



RIGHT OF LIGHT  
CONSULTING  
Chartered Surveyors

# Daylight and Sunlight Report

(Within Development)

**14 October 2021**

100 to 112 Southampton  
Row  
Ormonde Mansions  
London WC1B 4BP

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# 1 EXECUTIVE SUMMARY

## 1.1 Overview

- 1.1.1 Right of Light Consulting has been commissioned by MIDA Architecture Ltd to undertake a daylight and sunlight study in connection with the development at 100 to 112 Southampton Row, Ormonde Mansions, London WC1B 4BP. The aim of the study is to check whether the proposed accommodation will provide its future occupiers with adequate levels of natural light.
- 1.1.2 The study is based on the numerical tests laid down in the Building Research Establishment (BRE) guide 'Site Layout Planning for Daylight and Sunlight: a good practice guide, 2<sup>nd</sup> Edition' by P J Littlefair 2011.
- 1.1.3 Appendix 1 identifies the windows analysed in this study. The no skyline contours for the habitable rooms are also presented in Appendix 1. The numerical results of the BRE daylight and sunlight tests are provided in Appendix 2. Overshadowing to gardens and opens spaces contour drawings are provided in Appendix 3.
- 1.1.4 The numerical results demonstrate that the proposed development design achieves a very high level of compliance with the BRE recommendations. Whilst a small number of rooms and outdoor amenity areas do not meet the recommendations, the results are not unusual in the context of an urban location. In our professional opinion, the proposed design will provide the development's future occupiers with adequate levels of natural light. We consider the proposed development to be consistent with the NPPF, which requires developments to provide acceptable living standards whilst making efficient use of land.

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## 2 INFORMATION SOURCES

### 2.1 Documents Considered

2.1.1 This report is based on the following drawings:

#### MIDA Architecture Ltd

0005	Proposed Site Plan	Rev A
0006	Proposed Plans	Rev A
0007	Proposed Basement Plan	Rev A
0008	Proposed Section 01	Rev A
0009	Proposed Section 02	Rev A
0010	Proposed Section 03	Rev A
QT-99836-WC1B4BB	Architect 3D Model	Rev -

#### Advanced Site Engineering Surveys

A1050-F0	Internal Floor Plans, Ground Floor	Rev A
A1050-FB	Internal Floor Plans, Basement	Rev -
A1050-S	Staircase Sections	Rev -

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### **3 METHODOLOGY OF THE STUDY**

#### **3.1 Local Planning Policy**

3.1.1 We understand that the Local Authority takes the conventional approach of considering daylight and sunlight amenity with reference to the various numerical tests laid down in the Building Research Establishment (BRE) guide 'Site Layout Planning for Daylight and Sunlight: a guide to good practice, 2<sup>nd</sup> Edition' by P J Littlefair 2011. A new European standard BS EN 17037 'Daylight in Buildings' was published in May 2019. An update to the BRE guide to take into account the European standard is expected sometime in 2021. It is not yet clear how, and to what extent, the European recommendations will be adopted by the BRE and Local Authorities.

3.1.2 The standards set out in the BRE guide are intended to be used flexibly. The BRE guide states:

"The guide is intended for building designers and their clients, consultants and planning officials. The advice given here is not mandatory and the guide should not be seen as an instrument of planning policy; its aim is to help rather than constrain the designer. Although it gives numerical guidelines, these should be interpreted flexibly, since natural lighting is only one of many factors in site layout design."

#### **3.2 National Planning Policy Framework**

3.2.1 The BRE numerical guidelines should be considered in the context of the National Planning Policy Framework (NPPF), which stipulates that local planning authorities should take a flexible approach to daylight and sunlight to ensure the efficient use of land. The NPPF states:

"Local planning authorities should refuse applications which they consider fail to make efficient use of land, taking into account the policies in this Framework. In this context, when considering applications for housing, authorities should take a flexible approach in applying policies or guidance relating to daylight and sunlight, where they would otherwise inhibit making efficient use of a site (as long as the resulting scheme would provide acceptable living standards)."

