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Consulting Civil and Structural Engineers

**STRUCTURAL IMPLICATIONS
OF
PROPOSED
RESIDENTIAL CONVERSION**

AT

**21 BARTER STREET,
LONDON WC1A 2AH**

REF: 205061 - APRIL 2005

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1. INTRODUCTION

- 1.1. We were commissioned by Ian Felgate of Paul Brookes Architects on behalf of Grandsoft Ltd to inspect and report on the structural implications of the proposed residential conversion of 21 Barter Street. The grade II listed Building is currently a training centre.
- 1.2. This report was prepared to address the item in 1 above and is not a full structural survey. It is based on a desktop review of records held at Camden Building Control and a walkover visual inspection from ground level, and where access was available from the roof and adjacent buildings. We have not undertaken any opening-up of the structural elements.
- 1.3. The building was unoccupied and inspected on Friday 15 April 2005. We visited Camden Building Control on Thursday 21 April 2005.

2. GENERAL CONSTRUCTION DETAILS

- 2.1 The stucco-fronted building was constructed in the mid 19th century on basement, ground and two upper floors.
- 2.2 The 2nd floor roof was a mansard with vertical slate cladding.
- 2.3 The original basement comprised brick arch vaults that had been used as a restaurant and kitchen and the right hand side of the building included two squash courts.
- 2.4 The ground and upper floors comprised large offices or training rooms.
- 2.5 Further construction and layout details can be gleaned from the appended survey photographs and floor plans.

3. EXTERNAL SITE INSPECTION

3.1 External Elevations

3.1.1 The slate covered mansard was in need of localised maintenance and repair and the following points were noted:

- Slipped and missing slates.
- Parapet gutter on left hand side partially blocked (see photograph 4).
- Zinc flashings, dormer roof covering and main roof (see photograph 3).
- Plant room in central section.
- Felt covered parapet wall and gutter lining with corroded zinc plated screw fixings.
- Slightly distorted front parapet wall (see photograph 6).

3.1.2 The front wall was in reasonable condition and the following points were noted:

- Hairline cracking of render (see photograph 1).
- Localised vegetation growing on cornice at parapet level (see photograph 2).
- Infilled ground floor window openings on right hand side (squash courts see photograph 1).
- Hairline cracking of arch over main door (extends up to parapet level).
- Hairline cracking over 1st floor window on right hand side (extends up to parapet level).

3.1.3 The following points were noted on the rear wall:

- Right hand section extended upwards in London Stock brickwork (new windows at 1st floor level – see photograph 3).
- Evidence of moisture penetration through coping stone joints.
- Left hand side set back to form lightwell.
- Ashlar render to left hand wall in poor condition. Extensive cracking under and above openings and localised repairs (see photograph 5).
- Hairline horizontal cracking of parapet wall ~1m, below coping.
- External walls 340mm thick at parapet level.

4. INTERNAL SITE INSPECTION

4.1 At 2nd floor (mansard) level the following points were noted: -

- Mansard appeared to be steel framed with timber joists (see 2nd floor plan in Appendix 2 and photograph 7).
- Staircase not original.
- Core walls around staircase and WCs in masonry or blockwork construction.
- Some lightweight stud partitions.
- Very distinct 'humps' in floor on the lines of supporting steel beams (see photograph 9).
- Localised evidence of dampness adjacent to downpipes (see photograph 8).

4.2 At 1st floor level the following points were noted: -

- Significant 'humps' in floor on the lines of the supporting steel beams.
- Core walls and staircase not original (see 1st floor plan in Appendix 2).
- Mixture of blockwork and non-loadbearing stud partitions.

4.3 At ground floor level the following points were noted: -

- Squash courts clearly not original construction. Significant masonry walls and numerous downstand beams on the underside of 1st floor (see ground floor plan in Appendix 2 and photograph 11).
- Core walls and staircase not original. Recent brickwork and blockwork.
- Numerous non-loadbearing stud partitions.

4.4 At basement level the following points were noted: -

- Squash courts as noted previously.
- Core and left hand side of building comprising original brick arch vaults. Currently used as kitchen and restaurant (see photograph 13).
- Some previous repairs to brick arch vaults, but no evidence of recent or progressive movement (see photograph 12).
- Extensive buried drainage.

5. DESKTOP REVIEW OF PLANNING AND BUILDING CONTROL RECORDS

- 5.1 The Planning File for 21 Barter Street included several applications notably:
- Change of Use from warehouse to offices (1953).
 - Rebuilding behind retained façade (1973). Permission refused.
 - Change of Use of ground floor and basement to Wine Bar (1975).
 - Change of Use from warehousing at part ground and basement level including ground floor extension to 2 squash courts and club rooms (1978).
 - Change of Use from warehousing to sports club including 4 squash courts (1978). Permission refused.
 - Change of Use from warehouse to accountancy training centre including roof extension (1979).
- 5.2 The Building Control Department had a significant microfiche drawing archive for the 1979 scheme, including 2 squash courts, roof extension and major internal alterations.
- 5.3 Architects for the scheme were T P Bennett and Sons, and Engineers were Travers Morgan and Partners.
- 5.4 The Engineer's drawings (dated 1980) detailed major structural alterations including:
- Demolition of brick vaults for 2 squash courts.
 - New loadbearing masonry walls on new foundations at basement level.
 - Underpinning brick vault walls in the stair core.
 - New stair and service core.
 - Timber floors supported on large steel beams.
 - Removal of internal loadbearing masonry cross walls.
 - Removal of existing roof and construction of steel framed mansard including new brickwork parapet walls.

