Leverton House
13 Bedford Square WC1

Design & Access Statement

Prepared for	The Bedford Estates
Issue Date	21st February 2019
Issue Status	Full Planning

THE BEDFORD ESTATES

Garnett & Partners
Architects and Designers

Contents

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RIBA
Chartered Practice

1.0 Introduction

1.1 Introduction

This report has been prepared on behalf of The Bedford Estates in support of an application for Town Planning and Listed Building Consent in connection with proposals for installation of comfort cooling and internal alterations.

It is intended that the initial proposals, presented within this report, will develop and evolve into a scheme which will eventually be submitted for planning approval.

1.2 Project Team

Client:	**The Bedford Estates**
Architect:	**Garnett & Partners LLP**
MEP Services Engineer	**Taylor Project Services**
Structural Engineer	**Mason Navarro Pledge**
Heritage Consultant	**Professor Anthony Walker**

1.3 About The Architects

Garnett & Partners are committed to high quality design and have considerable experience in working on historically sensitive locations in Central London. The practice is known for its skilful integration of contemporary architecture within heritage environments and for giving new life to historic buildings. Projects range in size from design of whole urban blocks to restoration of interior spaces.

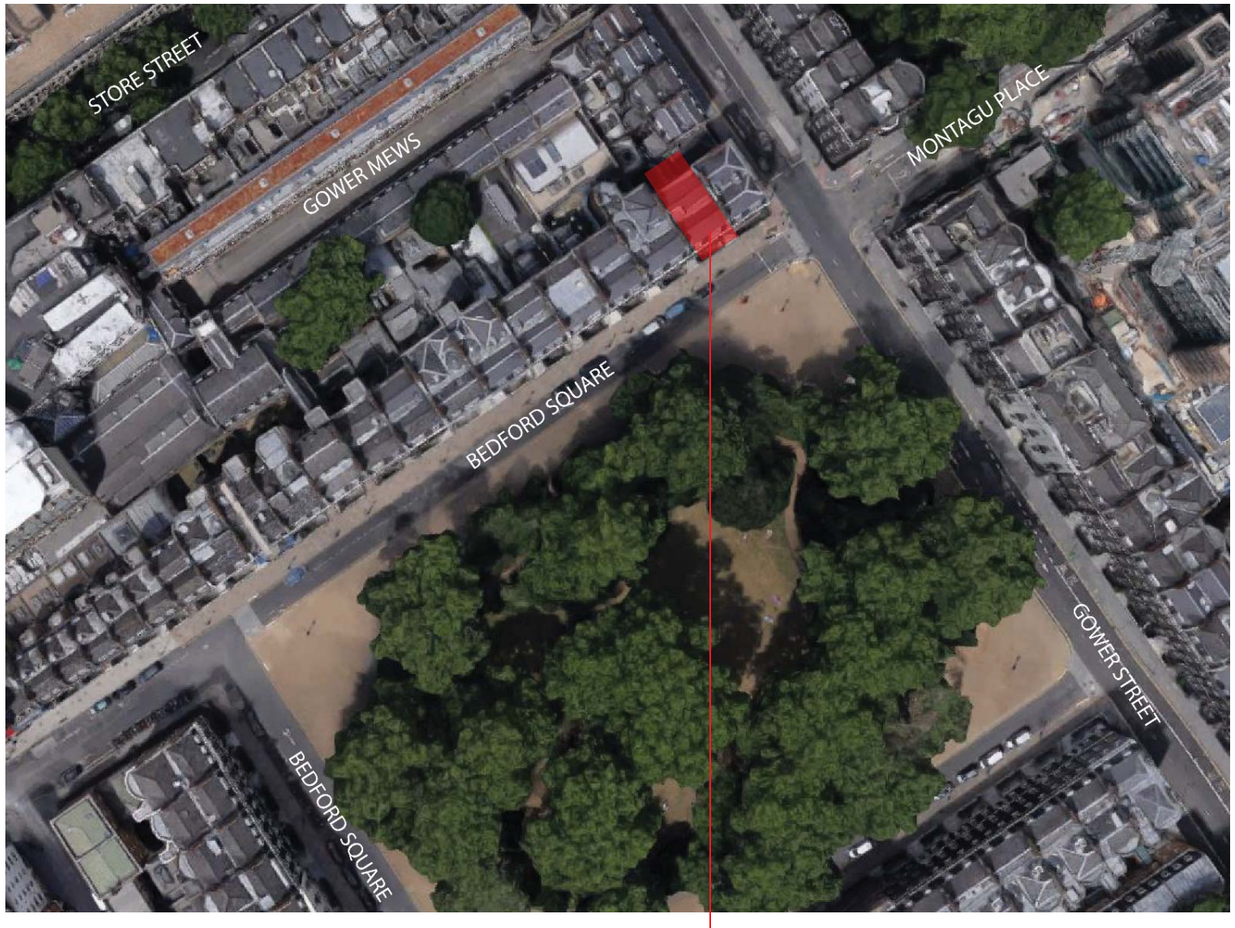
Since 1992 G&P have acted as Architects for London's leading landowners and have worked extensively within Conservation Areas and on all levels of statutory Listed Buildings.

The practice's involvement with London Borough of Camden dates back from 1998 when they were appointed as Architects on the restoration of the Grade II Listed former Hoborn Town Hall. The project received a Design Award from London Borough of Camden in 2004.

Garnett & Partners are interested in the appropriate use of materials, the manipulation of light and volume within the spaces we create, and stewardship of our urban heritage. The practice's objective is to release all the potential the project has to offer, for our client, the community, and the environment.

2.0 Site and Context

2.1 Site Context



Aerial View

N

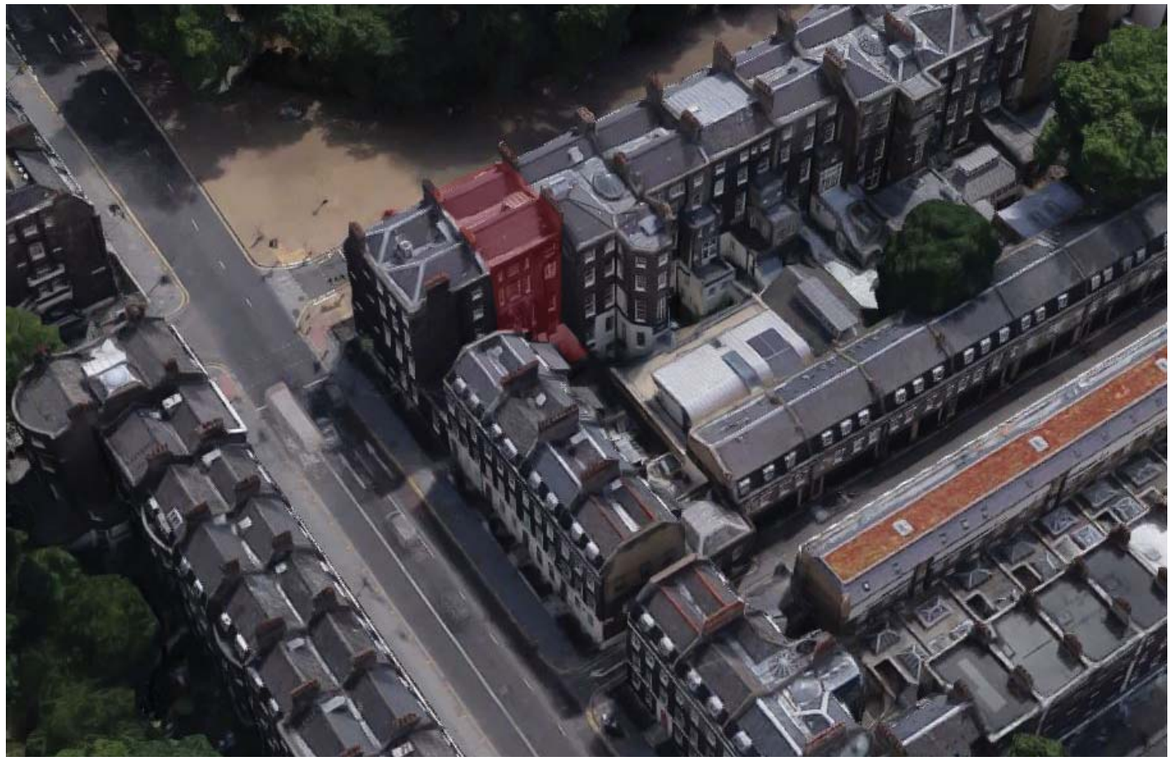
13 Bedford Square

The site is located in the London Borough of Camden and lies on the Northern side of Bedford Square close to the corner with Gower Street. Its main approach is via Gower Street from the East and Tottenham court Road from the West.

The Building lies within the Bloomsbury Conservation Area and is described in the current Appraisal as being within Sub-Area 5 Bedford Square/Gower Street.

2.2 Site Overview

Aerial View of 13 Bedford Square from the South



Aerial View of 13 Bedford Square from the North

Front Elevation 'As Existing'

Rear and Courtyard Elevations 'As Existing'

2.3 Existing Building

13 Bedford Square is a mid-terrace Georgian property Grade I Listed Building building is currently in use as an office. The existing building was constructed at around 1781 as a single town house, but like many of the buildings at Bedford Square, has since been converted into an office.

Please refer to the accompanying Heritage Assesment prepared by Professor Anthony Walker for further information on the historical and cultural significance of the existing building.

Gross External Area of the existing building is estimated to be 639sqm.

The site is made up of the main building (fronting Bedford Square) with a narrow closet wing to the rear at ground and lower ground level.

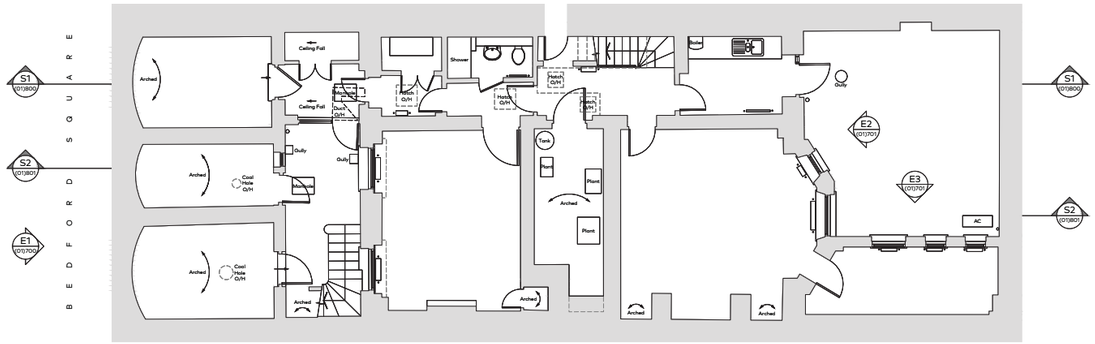
Internally the building retains many fine original features including decorative plaster cornices, skirtings, dado rails & other decorative mouldings. It is proposed to refurbish the building both internally & externally. Decorative mouldings will generally be stripped of paint and refurbished including plaster cornices.

2.3 Existing Building: Sections

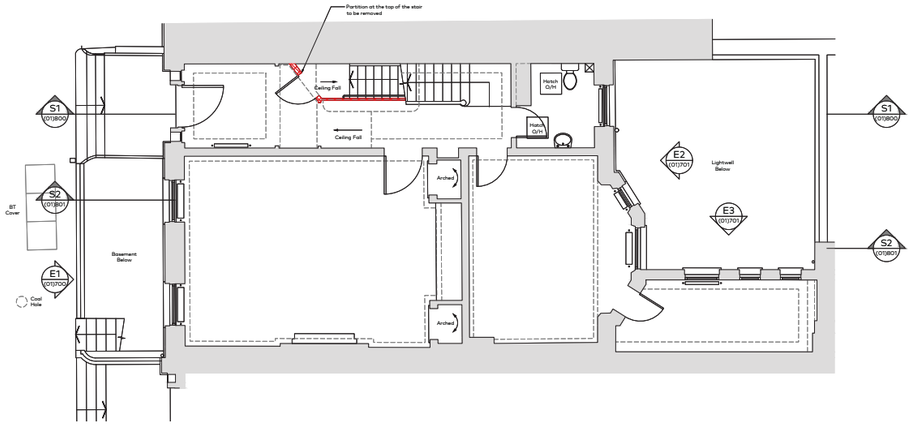
Section 1 'As Existing'

Section 2 'As Existing'

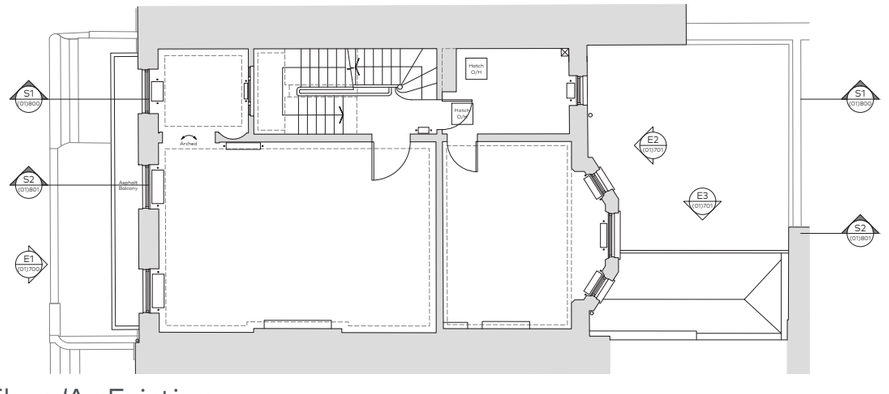
2.3 Existing Building: Floor Plans



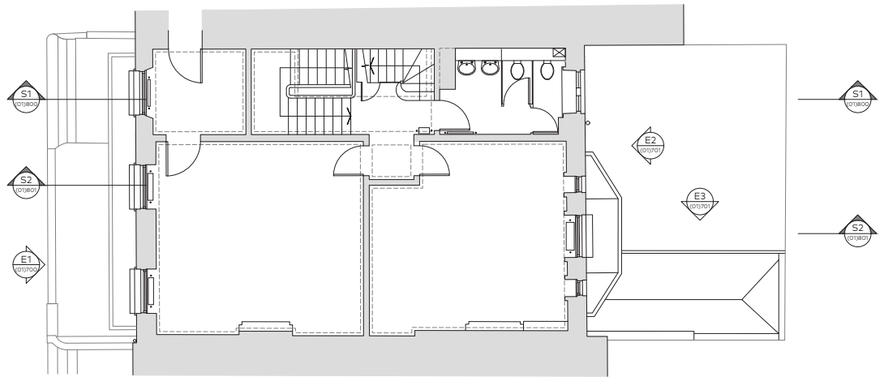
Lower Ground Floor 'As Existing



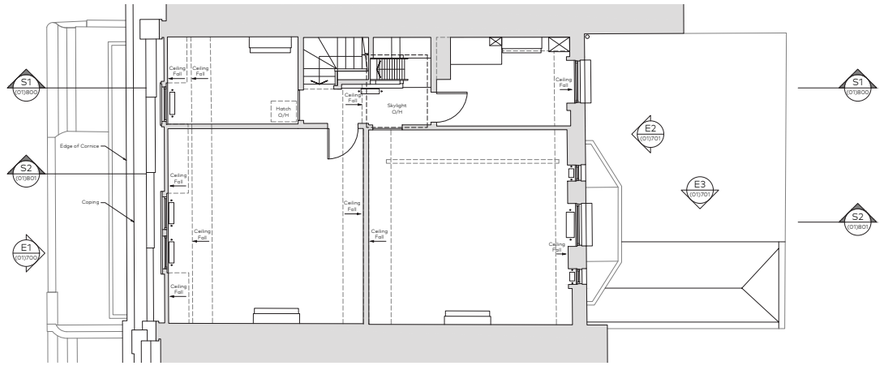
Ground Floor 'As Existing



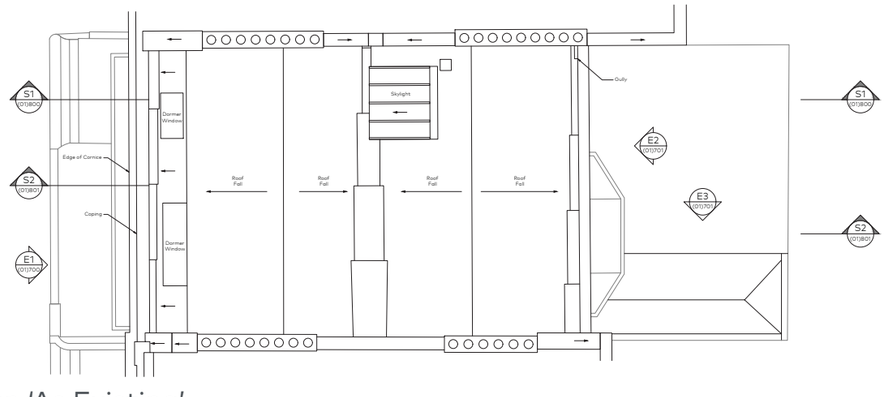
First Floor 'As Existing



Second Floor 'As Existing'



Third Floor 'As Existing'

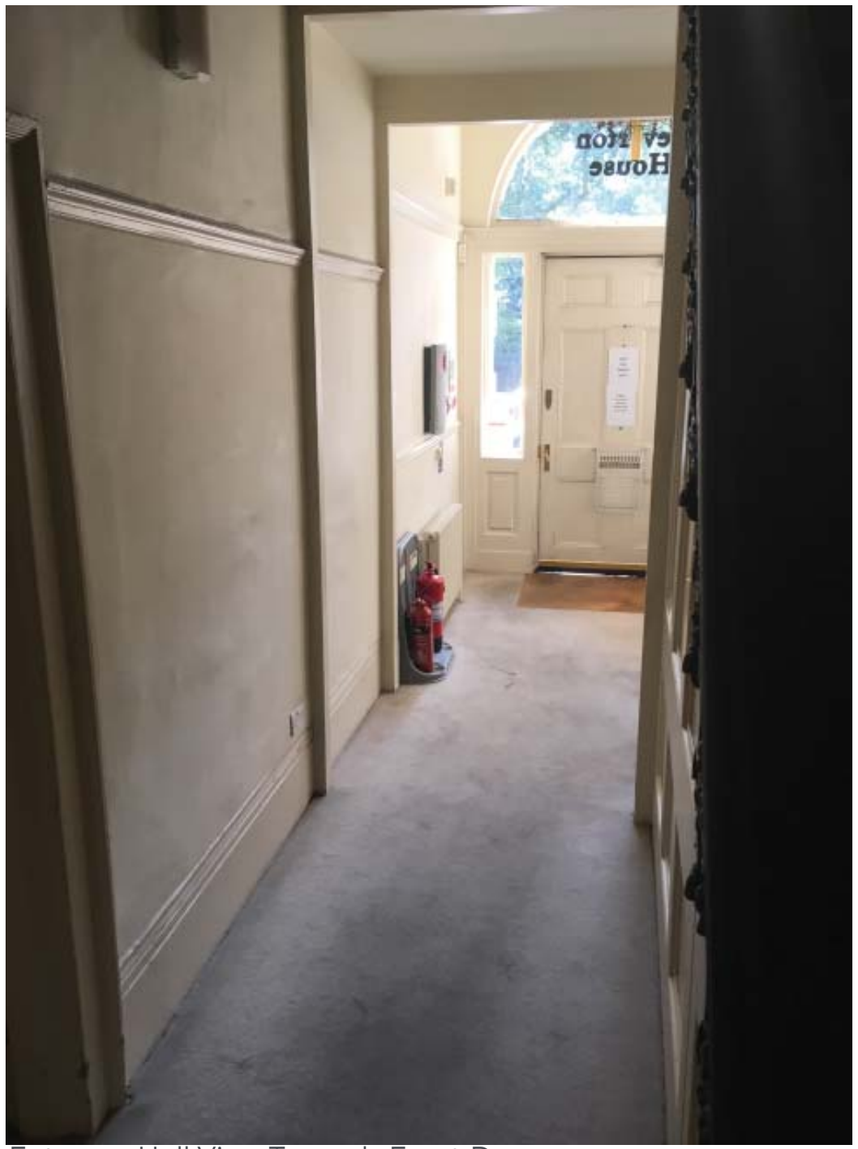


Roof Plan 'As Existing'

2.4 Interior Photographs

Ground Floor Front Room

Second Floor Front Room



Entrance Hall View Towards Front Door

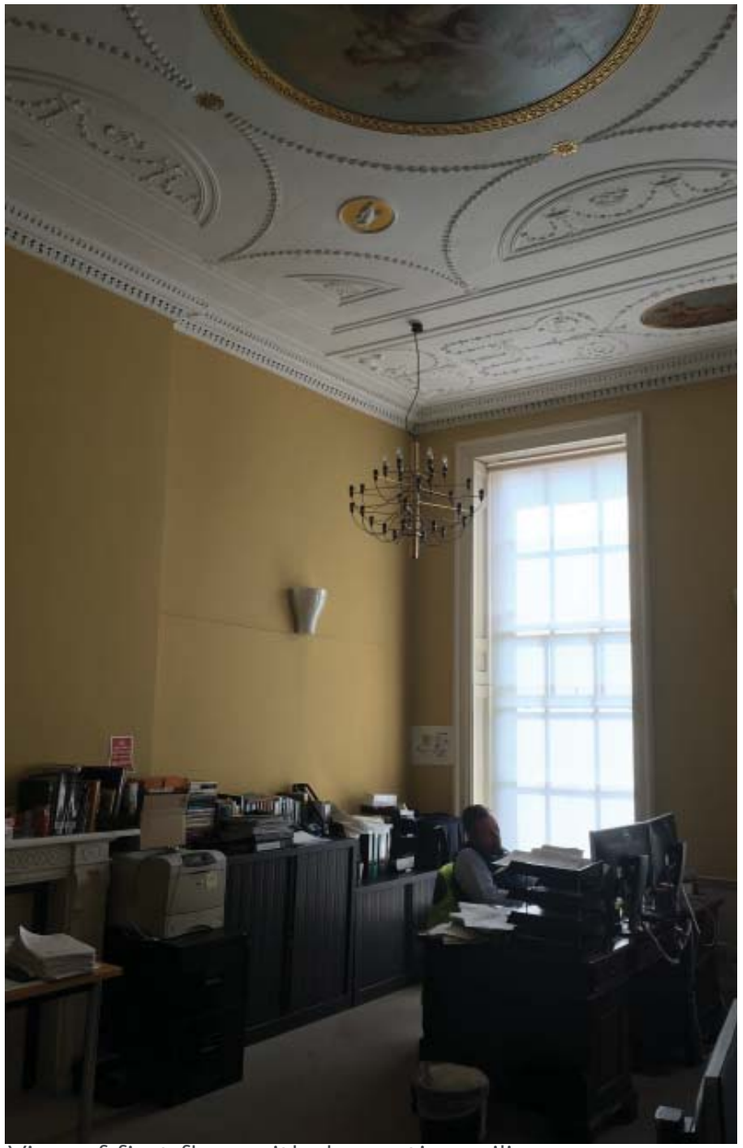
Entrance Hall

2.4 Interior Photographs

View of rear ground floor office

View of rear ground floor office

View of rear first floor office



View of first floor with decorative ceiling

3.0 Summary of Proposal

Section 'As Proposed'

3.1 Description of the Proposed Works

This submission is requesting consent for alterations to the existing Grade I Listed Georgian property. The following works are proposed:

Alterations to Ground Floor Entrance Hall

- Existing panelling within entrance hall at ground floor removed to open up access to the lower ground floor, and create a more generous sense of space on arrival.
- New handrail and balustrading installed between ground and lower ground floor levels.