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### 3.3 Interior Daylighting

- 3.3.1 The interior daylighting recommendations set out in the BRE guide are based on British Standard BS 8206 Part 2 and the Chartered Institute of Building Services Engineers Applications Manual on window design. Collectively, the guides set out three main criteria for interior daylighting. These are summarised as follows:

#### **Test 1 - Average Daylight Factor**

- 3.3.2 The Average Daylight Factor (ADF) can be calculated using the following formula:

$$df = \frac{T A_w \theta}{A (1-R^2)} \%$$

where

T is the diffuse visible transmittance of the glazing  
A<sub>w</sub> is the net glazed area of the window (m<sup>2</sup>)  
A is the total area of the room surfaces (m<sup>2</sup>)  
R is their average reflectance  
θ is the angle of visible sky in degrees

- 3.3.3 The ADF test is applied to habitable rooms within domestic properties. A kitchen is generally deemed to be a habitable room if it is large enough to accommodate a dining area. If the kitchen is small, or if the property has a separate dining area, then the accepted practice is to treat the kitchen as a non-habitable room.
- 3.3.4 For the purpose of this study, we have assumed BRE internal reflectance coefficients pertaining to medium wooden floors (0.4), light painted walls (0.8) and matt white painted ceilings (0.85).
- 3.3.5 We have assumed that each window is double-glazed and has a glazed area that equates to 80% of the structural opening size. A glazing transmittance value, inclusive of a maintenance to allow for the effect of dirt and grime on the glazing, of 0.68 has been used.
- 3.3.6 To achieve a predominately daylit appearance, the guide recommends an ADF of 5% or more if there is no supplementary electric lighting, or 2% or more if supplementary lighting is provided. The guide also gives minimum recommendations for dwellings of 2% for kitchens, 1.5% for living rooms and 1% for bedrooms. The minimum targets have been adopted for the purpose of this study.

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- 3.3.7 The BRE guide does not give guidance on how to apply the ADF test to spaces which contain a mix of room uses e.g. open plan living, dining and kitchen areas. For this assessment we have set a target of 2% with the aim of reaching the predominately daylight benchmark.
- 3.3.8 A special procedure is required for floor to ceiling windows such as patio doors. If part of a window is below the height of the working plane (a horizontal plane 0.85m above the floor in housing), this portion should be treated as a separate window. The ADF for this window has an extra factor applied to it, to take account of the reduced effectiveness of low-level glazing in lighting the room. A value equal to the floor reflectance may be taken for this factor. The ADF for the portion of the window above the working plane is calculated in the normal way without this additional factor, and the ADFs for the two portions are added together.
- 3.3.9 Reflected light can be factored into the ADF calculation. For example, where a window has a large obstruction in front of it, the angle of visible sky can be increased by around 6°, assuming the obstruction is painted a light colour.

### **Test 2 - Room Depth**

- 3.3.10 If a daylight room is lit by windows in one wall only, the depth of the room L should not exceed the limiting value given by:

$$\frac{L}{W} + \frac{L}{H} \leq \frac{2}{1-R_b}$$

where

W is the room width

H is the window-head height above floor level

R<sub>b</sub> is the average reflectance of the surfaces in the rear half of the room

### **Test 3 - Position of the no skyline (Daylight Distribution)**

- 3.3.11 If a significant area of the working plane lies beyond the no skyline (i.e. it receives no direct skylight), then the distribution of daylight in the room will look poor and supplementary electric lighting will be required.

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3.3.12 The no skyline assessment is not applicable where a room derives its daylight solely from a light well or atrium. In these situations, the room relies on borrowed light instead of direct skylight.

### **3.4 Sunlight to Windows**

3.4.1 The BRE guide states that, in general, a dwelling or non-domestic building which has a particular requirement for sunlight, will appear reasonably sunlit if:

- at least one main window wall faces within 90 degrees of due south, and
- the centre of at least one window to a main living room can receive 25% of annual probable sunlight hours, including at least 5% of the annual probable sunlight hours during the winter months between 21st September and 21st March.