6. CONCLUSIONS AND RECOMMENDATIONS

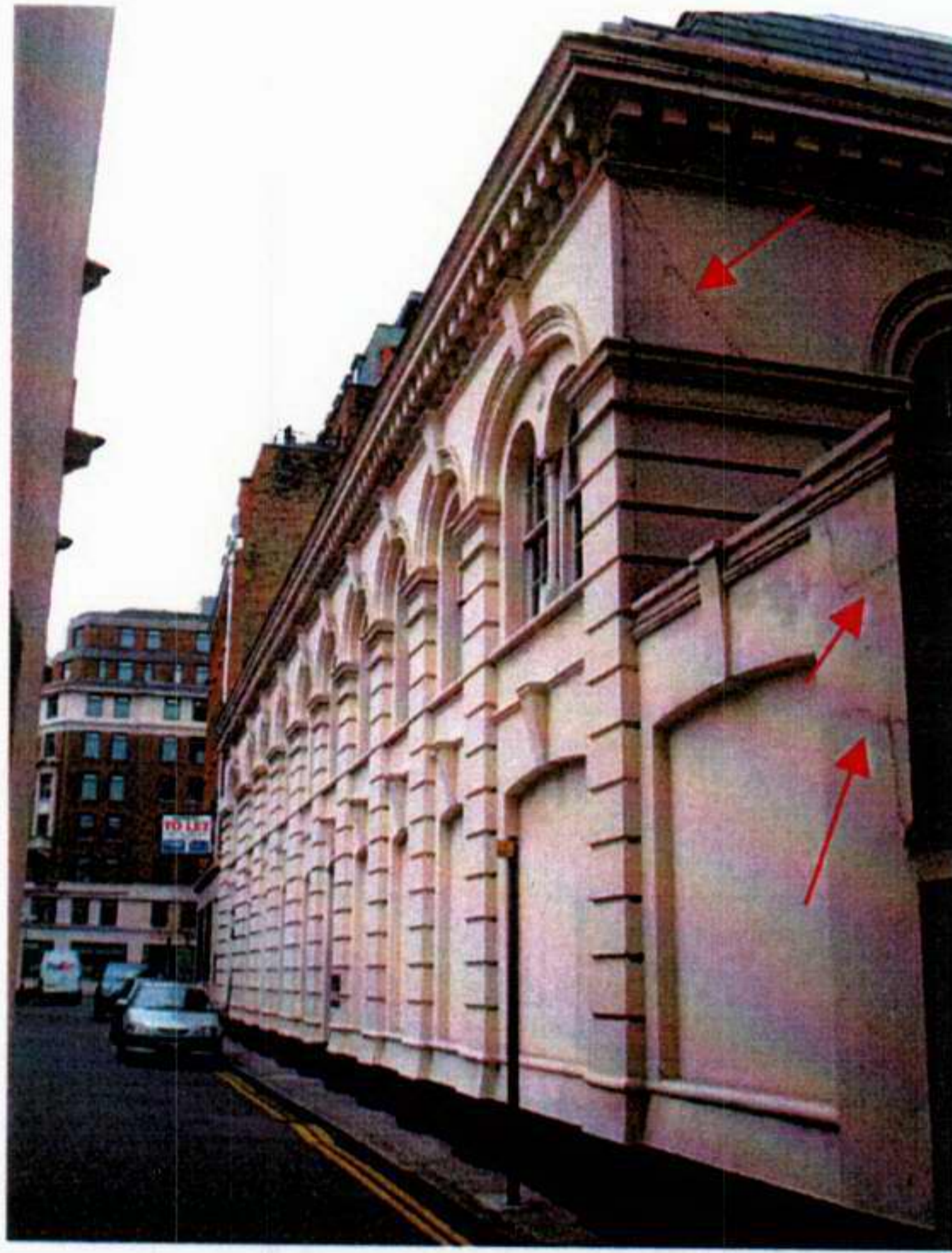
- 6.1 The building was in reasonable structural condition with no evidence of significant structural movement and cracking associated with foundation movement.
- 6.2 There were a number of routine maintenance items required such as roof covering, flashings, paintwork, cracked render etc.
- 6.3 The building was a robust loadbearing masonry structure, originally constructed as a warehouse, but significantly remodelled in ~1980. Apart from the remaining brick vaults in the basement, little of the original internal structure remains.
- 6.4 The proposed residential use has a lower live load requirement than a training centre (1.5kN/m^2 rather than $\sim 3.0\text{kN/m}^2$). In broad terms, providing internal partitions are of lightweight stud construction, no strengthening of the floors, beams or foundations would be required.
- 6.5 The proposed layouts include some opening-up of loadbearing walls, where additional framing will be required. The most significant alteration would be forming flat numbers 3, 4 and 5, where the squash courts are currently located. This would require
- i. Demolition of the existing dividing wall
 - ii. Construction of new internal loadbearing party walls on new foundations to re-support the 1st floor steelwork.
 - iii. Construction of new timber ground floor supported on steel beams including installation of spiral staircases between the basement & ground floor.
- Whilst this work is significant, it would not be detrimental to the historic fabric or the stability of the building.
- 6.6 Should the detailed design work be required then opening-up work will be necessary, to confirm the structural arrangements. Permission should also be sought to obtain copies of the relevant drawings held at Camden Building Control from both T P Bennett and Travers Morgan.

APPENDIX 1

Survey Photographs

89 Bancroft
Hitchin, Herts. SG5 1NQ
Tel: 01462 632012 Fax: 01462 632233

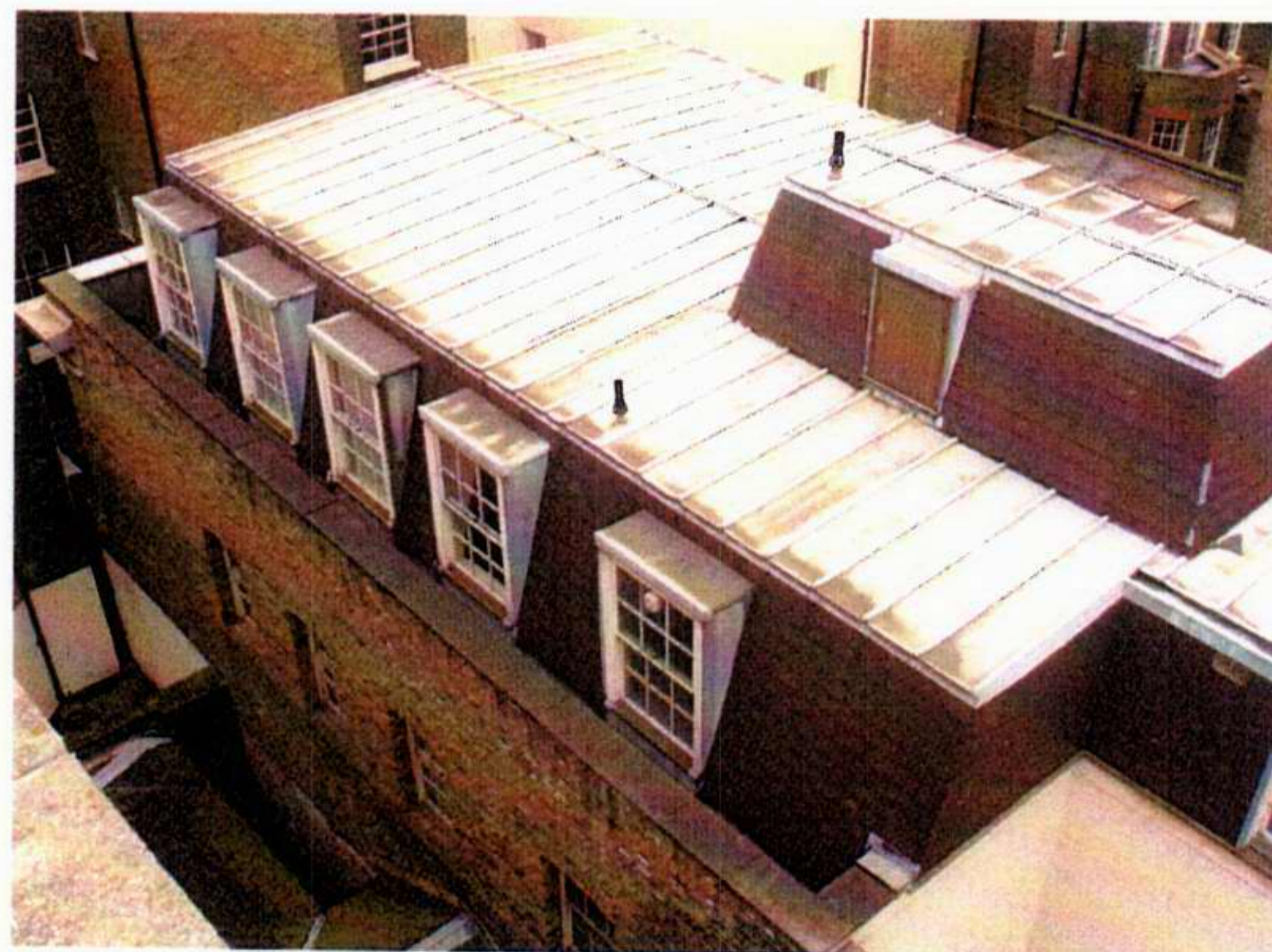
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Project: 21 Barter Street
Title: Survey Photographs