New Comfort Cooling

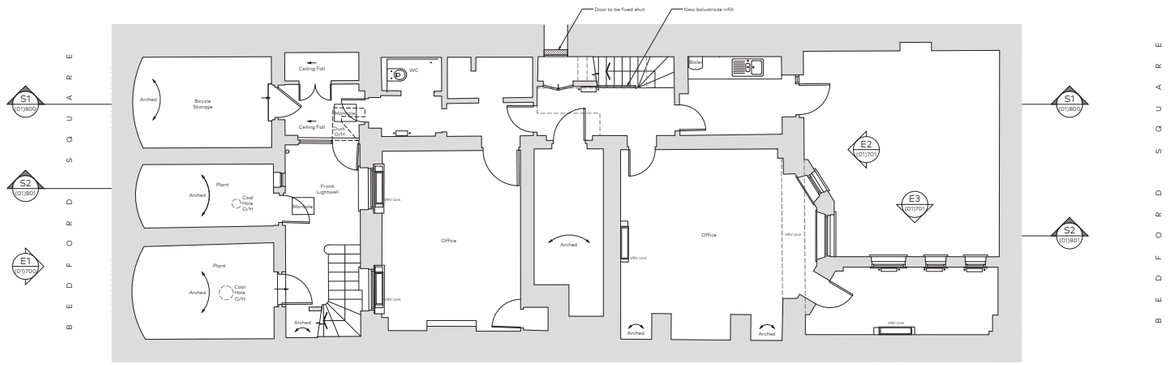
- New comfort cooling throughout including new fan coils positioned to avoid clashes with existing joinery.
- New condenser units installed within the existing roof valley concealed below the existing front and rear ridge lines

Repairs

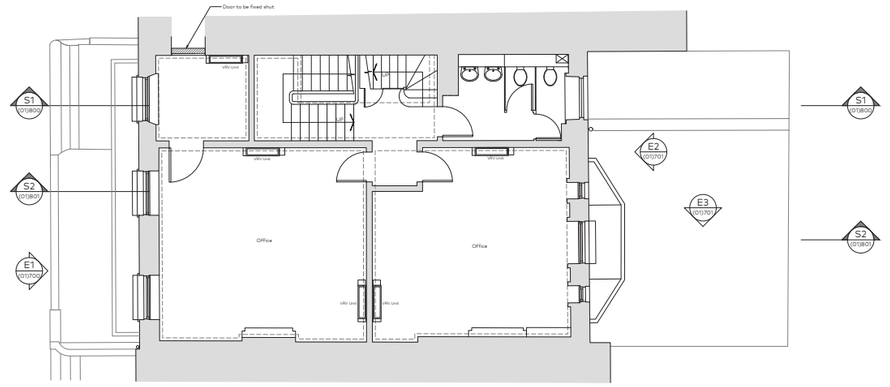
- Repair and making good works are proposed to the main building. In each these works will be 'like for like' localised repairs. Refer to the drawings for the extent repair works to the existing building.

For further information regarding impact of this proposal on the significance of the existing building, please refer to the accompanying Heritage Assessment prepared by Professor Anthony Walker.

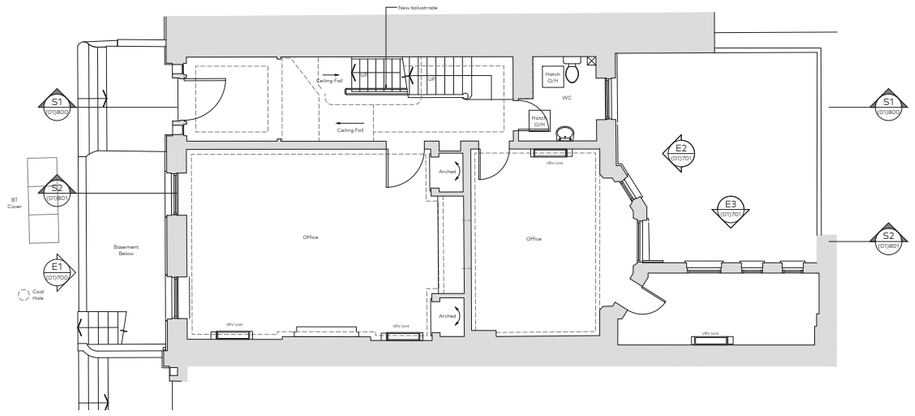
3.2 Description of Proposed Works: Floor Plans



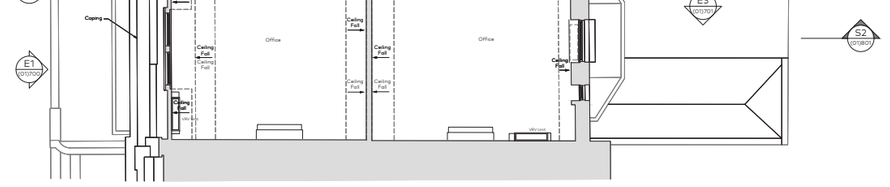
Lower Ground Floor 'As Proposed'



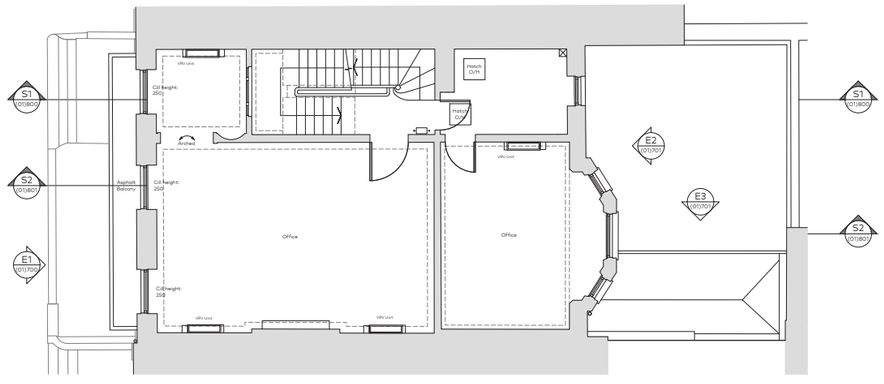
Second Floor 'As Proposed'



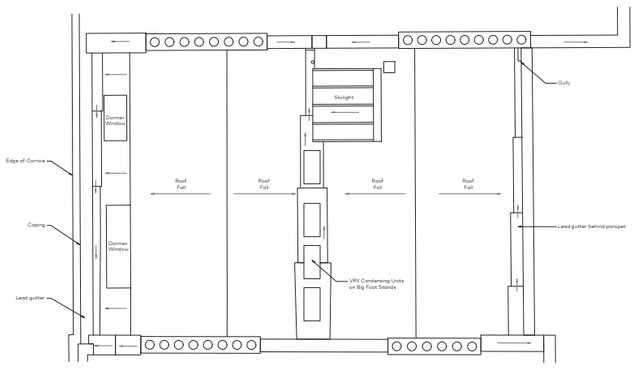
Ground Floor 'As Proposed'



Third Floor 'As Proposed'

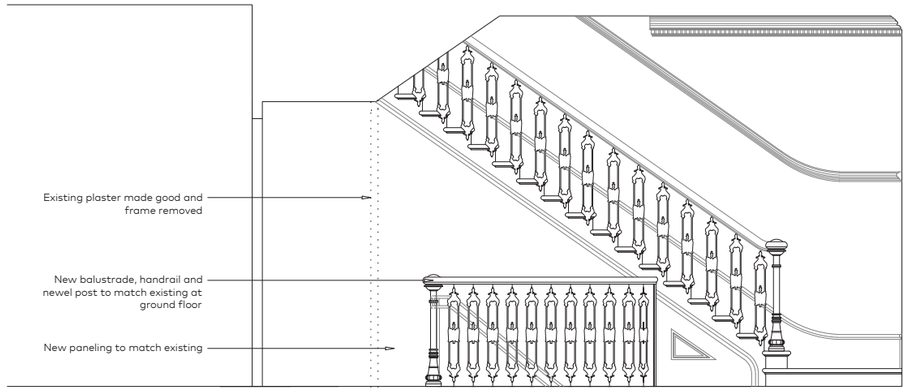


First Floor 'As Proposed'

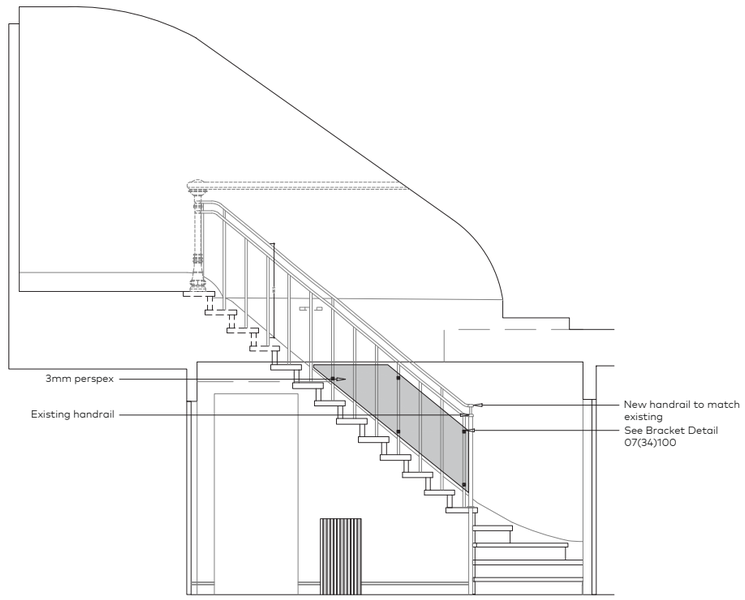


Roof Plan 'As Proposed'

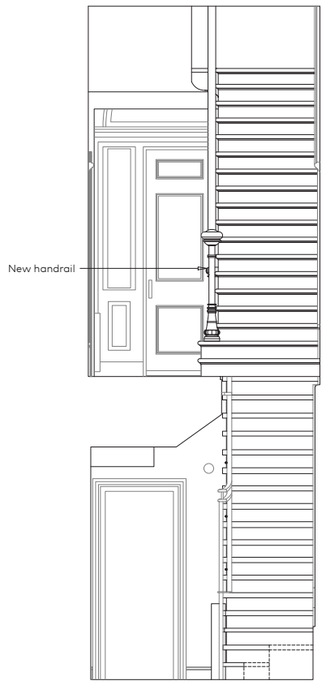
3.3 Proposed Works: Ground/ Basement Staircase



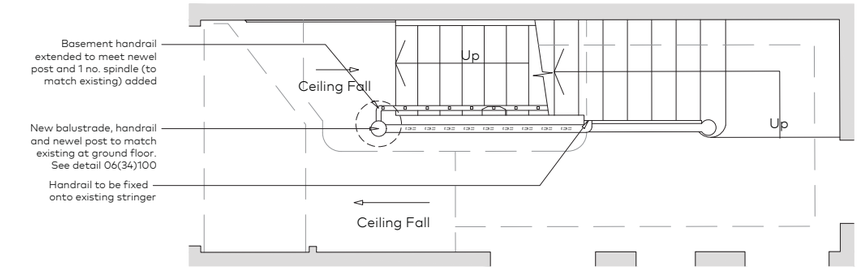
01 (34)100 GROUND FLOOR STAIR ELEVATION - AS PROPOSED
1:50@A3



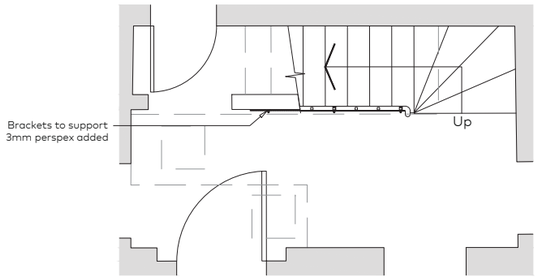
02 (34)100 LOWER GROUND STAIR ELEVATION - AS PROPOSED
1:50@A3



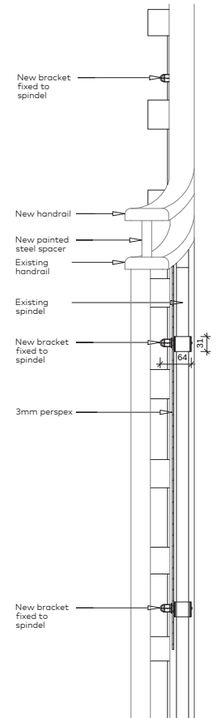
03 (34)100 STAIR SECTION - AS PROPOSED
1:50@A3



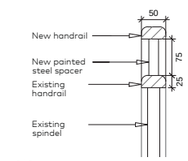
05 (34)100 GROUND FLOOR PLAN - AS PROPOSED
1:50@A3



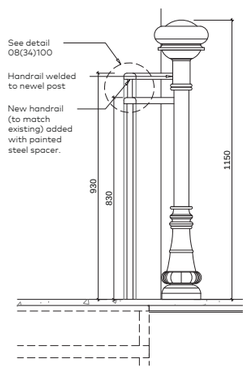
04 (34)100 LOWER GROUND FLOOR PLAN - AS PROPOSED
1:50@A3



07 (34)100 BRACKET DETAIL
1:10@A3



08 (34)100 HANDRAIL DETAIL
1:10@A3



06 (34)100 NEWEL POST DETAIL
1:20@A3

3.4 Servicing Strategy

A variable refrigerant volume (VRV), heat pump system is to be installed. This will require the removal of the existing boiler and radiators throughout the building and the installation of indoor VRV units, and externally mounted condenser units (4No) and associated pipe work connections.

The VRV condenser units (4No) will be sited on the roof within the existing roof valley. The units will not be visible from street level. The indoor units are to be chassis type, floor-mounted around the building perimeter, within joinery casings as per the architect's details on the Basement, Ground and First floors. The units on the Second and Third floors are to be proprietary chassis mounted units with steel casings. The indoor units will be installed over five floors, from the Basement to the Third floor, utilising existing risers as necessary and joist notches for the refrigerant pipework distribution.

Refrigerant and condensate pipework runs to and from the VRV units will be placed in notches in the floor joists. The pipe runs will not show any external features and any notches made, will be made good and structurally sound via the addition of a metal plate, fitted and secured to the joist over the notch position. In general, the pipework shall be installed within the existing joist notches where possible. Existing, redundant pipe work running across the joists will be removed and a repair will be made to the notches as necessary.

An environmental noise survey will be undertaken in order to establish any noise implications from the VRV plant, a Noise Impact Assessment Report will be issued. Compliance with the noise emissions design criteria requirements of Camden Council will be demonstrated and any noise mitigation (attenuation) shall be detailed accordingly.

Energy
In order to reduce the carbon footprint of the property, the following energy saving measures are proposed: high performance thermal insulation to be installed in any areas of new construction.

3.5 Access Statement

The property is accessed directly off Bedford Square. The existing access is stepped leading to a generously proportioned front hall. While the front steps naturally inhibits disabled access to the property, it is considered that a temporary ramped access could be provided and stored within the ground floor, to provide temporary disabled access where required.

The front steps are fully accessible to ambulant disabled, while the new passenger lift has been designed to accommodate a wheelchair and will provide full DDA access to all areas within the building.

4.0 Drawings

4.1 Planning Drawings - Existing

Site Location Plan
859(01)001 Site Location Plan

Existing Floor Plans
859(01)100 Lower Ground Floor - As Existing with Demolitions
859(01)101 Ground Floor - As Existing with Demolitions
859(01)102 First Floor - As Existing with Demolitions
859(01)103 Second Floor - As Existing with Demolitions
859(01)104 Third Floor - As Existing with Demolitions
859(01)105 Roof Plan - As Existing with Demolitions

Existing Section
859(01)300 Section 2 - As Existing with Demolitions

Detail
859(34)001 Basement and Ground Floor Staircase Detail As Existing

Proposed Floor Plans
859(01)600 Lower Ground Floor Plan - As Proposed
859(01)601 Ground Floor Plan - As Proposed
859(01)602 First Floor Plan - As Proposed
859(01)603 Second Floor Plan - As Proposed
859(01)604 Third Floor Plan - As Proposed
859(01)605 Roof Plan - As Proposed

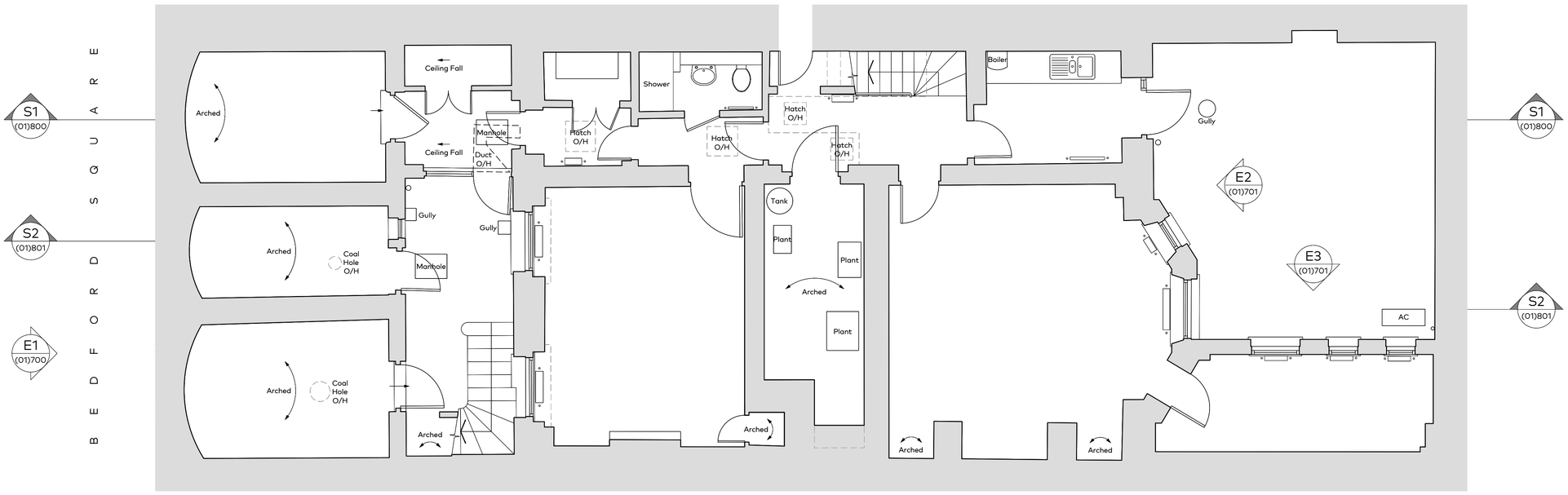
Proposed Section
859(01)800 Section 1 - As Proposed

Proposed Detail
859(34)001 Basement and Ground Floor Staircase Detail As Proposed

Key:

Existing Retained

Existing Demolished



01 - EXISTING LOWER GROUND FLOOR PLAN WITH DEMOLITIONS
1:100@A3

Rev	Issue Date	Revision Notes	Drawn
C	22.01.2019	Demolition removed and general amendments	AS
B	14.09.2018	Issued for Information	JN
A	24.08.2018	Issued for Information	YD

General Notes

Do not scale. All written dimensions must be checked on site before work commences on site or in shop. Figured dimensions take preference over those scaled. Discrepancies, where identified, must be reported to the Architect immediately. Any areas indicated on this drawing are for guidance purposes only. No responsibility is taken for their accuracy. All work must be carried out in accordance with the Building Regulations and to the satisfaction of the Local Authority.

Drawing Status

PLANNING

Job Number	Drawing Number	Rev	Scale
859	(01)100	C	1:50@A1 1:100@A3

Drawing Title: Lower Ground Floor Plan
As Existing with Demolitions

Project: Leverton House, 13 Bedford Square
London WC1

Client: The Bedford Estates

Date: 12.07.2018 drawn checked

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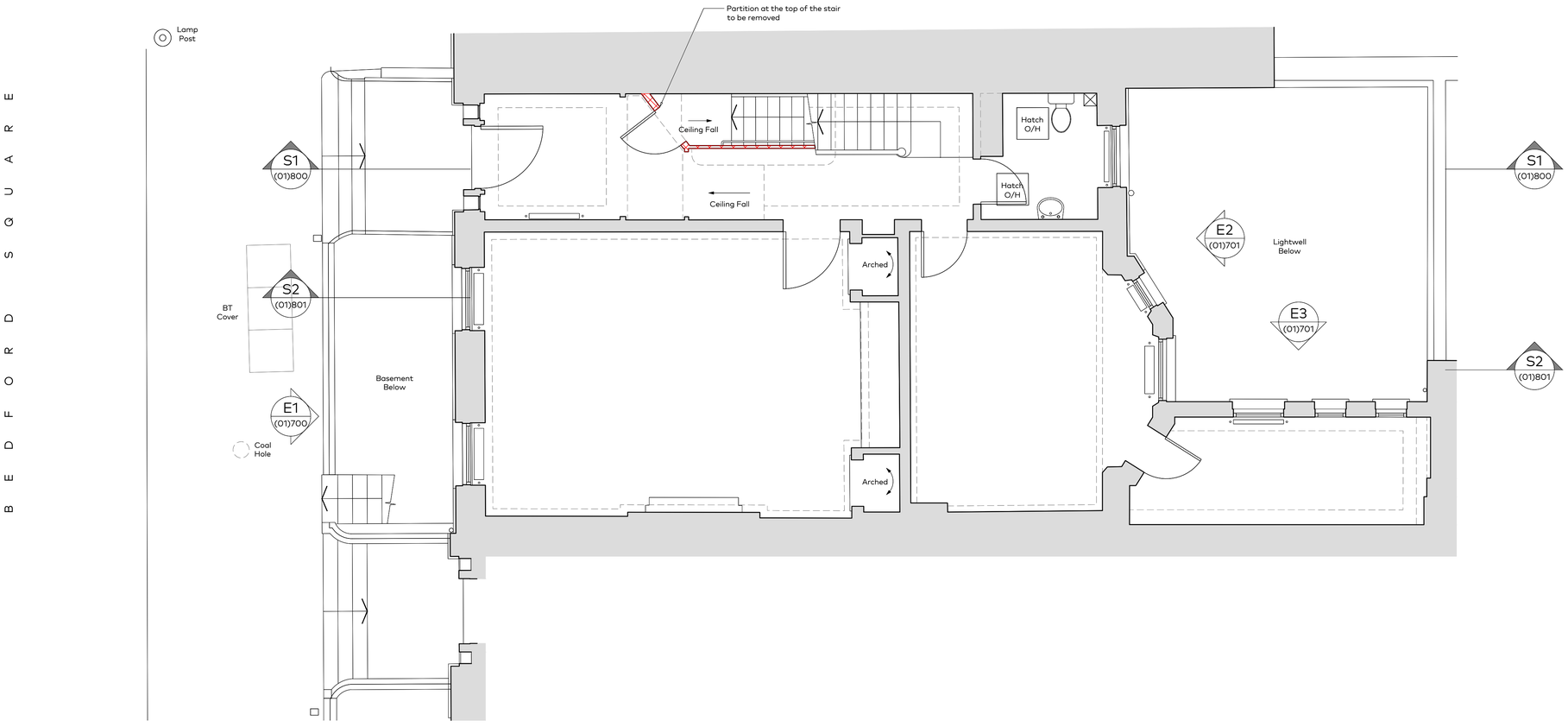
Key:

Existing Retained

Existing Demolished



01 - EXISTING GROUND FLOOR PLAN WITH DEMOLITIONS
1:100@A3

Rev	Issue Date	Revision Notes	Drawn
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Drawing Status

