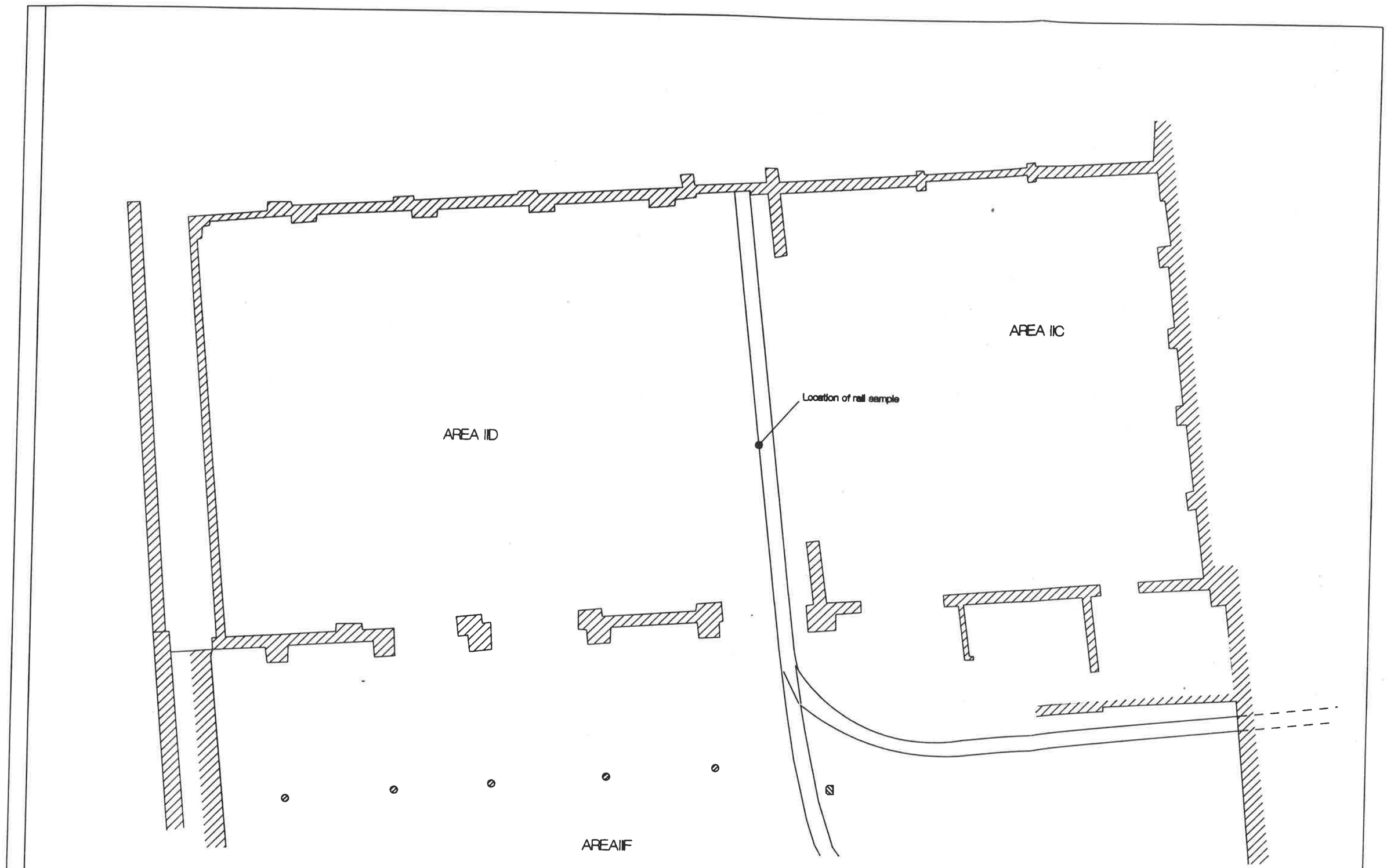
Report on Railway Track Metallurgical Analysis

A V-shaped cross-section from the upper surface of a `tram' rail was presented for analysis. This was mounted in epoxy resin and polished to a mirror finish using initially silicon-carbide abrasive paper and finishing with a polishing cloth (to 1 μm). The polished sample was then etched in `Nital'.

