



1 Rose Place, The Broadway, N8 9SU

DAYLIGHT & SUNLIGHT ASSESSMENT

Rooftop Extension to provide 3-Bedroom Dwelling

April 2024

Document Issue Register

- 1.0 Issue to client
- 2.0 Revised scheme

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1 Introduction

- 1.1 This report details a Daylight & Sunlight Assessment for the proposed extension at 1 Rose Place, The Broadway, N8 9SU. The proposal entails a rooftop extension to the existing building, to provide a 3-bedroom dwelling.
- 1.2 The existing site comprises a 2-bedroom dwelling, within a compact site to the north of Rose Place and set back from the terraced row south of Weston Park.
- 1.3 The proposed extension has been designed with consideration to the existing neighbouring properties, and as such the proposed extension will feature a sloping roof to minimise impact to the neighbouring habitable windows.
- 1.4 The purpose of this report is to perform a daylight and sunlight assessment for the habitable rooms of the surrounding properties, and to compare with guidance provided by the BRE (BR209: Site Layout Planning for Daylight and Sunlight 2022) along with The British Standard 'Daylight in buildings' (BS EN 17037) and CIBSE Guide LG10 – Daylighting and Window Design.

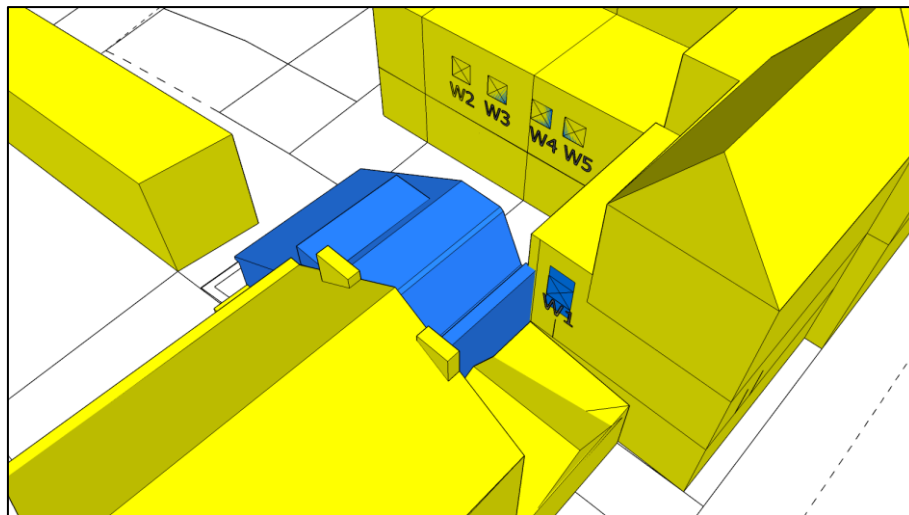


Figure 1: Proposed extension (blue), 3D daylight model

2 Executive Summary

- 2.1 There are two components of natural light which need to be considered when assessing the impact of a proposed development on the surrounding residential properties, being the level of daylight and the annual sunlight hours. The sunlight test applies only to living room windows facing within 90 degrees of due south.
- 2.2 In terms of daylight levels to a window, the BRE recommends a Vertical Sky Component (VSC) of 27%, or not less than 0.8 times its former level.
- 2.3 The results of the daylight assessment indicate that all of the assessed neighbouring windows would retain a VSC of 27% or not less than 0.8 times their former level. Thus the reduction in daylight levels to these windows would not be noticeable according to the BRE guidance.
- 2.4 The values of daylight levels and annual sunlight hours are thus considered to be acceptable for all surrounding properties, according to the BRE guidance.



Figure 2: Site (red), aerial view (source: Google Earth)

3 Planning Policies and Guidance

3.1 BRE Document 209 – Site Layout Planning for Daylight and Sunlight

- 3.2 The introduction to the BRE document 209: *Site Layout Planning for Daylight and Sunlight: A Guide to Good Practice* – 3rd edition (Paul Littlefair, 2022) 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; it’s 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. In special circumstances the developer or Planning Authority may wish to use different target values. For example, in a historic city centre, or in an area with modern high-rise buildings, a higher degree of obstruction may be unavoidable if new developments are to match the height and proportions of existing buildings.”

3.3 National Planning Policy Framework 2023

- 3.4 Furthermore, the National Planning Policy Framework 2023 states that:

“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).”

4 Methodology

4.1 Measurement of Daylight

4.2 There are three mechanisms for determining the daylight levels to a window or room:

- a. Vertical Sky Component (VSC)
- b. No Sky Contours (NSC)
- c. Daylight Factor (DF) or Illuminance (Lux)

4.3 If a proposed development will fall beneath a 25° angle taken from the centre of the lowest window at an existing property, then no further assessment will be required. Furthermore, if the centre of a main window of the next door property lies on the extension side of a 45° line drawn in plan and elevation, then the extension may well cause a significant reduction in the skylight received by the window.