PLANNING

Job Number	Drawing Number	Rev	Scale
859	(01)101	B	1:50@A1 1:100@A3

Drawing Title: Ground Floor Plan
As Existing with Demolitions

Project: Leverton House, 13 Bedford Square
London WC1

Client: The Bedford Estates

Date: 12.07.2018 drawn checked

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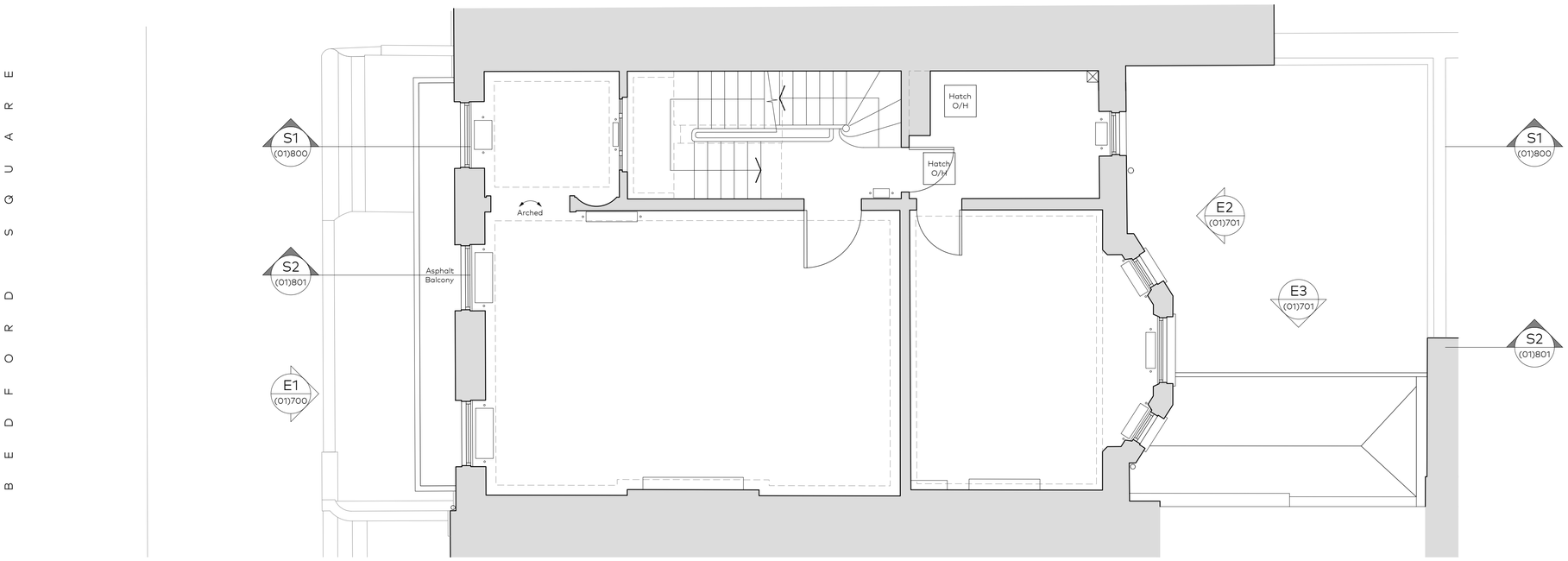
Key:

Existing Retained

Existing Demolished



01
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EXISTING FIRST FLOOR PLAN WITH DEMOLITIONS
1:100@A3

0 1 2 3 4 5

N

Rev	Issue Date	Revision Notes	Drawn
C	22.01.2019	Demolition removed and general amendments	AS
B	14.09.2018	Issued for Information	JN
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Drawing Status

PLANNING

Job Number	Drawing Number	Rev	Scale
859	(01)102	C	1:50@A1 1:100@A3

Drawing Title: First Floor Plan
As Existing with Demolitions

Project: Leverton House, 13 Bedford Square
London WC1

Client: The Bedford Estates

Date: 12.07.2018 drawn checked

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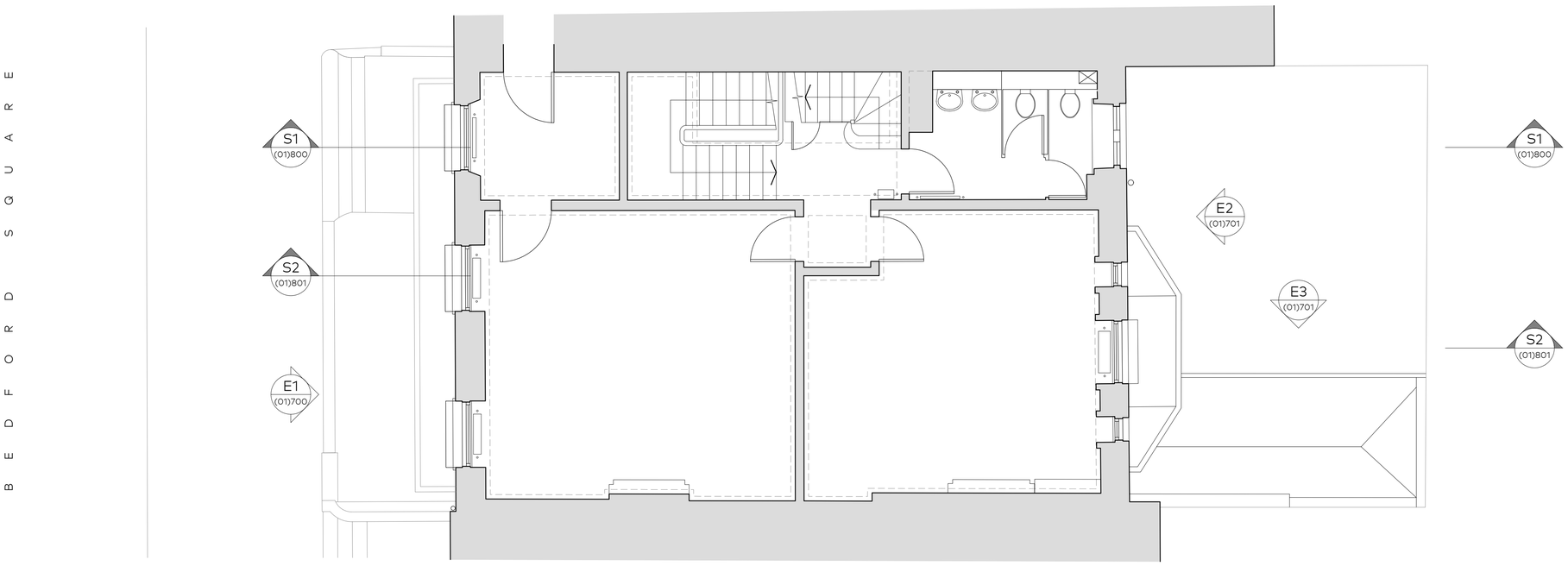
Key:

Existing Retained

Existing Demolished



01
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EXISTING SECOND FLOOR PLAN WITH DEMOLITIONS
1:100@A3

0 1 2 3 4 5

N

Rev	Issue Date	Revision Notes	Drawn
B	22.01.2019	Demolition removed and general amendments	AS
A	24.08.2018	Issued for Information	YD

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Drawing Status

PLANNING

Job Number	Drawing Number	Rev	Scale
859	(01)103	B	1:50@A1 1:100@A3

Drawing Title: Second Floor Plan
As Existing with Demolitions

Project: Leverton House, 13 Bedford Square
London WC1

Client: The Bedford Estates

Date: 12.07.2018 drawn checked

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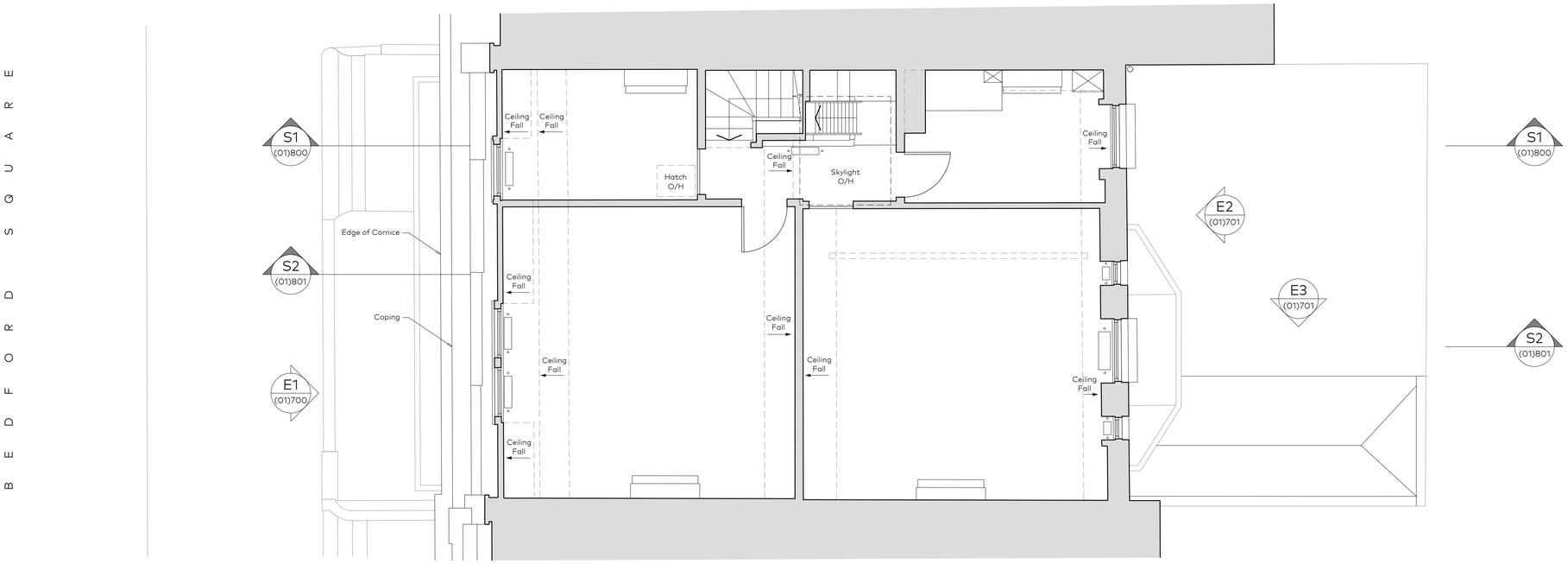
Key:

Existing Retained

Existing Demolished



01 - EXISTING THIRD FLOOR PLAN WITH DEMOLITIONS
1:100@A3

0 1 2 3 4 5

N

Rev	Issue Date	Revision Notes	Drawn
C	22.01.2019	Demolition removed and general amendments	AS
B	14.09.2018	Issued for Information	YD
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Drawing Status

PLANNING

Job Number	Drawing Number	Rev	Scale
859	(01)104	C	1:50@A1 1:100@A3

Drawing Title: Third Floor Plan
As Existing with Demolitions

Project: Leverton House, 13 Bedford Square
London WC1

Client: The Bedford Estates

Date: 12.07.2018 drawn checked

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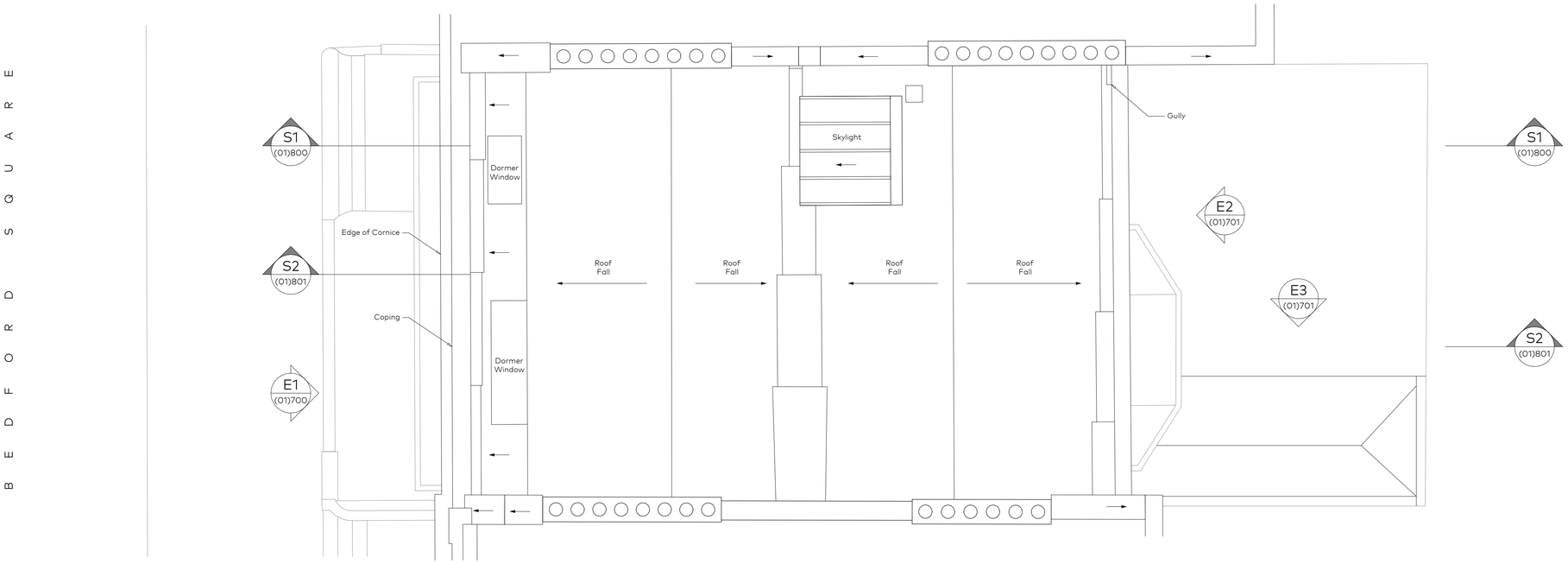

01
-

EXISTING ROOF PLAN WITH DEMOLITIONS
1:50@A1

0 1 2 3 4 5

N

Rev	Issue Date	Revision Notes	Drawn
B	22.01.2019	Demolition removed and general amendments	AS
A	24.08.2018	Issued for Information	YD

General Notes

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Drawing Status

PLANNING

Job Number	Drawing Number	Rev	Scale
859	(01)105	B	1:50@A1 1:100@A3

Drawing Title: Roof Plan
As Existing with Demolitions

Project: Leverton House, 13 Bedford Square
London WC1

Client: The Bedford Estates

Date: 12.07.2018 drawn JM checked CG

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Key:

Existing Retained

Existing Demolished

S2
-

EXISTING SECTION 2
1:50@A1

0 1 2 3 4 5

Rev	Issue Date	Revision Notes	Drawn
B	11.02.2019	General amendments	AS
A	24.08.2018	Issued for Information	YD

General Notes

Do not scale. All written dimensions must be checked on site before work commences on site or in shop. Figured dimensions take preference over those scaled. Discrepancies, where identified, must be reported to the Architect immediately. Any areas indicated on this drawing are for guidance purposes only. No responsibility is taken for their accuracy. All work must be carried out in accordance with the Building Regulations and to the satisfaction of the Local Authority.

Drawing Status

PLANNING

Job Number	Drawing Number	Rev	Scale
859	(01)301	B	1:50@A1 1:100@A3

Drawing Title: Section 2
As Existing with Demolition

Project: Leverton House, 13 Bedford Square
London WC1

Client: The Bedford Estates

Date: 12.07.2018 drawn checked

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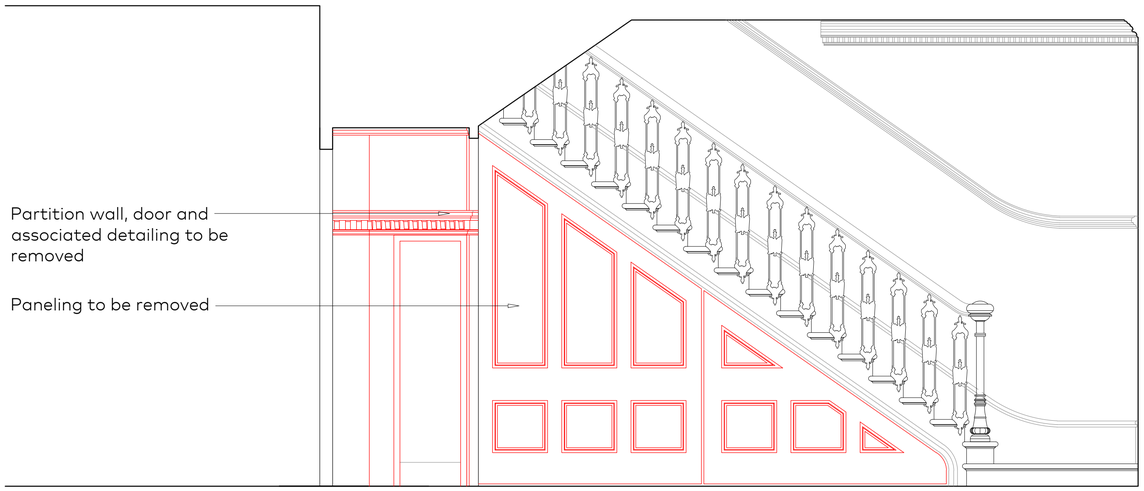
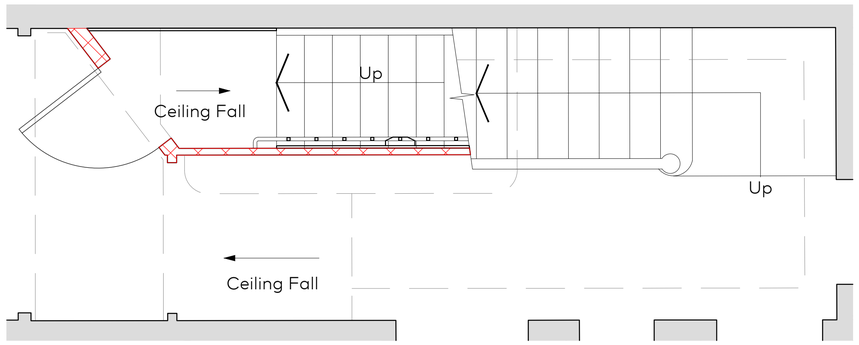
KEY:

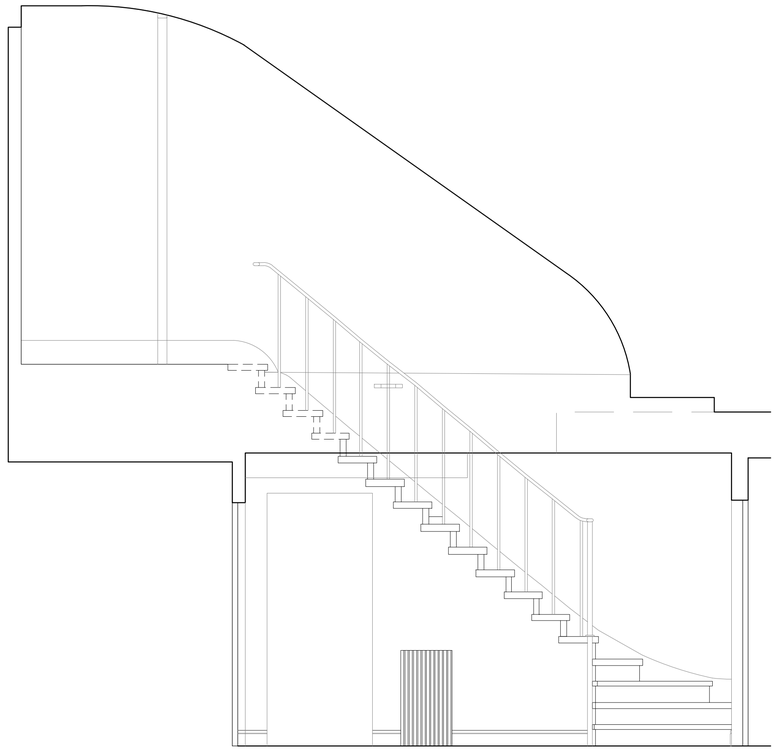
DENOTES EXTENT OF DEMOLITION



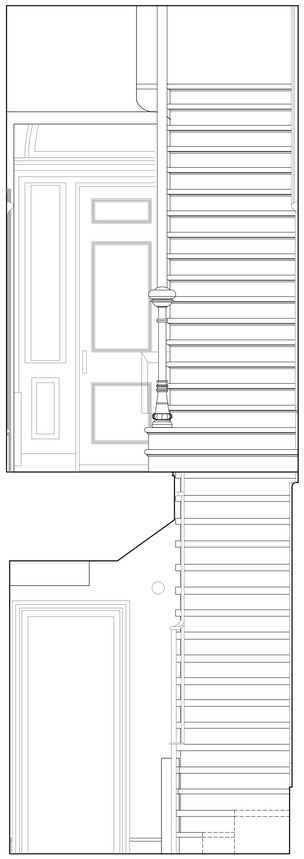
01 (34)001 GROUND FLOOR STAIR ELEVATION - AS EXISTING
1:50@A3



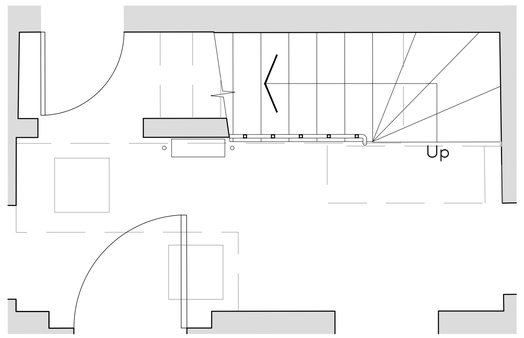
05 (34)001 GROUND FLOOR PLAN - AS EXISTING
1:50@A3



02 (34)001 LOWER GROUND STAIR ELEVATION - AS EXISTING
1:50@A3



03 (34)001 STAIR SECTION - AS EXISTING
1:50@A3



04 (34)001 LOWER GROUND FLOOR PLAN - AS EXISTING
1:50@A3

Rev	Issue Date	Revision Notes	Drawn

General Notes

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Drawing Status

Planning

Job Number	Drawing Number	Rev	Scale
859	(34)001	-	1:25@A1 1:50@A3

Drawing Title: Basement and Ground Staircase As Existing

Project: Leverton House, 13 Bedford Square London WC1

Client: The Bedford Estates

Date: 13.02.2019 drawn AS checked CG

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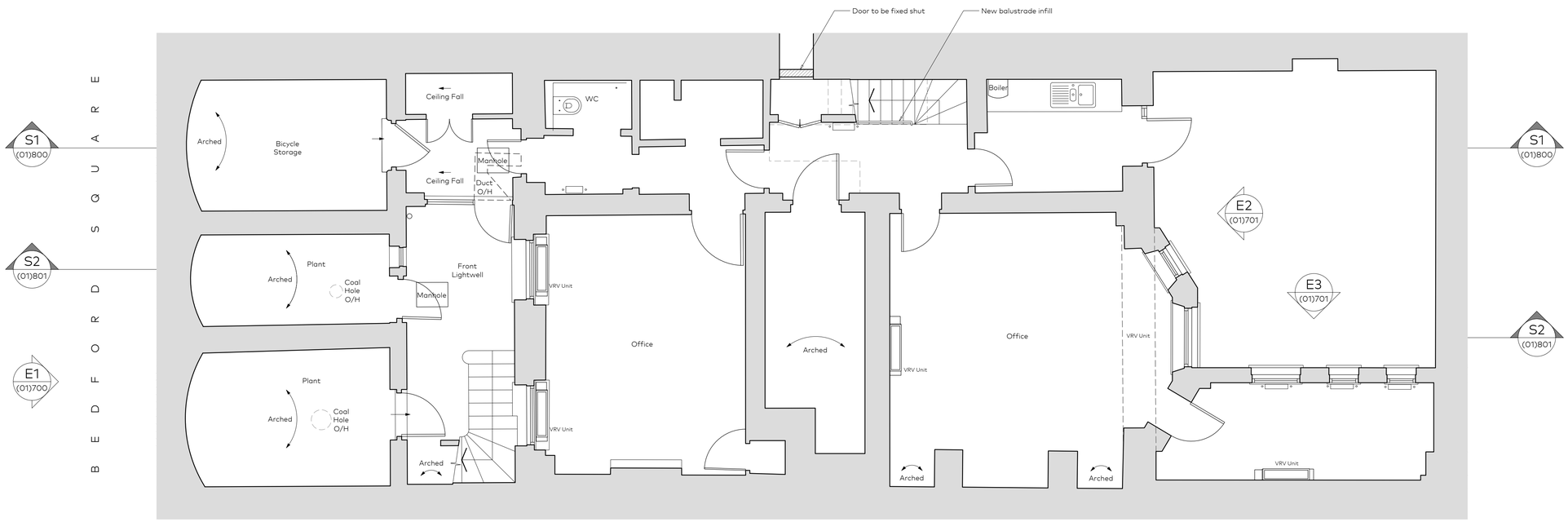