1. Right hand flank wall and front elevation.
Note to the cracking of render.



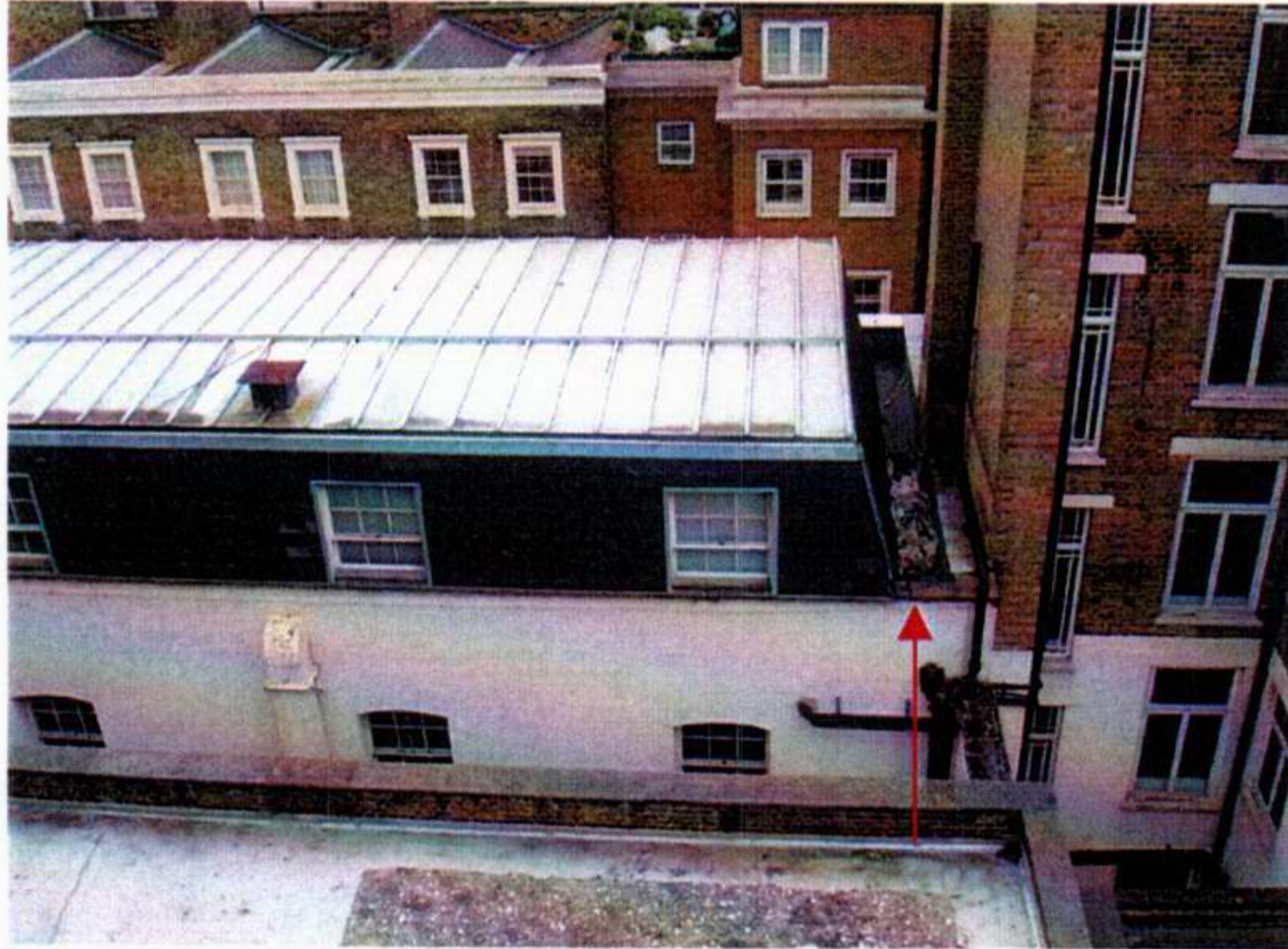
2. Left hand end of building.
Note the vegetation growing on the parapet.



3. Mansard roof at the rear.
Note the later London stock brickwork at high level.

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Hitchin, Herts. SG5 1NQ
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4. Mansard roof on the left hand side.
Note the debris in the parapet gutter.



5. Hairline cracking of ashlar-render on rear wall.

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Tel: 01462 632012 Fax: 01462 632233

Ref: 205061

Project: 21 Barter Street

Title: Survey Photographs



6. Slight distortion of front wall and dormer windows.



7. 2nd floor typical internal layout.

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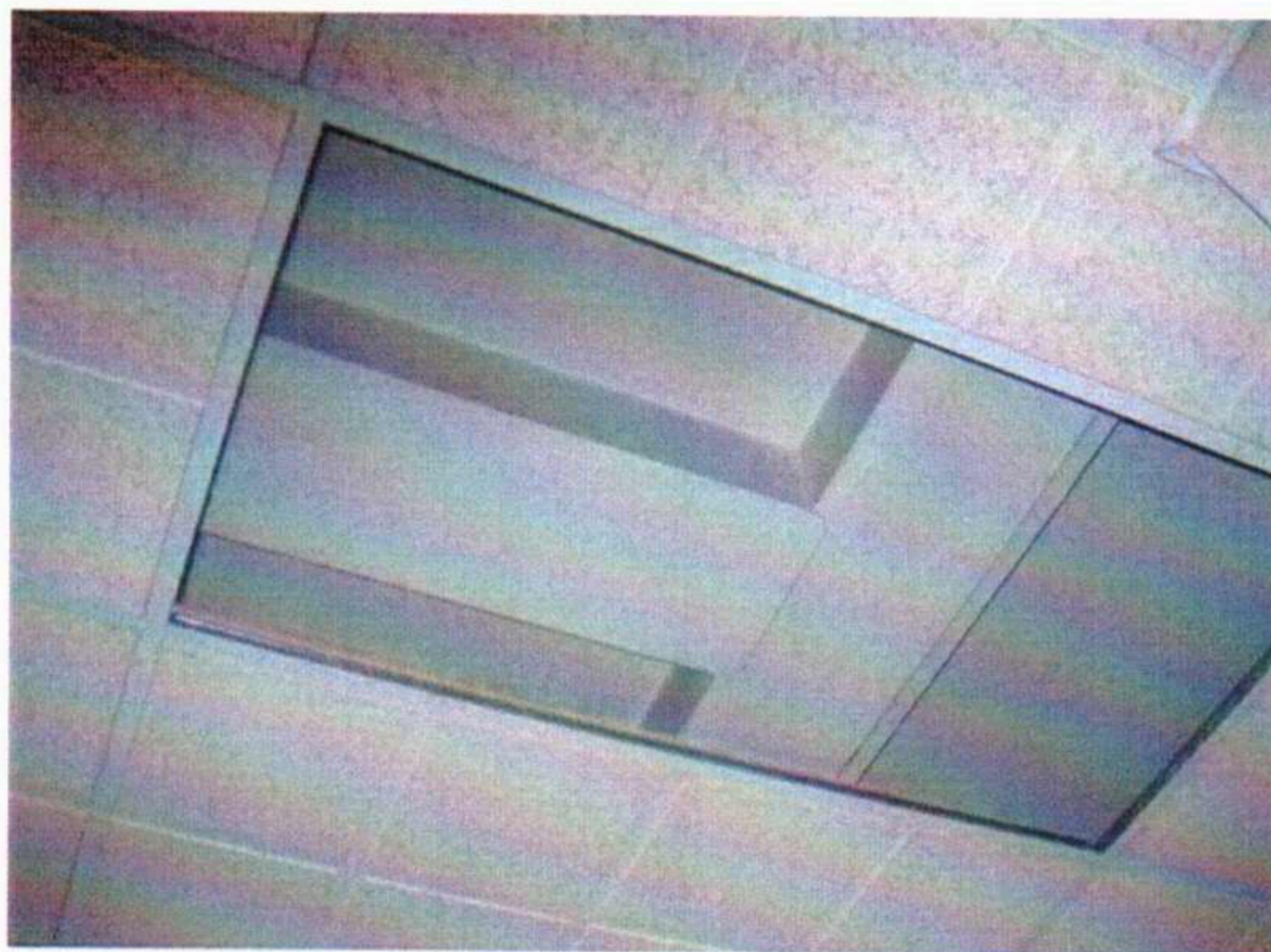
8. Evidence of dampness from parapet gutter outlet (?).