The metallographic specimen revealed an interlocked matrix of equiaxed grains of ferrite and pearlite. This corresponds to the structure of a medium carbon steel, with approximately 0.3 - 0.4% carbon. The grain structure was highly regular and as it was devoid of any evidence of specialised thermal treatment (such as martensite or Wittmanstätten structure). This sample appears to have been normalised (annealed) which would have removed any evidence of `chill' structure resulting from the manufacturing process.

Chris Caple, Phil Clogg and David Dungworth, Department of Archaeology, University of Durham.

DRAWINGS



GAS STREET BIRMINGHAM

SITE PLAN NORTH

2m

DRAWN BY LUAU

DATE 4-95

SCALE 1:100

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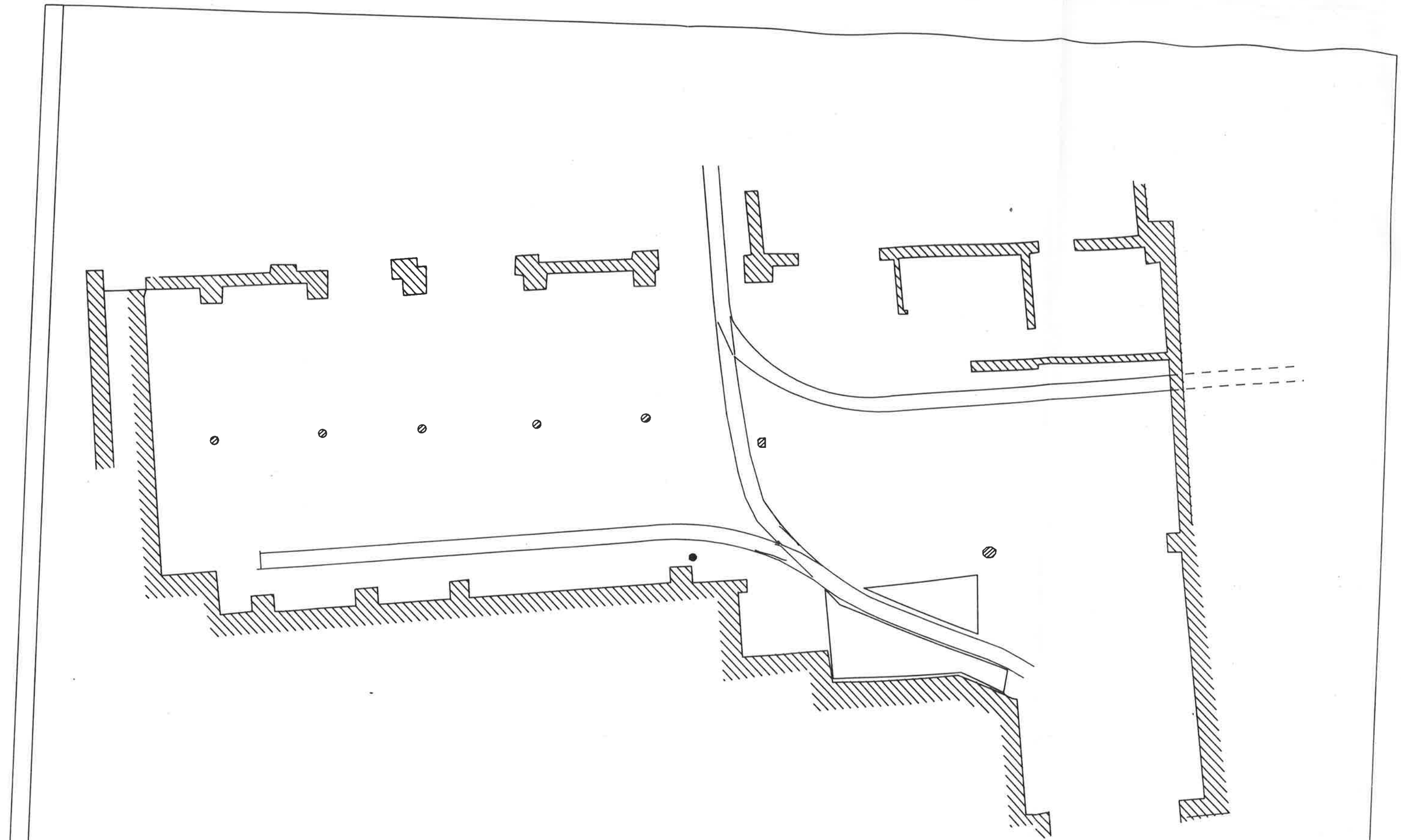
FIG.1