01
600

LOWER GROUND FLOOR PLAN AS PROPOSED
1:50@A1

0 1 2 3 4 5

N

Rev	Issue Date	Revision Notes	Drawn
D	21.02.2019	VRV units position amended	AS
C	11.02.2019	General amendments to plan. VRV units added	AS
B	14.09.2018	Issued for Comments	JN
A	24.08.2018	Issued for Comments	YD

General Notes

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Drawing Status

PLANNING

Job Number	Drawing Number	Rev	Scale
859	(01)600	D	1:50@A1 1:100@A3

Drawing Title: Lower Ground Floor Plan As Proposed

Project: Leverton House, 13 Bedford Square London WC1

Client: The Bedford Estates

Date: 17.07.2018 drawn checked

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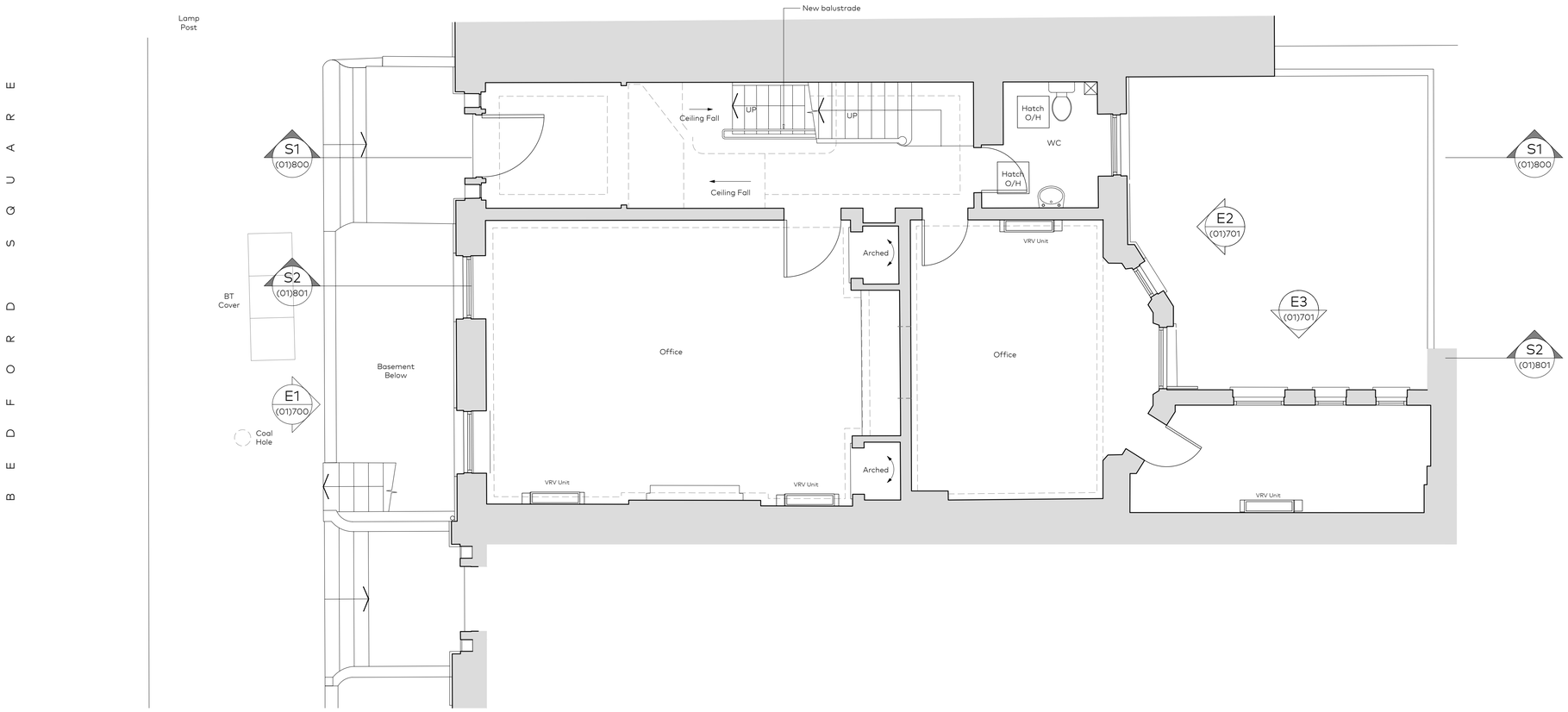

01 / 601 GROUND FLOOR PLAN AS PROPOSED
1:50@A1

0 1 2 3 4 5

N

Rev	Issue Date	Revision Notes	Drawn
D	21.02.2019	VRV units position amended	AS
C	11.02.2019	General amendments to plan. VRV units added	AS
B	14.09.2018	Issued for Comments	JN
A	24.08.2018	Issued for Comments	YD

General Notes

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Drawing Status

PLANNING

Job Number	Drawing Number	Rev	Scale
859	(01)601	D	1:50@A1 1:100@A3

Drawing Title: Ground Floor Plan As Proposed

Project: Leverton House, 13 Bedford Square London WC1

Client: The Bedford Estates

Date: 17.07.2018 drawn checked

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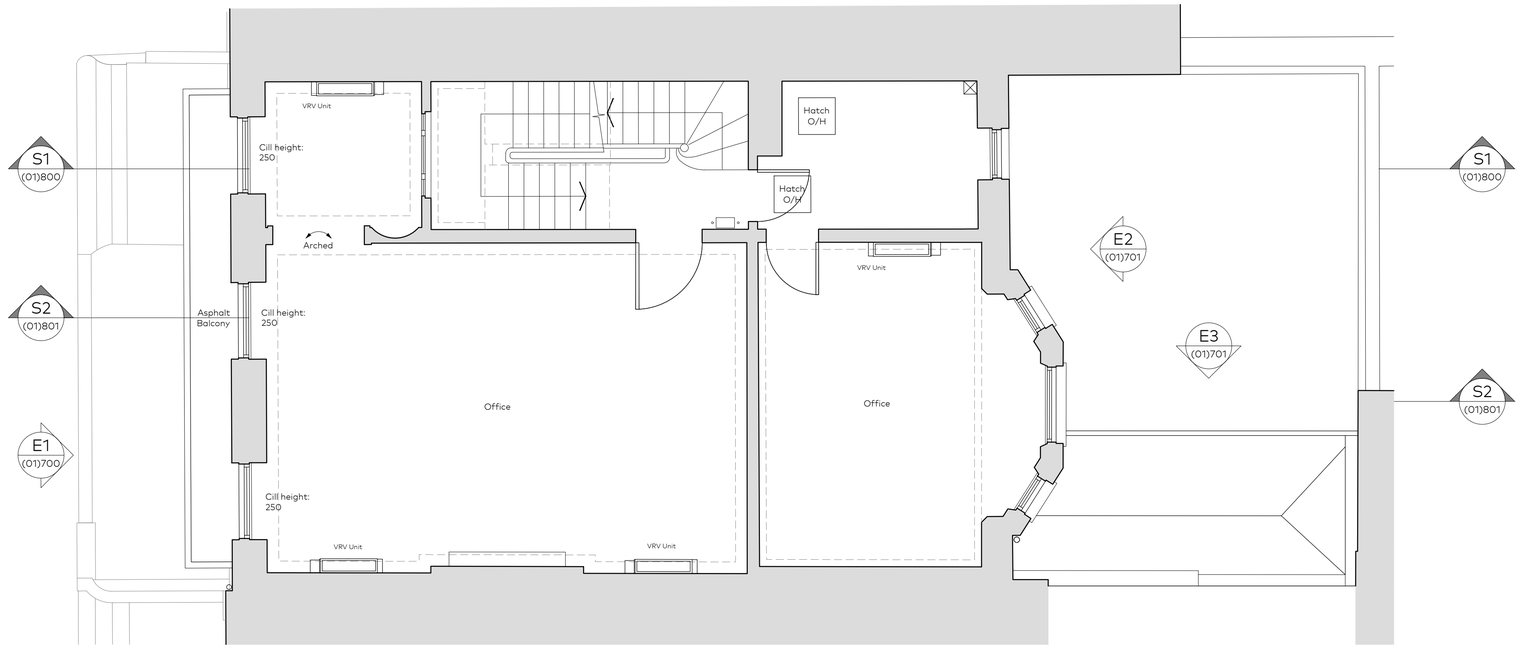
BEDFORD SQUARE



01
602

FIRST FLOOR AS PROPOSED
1:50@A1

0 1 2 3 4 5

N

Rev	Issue Date	Revision Notes	Drawn
D	21.02.2019	VRV units position amended	AS
C	11.02.2019	General amendments to plan. VRV units added	AS
B	14.09.2018	Issued for Comments	JN
A	17.08.2018	Issued for Comments	YD

General Notes

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Drawing Status

PLANNING

Job Number	Drawing Number	Rev	Scale
859	(01)602	D	1:50@A1 1:100@A3

Drawing Title: First Floor Plan
As Proposed

Project: Leverton House, 13 Bedford Square
London WC1

Client: The Bedford Estates

Date: 17.07.2018 drawn checked

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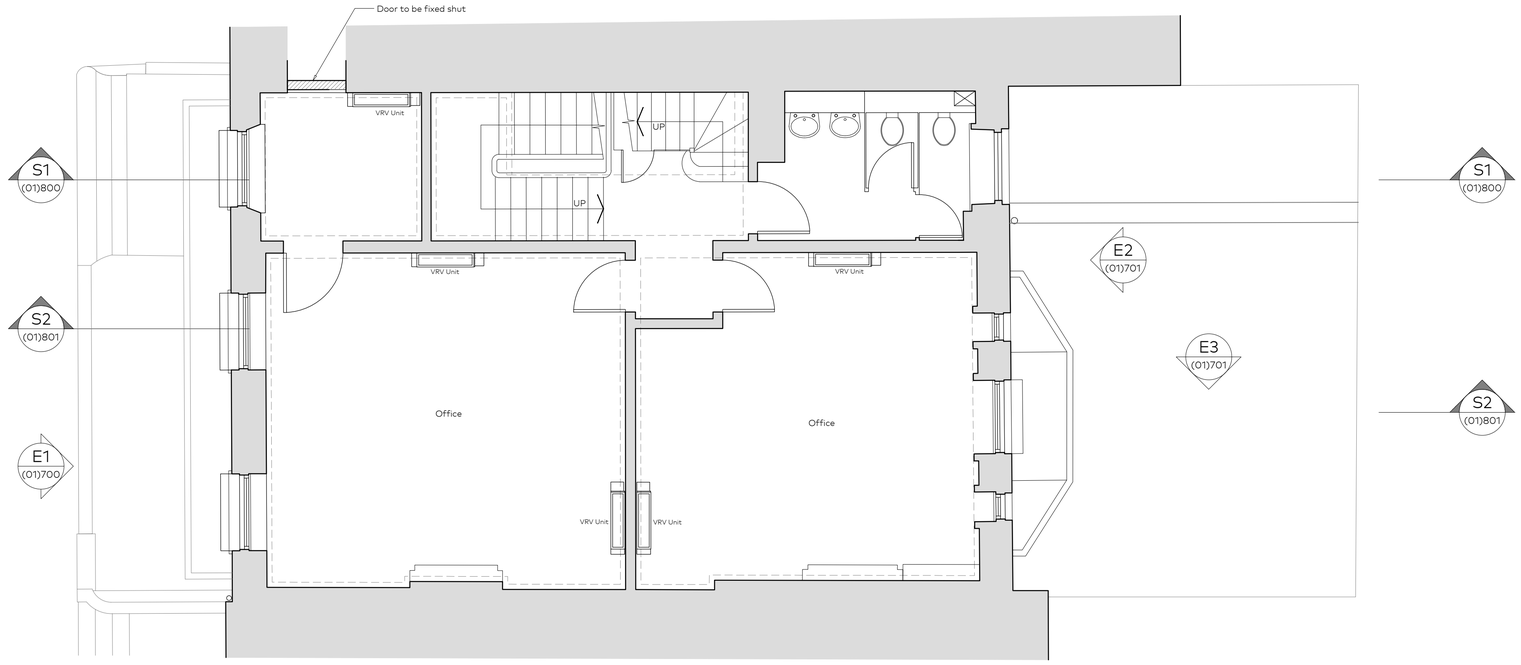
B E D F O R D S Q U A R E



01
603

SECOND FLOOR PLAN AS PROPOSED
1:100@A3

0 1 2 3 4 5

N

Rev	Issue Date	Revision Notes	Drawn
D	21.02.2019	VRV units position amended	AS
C	11.02.2019	General amendments to plan. VRV units added	AS
B	17.09.2018	Issued for Comments	JN
A	17.08.2018	Issued for Comments	YD

General Notes

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Drawing Status

PLANNING

Job Number	Drawing Number	Rev	Scale
859	(01)603	D	1:50@A1 1:100@A3

Drawing Title: Second Floor Plan As Proposed

Project: Leverton House, 13 Bedford Square London WC1

Client: The Bedford Estates

Date: 18.07.2018 drawn checked

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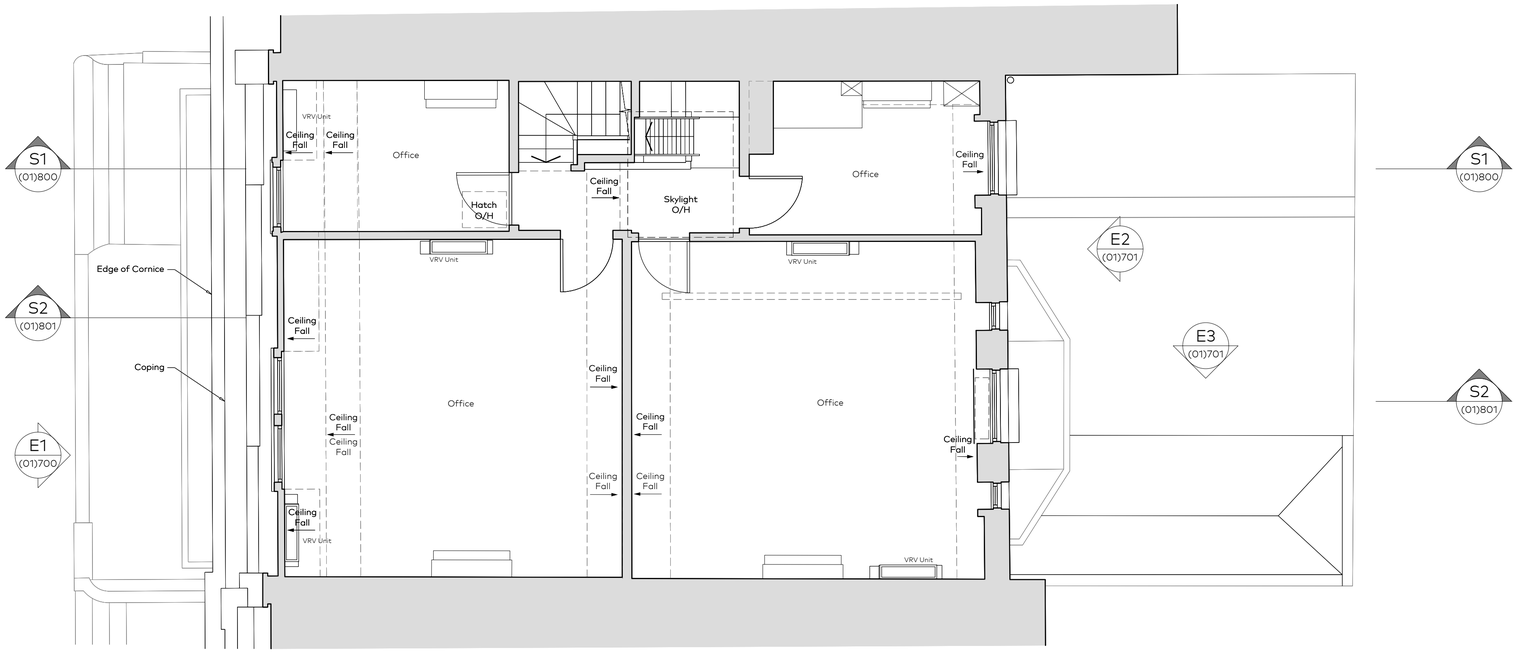
BEDFORD SQUARE



01 604 THIRD FLOOR PLAN AS PROPOSED
1:50@A1

0 1 2 3 4 5

N

Rev	Issue Date	Revision Notes	Drawn
D	21.02.2019	VRV units position amended	AS
C	11.02.2019	General amendments to plan. VRV units added	AS
B	14.09.2018	Issued for Comments	JN
A	17.08.2018	Issued for Comments	YD

General Notes

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Drawing Status

PLANNING

Job Number	Drawing Number	Rev	Scale
859	(01)604	D	1:50@A1 1:100@A3

Drawing Title: Third Floor Plan As Proposed

Project: Leverton House, 13 Bedford Square London WC1

Client: The Bedford Estates

Date: 17.07.2018 drawn checked

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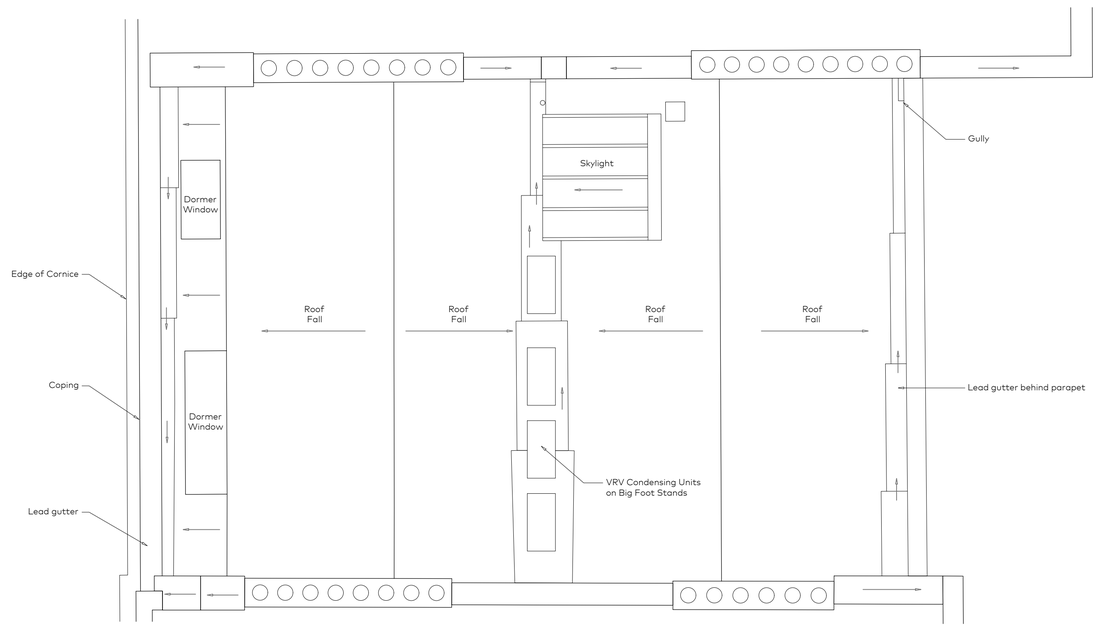

01
605

ROOF PLAN AS PROPOSED
1:50@A1

0 1 2 3 4 5

N

Rev	Issue Date	Revision Notes	Drawn
C	21.02.2019	VRV units position amended	AS
B	11.02.2019	General amendments to plan. VRV units added	AS
A	20.08.2018	Issued for Information	YD

General Notes

Do not scale. All written dimensions must be checked on site before work commences on site or in shop. Figured dimensions take preference over those scaled. Discrepancies, where identified, must be reported to the Architect immediately. Any areas indicated on this drawing are for guidance purposes only. No responsibility is taken for their accuracy. All work must be carried out in accordance with the Building Regulations and to the satisfaction of the Local Authority.