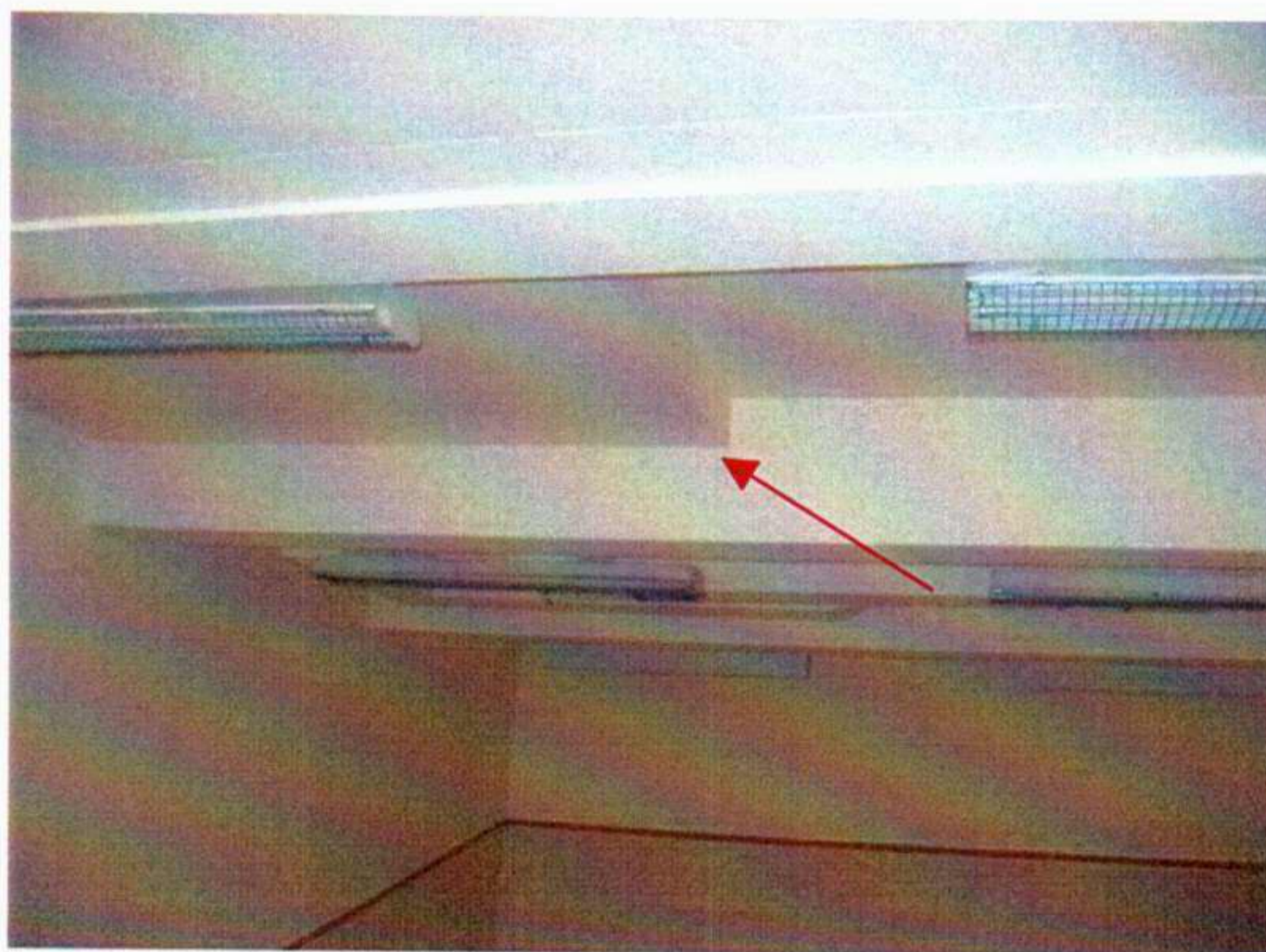
9. Slight hump in the floor at main supporting beam position.

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10. Typical downstand beams and suspended ceiling.



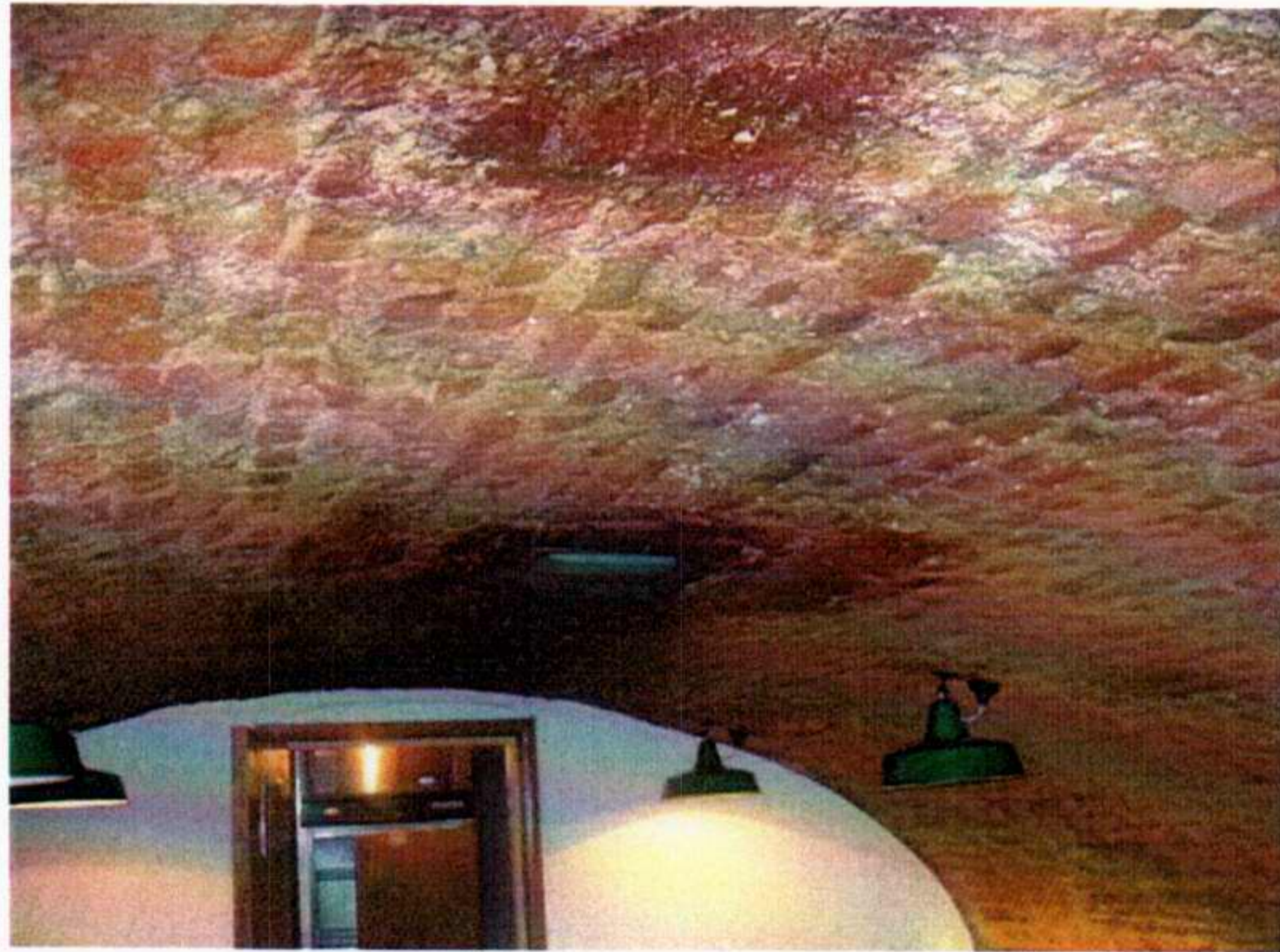
11. Supporting beams and step down for flat roof at 1st floor level over squash courts.