GAS STREET BIRMINGHAM

SITE PLAN SOUTH

2m

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DATE

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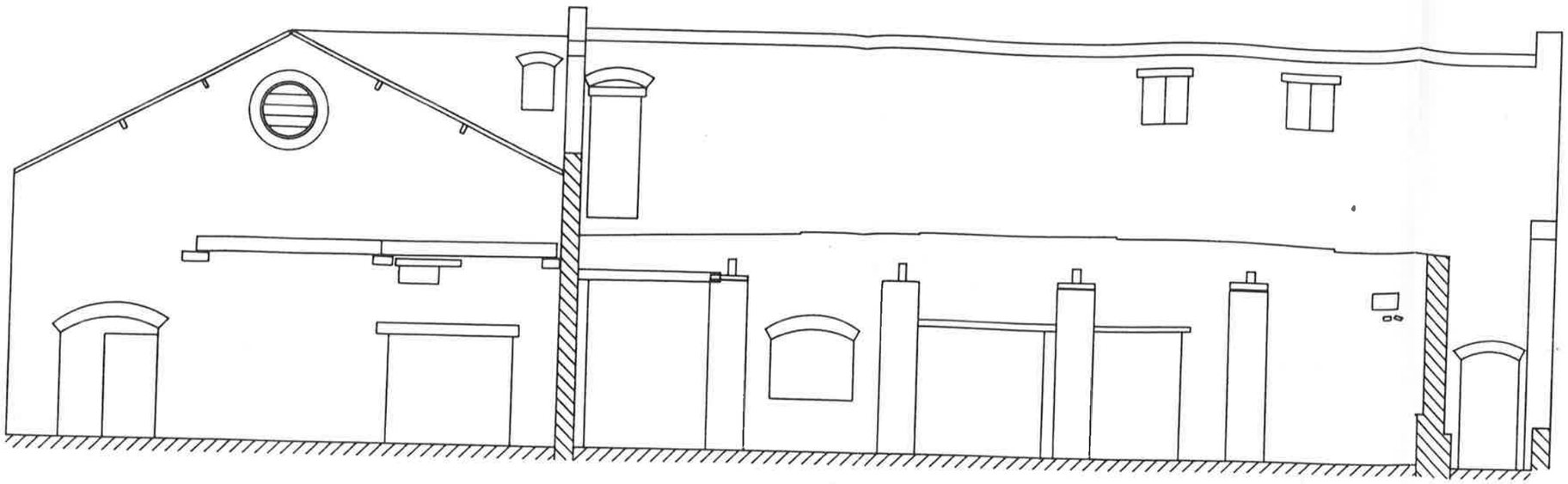
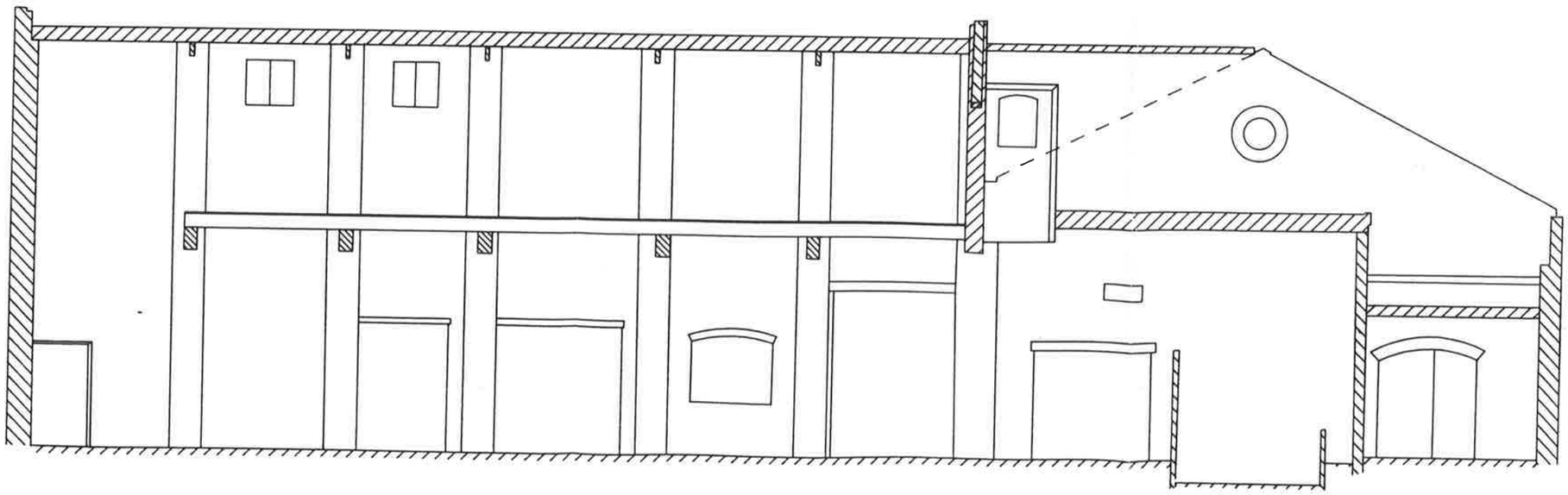
LANCASTER UNIVERSITY ARCHAEOLOGICAL UNIT