3.4.2 The guide states that, where groups of dwellings are planned, site layout design should aim to maximise the number of dwellings with a main living room that meets the above recommendations.

3.4.3 The guide states that sunlight is viewed as less important in kitchens and bedrooms.

### **3.5 Overshadowing to Gardens and Open Spaces**

3.5.1 The availability of sunlight should be checked for all open spaces where sunlight is required. This would normally include:

- Gardens, usually the main back garden of a house
- Parks and playing fields
- Children's playgrounds
- Outdoor swimming pools and paddling pools
- Sitting out areas, such as those between non-domestic buildings and in public squares
- Focal points for views such as a group of monuments or fountains.

3.5.2 The BRE guide recommends that, for an open space to appear adequately lit throughout the year, at least 50% of its area should receive two hours of sunlight on 21st March.

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## **4 RESULTS OF THE STUDY**

### **4.1 Window Reference Points and No Skyline Contours**

- 4.1.1 Appendix 1 identifies the positions of the windows analysed in this study. The no skyline contours for the habitable rooms are also presented in Appendix 1.

### **4.2 Daylight & Sunlight Data**

- 4.2.1 The numerical results of the BRE daylight and sunlight tests are provided in Appendix 2. Overshadowing to gardens and open spaces contour drawings are provided in Appendix 3.

### **4.3 Interior Daylighting**

- 4.3.1 All habitable rooms surpass the BRE minimum Average Daylight Factor (ADF) recommendations.
- 4.3.2 All rooms pass the room depth test.
- 4.3.3 The BRE guide does not give fixed numerical pass/fail criteria for the No Skyline test when applied to new dwellings. However, for completeness, we have illustrated the no skyline contours in Appendix 1.

### **4.4 Sunlight to Windows**

- 4.4.1 In the case of the proposed development, none of the windows serving the living room face within 90 degrees of south or meet the BRE numerical targets. This is unavoidable due to the existing constraints of the surrounding obstructions and the position of the proposed development. Therefore, this does not amount to non-compliance with the BRE requirements, since the only requirement is to aim to maximise the number of units that meet the recommendations.

### **4.5 Overshadowing to Gardens and Open Spaces**

- 4.5.1 The terrace and lightwell are north facing and the results show that they do not meet the BRE recommendation of achieving 2 hours of sunlight on 21<sup>st</sup> March to 50% of its area. However, the BRE guide acknowledges that it is not always possible for all dwellings to have an ideal southerly aspect. Furthermore, it should be noted that the BRE numerical overshadowing recommendations are designed to be applied to

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relatively large open spaces such as main back gardens to houses, parks etc, and not individual private terraces. Despite the shortfall in the amount of sunlight received by the terrace, we still consider that it will provide a useable amenity area for future occupants.

## **4.6 Conclusion**

- 4.6.1 The numerical results demonstrate that the proposed development design achieves a very high level of compliance with the BRE recommendations. Whilst a small number of rooms and outdoor amenity areas do not meet the recommendations, the results are not unusual in the context of an urban location. In our professional opinion, the proposed design will provide the development's future occupiers with adequate levels of natural light. We consider the proposed development to be consistent with the NPPF, which requires developments to provide acceptable living standards whilst making efficient use of land.

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## 5 CLARIFICATIONS

### 5.1 General

- 5.1.1 The report provided is solely for the use of the client and no liability to anyone else is accepted.
- 5.1.2 The study is limited to assessing daylight, sunlight and overshadowing of the proposed development as set out in section 2.1, 3.1 and 3.3 of the BRE Guide.
- 5.1.3 The study is based on the information listed in section 2 of this report. The study has been undertaken without access to the proposed development site or neighbouring properties.
- 5.1.4 We have undertaken the survey following the guidelines of the RICS publication "Surveying Safely". Where limited access is available, assumptions will have been made.
- 5.1.5 This report is based upon and subject to the scope of work set out in Right of Light Consulting's quotation and standard terms and conditions.