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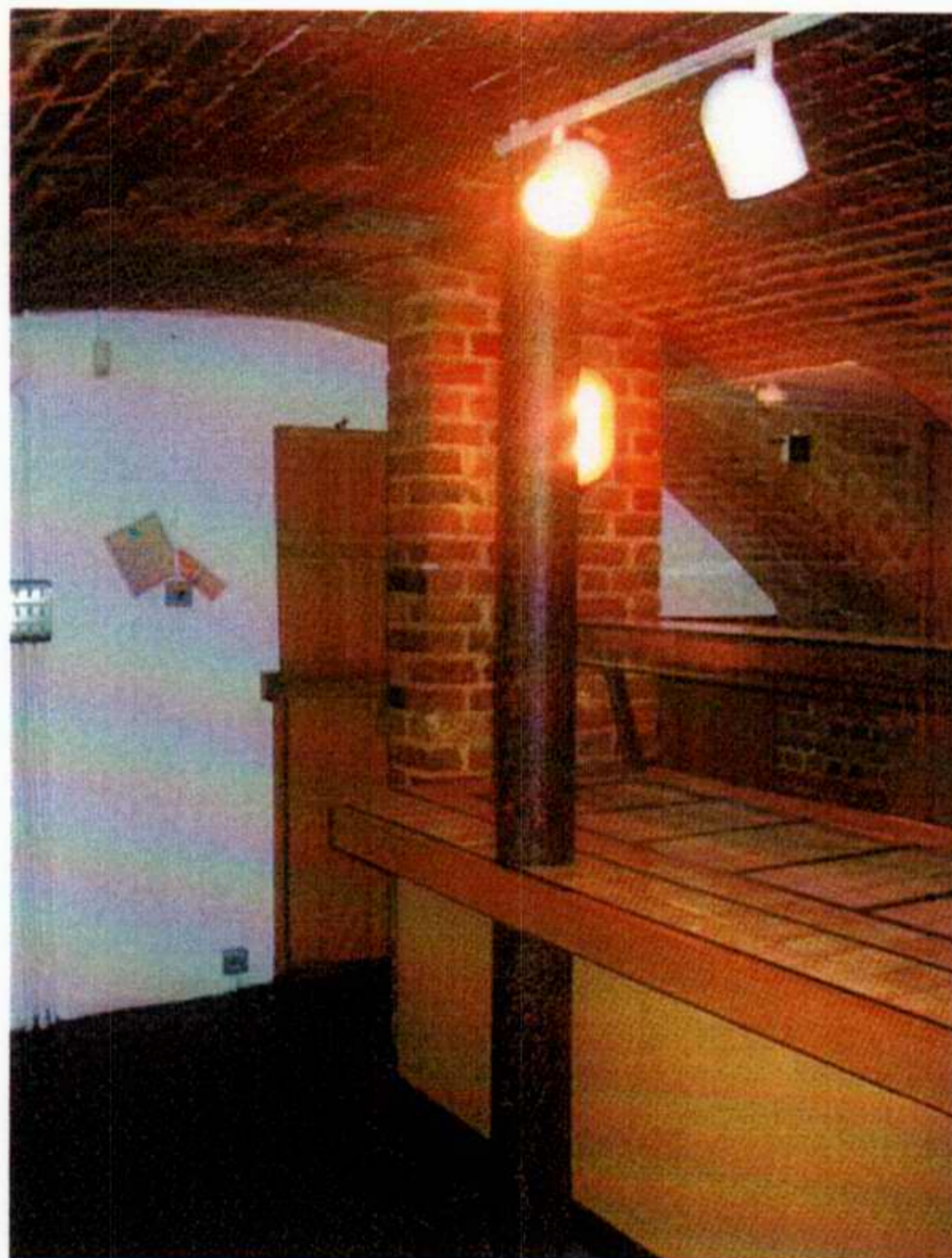
Ref: 205061

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12. Brick arch vaults in basement.



13. Brick arch vault and cast iron column in basement.

APPENDIX 2

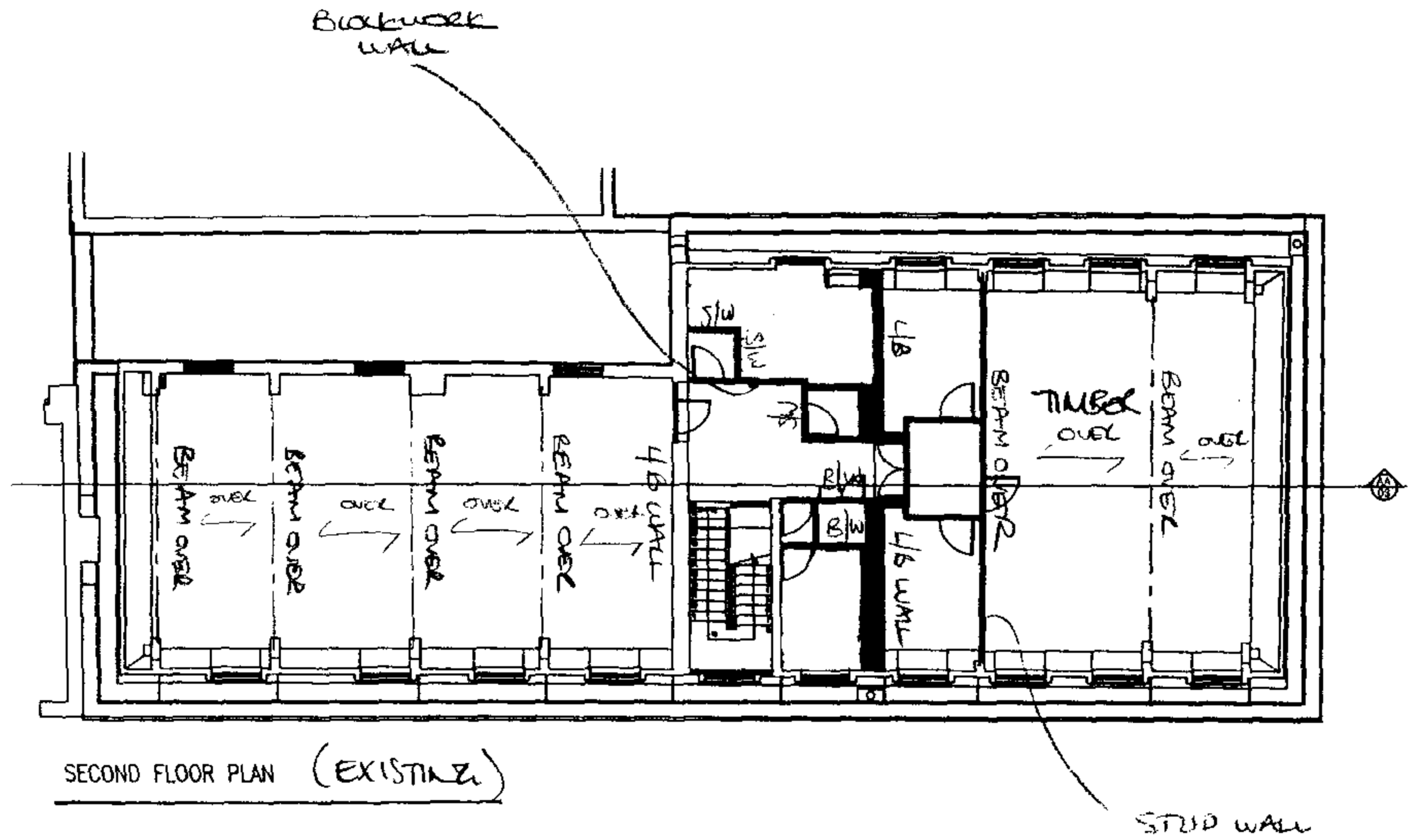
Floor Plans

KEY

SW = STUD WALL

LB = LOADBEARING WALL

BW = BLOCKWORK WALL



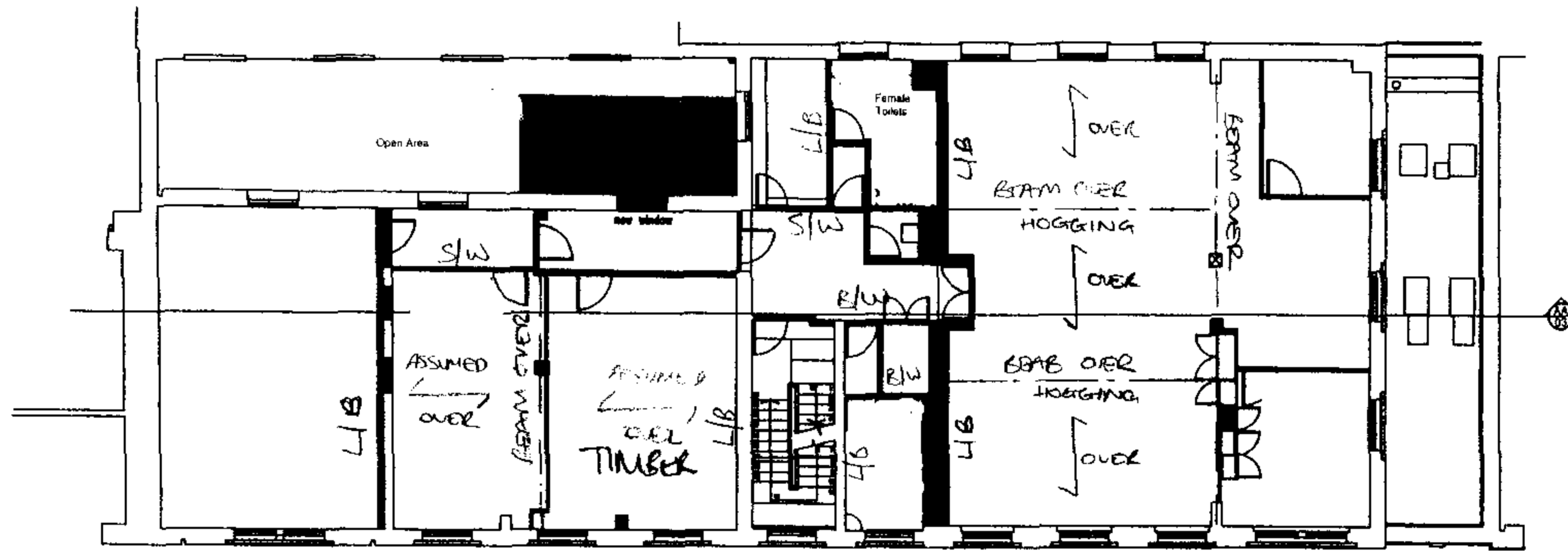
SECOND FLOOR PLAN (EXISTING)