FIG.2



ELEVATION1



ELEVATION2

GAS STREET BIRMINGHAM

ELEVATIONS 1 & 2

BASED ON
PETER HING & JONES

2m

DRAWN BY IS

DATE 4:95

SCALE 1:50

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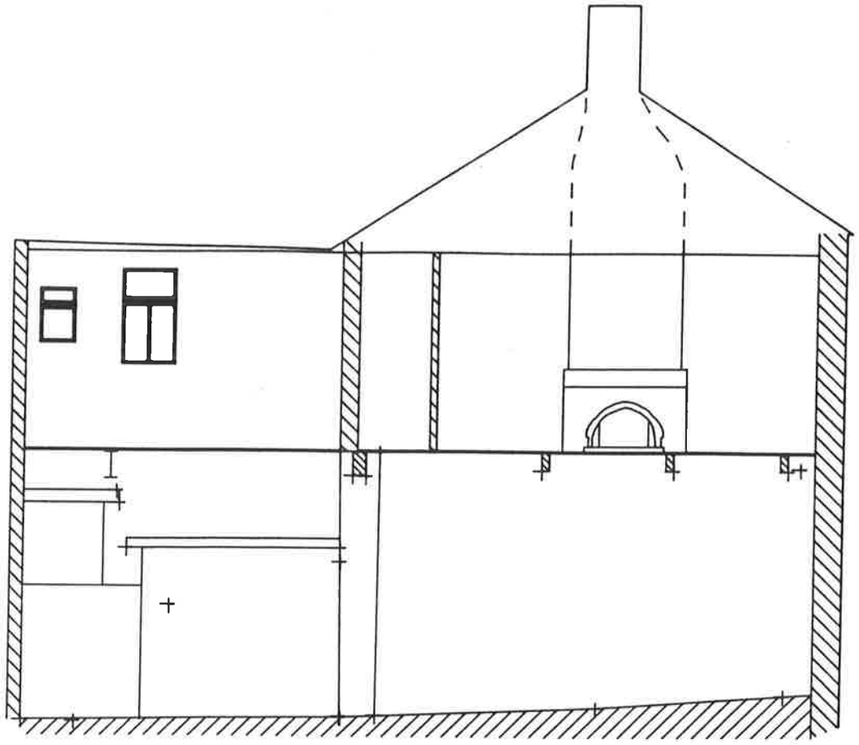
FIG.3