Drawing Status

PLANNING

Job Number	Drawing Number	Rev	Scale
859	(01)605	C	1:50@A1 1:100@A3

Drawing Title: Roof Plan
As Proposed

Project: Leverton House, 13 Bedford Square
London WC1

Client: The Bedford Estates

Date: 12.07.2018 drawn checked

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S2
-

EXISTING SECTION 2
1:50@A1

0 1 2 3 4 5

Rev	Issue Date	Revision Notes	Drawn
C	21.02.2019	VRV units position amended	AS
B	11.02.2019	General amendments	AS
A	24.08.2018	Issued for Information	YD

General Notes

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Drawing Status

PLANNING

Job Number	Drawing Number	Rev	Scale
859	(01)801	C	1:50@A1 1:100@A3

Drawing Title: Section 2
As Proposed

Project: Leverton House, 13 Bedford Square
London WC1

Client: The Bedford Estates

Date: 12.07.2018 drawn checked

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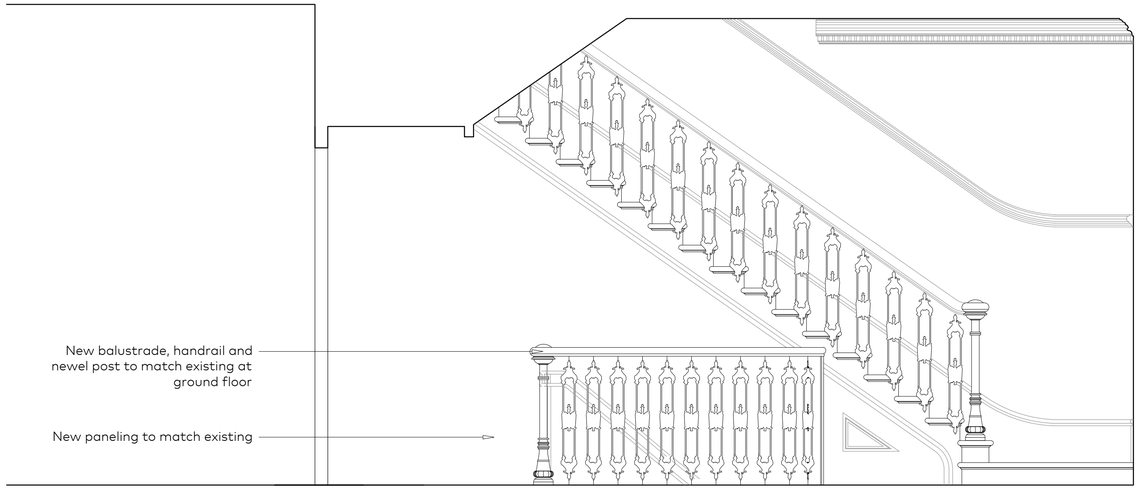
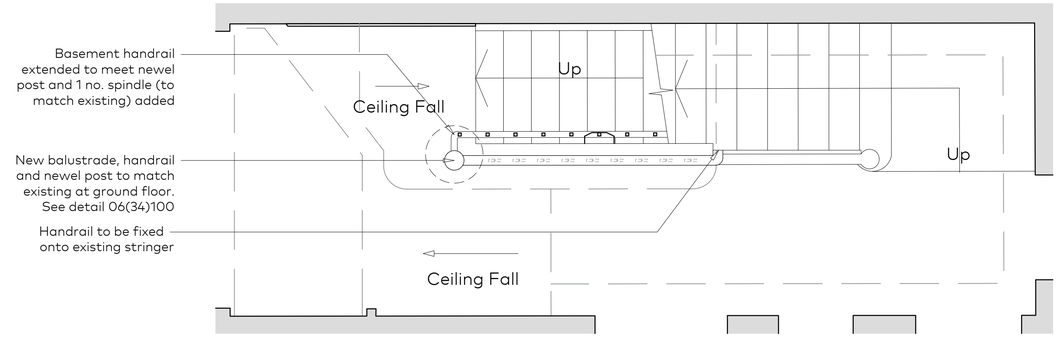
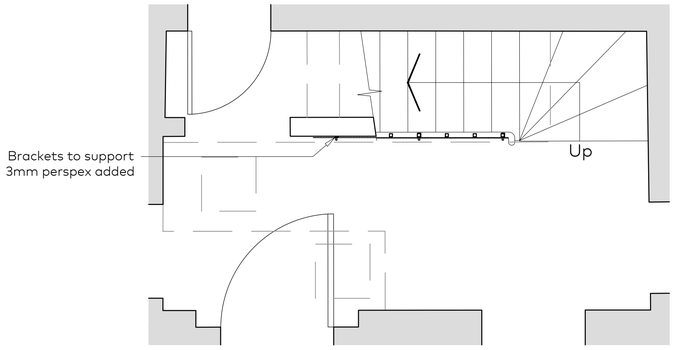


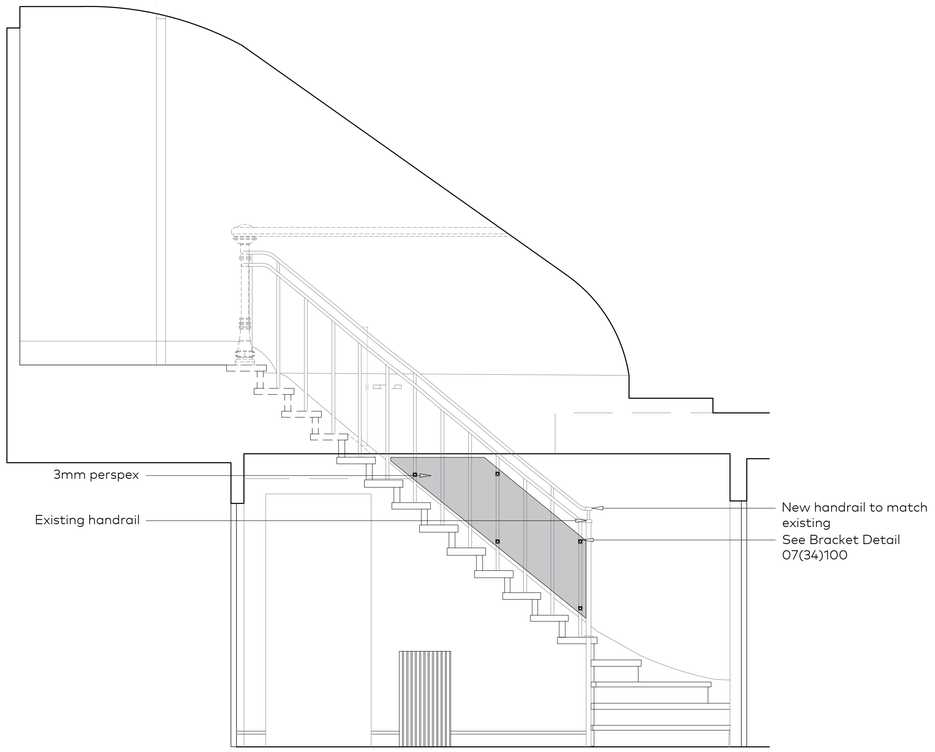
01 (34)100 GROUND FLOOR STAIR ELEVATION - AS PROPOSED
1:50@A3



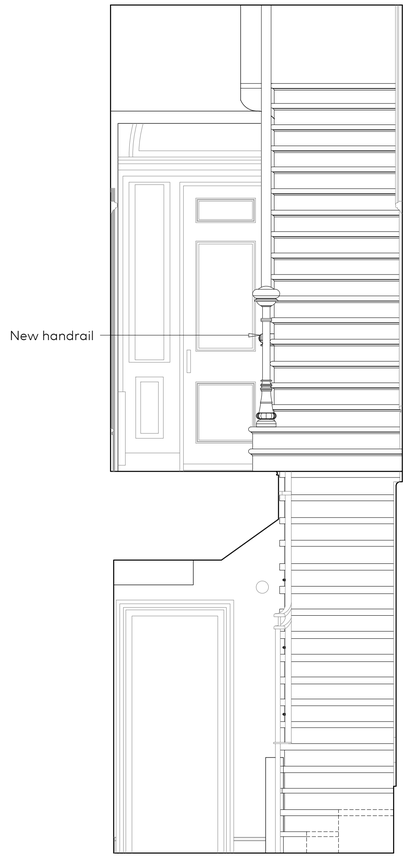
05 (34)100 GROUND FLOOR PLAN - AS PROPOSED
1:50@A3



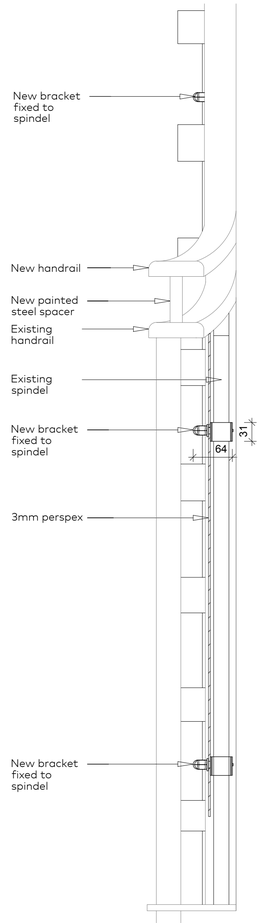
04 (34)100 LOWER GROUND FLOOR PLAN - AS PROPOSED
1:50@A3



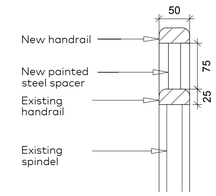
02 (34)100 LOWER GROUND STAIR ELEVATION - AS PROPOSED
1:50@A3



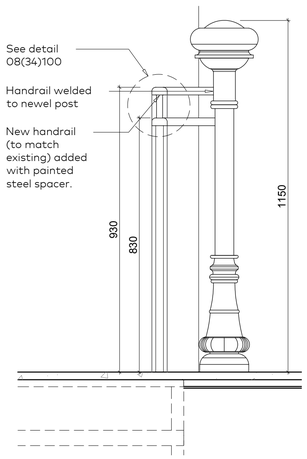
03 (34)100 STAIR SECTION - AS PROPOSED
1:50@A3



07 (34)100 BRACKET DETAIL
1:10@A3



08 (34)100 HANDRAIL DETAIL
1:10@A3



06 (34)100 NEWEL POST DETAIL
1:20@A3

Rev	Issue Date	Revision Notes	Drawn

General Notes

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Drawing Status

Planning

Job Number	Drawing Number	Rev	Scale
859	(34)100	-	1:25@A1 1:50@A3

Drawing Title: Basement and Ground Staircase As Proposed

Project: Leverton House, 13 Bedford Square London WC1

Client: The Bedford Estates

Date: 13.02.2019 drawn AS checked CG

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5.0 Appendices

- Heritage Assessment- Professor Anthony Walker
- MEP Services Drawings- Taylor Project Services
- Noise Impact Assessment

5.1 Appendix: Heritage Assessment

13 Bedford Square

Heritage Assessment

Anthony Walker
Dip arch (dist), grad dip (cons) AA, RIBA

DLG Architects LLP Studio 12.0G.1
The Leathermarket 11-13 Weston Street
London SE1 3ER
February 2019

1 Scope of Assessment

1.1 This Heritage Assessment has been prepared to accompany a request for approval of proposals for listed building and planning approval for alterations to number 13 Bedford Square.

1.2 It has been prepared by Anthony Walker who is a chartered architect with a postgraduate diploma in Building Conservation from the Architectural Association. He has been a Visiting Professor at Kingston University, and lectures on the Mst Courses at Cambridge and Leicester Universities.

1.3 It is based on a desk-top study of the building, examination of the Bedford Estate archive held at Woburn, the listing description, the Bloomsbury Conservation Area Appraisal, Andrew Bryne's architectural study of Bloomsbury Square and the Camden response to a preapplication submission.

2.0 Location

2.1 The site is located on the north side of Bedford Square close to the corner with Gower Street.

2.2 It lies within the Bloomsbury Conservation Area and is described in the current Appraisal as being within Sub-Area 5 Bedford Square/Gower Street:

Bedford Square
5.62 Dating from 1775, Bedford Square is one of the most significant and complete examples of a Georgian square in London. Its national importance is acknowledged by the grade I listed status of all the townhouses fronting the square. Furthermore, a sizeable number of original streetscape elements remain (many of which are grade II listed) The private gardens in the centre of the square are included in the English Heritage Register of
Parks and Gardens of Special Historic Interest in Greater London at grade II.*
5.63 The square is the centre piece of the Bedford Estate's planned development which includes a series of interlinked streets and spaces and is a major focal point both along Gower Street and within the wider Bloomsbury area. Despite the impact of traffic along Gower Street the square remains relatively intimate and secluded space. The landscaped oval gardens at its heart green the space, and the iron boundary railings and group of mature trees heighten the sense of enclosure. The gardens are entered through gates under ornate wrought iron arches. Originally of a purely residential nature, the square now contains several office and institutional uses. However, a small number of properties are now being returned to single family dwellings.
5.64 The terraces comprise three principal storeys with a basement and attic level. The frontages are of particular note because they were designed as a whole in a neoclassical to give a sense of architectural unity and harmony to the square. The front facades are constructed from yellow stock brick with tuck pointing. Each of the four terraces has a central, stuccoed pediment as a centrepiece, with rusticated bases. The doorways have distinctive intermittent voussiors of Coade stone (a type of artificial stone) and each key stones is decorated with a human face. It should be noted that five townhouses in Bayley Street extend the northern side of the square to the west, all of which are listed grade II.

3.0 Background and description

3.1 Bedford Square was conceived during the building boom followed the Peace of Paris in 1763. A lull from 1767-1771 was followed by an

upturn between 1773 and 1777 which turned into a further down turn in 1778 when France entered into the American War of Independence. However loans to builders from the Bedford Estate allowed the scheme for the Square to be completed by the end of 1783 as part of the spread of development north of New Oxford Street.

3.2 The Estate had considerable control over the form of the development and the Square is unique in having four complete sides of 'palace-fronted' terrace houses surrounding a central garden, in this case oval in shape.

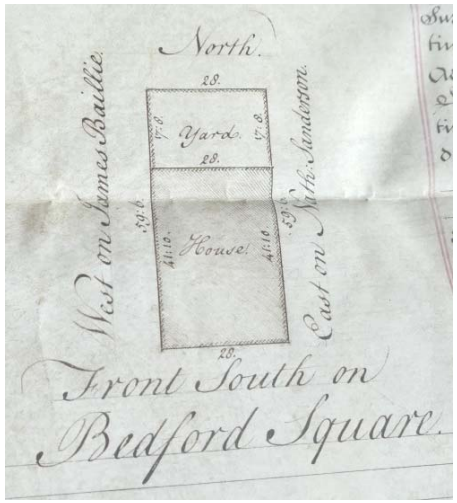
3.3 The building facades had to keep to a regular format. This uniformity has been broadly maintained although careful inspection reveals a wealth of detailed variations. The coherence of appearance, combined with some very good interiors, has justified the listing of all the buildings as Grade I. Byrne reports that the plan was identical to its neighbour number 12 but six inches shorter thus making it the smallest house in the Square.

3.4 Number 13 is of importance not least as the 99 year lease granted in 1781 was to Leverton 'Surveyor to the Parish of St Giles in the City' and who, according to Andrew Byrne, was responsible for the interior together with a number of others around the Square. According to Byrne the staircase which was originally of stone was ripped out and replaced with a wooden version in the Victorian period.

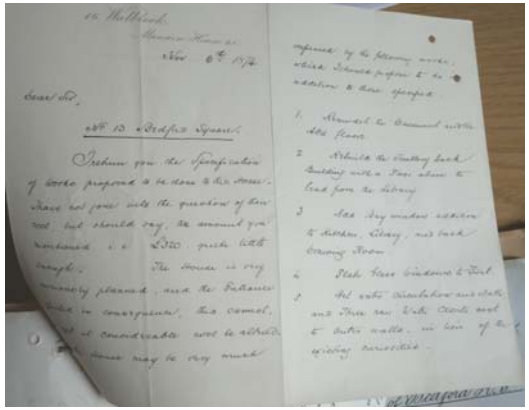
3.5 Leverton died in 1824 and his window continued to live in the property for a further 9 years.

3.6 Fredrick Beeston took a lease from 1874 to 1895. The Estate archives at Woburn contain an extended correspondence between Beeston and the Estate Steward. In January 1874 Beeston wrote regarding alterations including remodelling the entire staircase which he repeats in December the same year saying that he would find it '*very difficult to make the house as he would wish it to be without altering the staircase throughout*'

3.7 In the meantime in November 1874 Beeston wrote to JJR Davison at the Estate returning the specification of works to be carried out to the building. He says that the building is curiously planned which would take considerable cost to remedy and thus appears to have accepted the staircase which he had objected to in January. He goes on to say that building would be very much improved by the following five items which he intends to carry out as follows:
1 Re-model the basement and attic floors.
2 Rebuild the scullery back building with the floor above to lead from the library. This appears to indicate that there was a back closet wing at basement level only which he intended to make two storeys.
3 Add bay windows to the kitchen, library and back drawing room. These appear to be the canted bays which now exist on the basement (kitchen), ground floor (library) and first floor (back drawing room). It must be presumed that the original building had a flat back face as shown on the 1775 lease plan.



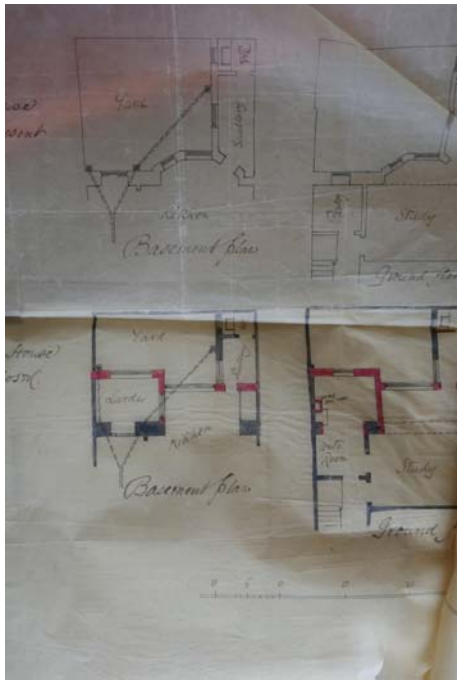
4 Plate glass windows to front
5 Hot water circulation and bath three new water closets next to outer walls in lieu of existing curiosities.
In February 1875 he withdrew this request.



.

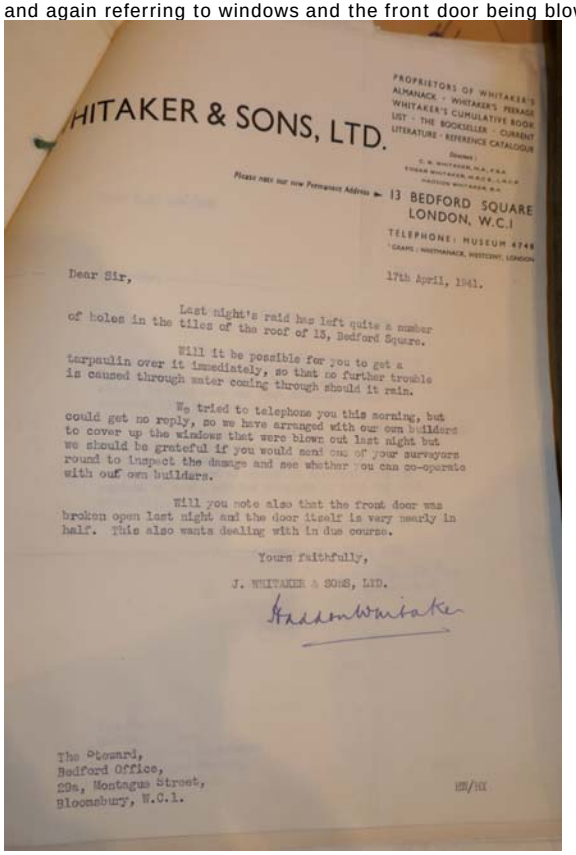
3.8 In March 1875 Beeston confirms that he has insured the extra risk for number 13 and in July he is pressing for the Lease so that he can let the house to Mr Harcourt. Apart from the additional plumbing it appears that all the other four requests have been accommodated. Byrne also confirms that the canted bay appears to be a later addition and certainly the rather cramped arrangement confirms that this was not an original feature. Bryne suggests that the bays may be a change by Leverton but the correspondence between the Estate and Leverton's successor Beeston shows that this could not have been the case.

3.9 Halsey Ricardo acquired Mr Harcot's interest and then took a lease from 1895 to 1910 which was renewed to 1940. Halsey Ricardo proposed to extend the building at the back and sent a letter to the Estate dated 20 March 1888, enclosing drawings for proposed extensions at the back of number 13, into the courtyard. It appears that this was not accepted by the Estate which then ten years later apparently started on extensions as the back of numbers 1,3,5 and 7 Gower Street which provoked Ricardo to a complain that these would seriously encroach on the open space at back of number 13.



3.10 The first time that the staircase is shown on the lease plans is in 1951 in the lease between the Duke of Bedford and J Whitaker and Sons. The Lease was renewed in 1953 and a licence granted for additional lavatories in 1955. A further extension was granted with a new Lease 1971 to 1985. Attached is a licence to sublet an underlease to to Yale University Press Ltd for Basement and Ground Floor with works to provide an enclosure to the staircase down to the basement.

3.11 During the Second World War the building was hit by enemy bombs at least twice. First in 14/15 October 1940 when it appears substantial damage was caused with extensive repairs being claimed under the provisions for war damage including plasterwork repairs more or less through out the building, replacement of windows which had been blown out and similar matters. Further damage was caused on the night of 16/17 April 1941 when it was recorded that there were a substantial number of holes in the roof, Whitaker and Sons were then the tenants and wrote on the 17th asking for help in repairing the damage and again referring to windows and the front door being blown out.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PROPRIETORS OF WHITAKER'S ALMANACK · WHITAKER'S PEERAGE · WHITAKER'S CUMULATIVE BOOK LIST · THE BOOKSELLER · CURRENT LITERATURE · REFERENCE CATALOGUE

Please note our new Permanent Address ► 13 BEDFORD SQUARE LONDON, W.C.1

TELEPHONE: MUSEUM 8748

Dear Sir, 17th April, 1941.

Last night's raid has left quite a number of holes in the tiles of the roof of 13, Bedford Square.

Will it be possible for you to get a tarpaulin over it immediately, so that no further trouble is caused through water coming through should it rain.

We tried to telephone you this morning, but could get no reply, so we have arranged with our own builders to cover up the windows that were blown out last night but we should be grateful if you would send one of your surveyors round to inspect the damage and see whether you can co-operate with our own builders.

Will you note also that the front door was broken open last night and the door itself is very nearly in half. This also wants dealing with in due course.

Yours faithfully,

J. WHITAKER & SONS, LTD.

The Steward,
Bedford Office,
29a, Montague Street,
Bloomsbury, W.C.1.

3.12 The main façade is clearly visible from the Square and is an important element in the composition of the terrace on the northern side of the Square. A significant difference is the profusion of cast iron balconies to both the front and the back of the building. Byrne notes these were typical of the early 18th century and thus probably added by Leverton during his residency.

4.0 National and Local Guidance relevant to the Heritage Interest of the building.

4.1 The Planning (Listed Buildings and Conservation Areas) Act 1990 provides the basis for legislation regarding Listed Buildings and Conservation Areas.

4.2 The application of the 1990 Act is guided by the National Planning Policy Framework which has been reviewed and adopted during 2018.

.

4.3 Heritage matters are set out in section 16 of the Framework Conserving and Enhancing the .historic environment.

192. In determining applications, local planning authorities should take account of:
a) the desirability of sustaining and enhancing the significance of heritage assets and putting them to viable uses consistent with their conservation;
b) the positive contribution that conservation of heritage assets can make to sustainable communities including their economic vitality; and
c) the desirability of new development making a positive contribution to local character and distinctiveness
.
193. When considering the impact of a proposed development on the significance of a designated heritage asset, great weight should be given to the asset's conservation …….. This is irrespective of whether any potential harm amounts to substantial harm, total loss or less than substantial harm to its significance.

196. Where a development proposal will lead to less than substantial harm to the significance of a designated heritage asset, this harm should be weighed against the public benefits of the proposal including, where appropriate, securing its optimum viable use.

4.4 Local Policy is set out in the Camden Local Plan and is reflected in the Conservation Area Appraisal adopted in 2011, This is subdivided into a number of areas of which sub area 5 covers 13 Bedford Square. The relevant section is set out in 2.2 above.

5.0 Significance

5.1 Number 13 in common with all of Bedford Square is listed grade I The listing description extract states that:

CAMDEN TQ2981NE BEDFORD SQUARE 798-1/99/77 (North side) 24/10/51 Nos.12-27 (Consecutive) and attached railings (Formerly Listed as: BEDFORD SQUARE Nos.1-54 (Consecutive)) GV I Symmetrical terrace of 16 houses forming the north side of a square. 1776-1781. Mostly built by W Scott and R Grews; probably designed by either Thomas Leverton or Robert Palmer; for the Bedford Estate. Yellow stock brick with evidence on most of the houses of tuck pointing. Plain stucco band at 1st floor level. Slate mansard roofs with dormers and tall slab chimney-stacks. EXTERIOR: 3 storeys, attics and basements. 3 windows each. Recessed round-arched entrances with Coade stone vermiculated intermittent voussoirs and bands; mask keystones. Enriched impost bands and cornice-heads to doors. Side lights to panelled doors, some 2-leaf. Fanlights, mostly radial patterned. Gauged brick flat arches to recessed sashes, most with glazing bars. The following have cast-iron balconies to 1st floor windows: Nos 12-15, 18-21, 23-25. No.12 has a good early C19 cast-iron balcony with round-arched trellis and tented canopy. Cornice and parapets, Nos 12 & 27 having balustraded parapets. INTERIORS not inspected but noted to contain original stone stairs with cast and wrought-iron balusters of various scroll designs, decoration and features; special features as mentioned: No.12: 5 window return to Gower Street, some blind, plus single storey extension. The doorway is stucco, not Coade stone. No.13: Leverton's own house, occupied in 1782 but he did not settle here until 1795. Stucco doorway, not Coade stone. Rear elevation with canted bay to lower 3 floors and cast-iron balconies. INTERIOR: stair replaced by a timber version late C19. 2 fine plaster ceilings. No.14: rear elevation with full height canted bay.