KEY

L/B = LOADBEARING WALL

S/W = SUD WALL

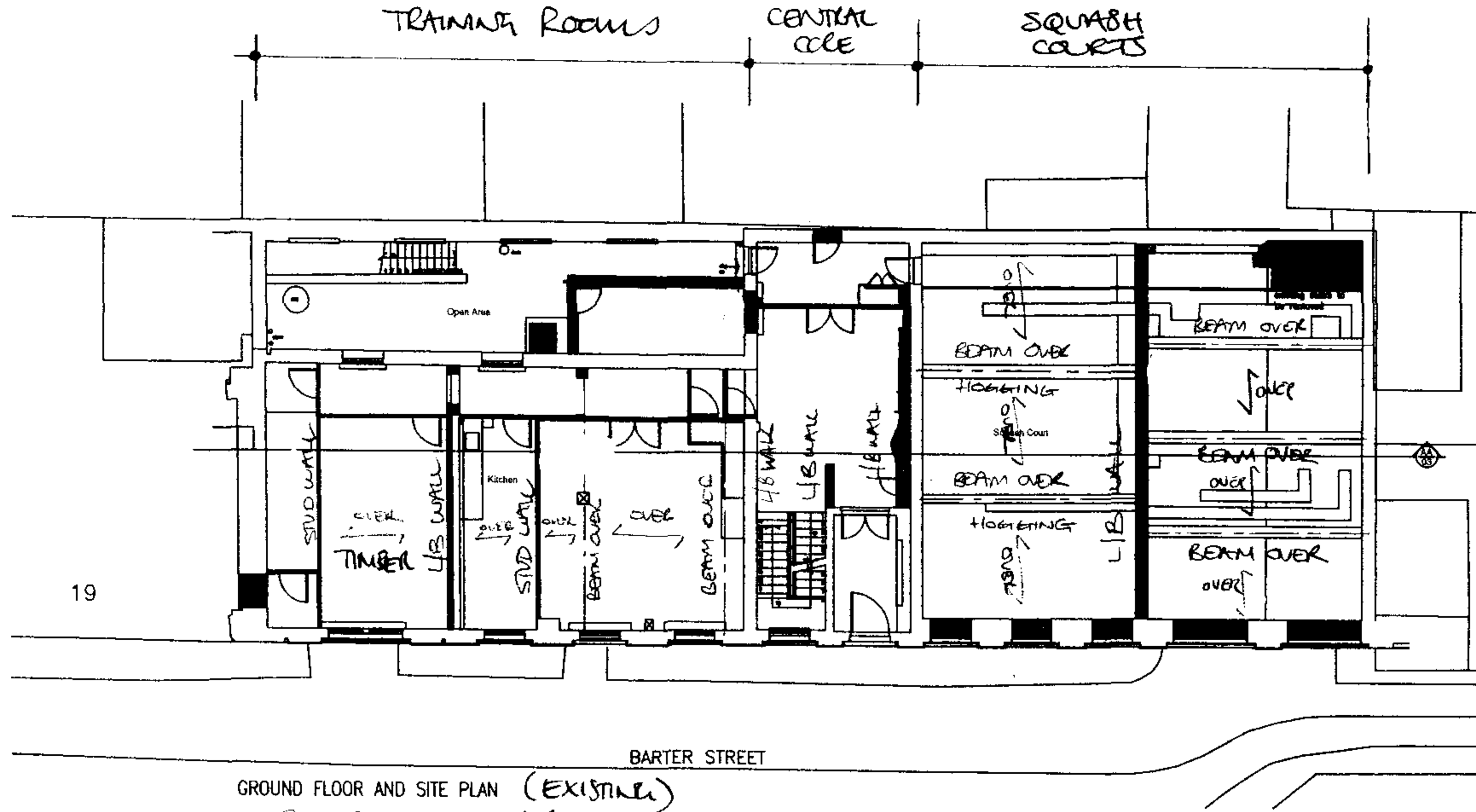
B/W = BLOCKWORK WALL



FIRST FLOOR PLAN (EXISTING)
SCALE 1:200 AT A4.