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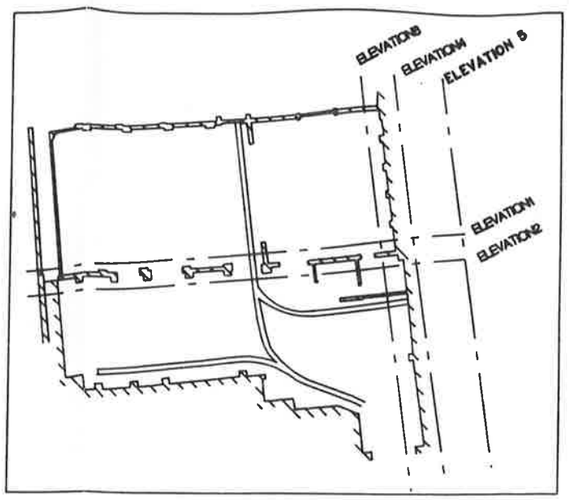

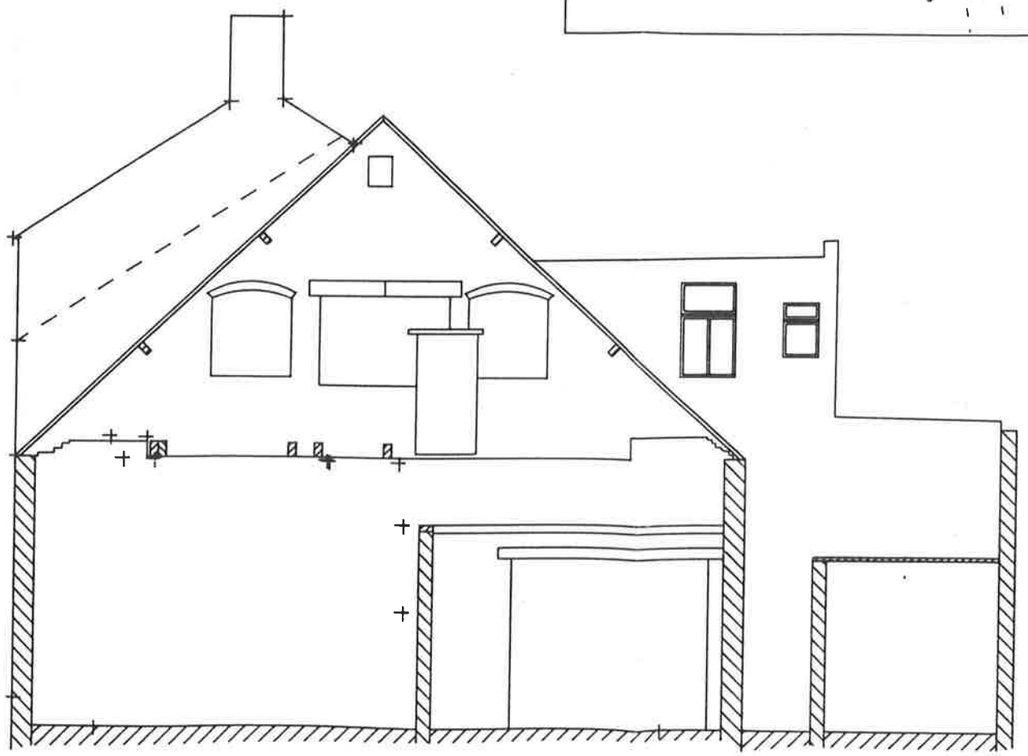

ELEVATION4

GAS STREET BIRMINGHAM

ELEVATIONS 3 & 4

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DATE 4:95

