Land at 10 Selkirk St.,

Cheltenham

Daylight and Sunlight Assessment

Job No: 4533

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Contents

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1.0 Introduction

1.1 This daylight and sunlight assessment has been prepared to support a planning application for the proposed redevelopment of the site at 10 Selkirk Street, Cheltenham

1.2 The report assesses the proposals in respect of daylight, sunlight and overshadowing matters, having regard to industry standard guidance.

1.3 There is no existing specific National Planning Policy relating to the prospective impacts of developments on daylight and sunlight on their surrounding environment, although the National Planning Policy Framework (Paragraph 125(c) requires Local Authorities to take a “flexible approach” in applying policies or guidance in relation to daylight and sunlight.

1.4 However, the BRE Report ‘Site Layout Planning for Daylight and Sunlight: A Guide to Good Practice’ (3rd Edition, 2022) is the established National guidance to aid the developer to prevent and/or minimise the impact of a new development on the availability of daylight and sunlight in the environs of the site.

1.5 This reference document is accepted as the authoritative work in the field on daylight, sunlight and overshadowing and is specifically referred to in many Local Authorities' planning policy guidance for daylighting.

1.6 The methodology therein has been used in numerous lighting analyses and the standards of permissible reduction in light are accepted as the industry standards.

2.0 Project Summary

2.1 The proposal site is a vacant parcel of land to the south-east of 10 Selkirk Street; a largely residential street in Cheltenham

2.2 The proposal is for the construction of a new dwelling rising to a maximum of 3 storeys in height.

2.3 The impacts of the scheme have been assessed, in line with BRE guidance. Generally, it is the impacts on residential neighbours which are of primary concern.

2.4 The main neighbour to this site, 10 and 10A Selkirk Street, is under the same freehold ownership as the development site. This means the impacts on 10 and 10A can be afforded less weight in the decision-making process.

2.5 Further details on the location of the assessed neighbours and their windows are given in Section 5.0

Site Location

3.0 Methodology

3.1 For this analysis, we have undertaken the most common calculations for the change in daylight and sunlight to existing buildings, as recommended in BRE Digest 209. These are:

- Vertical Sky Component (VSC) and No Sky Line (NSL) for daylight impacts
- Annual Probable Sunlight Hours and Winter Probable Sunlight Hours (WPSH) (APSH) for sunlight impacts

3.2 The VSC method measures the general amount of light available on the outside plane of the window as a ratio (%) of the amount of total unobstructed sky viewable following introduction of visible barriers such as buildings. The maximum value is just under 40% for a completely unobstructed vertical wall.

3.3 The VSC is calculated using computer simulation under a CIE overcast sky. This works by simulating the amount of visible sky from the centre point of each window. It is not affected by orientation and so all potentially affected windows are assessed.

3.4 The NSL test calculates the distribution of daylight within rooms by determining the area of the room at desk / work surface height (the 'working plane') which can and cannot receive a direct view of the sky and hence 'sky light'. The working plane height is set at 850mm above floor level within residential property.

3.5 The NSL test can be carried out where neighbouring room layouts are known.

3.6 Annual Probable Sunlight Hours (APSH) and Winter Probable Sun light Hours (WPSH) are a measure of the amount of potential direct sunlight that is available to a given surface. APSH covers sunlight over the whole year and WPSH from September 21st to March 21st.

3.7 The number of total available hours is calculated from a data file in the software, built up over a number of years of actual weather data records.

3.8 Only windows which face within 90º of due south need be assessed for sunlight. This is looked at in Section 9.

4.0 Modelling & Data Sources

4.1 The first stage of the analysis is to create the analysis model of the existing site condition and the proposal. This allows us to analyse the impact of the proposal when compared to the existing condition.

4.2 2D drawings have been provided by the design team. These drawings are used to construct a 3D analysis model which is exported into the specialist daylight software. Calculations are then run, for both existing and proposed scenarios.

4.3 Sufficient detail is added to the model for the analysis. In accordance with BRE recommendations, trees and foliage have been omitted from the calculations.

4.4 Information on the properties has been provided to us by the design team in the form of drawings giving the site as existing and proposed and photographs of the site and surroundings.

4.5 Web-based mapping sources and planning records for neighbouring buildings have also been used.

5.0 BRE Guidance Targets

5.1 The reference document for this analysis, BRE Digest 209, gives the methodology for undertaking the calculations. It also provides benchmark figures for the acceptable reduction in the daylight on existing properties which might be affected by development.

5.2 Specifically, the guidance gives figures for the VSC and APSH, as a percentage reduction that is "permissible" for the effect on existing windows.