KEY

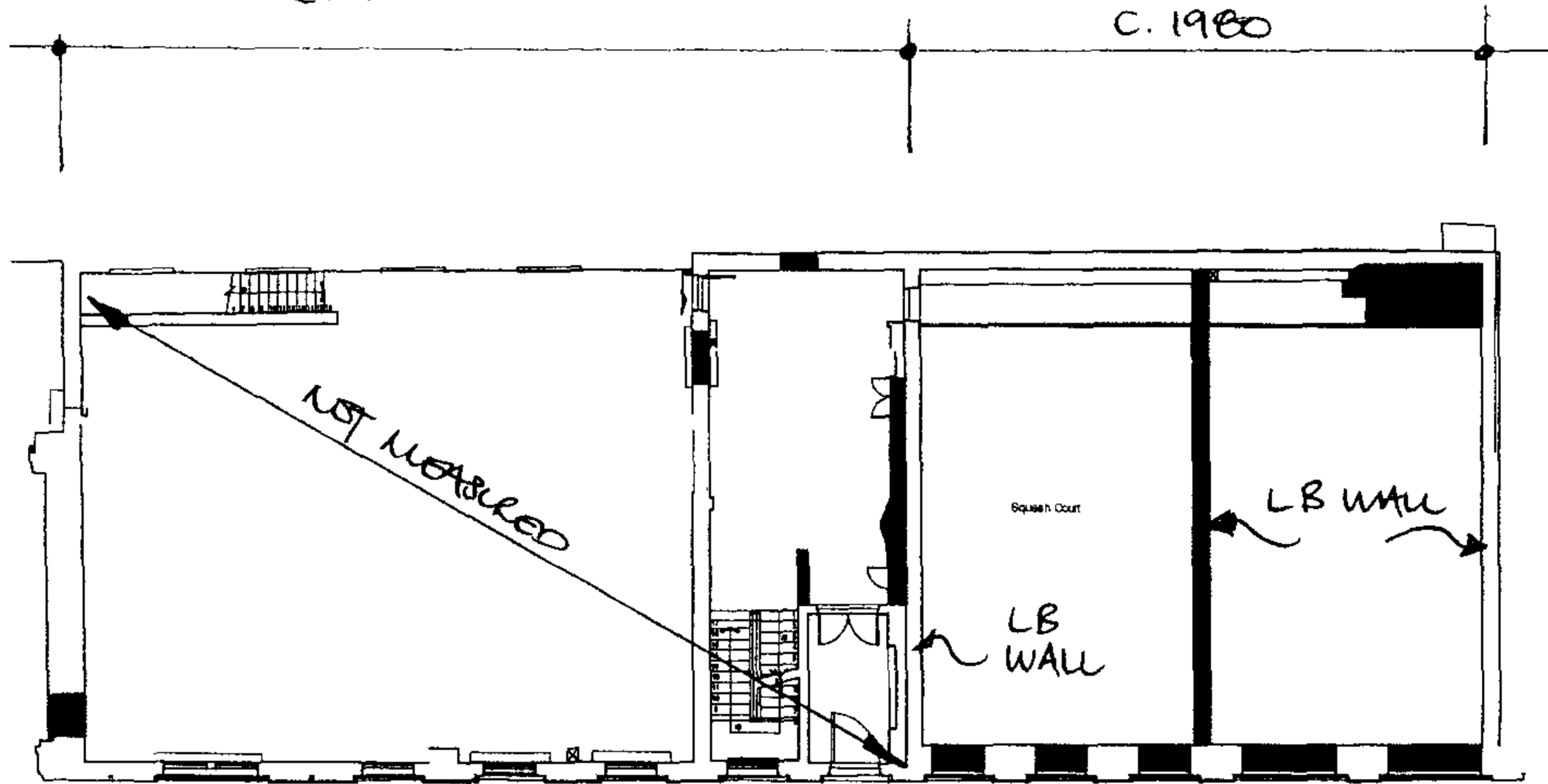
L/B = LOADING WALL
S/W = STUD WALL



GROUND FLOOR AND SITE PLAN (EXISTING)
SCALE 1:200 @ A4

BRICK ARCH VULTS

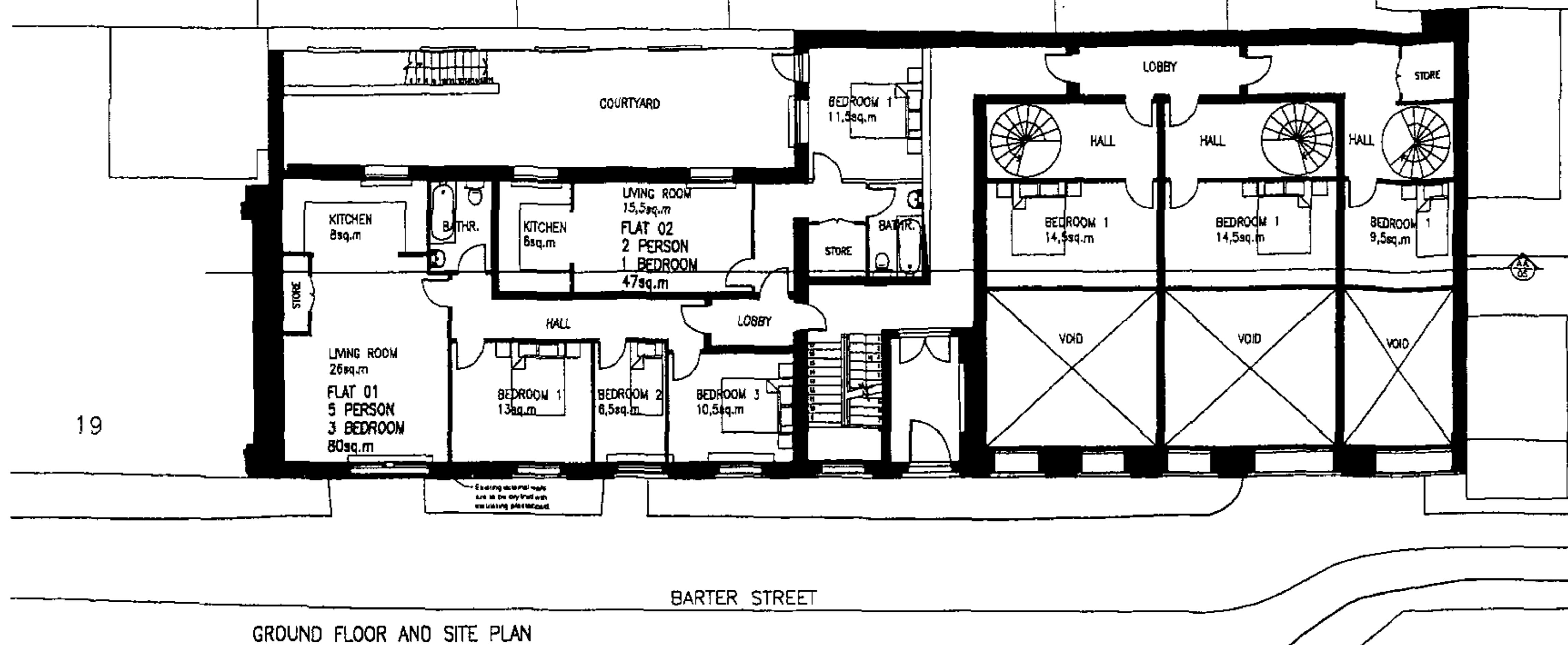
SQUASH COURTS
C. 1980



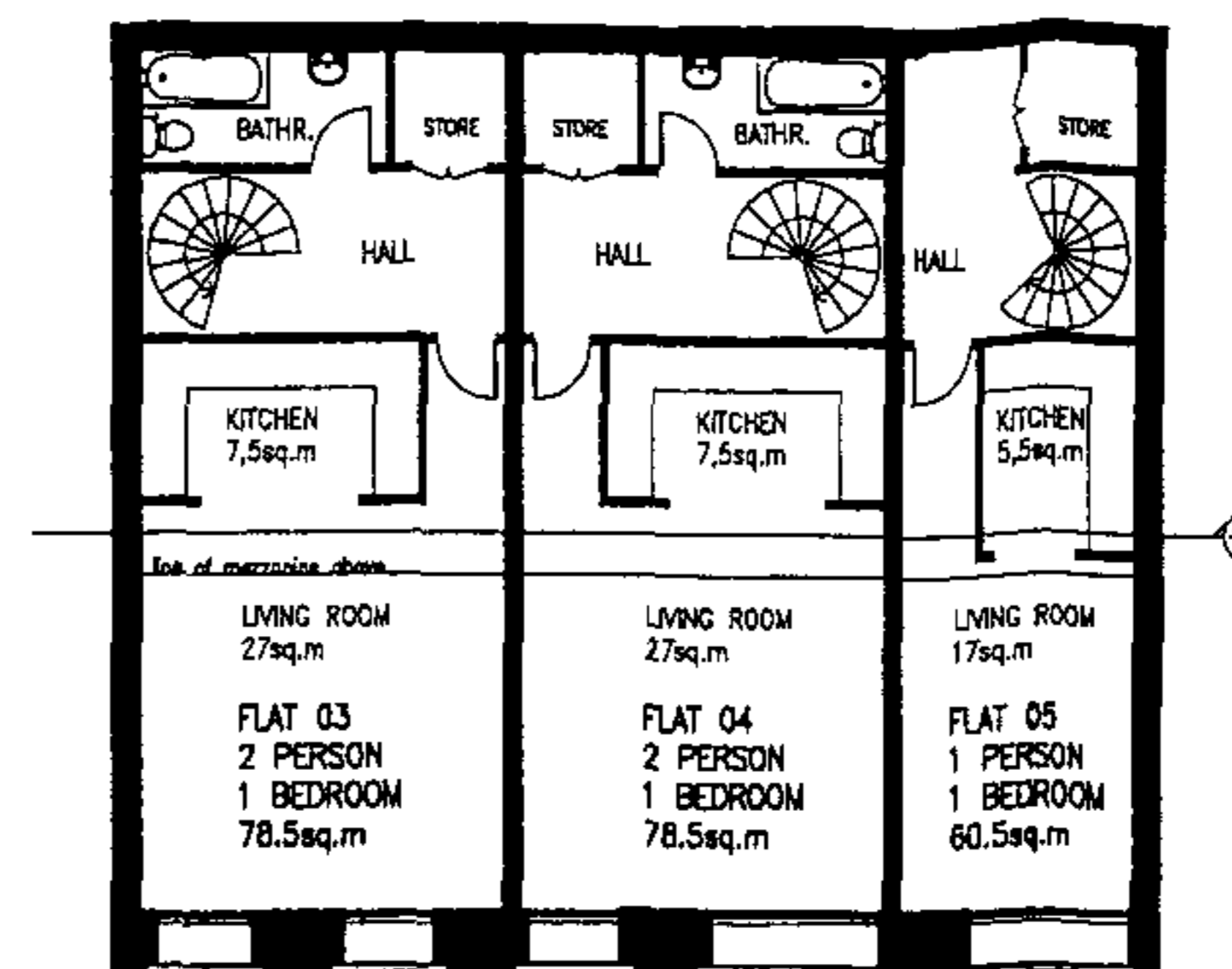
BASEMENT PLAN

1:200 @ A4

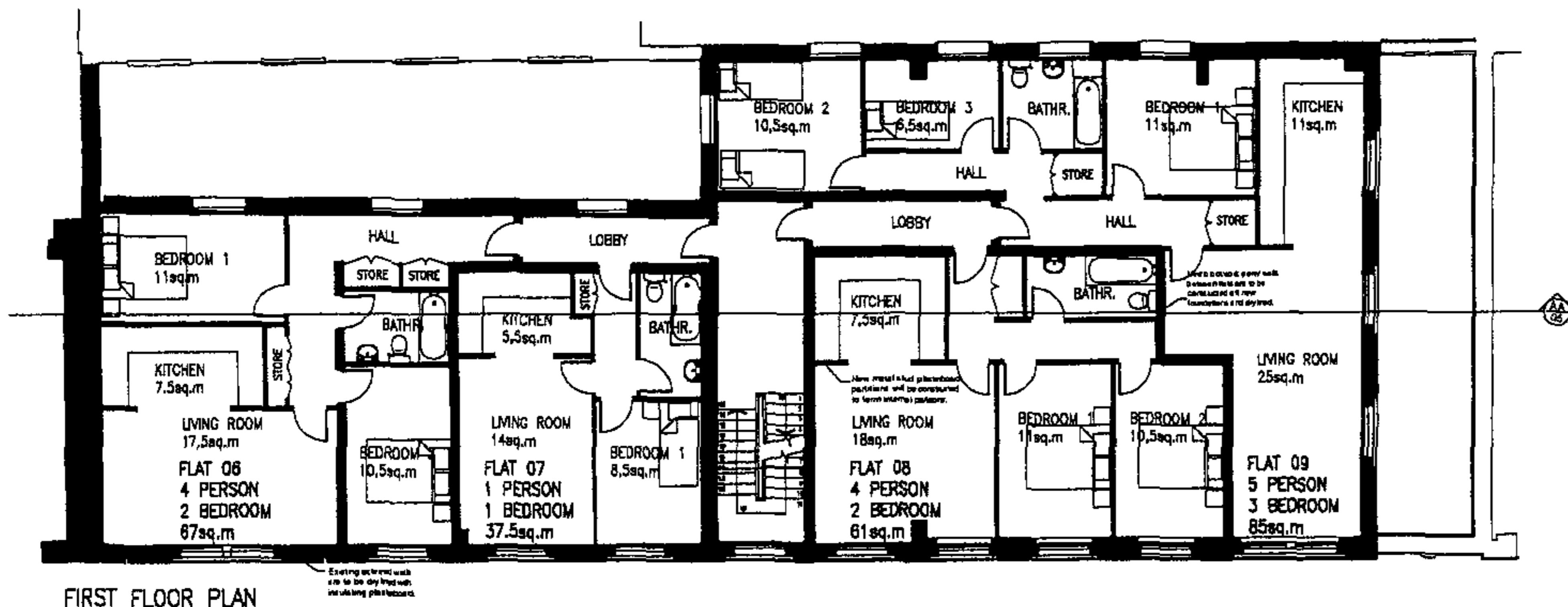
(EXISTING)



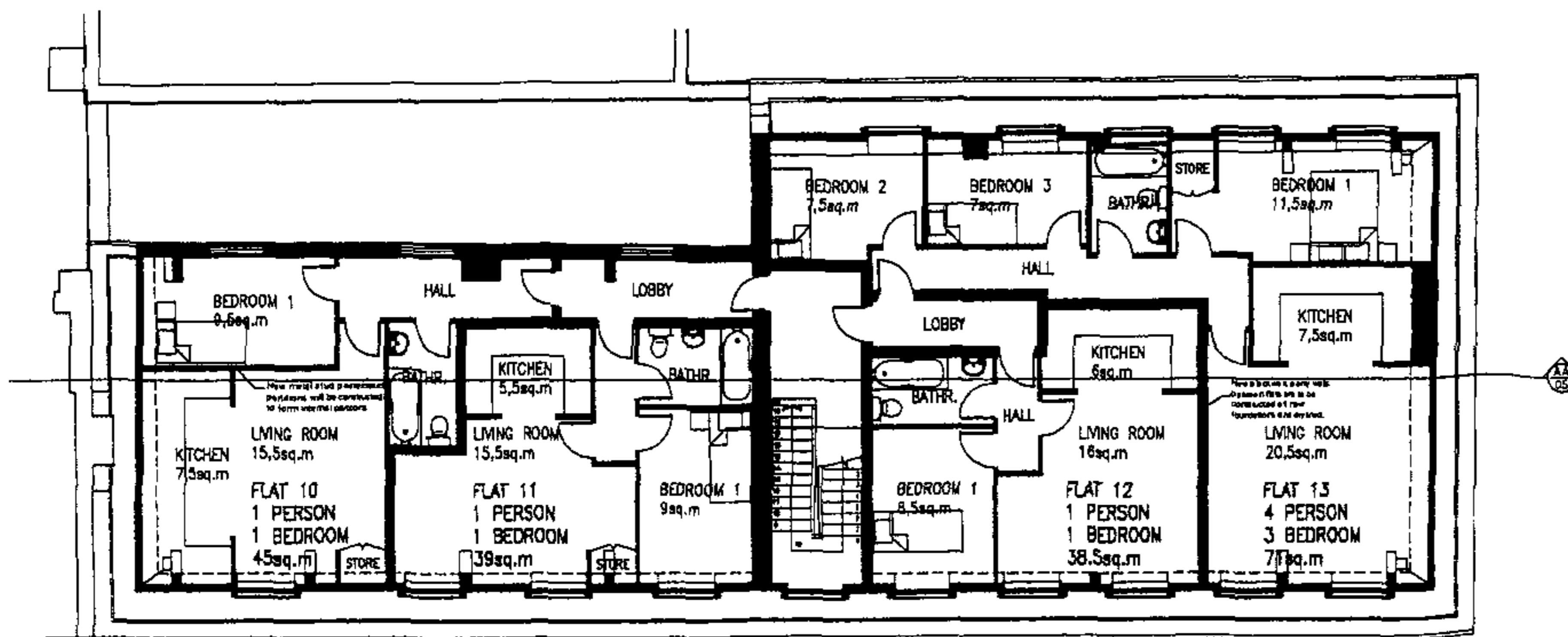
GROUND FLOOR AND SITE PLAN



BASEMENT FLOOR PLAN



FIRST FLOOR PLAN



SECOND FLOOR PLAN

GROSS INTERNAL AREA

GROUND FLOOR AREA

- FLAT 01 6P1B 80sq.m
- FLAT 02 2P1B 47sq.m
- FLAT 03 2P1B 78.5sq.m
- FLAT 04 2P1B 78.5sq.m
- FLAT 05 1P1B 60.5sq.m

FIRST FLOOR AREA

- FLAT 06 4P2B 67sq.m
- FLAT 07 1P1B 37.5sq.m
- FLAT 08 4P2B 61sq.m
- FLAT 09 5P3B 85sq.m

SECOND FLOOR AREA

- FLAT 10 1P1B 45sq.m
- FLAT 11 1P1B 39sq.m
- FLAT 12 1P1B 38.5sq.m
- FLAT 13 4P3B 77sq.m

TOTAL AREA 788.5sq.m

ALL AREAS ARE APPROXIMATE

GROSS EXTERNAL AREA

BASEMENT 186m²

GROUND FLOOR 368m²

FIRST FLOOR 328m²

SECOND FLOOR 280m²

TOTAL AREA 1113sq.m

ALL AREAS ARE APPROXIMATE

PRELIMINARY

Rev/No	Description	Date
P2	LOCATION PLAN REVISED	04.03.04
P1	AREA SCHEDULES REVISED, G.E.A. ADDED	05.11.04

Client
GRANDSOFT LIMITED

Project
HOUSING AT 21 BARTER STREET LONDON WC1

Drawing
PROPOSED FLOOR PLANS

Scale	Date	Drawn
1:100 @ A1	SEPT 04	DM

PAUL BROOKES ARCHITECTS

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