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## **APPENDICES**

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## **APPENDIX 1**

### WINDOW KEY & NO SKY LINE CONTOURS

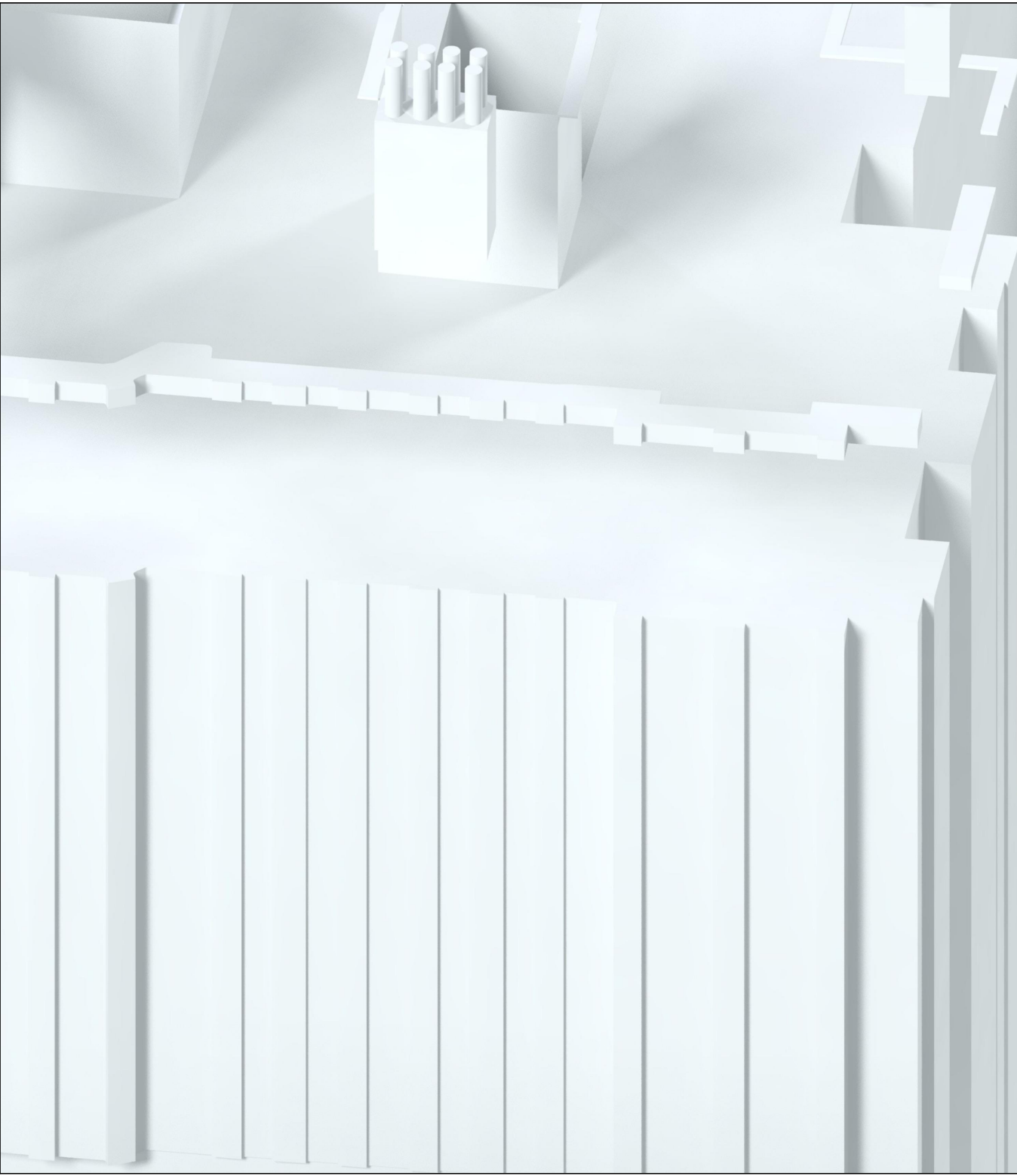
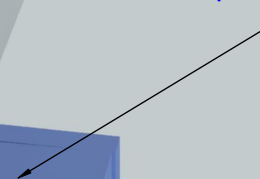