…….HISTORICAL NOTE: the houses in Bedford Square form a most important and complete example of C18 town planning. Built as a speculation, it is not clear who designed all the houses. Leverton was a country house architect and may have been involved with only the grander houses; he lived at No.13. Palmer was the Bedford Estate surveyor and may be responsible for the vagaries of the square. The majority of the plots leased by the estate were taken by Robert Grews, a carpenter, and William Scott, a brickmaker. No.22 was the residence of Sir J Forbes Robertson, actor (plaque). (Byrne A: Bedford Square, An architectural study: London: -1990).

The building is clearly of significance as part of the complete range of terraces around Bedford Square and as an example of this type of town planning.

5.2 Internally the layout of the rooms follow a traditional layout other than the main staircase which rises from the ground floor at the back of the hall. This generates a plan with the two principle rooms on each floor extending the full depth of the building with smaller rooms at either end of the main staircase which rises in the central portion of the western side of the building.

5.3 These smaller rooms are relatively cramped and as a result have been largely used as service rooms either in fact or as part of proposals such as those by Halsey Ricardo

5.4 For the Conservation Area the significance of the building is as noted in 2.2 in relation to Bedford Square.

6 Proposals

6.1 The proposals are shown on the accompanying plans and the DAS prepared by the architects.

6.2 In principle the basic plan form of the building is retained with some modifications to enhance the use of the building and the provision of modern facilities.

6.3 It is proposed the remove the later enclosure around the main staircase at ground level. The doorway does not sit comfortably with the panelling at the side and the removal of the enclosure which is a late 20th century addition from around the late 1970's will improve the lighting of the hall and the appearance of the entrance. A new balustrade is provided down to the ground floor to match the existing pattern and a simple metal handrail and balusters is extended down to the basement.

6.4 It is proposed to use the small room behind the staircase for a combination of lavatory accommodation which is its current use.

6.5 Item 2 of Beestons letter of 6th November 1874 makes it clear that the back closet wing at that time was only a single storey and he intended to rebuild it with a ground floor storey to link into the library at the same level. In doing so the layout of the windows was changed and it thus appears that none of the existing closet wing was retained. Beeston also built the canted bay at the back at the same time.

6.6 The front of the building apart from the changes to the dormer windows sought by Halsey Ricardo have not had any significant alterations since the building was first created. At the back of the building there have

been several minor alterations as set out above. These are largely unseen due to the recessed location of the back of number 13 which is inset behind number 14 to the west and the properties to the north and east in Gower Street.

7 Impact on the significance of the building

7.1 The building is part of a symmetrical terrace of Grade I listed buildings with Group Value on the north side of Bedford Square. The listing description includes an HISTORICAL NOTE laying emphasis on the buildings as a complete and important example of C18 Town Planning.

7.2 The Conservation Area Appraisal in 5.64 states that the frontages are of particular note because *they were designed as a whole in a neoclassical style to give a sense of architectural unity and harmony*.

7.3 The proposals therefore, as noted in 6.6 above, do not compromise the significance of the listed buildings nor of the Conservation Area.

7.4 The removal of the 20th enclosure to the staircase at ground floor level enhances the appearance of the entrance hall and the natural light to the staircase.

7.5 The services installation will be renewed in accordance with the service engineers proposals which accompany this application. Fan units will be located on the roof between the two inner slopes. This arrangement has been used for 12 Bedford Square and the units are effectively screened from sight.

7.5 It is considered that the proposals provide significant benefits which will enhance the designated heritage asset and help secure its optimum viable use.

Anthony Walker

Dip arch (dist), grad dip(cons) AA RIBA

5.2 Appendix: MEP Services Drawings

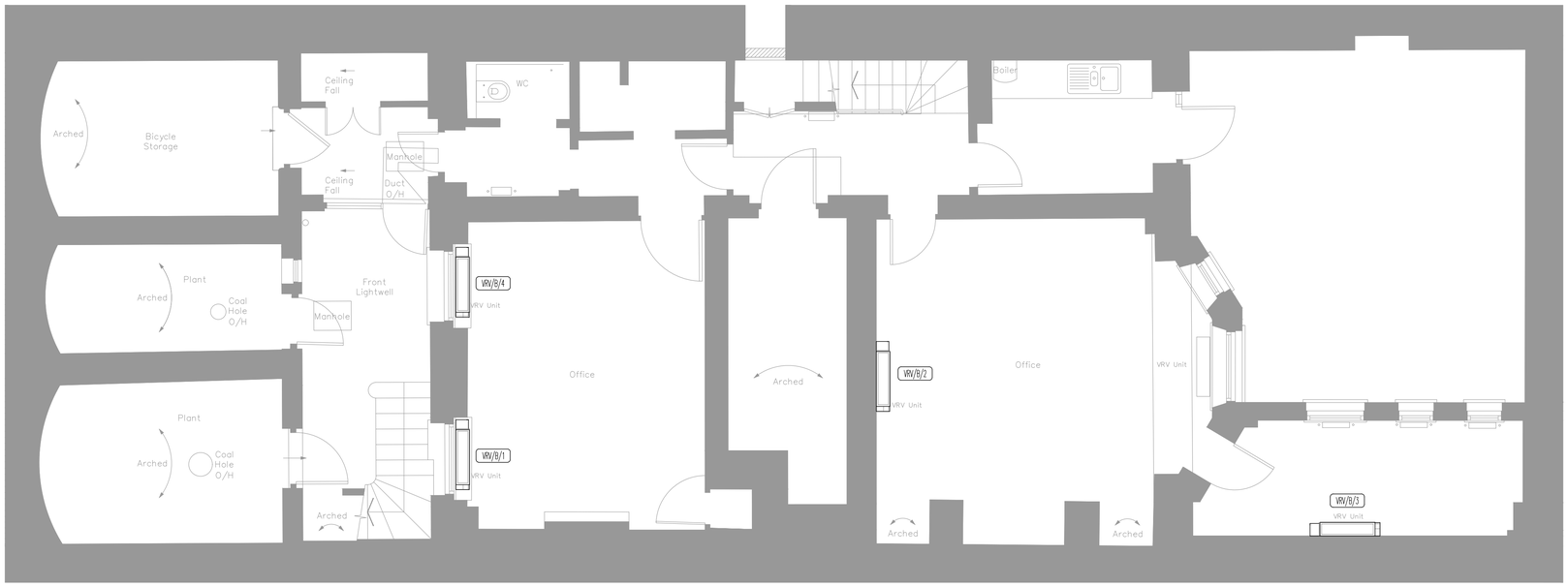
TAYLOR PROJECT SERVICES LLP
BUILDING SERVICES CONSULTANTS

THE BEDFORD ESTATES

TPS.LLP 13 Bedford Square, London, WC1B 3JA

Planning Issue Drawings – VRV Scheme – February 2019

GENERAL NOTES



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Project

13 BEDFORD SQUARE
LONDON
WC1

Drawing Title

LOWER GROUND FLOOR
MECHANICAL SERVICES
LAYOUT

Scale 1:50 @ A1	Date AUG.18
Drawn L.T.	Checked G.N.T.

Drawing Status: PLANNING

Revision: 0

Drawing No.: TPS/13BS/LG/M

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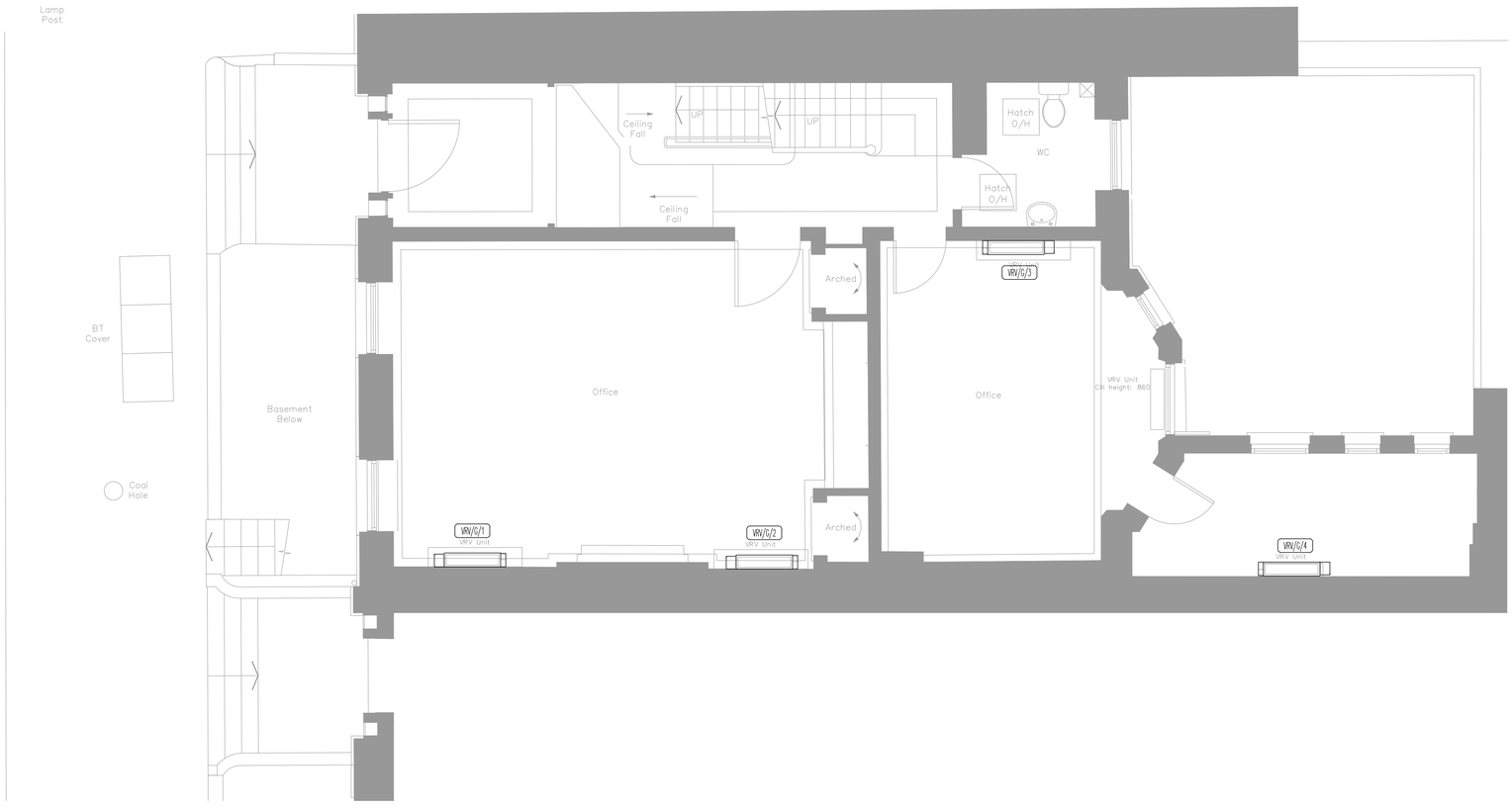

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WC1

Drawing Title
GROUND FLOOR
MECHANICAL SERVICES
LAYOUT

Scale	1:50 @ A1	Date	AUG.18
Drawn	L.T.	Checked	G.N.T.

Drawing Status
PLANNING

Revision 0

Drawing No.
TPS/13BS/G/M

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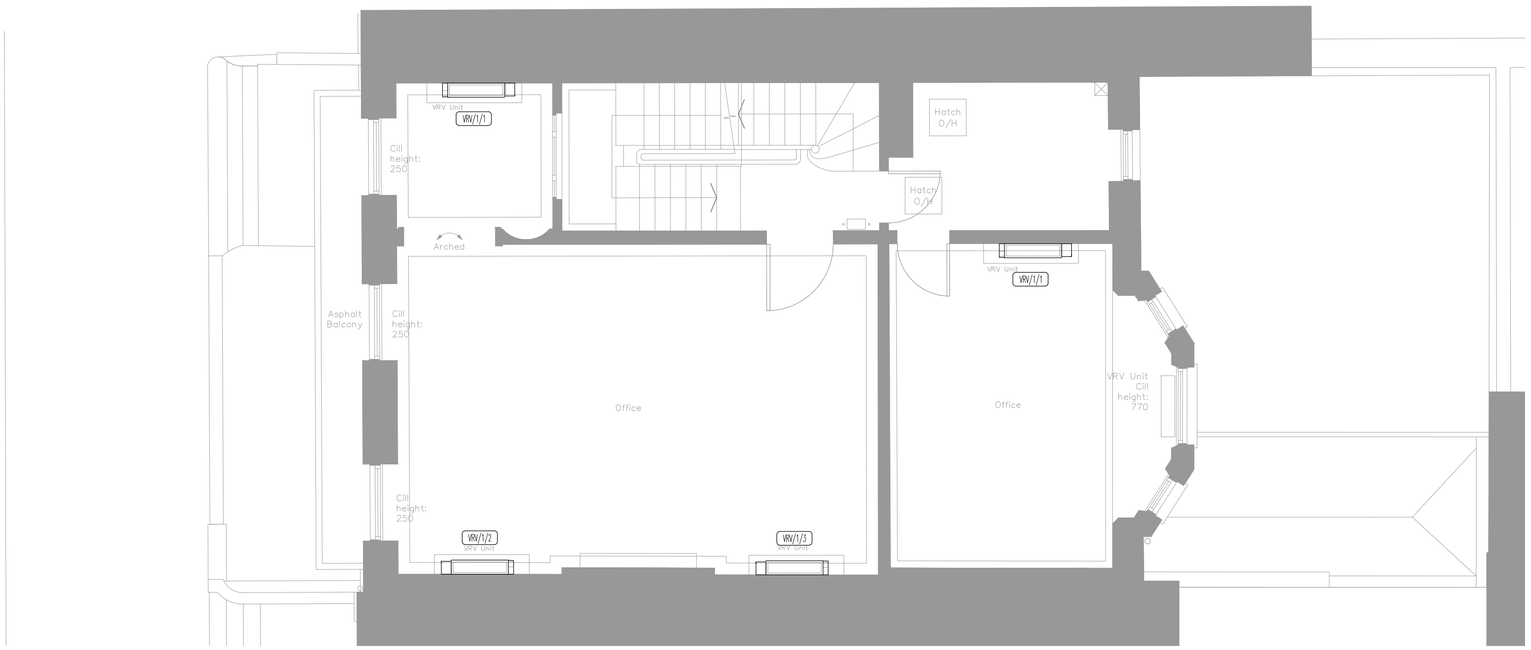

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Drawing Title

FIRST FLOOR
MECHANICAL SERVICES
LAYOUT

Scale	1:50 @ A1	Date	AUG.18
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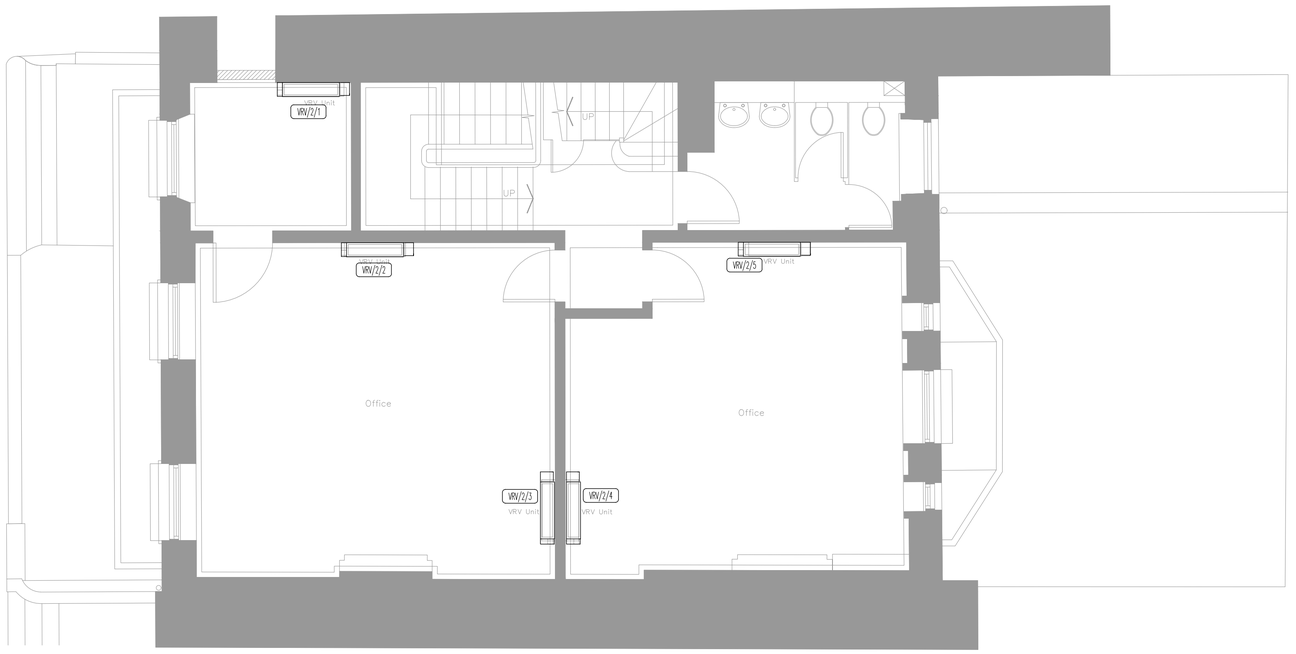

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Project

13 BEDFORD SQUARE
LONDON
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Drawing Title

SECOND FLOOR
MECHANICAL SERVICES
LAYOUT

Scale 1:50 @ A1	Date FEB.19
Drawn L.T.	Checked G.N.T.

Drawing Status
PLANNING

Revision 0

Drawing No.
TPS/13BS/2/M

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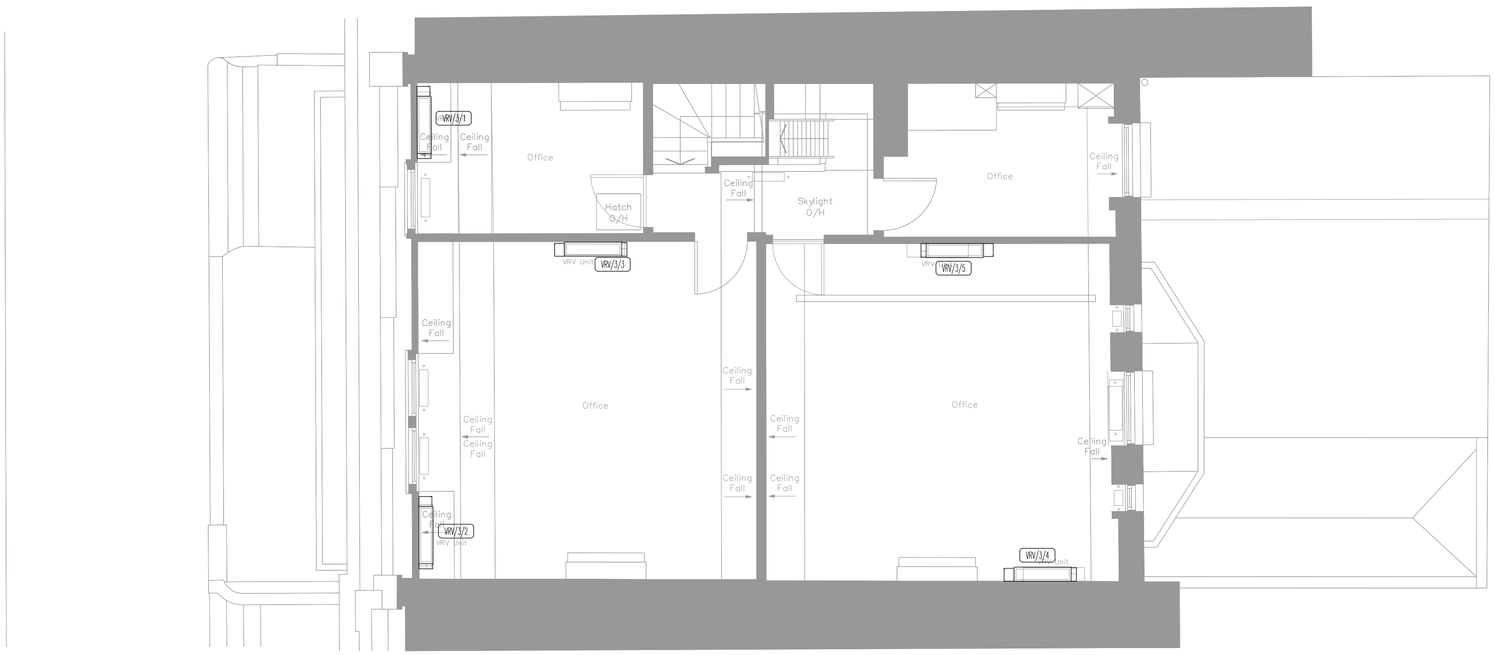

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Drawing Title

THIRD FLOOR
MECHANICAL SERVICES
LAYOUT

Scale 1:50 @ A1	Date AUG.18
Drawn L.T.	Checked G.N.T.

Drawing Status
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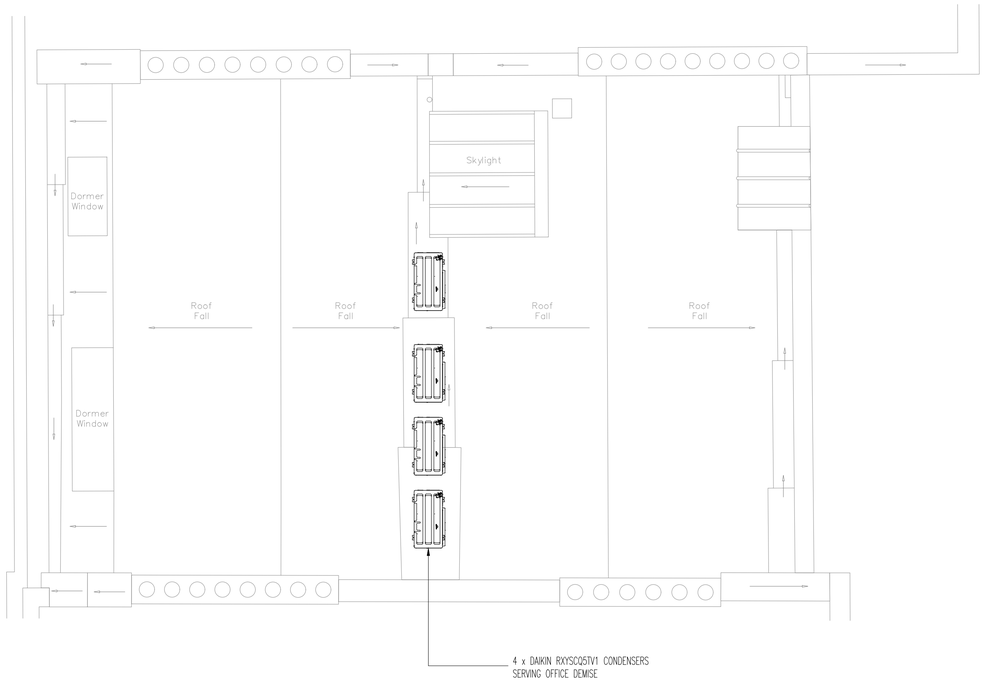

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Project
13 BEDFORD SQUARE
LONDON
WC1

Drawing Title
ROOF LEVEL
MECHANICAL SERVICES
LAYOUT

Scale	1:50 @ A1	Date	AUG.18
Drawn	L.T.	Checked	G.N.T.