SCALE 1:50

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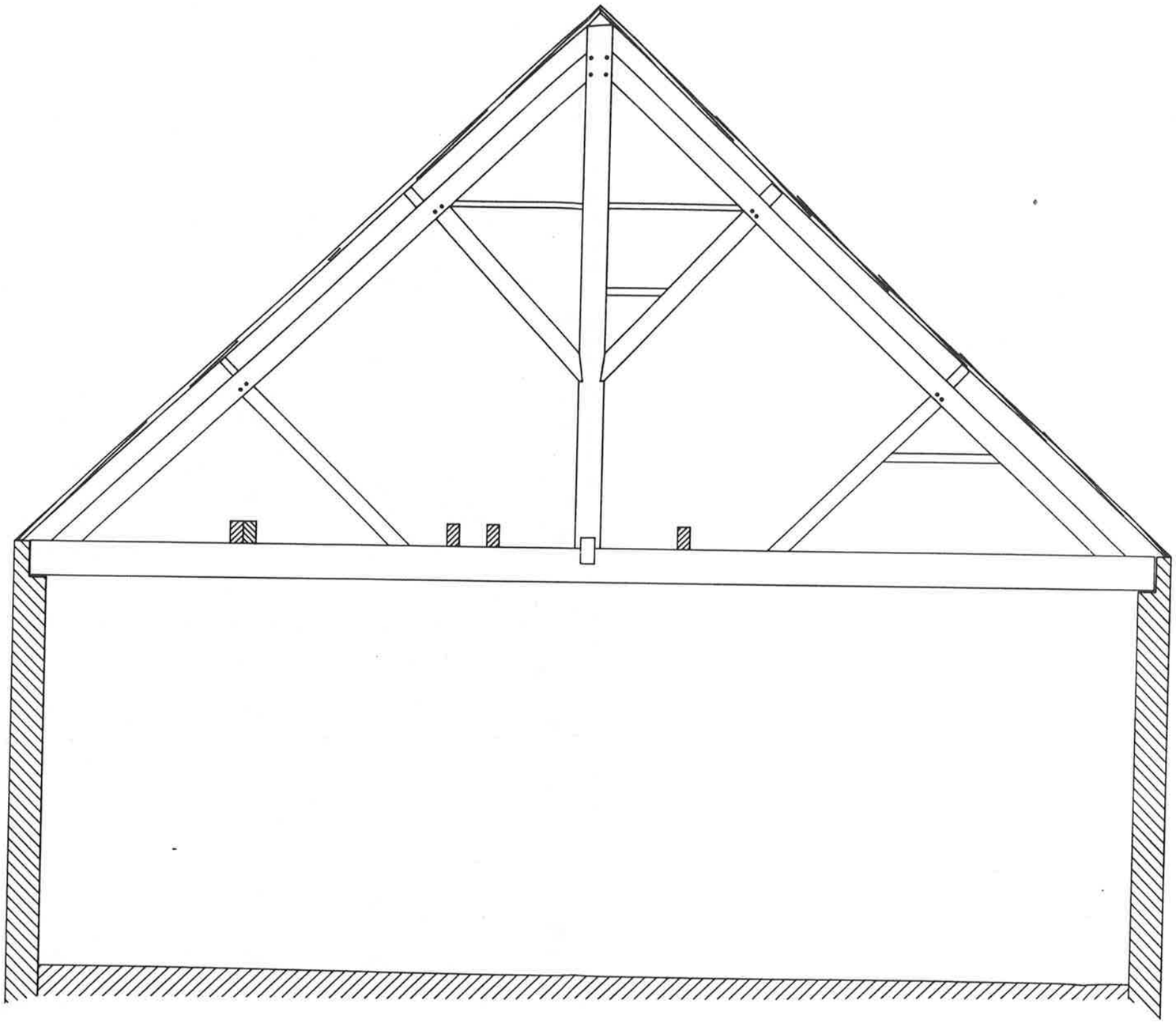
FIG.4



GAS STREET BIRMINGHAM

ELEVATION 5

1m

DRAWN BY LUAU

DATE 4:95

SCALE 1:50

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FIG.5