4.4 Vertical Sky Component (VSC)

4.5 The VSC methodology is defined as:

4.6 *‘Ratio of that part of illuminance, at a point on given vertical plane, that is received directly from a CIE Standard Overcast Sky, to illuminate on a horizontal plane due to an unobstructed hemisphere of this sky’.*

4.7 The VSC for a completely unobstructed CIE Standard Overcast Sky is 39.6%. The BRE guideline VSC for an existing window in a habitable room is 27%, or not less than 0.8 times its former value. This figure has been derived from a low-density suburban housing model. The BRE advises that these values are:

4.8 *“..purely advisory and different targets may be used based on the special requirements of the proposed development or its location.”*

4.9 No Sky Contours (NSC)

4.10 The 2nd and 3rd methods (NSC and DF) require knowledge of the internal layout of the property being assessed, whilst the 1st method is determined solely on the external skyline obstructions. In this instance it is appropriate to assess the neighbouring properties based on the 1st method (VSC), whilst reasonable assumptions can be made with regards to internal geometry and surface finishes, in order to assess the NSC and DF of neighbouring properties.

4.11 Daylight Factor (DF)

4.12 The Daylight Factor (DF) is a measure of the percentage of horizontal diffuse illumination outdoors (daylight) received within an internal environment. The British Standard 'Daylight in buildings' (BS EN 17037) recommends a minimum DF in London/surrounds (to be achieved over at least 50% of the assessment grid) of:

- 0.7% for bedrooms;
- 1.1% for living rooms; and
- 1.4% for kitchens.

4.13 The Daylight Factor (DF) is largely dependent on the geometry of the room and the window sizes, thus the drawings of the proposed development have been analysed and modelled in a 3D environment. Analysis is performed using the 'FlucsDL' software module within the IES Virtual Environment.

4.14 Additional variables include:

- Diffuse transmittance of the glass (including dirt factor)
- Angle subtended by sky visible from the centre of the window
- Total area of internal surfaces
- Reflectance of internal surfaces.

4.15 Measurement of Sunlight

- 4.16 The sunlight to a given window can be quantified using the Annual Probable Sunlight Hours (APSH) method. The unobstructed total in London (latitude 51.5°N) and southern England equates to 1486 hours. An indicator is provided in the BRE guide which is overlaid with 100 spots, each representing approximately 15 hours. Each spot which is uncovered by an obstruction can thus be counted to provide a single percentage of total APSH.
- 4.17 A more accurate estimation of the annual sunlight hours can be determined through numerical simulation, using a 3D model of the site including any surrounding obstructions. The sunlighting analysis has been performed using the 'Suncast' software module within the IES Virtual Environment.
- 4.18 The guideline criteria for assessing annual sunlight at a reference point (centre of window) of the main living room of an existing building is that it should receive 25% of APSH including at least 5% of APSH in winter or not less than 0.8 times its former value.
- 4.19 According to the BRE guidance, it is not always necessary to do a full calculation to check sunlight potential. The guideline above is met if the following is true:
- If the distance of each part of the new development from the existing window is three or more times its height above the centre of the existing window (obstructions within 90° of due north of the existing window need not count here);
 - The window wall faces within 90° of due south and no obstruction, measured in the section perpendicular to the window wall, subtends an angle of more than 25° to the horizontal (again, obstructions within 90° of due north of the existing window need not be counted);
 - The window wall faces within 20° of due south and the reference point has a VSC of 27% or more.

5 Daylight & Sunlight Analysis of Surrounding Properties

5.1 The surrounding properties which have been assessed include the following:

1. Hubert House Mezzanine Studio
2. Properties north of Weston Park
3. 5 Weston Park
4. 42-44 The Broadway



Figure 3: Location Plan – surrounding properties

5.2 Hubert House Mezzanine Studio

5.3 The east and north façade of the property are shown below (east-facing window serving studio has been assessed), along with the 3D model indicating window IDs:



Figure 4: 6.2 Hubert House Mezzanine Studio

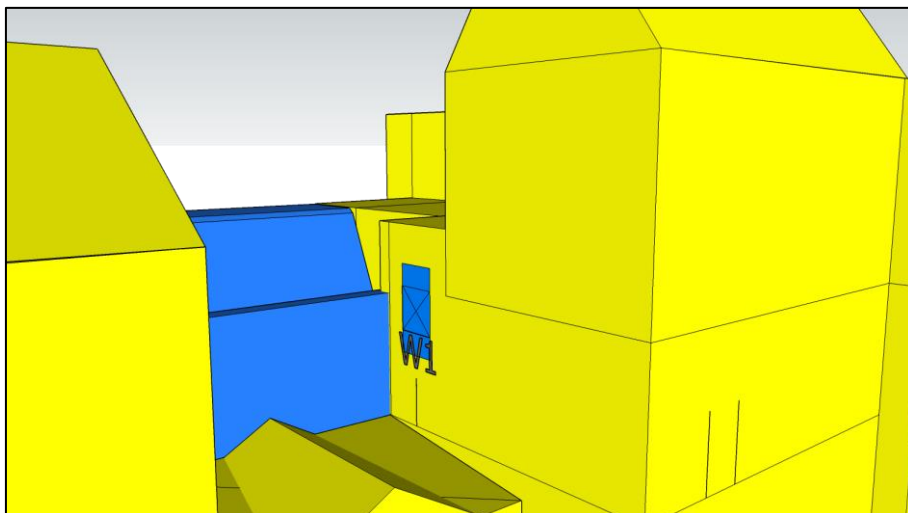


Figure 5: 3D Model – Hubert House (Window W1)

5.4 Properties north of Weston Park

- 5.5 The properties are shown below (3-storey terraced properties), along with the 3D model indicating 25-degree line from ground floor windows:



Figure 6: Properties north of Weston Park

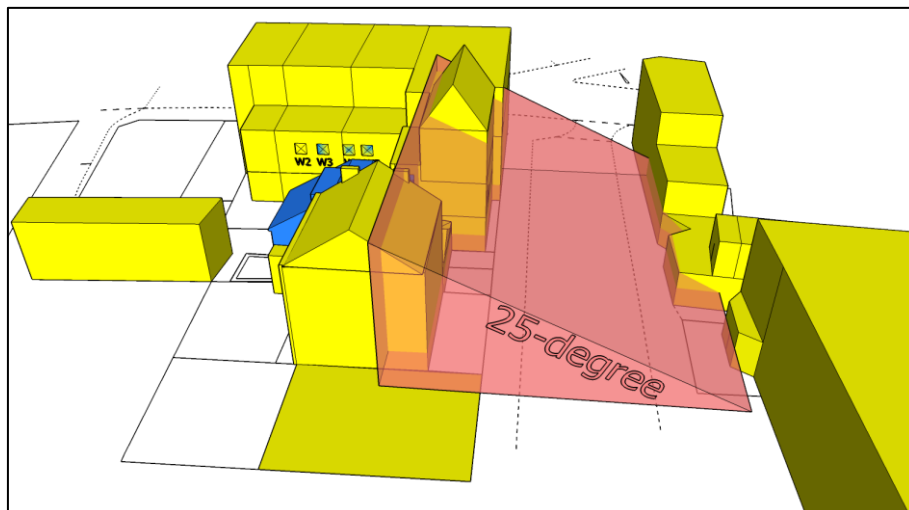


Figure 7: 3D Model – Properties north of Weston Park

5.6 5 Weston Park

- 5.7 The property is shown below (terraced house), along with the 3D model indicating 45-degree line in plan & elevation from 1st floor window (ground floor rear extension windows face east away from proposed extension). The window lies outside of a 45-degree line in elevation from the top of the proposed extension:



Figure 8: 5 Weston Park, Rear 1st floor (source: Bing Maps)

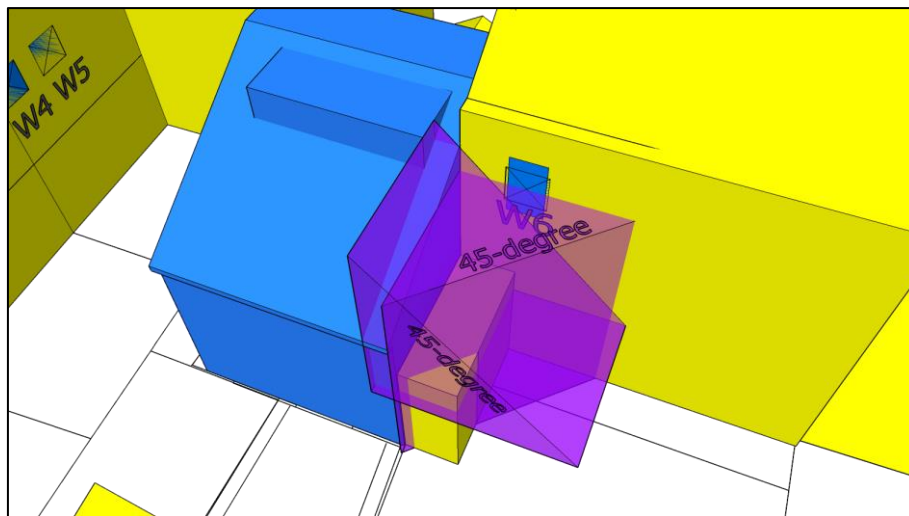


Figure 9: 3D Model – 5 Weston Park (Window W6)