Drawing Status
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Drawing No.
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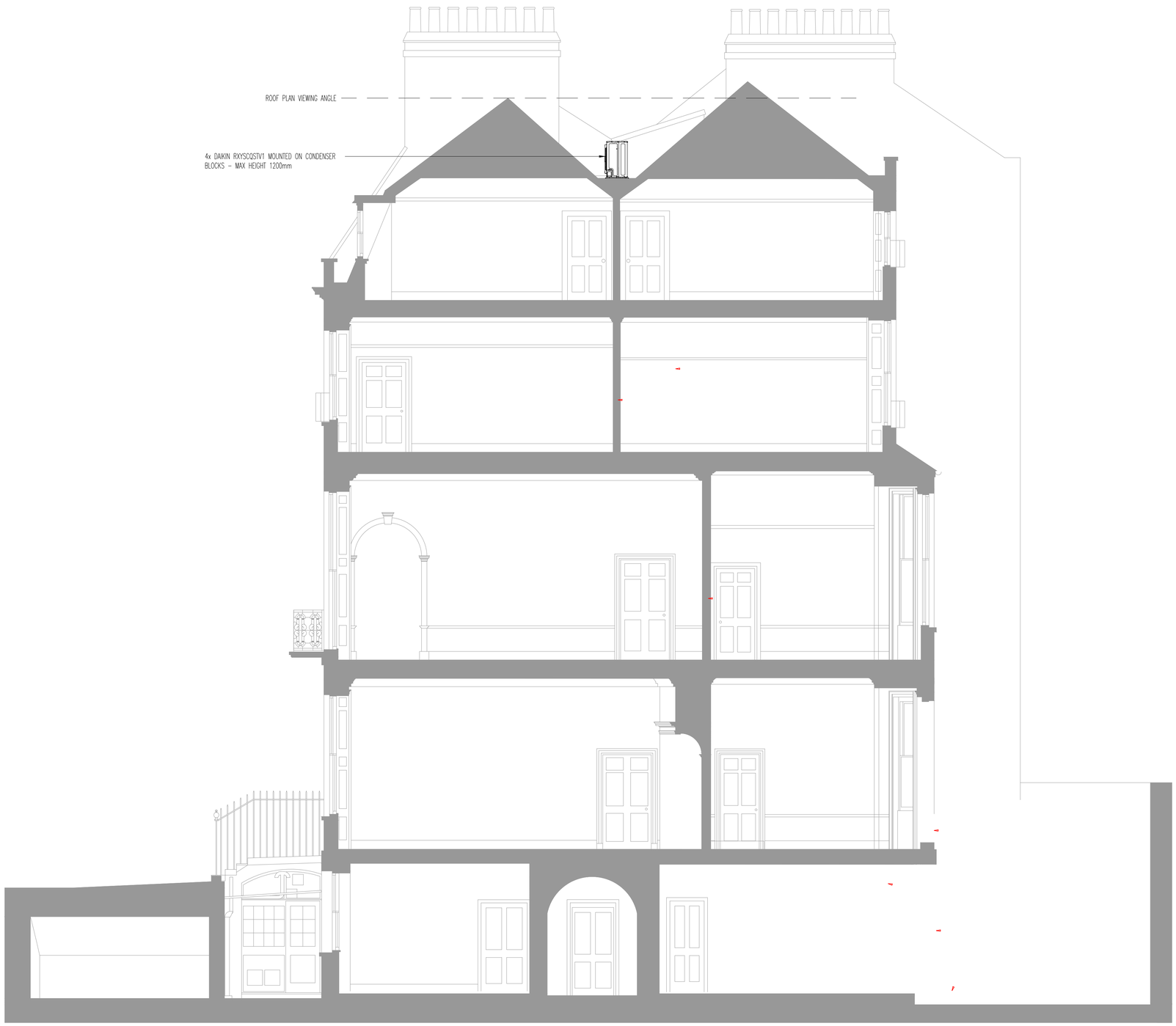

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Project
13 BEDFORD SQUARE
LONDON
WC1

Drawing Title
ROOF LEVEL
MECHANICAL SERVICES
LAYOUT

Scale 1:50 @ A1	Date AUG.18
Drawn L.T.	Checked G.N.T.

Drawing Status
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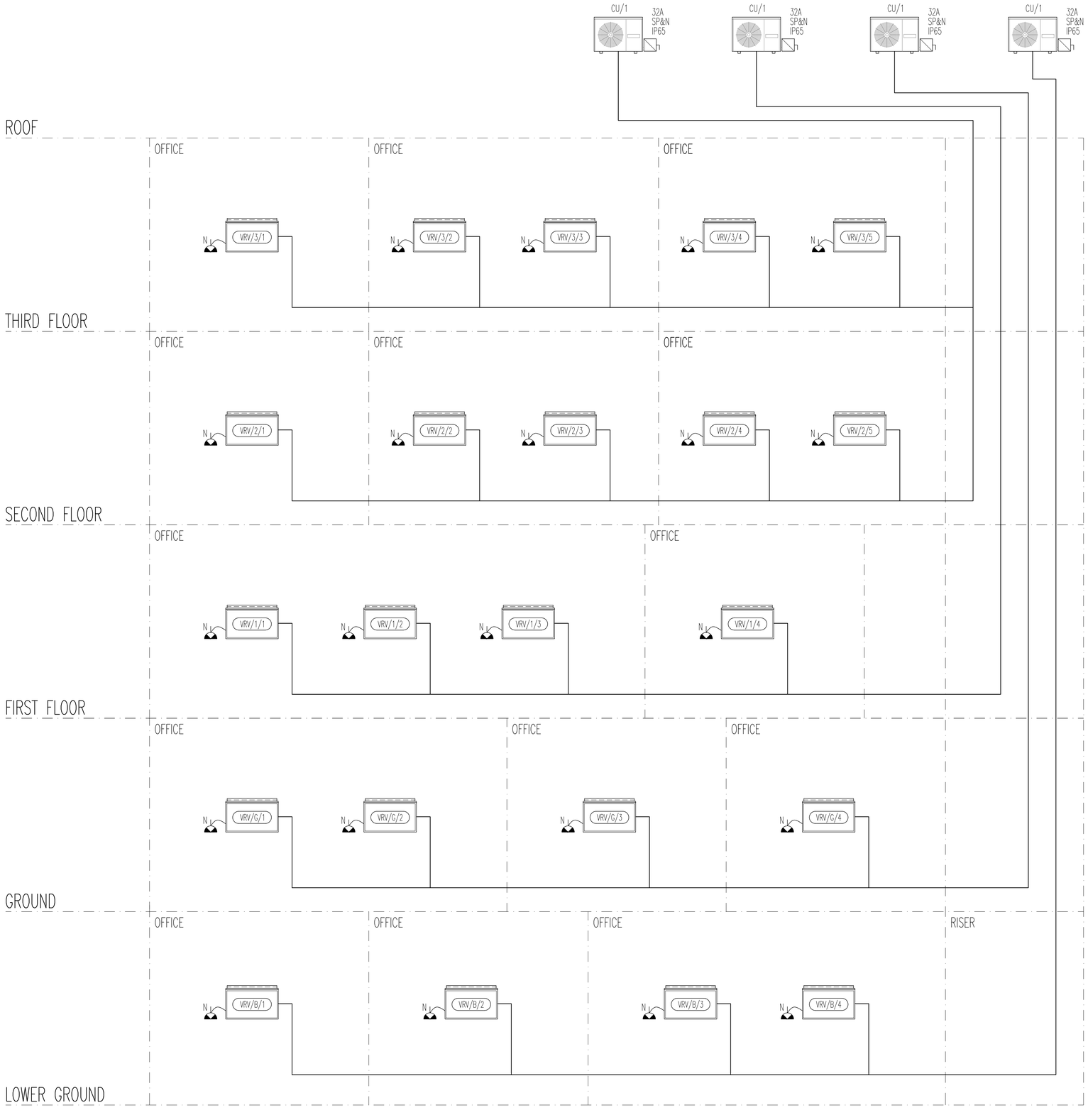

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13 BEDFORD SQ
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Drawing Title

VRV SCHEMATIC

Scale	N.T.S.	Date	AUG.18
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Drawing Status

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Revision 0

Drawing No.

TPS/13BS/VRVS

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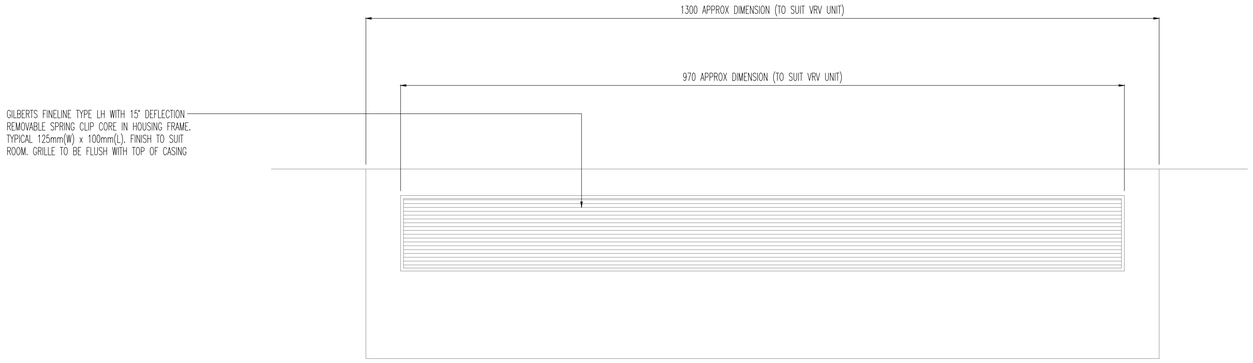

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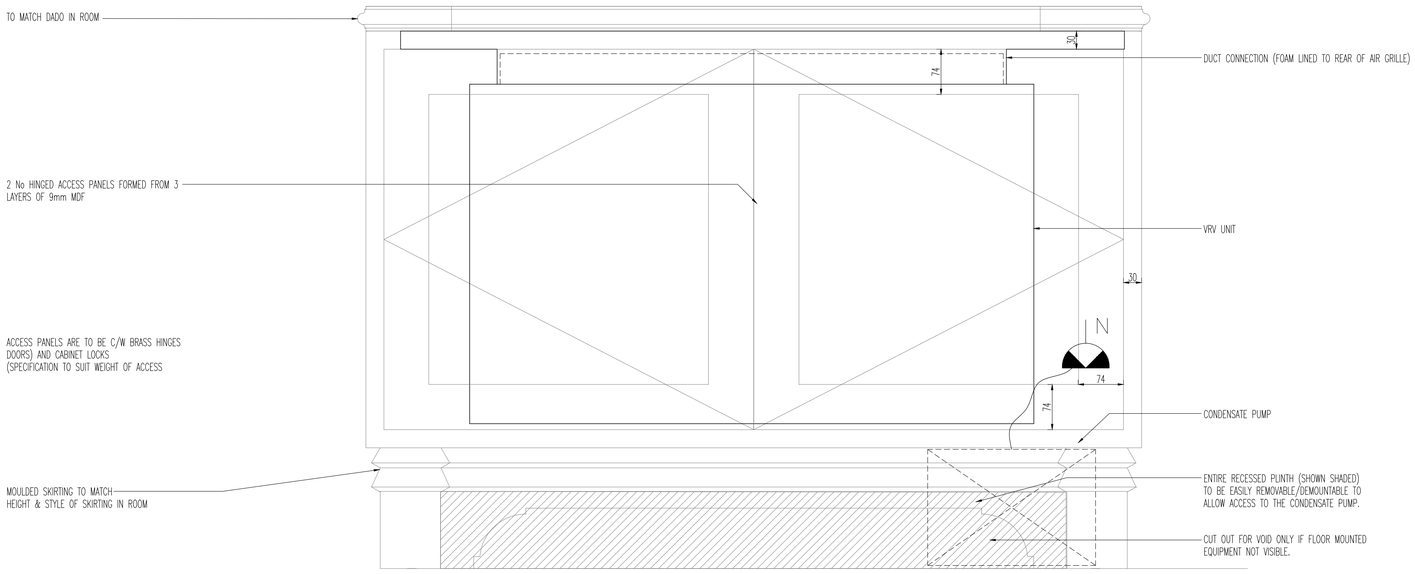

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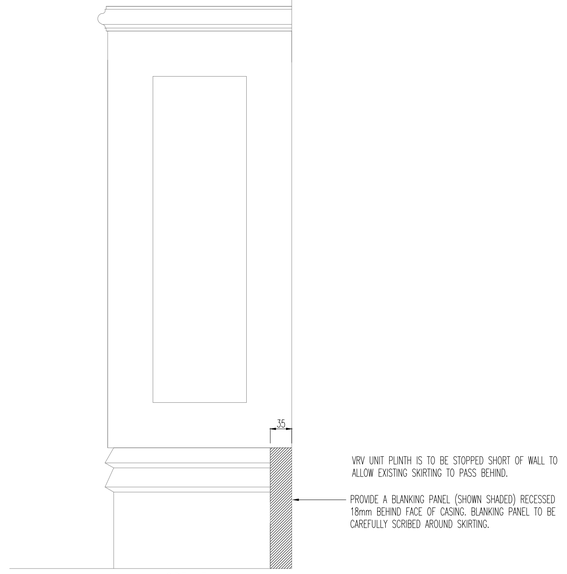

SIDE VIEW

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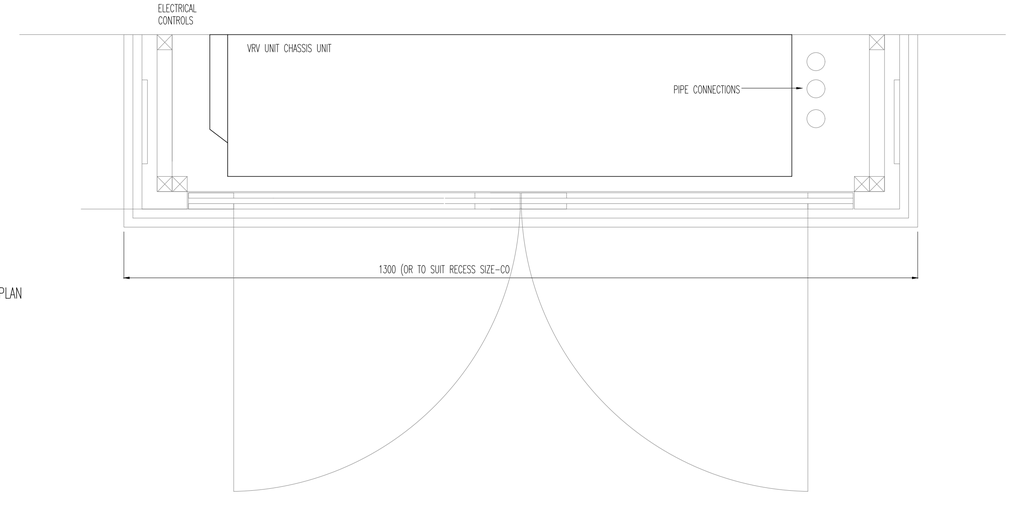

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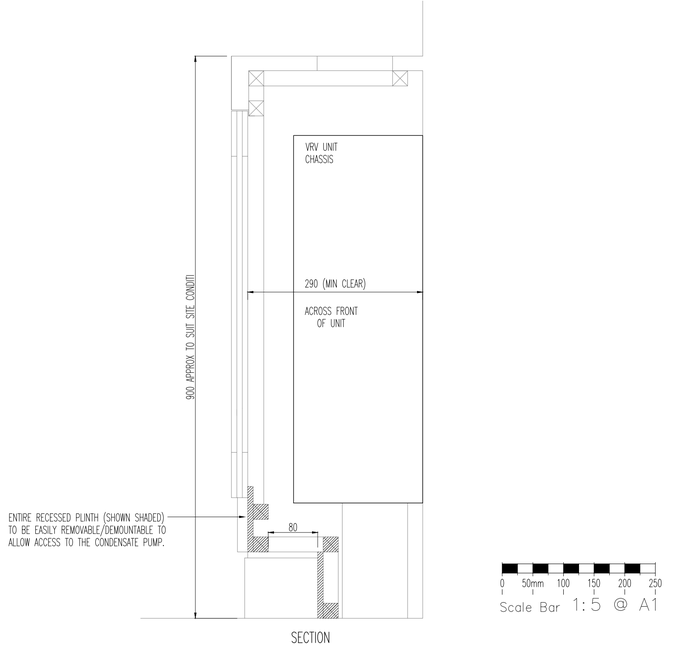

SECTION

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Project

13 BEDFORD SQUARE
LONDON
WC1

Drawing Title

VRV JOINERY CASING DETAIL (LOWER GROUND, GROUND & & FIRST FLOOR)

Scale 1:5 @ A1	Date AUG.18
Drawn L.R.	Checked G.N.T.

Drawing Status: PLANNING

Revision: 0

Drawing No.: TPS/13BS/VRV/J

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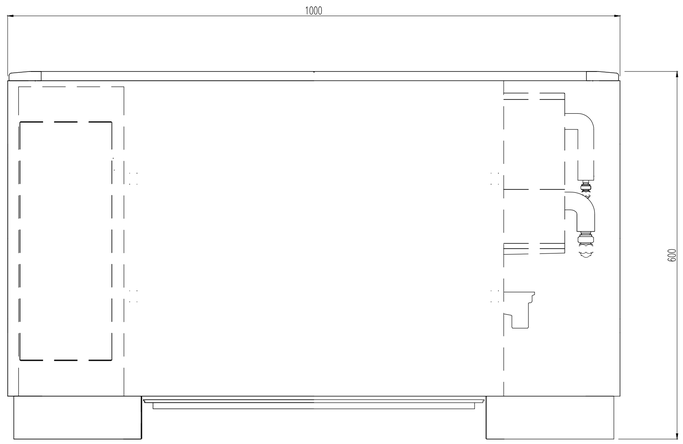

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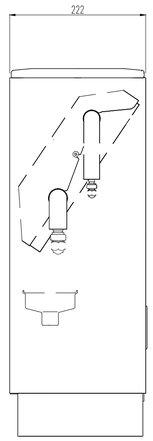

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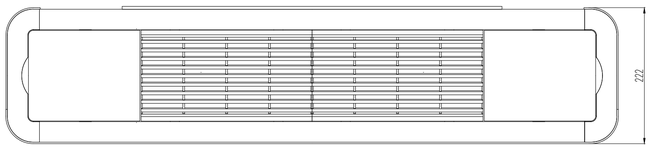

PLAN

DAIKIN PROPRIETARY METAL CASED VRV UNITS

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Scale Bar 1:5 @ A1

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Project

13 BEDFORD SQUARE
LONDON
WC1

Drawing Title

VRV STANDARD CASING DETAIL
(SECOND & THIRD FLOORS)

Scale	1:5 @ A1	Date	AUG.18
Drawn	L.R.	Checked	G.N.T.

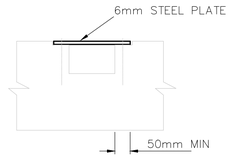
Drawing Status: PLANNING

Revision: 0

Drawing No.: TPS/13BS/VRV/M

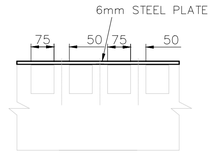
\TPS\ \

NOTES



NOTCH REPAIR DETAIL 1

FOR NOTCHES UPTO 25mm DEEP AND OVER SERVICES



MULTI–NOTCH DETAIL 2

FOR NOTCHES UPTO 25mm DEEP AND OVER SERVICES

PLAN ON NOTCH REPAIR

PLAN ON MULTI–NOTCH REPAIR

TPS
Taylor Project Services LLP
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Project
13 BEDFORD SQUARE
LONDON
WC1

Drawing Title
TIMBER NOTCH PLATE REPAIR

Scale	1:10@A3
Date	FEB.19
Drawn	L.R.
Chkd	G.N.T.

Rev	Date	Description
0	FEB.19	PLANNING ISSUE

Drg No. 13BS–TN1 Rev 0
Status PLANNING

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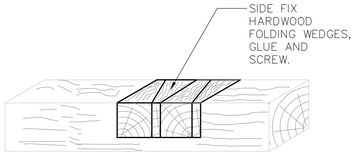
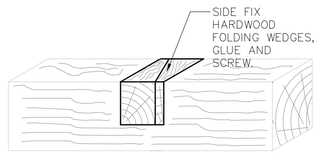
NOTES



NOTCH REPAIR DETAIL FOR LONG NOTCH

FOR NOTCHES GREATER THAN 25mm DEEP.



NOTCH REPAIR DETAIL 2

FOR NOTCHES GREATER THAN 25mm DEEP.

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Project
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Drawing Title
TIMBER LARGE NOTCH REPAIR

Scale	1:20@A3
Date	AUG.18
Drawn	L.R.
Chkd	G.N.T.

Rev	Date	Description
0	FEB.19	PLANNING ISSUE

Drg No. 13BS-TN2 Rev 0
Status PLANNING

5.3 Appendix: Noise Impact Assessment

Report VA2637.190228.NIA

13 Bedford Square, London

Noise Impact Assessment

28 February 2019

Taylor Project Services
No 1 Cornhill
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Venta Acoustics

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Contents

Attachments

1. Introduction

It is proposed to install four new condenser units at roof level at 13 Bedford Square, London.

Venta Acoustics has been commissioned by Taylor Project Services to undertake an assessment of the potential noise impact of these proposals in support of an application for planning permission.

An environmental noise survey has been undertaken to determine the background noise levels at the most affected noise sensitive receptors. These levels are used to undertake an assessment of the likely impact with reference to the planning requirements of Camden Council.

2. Design Criterion and Assessment Methodology

2.1 Consultation with the Local Authority

Camden Council's Local Plan (adopted June 2017), Appendix 3, provides the following guidance regarding noise from Industrial and Commercial Noise Sources

> *A relevant standard or guidance document should be referenced when determining values for LOAEL and SOAEL for non-anonymous noise. Where appropriate and within the scope of the document it is expected that British Standard 4142:2014 'Methods for rating and assessing industrial and commercial sound' (BS 4142) will be used. For such cases a 'Rating Level' of 10 dB below background (15dB if tonal components are present) should be considered as the design criterion).*

Existing Noise sensitive receiver	Assessment Location	Design Period	LOAEL (Green)	LOAEL to SOAEL (Amber)	SOAL (Red)
Dwellings**	Garden used for main amenity (free field) and Outside living or dining or bedroom window (façade)	Day	'Rating level' 10dB* below background	'Rating level' between 9dB below and 5dB above background	'Rating level' greater than 5dB above background
Dwellings**	Outside bedroom window (façade)	Night	'Rating level' 10dB* below background and no events exceeding 57dBL_{Amax}	'Rating level' between 9dB below and 5dB above background or noise events between 57dB and 88dB L_{Amax}	'Rating level' greater than 5dB above background and/or events exceeding 88dBL_{Amax}

**10dB should be increased to 15dB if the noise contains audible tonal elements. (day and night). However, if it can be demonstrated that there is no significant difference in the*

> *character of the residual background noise and the specific noise from the proposed development then this reduction may not be required.*
>
> *In addition, a frequency analysis (to include, the use of Noise Rating (NR) curves or other criteria curves) for the assessment of tonal or low frequency noise may be required.*
>
> ***levels given are for dwellings, however, levels are use specific and different levels will apply dependent on the use of the premises.*
>
> *The periods in Table C correspond to 0700 hours to 2300 hours for the day and 2300 hours to 0700 hours for the night. The Council will take into account the likely times of occupation for types of development and will be amended according to the times of operation of the establishment under consideration.*

There are certain smaller pieces of equipment on commercial premises, such as extract ventilation, air conditioning units and condensers, where achievement of the rating levels (ordinarily determined by a BS:4142 assessment) may not afford the necessary protection. In these cases, the Council will generally also require a NR curve specification of NR35 or below, dependant on the room (based upon measured or predicted $L_{eq,5mins}$ noise levels in octave bands) 1 metre from the façade of affected premises, where the noise sensitive premise is located in a quiet background area.