5.3 It is worth noting the following statement in the Guidance introduction:

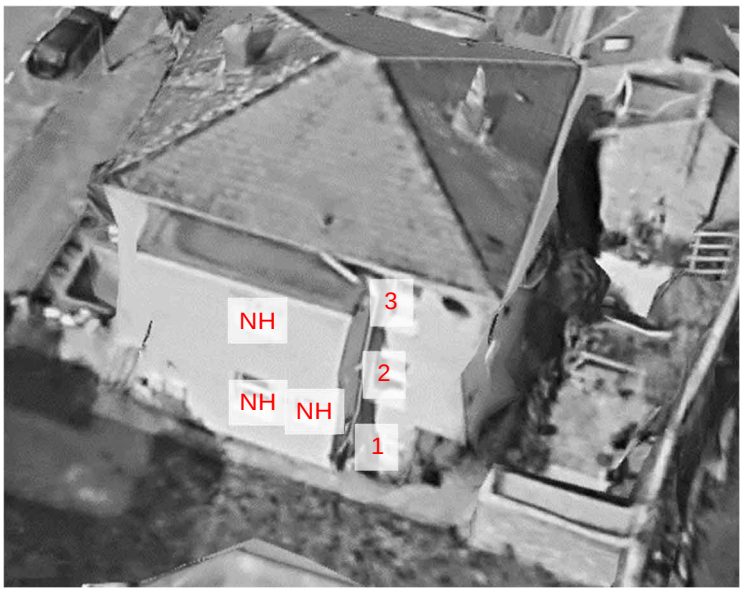
5.4 "The guide is intended for building designers and their clients, consultants and planning officials. The advice given here is not mandatory and this document should not be seen as an instrument of planning policy. Its aim is to help rather than constrain the developer.

5.5 Although it gives numerical guidelines, these should be interpreted flexibly because natural lighting is only one of the many factors in site layout design."

5.6 The relevant BRE recommendations for daylight and sunlight are:

- The Vertical Sky Component measured at the centre of a window should be no less than 27%, or if reduced to below this, no less than 0.8 times the former value.
- The area of the room beyond the No Sky Line should not be reduced to less than 80% of its current size.
- The window should receive at least 25% of available annual sunlight hours and more than 5% during the winter months (September 21st to March 21st), or, where this is not the case, 80% of its former value.

6 .0 Window Schedules



10/10A Selkirk Street

Larkspur House (Side)

NH – Window serves non-habitable room

7.0 Daylight Impact Results – VSC Test

7.1 The Vertical Sky Component has been calculated for each of the 5 assessed windows for both the existing and proposed conditions.

7.2 As can be seen in the results below, 2 of the 5 windows retain 80% of their current values.

7.3 For the windows which fall short of this target further analysis has been undertaken using the No Sly Line test, in the following section.

7.4 The remaining window meets the BRE guidance by virtue of retaining 80% of its current values.

Vertical Sky Component				
Window	Existing VSC	Proposed VSC	% Retained	Meets BRE Guidance?
1	13.953	6.664	47.76%	No
2	21.332	9.306	43.62%	No
3	26.551	18.227	68.65%	No
4	11.057	10.897	98.56%	Yes
5	26.391	22.829	86.50%	Yes

8.0 Daylight Impact Results – NSL Test

8.1 BRE guidance states that the No Sky Line can additionally be calculated "where neighbouring room layouts are known".

8.2 In this instance floor plans have been sourced for the neighbouring rooms at 10 and 10A Selkirk Street which is the building with windows which fall short of the BRE guidance using the VSC test.

8.3 This has allowed a more detail analysis to be undertaken.

8.4 The area of the room beyond the No Sky Line has been calculated for the rooms served by the windows which do not meet the VSC test, as shown in the window schedule, for both the existing and proposed conditions.

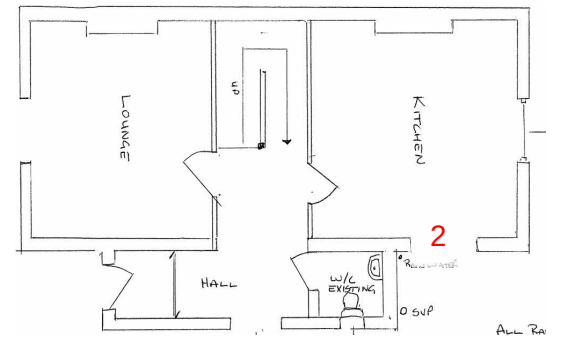
8.5 This test is more detailed and represents better the actual impact on a room, as it considers both the size of the room and the window. As such, it is generally given more weight in assessing whether or not a level of impact is considered unacceptable.

8.6 As the window at basement level, serving the kitchen is served by another window to the rear, the room as a whole retains in excess of 80% of its area within the No Sky Line.

8.7 The two rooms above also meet the BRE guidance using this test.

8.8 The scheme is therefore compliant with BRE guidance when assessed using the more detailed and representative No Sky Line test.