Proposed Development

3  
4  
1



Proposed Development





4

3

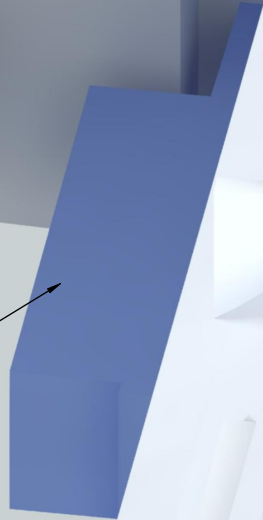
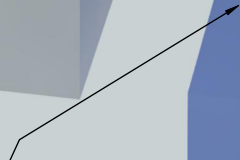
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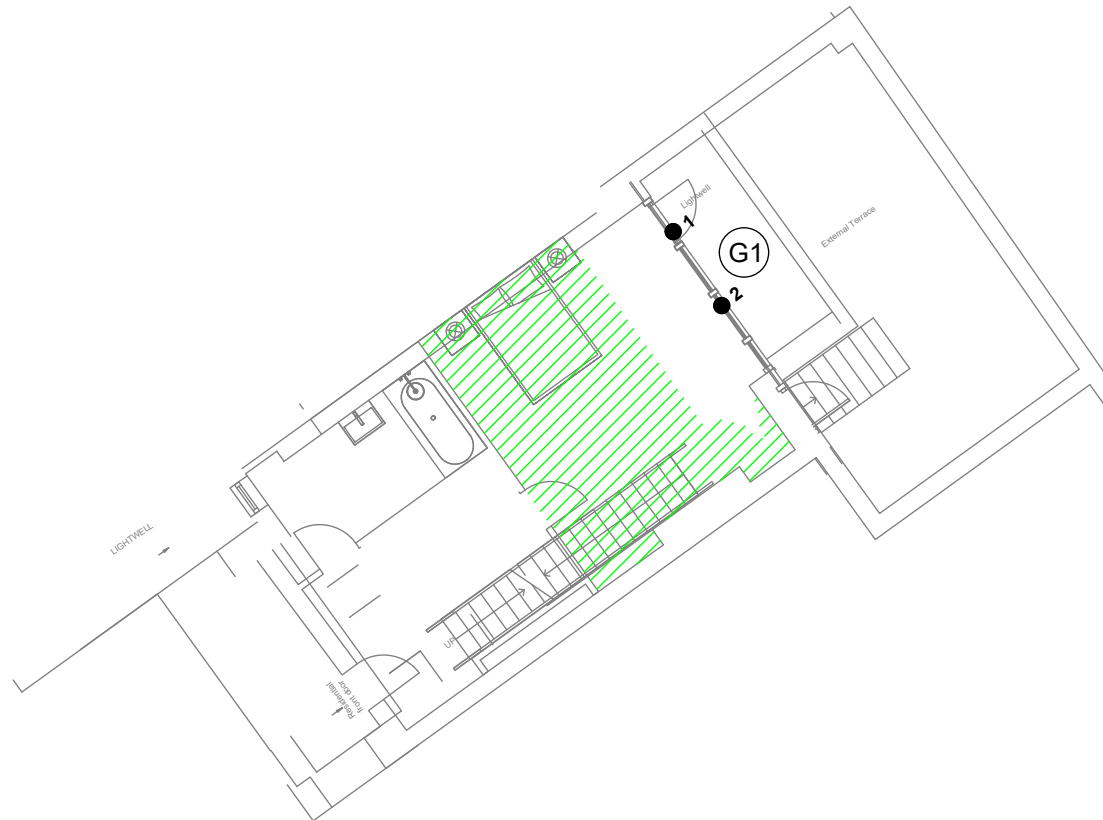
1

Proposed Development



Proposed Development





Key:

- Window reference
- G1 Gardens and Amenity Areas
- Area receives no direct sky light (applied to habitable rooms)
- Area does receive direct sky light.
- Light aperture.