2.2 BS8233:2014

BS8233 *Guidance on sound insulation and noise reduction for buildings* provides guidance as to suitable internal noise levels for different areas within residential buildings.

The relevant section of the standard is shown below in Table 2.1.

Activity	Location	07:00 to 23:00	23:00 to 07:00
Resting	Living Room	35 dB $L_{Aeq,\ 16\ hour}$	-
Dining	Dining Room	40 dB $L_{Aeq,\ 16\ hour}$	-
Sleeping (daytime resting)	Bedroom	35 dB $L_{Aeq,\ 16\ hour}$	30 dB $L_{Aeq,\ 8\ hour}$

Table 2.1 - Excerpt from BS8233: 2014 **[dB ref. 20μPa]**

3. Site Description

As illustrated on attached site plan VA2637/SP1, the site building is located in a terrace of buildings and backs on to Gower Mews.

The most affected noise sensitive receivers are expected to be on Gower Mews.

Existing building services plant was noted on several of the neighbouring rooftops.

4. Environmental Noise Survey

4.1 Survey Procedure & Equipment

In order to establish the existing background noise levels at the site, a noise survey was carried out between Monday 25th and Wednesday 27th February 2019 at roof level at the location shown in site plan VA2637/SP1. This location was chosen to be representative of the background noise level at the most affected noise sensitive receivers.

Continuous 5-minute samples of the L_{Aeq}, L_{Amax}, L_{A10} and L_{A90} sound pressure levels were undertaken at the measurement location.

The weather during the survey period was generally dry with light winds. The background noise data is not considered to have been compromised by these conditions.

Measurements were made generally in accordance with ISO 1996 2:2017 *Acoustics - Description, measurement and assessment of environmental noise – Part 2: Determination of sound pressure levels*.

The following equipment was used in the course of the survey:

Manufacturer	Model Type	Serial No	Calibration	
			Certificate No.	Date
NTi Class 1 Integrating SLM	XL2	A2A-11461-E0	UCRT18/1681	5/7/18
Larson Davis calibrator	CAL200	13049	UCRT18/1431	20/4/18

Table 4.1 – Equipment used for the tests

The calibration of the sound level meter was verified before and after use with no significant calibration drift observed.

4.2 Results

The measured sound levels are shown as time-history plots on the attached charts VA2637/TH1-3.

The background noise level is determined by road traffic in the surrounding streets.

The typical background noise levels measured were:

Monitoring Period	Typical $L_{A90,5min}$
07:00 – 23:00 hours	50 dB
23:00 – 07:00 hours	47 dB

Table 4.2 – Typical background noise levels [dB ref. 20 µPa]

4.3 Plant Noise Emission Limits

On the basis of the measured noise levels and the planning requirements of the Local Authority, and considering that it is not expected that tonal noise will be generated by the proposed plant units, the following plant specific sound levels should not be exceeded at the most affected noise sensitive receivers:

Monitoring Period	Design Criterion (L_{Aeq})
07:00 – 23:00 hours	40 dB
23:00 – 07:00 hours	37 dB

Table 4.3 – Specific sound pressure levels not to be exceeded at most affected noise sensitive receivers

5. Predicted Noise Impact

5.1 Proposed plant

The following plant is proposed for installation at roof level in the valley between the two roof pitches at the location indicated on site plan VA2637/SP1.

This location benefits from line of sight screening, provided by the roof edge, from all noise sensitive receptors.

Plant Item	Quantity	Proposed Model	Notes
Condensers	4	Daikin RXYSCQ5TV1	

Table 5.1 – Indicative plant selections assumed for this assessment.

Consulting the manufacturer's datasheets, the following noise emissions levels are attributed to the proposed plant items:

Plant Item	Octave Band Centre Frequency (Hz) Sound Pressure/Power Level, L_p@1m, L_w (dB)								dB(A)
	63	125	250	500	1k	2k	4k	8k	
Daikin RXYSCQ5TV1	51	53	52	53	47	41	34	27	53

Table 5.2 – Advised plant noise data used for the assessment.

5.2 Recommended Mitigation Measures

It is not envisaged that any additional mitigation measures beyond the sites inherent geometry will be required for external noise emissions.

All plant and ductwork should be fitted with anti-vibration mounts in accordance with the manufacturer guidelines. This is expected to control structureborne noise to the building to acceptable levels.

Please note that the above recommendations relate to acoustic issues only. It is recommended that professional advice confirming the suitability of these measures be sought from others with regards to issues such as airflow, structural stability and visual impact.

5.3 Predicted noise levels

The cumulative noise level at the most affected noise sensitive receiver, some 15 meters away, has been calculated on the basis of the above information, with reference to the guidelines set out in BS4142:2014.

A summary of the calculations are shown in Appendix B.

Description	dB(A)
Plant noise criterion	37
L_p 1m from receiver	22

Table 5.3 – Predicted noise and level and design criteria at noise sensitive location

5.4 Comparison to NR35 Curve

As can been seen from the following comparison in Table 5.4, the predicted noise levels at 1m from the most affected receiver are comfortably below the NR35 curve.

Frequency (Hz)	63	125	250	500	1k	2k	4k	8k
NR35	63	52	45	39	35	35	30	28
L_p 1m from receiver	26	27	24	22	14	5	0	0

Table 5.4 – Comparison of predicted noise levels against the NR35 criterion

5.5 Comparison to BS8233:2014 Criteria

BS8233 assumes a loss of approximately 15dB for a partially open window. The external noise level shown in Table 2.1 would result in internal noise levels that achieve the guidelines shown in Table 2.1.

6. Conclusion

A baseline noise survey has been undertaken by Venta Acoustics to establish the background noise climate in the locality of 13 Bedford Square, London in support of a planning application for the proposed introduction of new building services plant.

This has enabled noise emission limits to be set at the most affected noise sensitive receiver such that the proposed installation meets the requirements of Camden Council .

The cumulative noise emission levels from the proposed plant have been assessed to be compliant with the plant noise emission limits.

The proposed scheme is not expected to have a significant adverse noise impact and the relevant planning requirements have been shown to be met.

Jamie Duncan MIOA

Indicative Site Plan

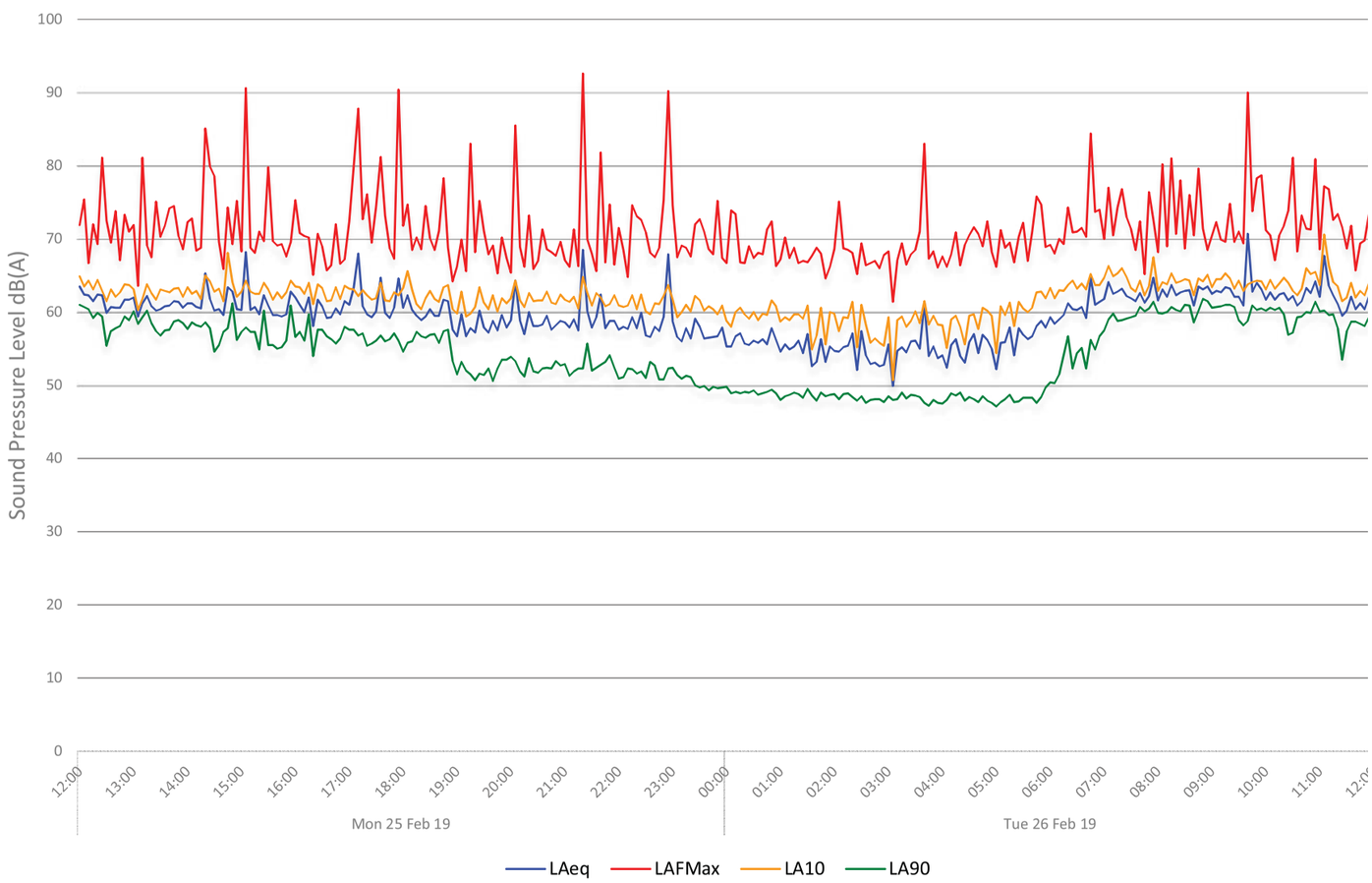
VA2637/SP1 13 Bedford Square, London

13 Bedford Square, London

Environmental Noise Time History: 1

Venta Acoustics

Figure VA2637/TH1

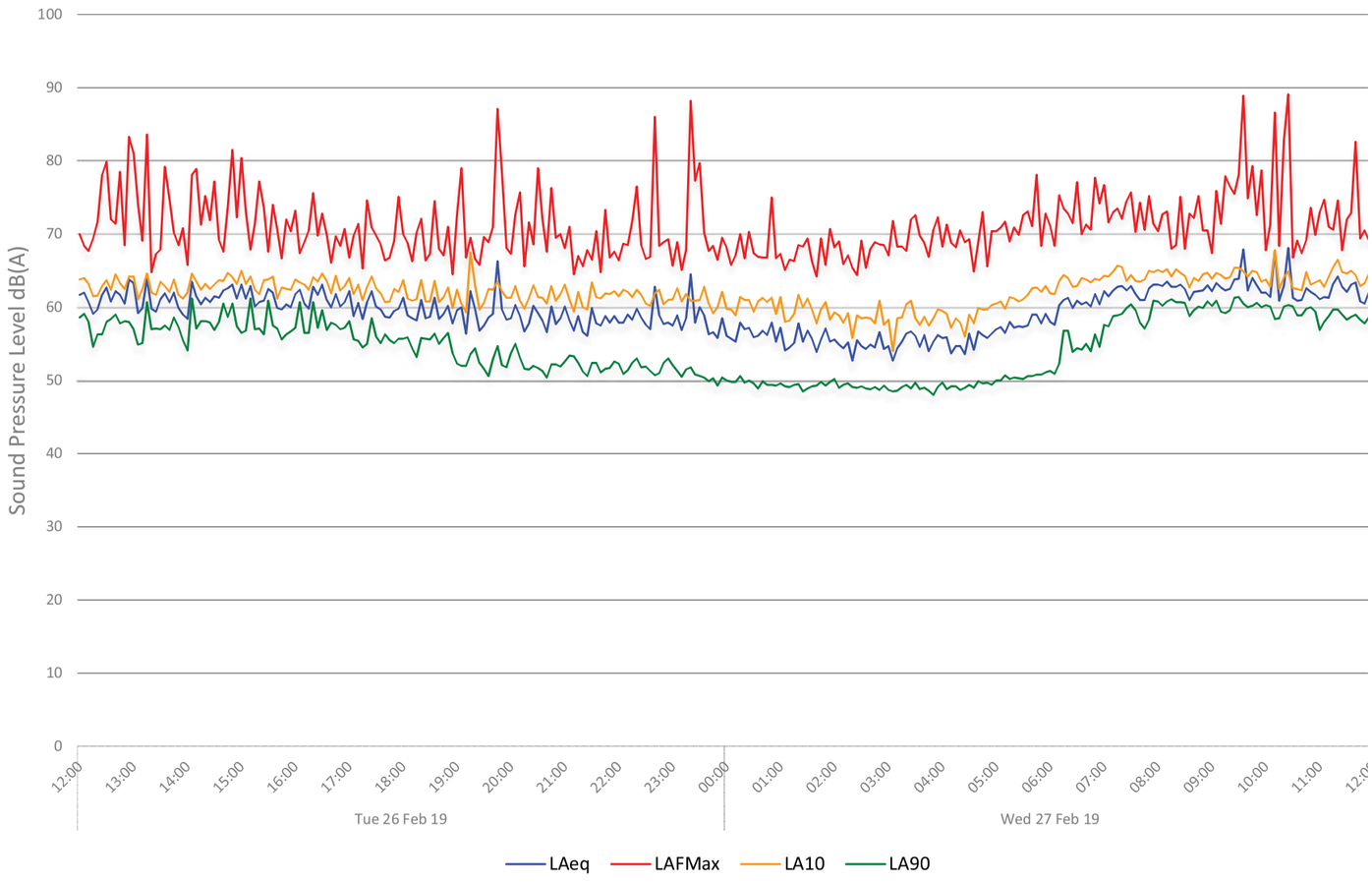


13 Bedford Square, London

Environmental Noise Time History: 2

Venta Acoustics

Figure VA2637/TH2

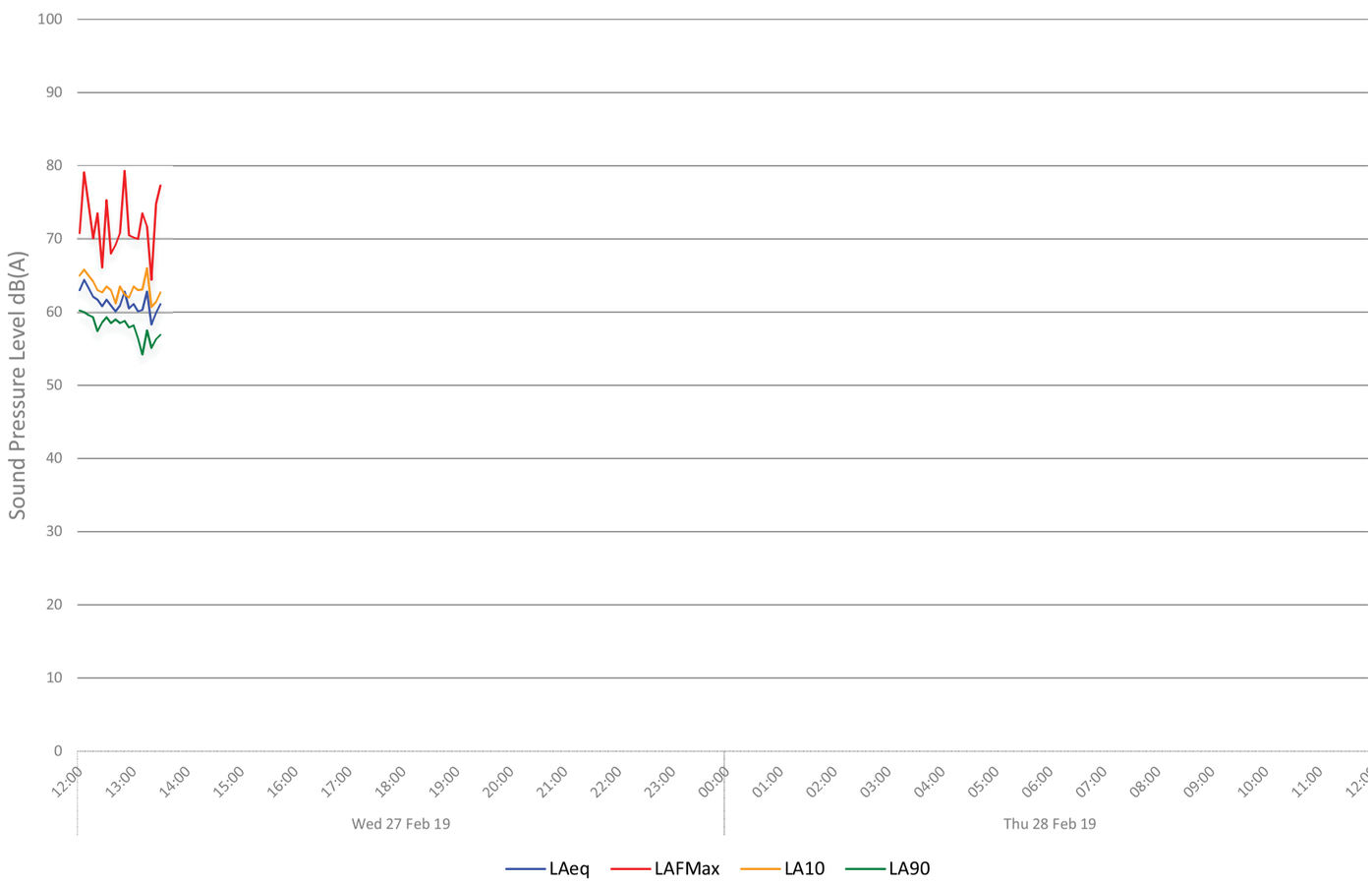


13 Bedford Square, London

Environmental Noise Time History: 3

Venta Acoustics

Figure VA2637/TH3



1.1 Acoustic Terminology

The human impact of sounds is dependent upon many complex interrelated factors such as 'loudness', its frequency (or pitch) and variation in level. In order to have some objective measure of the annoyance, scales have been derived to allow for these subjective factors.

Sound — Vibrations propagating through a medium (air, water, etc.) that are detectable by the auditory system.

Noise — Sound that is unwanted by or disturbing to the perceiver.

Frequency — The rate per second of vibration constituting a wave, measured in Hertz (Hz), where 1Hz = 1 vibration cycle per second. The human hearing can generally detect sound having frequencies in the range 20Hz to 20kHz. Frequency corresponds to the perception of 'pitch', with low frequencies producing low 'notes' and higher frequencies producing high 'notes'.

dB(A): Human hearing is more susceptible to mid-frequency sounds than those at high and low frequencies. To take account of this in measurements and predictions, the 'A' weighting scale is used so that the level of sound corresponds roughly to the level as it is typically discerned by humans. The measured or calculated 'A' weighted sound level is designated as dB(A) or L_A.

L_{eq} : A notional steady sound level which, over a stated period of time, would contain the same amount of acoustical energy as the actual, fluctuating sound measured over that period (e.g. 8 hour, 1 hour, etc). The concept of L_{eq} (equivalent continuous sound level) has primarily been used in assessing noise from industry, although its use is becoming more widespread in defining many other types of sounds, such as from amplified music and environmental sources such as aircraft and construction. Because L_{eq} is effectively a summation of a number of events, it does not in itself limit the magnitude of any individual event, and this is frequently used in conjunction with an absolute sound limit.

L_{10} & L_{90} : Statistical L_n indices are used to describe the level and the degree of fluctuation of non-steady sound. The term refers to the level exceeded for n% of the time. Hence, L_{10} is the level exceeded for 10% of the time and as such can be regarded as a typical maximum level. Similarly, L_{90} is the typical minimum level and is often used to describe background noise. It is common practice to use the L_{10} index to describe noise from traffic as, being a high average, it takes into account the increased annoyance that results from the non-steady nature of traffic flow.

L_{max} : The maximum sound pressure level recorded over a given period. L_{max} is sometimes used in assessing environmental noise, where occasional loud events occur which might not be adequately represented by a time-averaged L_{eq} value.

1.2 Octave Band Frequencies

In order to determine the way in which the energy of sound is distributed across the frequency range, the International Standards Organisation has agreed on "preferred" bands of frequency for sound measurement and analysis. The widest and most commonly used band for frequency measurement and analysis is the Octave Band. In these bands, the upper frequency limit is twice the lower frequency limit, with the band being described by its "centre frequency" which is the average (geometric mean) of the upper and lower limits, e.g. 250 Hz octave band extends from 176 Hz to 353 Hz. The most commonly used octave bands are:

Octave Band Centre Frequency Hz	63	125	250	500	1000	2000	4000	8000

APPENDIX A

Venta Acoustics

Acoustic Terminology & Human Response to Broadband Sound

1.3 Human Perception of Broadband Noise

Because of the logarithmic nature of the decibel scale, it should be borne in mind that sound levels in dB(A) do not have a simple linear relationship. For example, 100dB(A) sound level is not twice as loud as 50dB(A). It has been found experimentally that changes in the average level of fluctuating sound, such as from traffic, need to be of the order of 3dB before becoming definitely perceptible to the human ear. Data from other experiments have indicated that a change in sound level of 10dB is perceived by the average listener as a doubling or halving of loudness. Using this information, a guide to the subjective interpretation of changes in environmental sound level can be given.

Change in Sound Level dB	Subjective Impression	Human Response
0 to 2	Imperceptible change in loudness	Marginal
3 to 5	Perceptible change in loudness	Noticeable
6 to 10	Up to a doubling or halving of loudness	Significant
11 to 15	More than a doubling or halving of loudness	Substantial
16 to 20	Up to a quadrupling or quartering of loudness	Substantial
21 or more	More than a quadrupling or quartering of loudness	Very Substantial

1.4 Earth Bunds and Barriers - Effective Screen Height

When considering the reduction in sound level of a source provided by a barrier, it is necessary to establish the "effective screen height". For example if a tall barrier exists between a sound source and a listener, with the barrier close to the listener, the listener will perceive the sound as being louder if he climbs up a ladder (and is closer to the top of the barrier) than if he were standing at ground level. Equally if he sat on the ground the sound would seem quieter than if he were standing. This is explained by the fact that the "effective screen height" is changing with the three cases above. In general, the greater the effective screen height, the greater the perceived reduction in sound level.

Similarly, the attenuation provided by a barrier will be greater where it is aligned close to either the source or the listener than where the barrier is midway between the two.

APPENDIX B

VA2637 - 13 Bedford Square, London

Noise Impact Assessment

		63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz	dB(A)
Daikin RXYSCQ5TV1	Lp @ 1m	51	53	52	53	47	41	34	27	**53**
Number of Plant	4	6	6	6	6	6	6	6	6	
Distance Loss	To 15m	-24	-24	-24	-24	-24	-24	-24	-24	
Screening loss*		-7	-9	-11	-13	-16	-18	-18	-18	
Level at receiver		**26**	**27**	**24**	**22**	**14**	**5**	**-2**	**-9**	**22**

* Screening loss limited to 18dB

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