8.0 Daylight Impact Results – NSL Test



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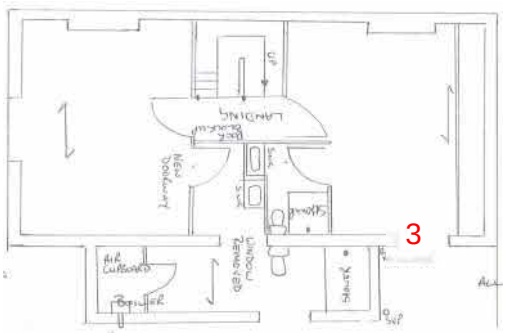

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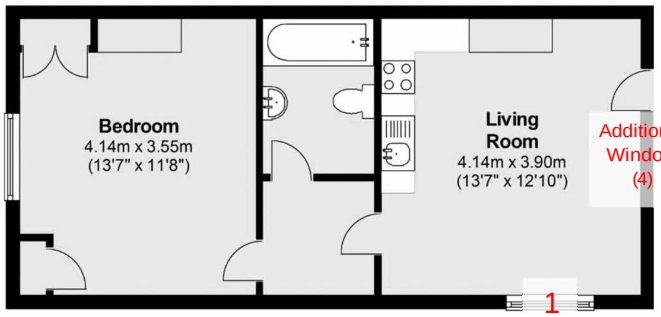

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No Sky Line						
Window	Floor	Room Served	Existing NSL (%)	Proposed NSL (%)	% Retained	Meets BRE Guidance?
1 & 4	Basement	Kitchen/ Living	58.3%	47.8%	81.99%	Yes
2	Ground	Kitchen	93.9%	80.7%	85.94%	Yes
3	First	Assumed Bedroom	70.2%	64.6%	92.02%	Yes

9.0 Sunlight Impact Results

9.1 BRE guidance states that only windows which face within 90º of due south need be assessed for sunlight provision. In this instance, 4 windows fall into this category.

9.2 The Annual Probable Sunlight Hours has been calculated for each of these windows for both the existing and proposed conditions using the methodology described previously, both over the whole year, and through the "winter months" (September 21st until March 21st)

9.3 The BRE guidance states that the sun lighting may be adversely affected if the centre of the window:

- Receives less than 25% of annual hours or less than 5% of winter hours and
- Receives less than 80% of its current sunlight hours during either period and
- Has a reduction in sunlight over the whole year greater than 4%of annual probable sunlight hours

9.4 It is clear from the wording of the above that all three clauses need to be met to qualify as an adverse impact. Thus, if the window does not meet any one of these criteria, the impact is acceptable.

9.5 The results below show that there is some loss of sunlight beyond the BRE guidance, although only to 10 and 10A Selkirk Street. Larkspur House meets the BRE guidance in full by virtue of retaining 25% of annual hours and 5% of winter hours.

9.6 The first-floor window (3) also meets the BRE guidance for annual sunlight hours.

9.7 It should be noted that the existing sunlight hours, in particular during the winter months, to the windows on 10 and 10A Selkirk Street are already well below the BRE guidance for a sufficiently sunlit room.

9.0 Sunlight Impact Results

	Annual Sunlight Hours			Winter Sunlight Hours			
Window	Ex. Hrs Received (%)	Prop. Hrs Received	% Retained	Ex. Hrs Received	Prop. Hrs Received	% Retained	Meets BRE Guidance?
1	13.306	0.000	0.00%	0.000	0.000	100.00%	Yes
2	25.572	3.950	15.45%	2.079	0.000	0.00%	Yes
3	37.283	25.557	N/A	4.019	0.000	0.00%	Yes
5	56.757	50.104	N/A	13.652	6.999	N/A	Yes

10 .0 Conclusions

10 .1 Using industry standard methodology, we have made numerical analyses to ascertain the effects of the proposal adjacent to 10 Selkirk Street, Cheltenham and the levels of change in daylight and sunlight for the windows of the neighbouring properties.

10.2 The main criteria used in this analysis to show compliance are the Vertical Sky Component and No Sky Line for daylight impacts and Annual and Winter Probable Sunlight Hours for sunlight impacts

10.3 As has been shown, the effect on VSC is within the 80% guidance value for two of the 5 assessed windows.

10.4 When the more detailed No Sky Line test is run for the rooms that are served by the windows which do not meet the VSC test, the results show that the rooms retain in excess of 80% of current daylight levels.

10.5 We conclude that the NSL impacts are acceptable and within the BRE guidance recommendations.

10.6 In terms of sunlight, 1 of the assessed windows retain 25% of available sunlight hours annually and 5% over the winter months. A further window retains in excess of the BRE guidance level for annual sunlight hours. The remaining windows fall short of the guidance.

10.7 For daylight, when the more detailed No Sky Line test is used, BRE compliance is demonstrated.

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