Drawing Title: Window Key and No Sky Line Contours

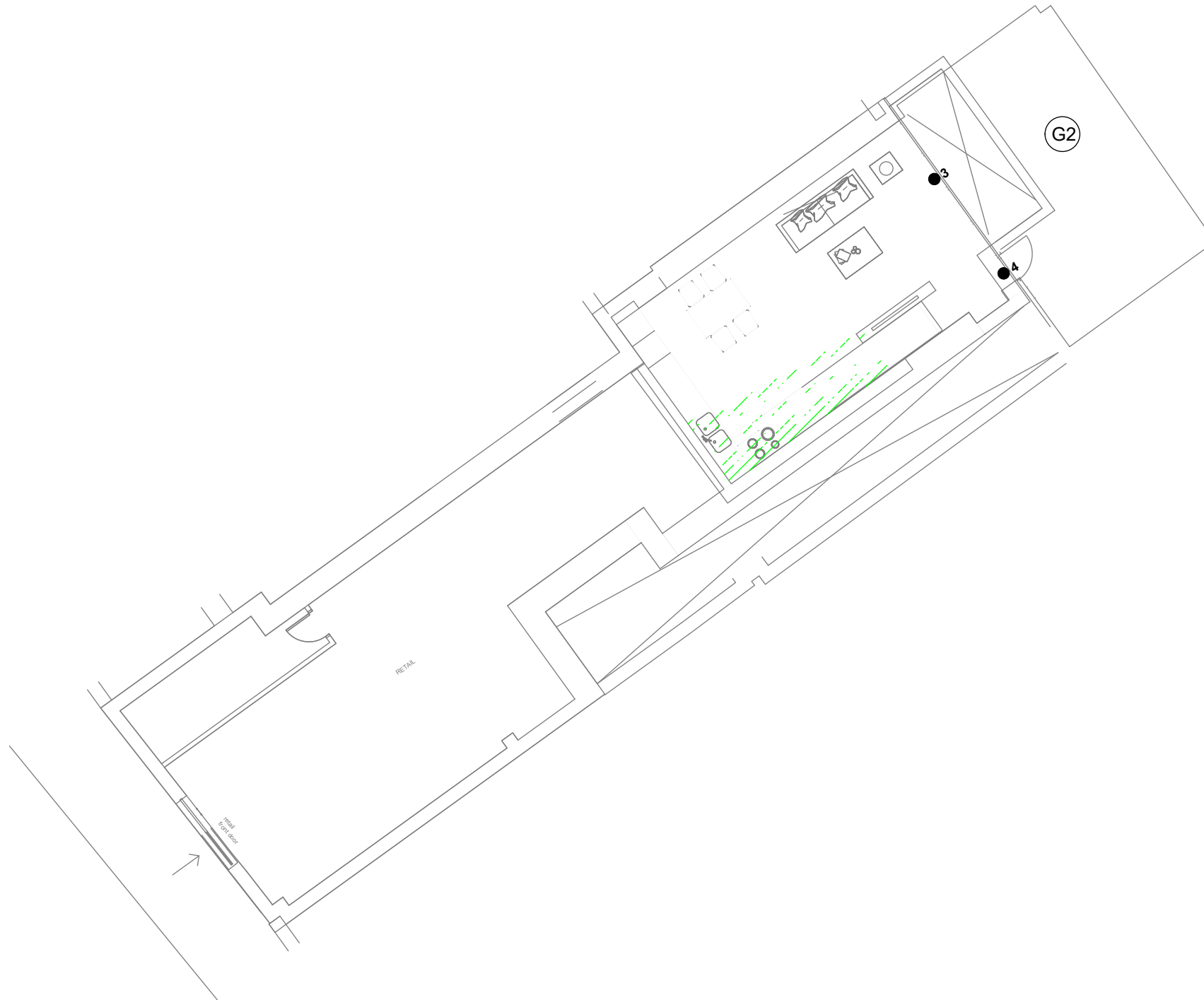
Scale: Do not scale

Drawing No: 1 of 2 Rev. .