5.8 42-44 The Broadway

5.9 The rear of the properties are shown below (1st floor windows have been assessed, ground floor serves retail), along with the 3D model indicating window IDs:



Figure 10: 42-44 The Broadway (source: Google Earth)

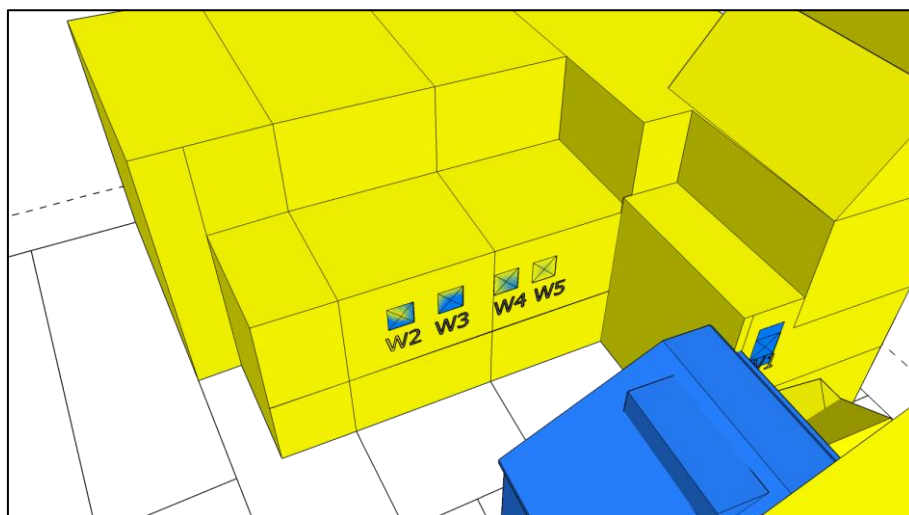


Figure 11: 3D Model – 42-44 The Broadway (Windows W2-W5)

5.10 Results of Daylight Analysis

- 5.11 The assessment has been undertaken for the neighbouring residential windows according to the BRE guidance.
- 5.12 Where the proposed extension has been demonstrated to fall beneath a 25° angle taken from the centre of the lowest residential window at an existing property (or 45° in plan or elevation from an adjacent property), then no further assessment is required.
- 5.13 For the remaining windows, a Vertical Sky Component (VSC) assessment criteria of 27% is usually adopted, however the BRE advises that in certain situations, lower values can be acceptable. For example, if the existing VSC is below 27%, then the target VSC would be not less than 0.8 times its former value.
- 5.14 The results of the daylight assessment (Appendix 1) indicate that all of the assessed windows would retain a VSC of above 27% or not less than 0.8 times their former value. Thus the reduction in daylight levels to these windows would not be noticeable according to the BRE guidance.
- 5.15 Thus the impact of the proposed extension on neighbouring daylight levels would be considered to be acceptable according to the BRE guidance.
- 5.16 The results of the daylight (VSC) assessment are presented in Appendix 1.

5.17 Results of Sunlight Analysis

- 5.18 The neighbouring windows which have been assessed for VSC do not face within 90 degrees of due south, therefore annual probable sunlight hours (APSH) analysis has not been necessary according to the BRE guidance.

6 Conclusion

- 6.1 This report details a Daylight & Sunlight Assessment for the proposed extension at 1 Rose Place, The Broadway, N8 9SU. The proposal entails a rooftop extension to the existing building, to provide a 3-bedroom dwelling.
- 6.2 The existing site comprises a 2-bedroom dwelling, within a compact site to the north of Rose Place and set back from the Weston Park terraced properties.
- 6.3 The proposed extension has been designed with consideration to the existing neighbouring properties, and as such the proposed extension will be feature a sloping roof to minimise impact to the neighbouring habitable windows.
- 6.4 The results of the daylight assessment indicate that all of the assessed neighbouring windows would retain a VSC of 27% or not less than 0.8 times their former level. Thus the reduction in daylight levels to these windows would not be noticeable according to the BRE guidance.
- 6.5 The values of daylight levels and annual sunlight hours are thus considered to be acceptable for all surrounding properties, according to the BRE guidance.

7 Appendix 1: VSC Results

Win ID	Address	Existing VSC (%)	Proposed VSC (%)	Ratio	Degree of impact
W1	Hubert House Mezzanine Studio	26.19	23.30	0.89	Negligible
W2	42 The Broadway	34.45	34.21	0.99	Negligible
W3	42 The Broadway	33.29	33.01	0.99	Negligible
W4	44 The Broadway	31.07	30.43	0.98	Negligible
W5	44 The Broadway	28.86	27.77	0.96	Negligible