Rev	Date	Details of revision

## Proposed Ground Floor

## Window Key and No Sky Line Contours



Key:

- Window reference
- G1 Gardens and Amenity Areas
- Area receives no direct sky light (applied to habitable rooms)
- Area does receive direct sky light.
- Light aperture.

Drawing Title: Window Key and No Sky Line Contours

Scale: Do not scale

Drawing No: 2 of 2

Rev. .

Rev	Date	Details of revision

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## **APPENDIX 2**

### **DAYLIGHT & SUNLIGHT DATA**

## Appendix 2 - Average Daylight Factor (ADF)

### 100 to 112 Southampton Row, Ormonde Mansions, London WC1B 4BP

Reference	Target ADF based on room use		Average Daylight Factor Coefficients					Actual
	Primary room use	ADF	T	Aw	A	R	Theta	ADF
<u>100 to 112 Southampton Road</u>								
<u>Basement Floor</u>								
Window 1 (lower)	Bedroom	1.0%	0.68	0.6	84.26	0.68	30.8	0.1%
Window 1 (upper)			0.68	0.64	84.26	0.68	38.0	0.4%
Window 2 (lower)			0.68	1.65	84.26	0.68	34.0	0.3%
Window 2 (upper)			0.68	1.76	84.26	0.68	38.6	1.0%
<b>Total ADF for room</b>								
<u>Ground Floor</u>								
Window 3 (lower)	Living/Dining/Kitchen	2.0%	0.68	2.49	128.89	0.66	44.3	0.4%
Window 3 (upper)			0.68	4.83	128.89	0.66	46.8	2.1%
Window 4 (lower)			0.68	0.45	128.89	0.66	42.5	0.1%
Window 4 (upper)			0.68	0.87	128.89	0.66	45.0	0.4%
<b>Total ADF for room</b>								

## Appendix 2 - Room Depth Calculation

### 100 to 112 Southampton Row, Ormonde Mansions, London WC1B 4BP

Room	Room Depth Coefficients				Room Depth Calculation			Result
	L	W	H	Rb	L/W + L/H	<=	2/1-Rb	
100 to 112 Southampton Road								
Basement Floor								
Window 1	4.1	4.9	1.8	0.68	3.11	<=	6.31	Pass
Window 2	4.1	4.9	1.8	0.68	3.11	<=	6.31	Pass
Ground Floor								
Window 3	7.7	4.6	2.5	0.66	4.75	<=	5.93	Pass
Window 4	7.7	4.6	2.5	0.66	4.75	<=	5.93	Pass

## Appendix 2 - Sunlight to Windows

**100 to 112 Southampton Row, Ormonde Mansions, London WC1B 4BP**

Reference	Room Use	Annual Probable Sunlight Hours	
		Total	Winter
<u>100 to 112 Southampton Road</u>			

### Ground Floor

Window 3	Living/Dining/Kitchen	0%	0%
Window 4	Living/Dining/Kitchen	0%	0%

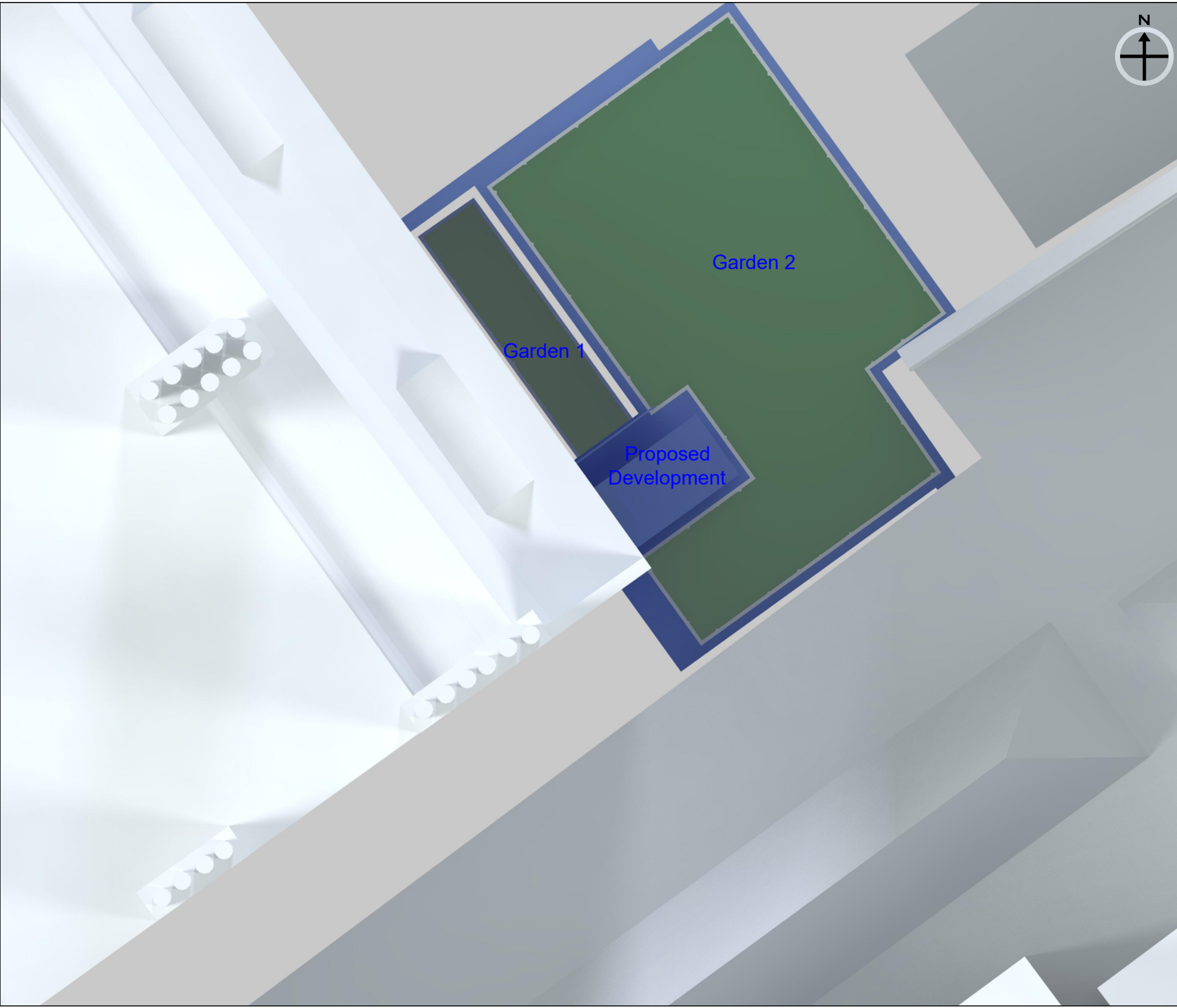
**Appendix 2 - Overshadowing to Gardens and Open Spaces**  
**100 to 112 Southampton Row, Ormonde Mansions, London WC1B 4BP**

Reference	Total Area	Area receiving at least 2 hours of sunlight on 21st March	
<u>100 to 112 Southampton Road</u>			
<u>Basement Floor</u>			
Garden 1	3.41 m2	0.0 m2	0%
<u>Ground Floor</u>			
Garden 2	25.15 m2	0.0 m2	0%

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## **APPENDIX 3**

### OVERSHADOWING TO GARDENS & OPEN SPACES



Key



Receives under two hours sunlight on 21st March before and after the development.



Receives at least two hours sunlight on 21st March before and after the development.

Drawing Title: Appendix 3 - Overshadowing to Gardens and Open Spaces



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