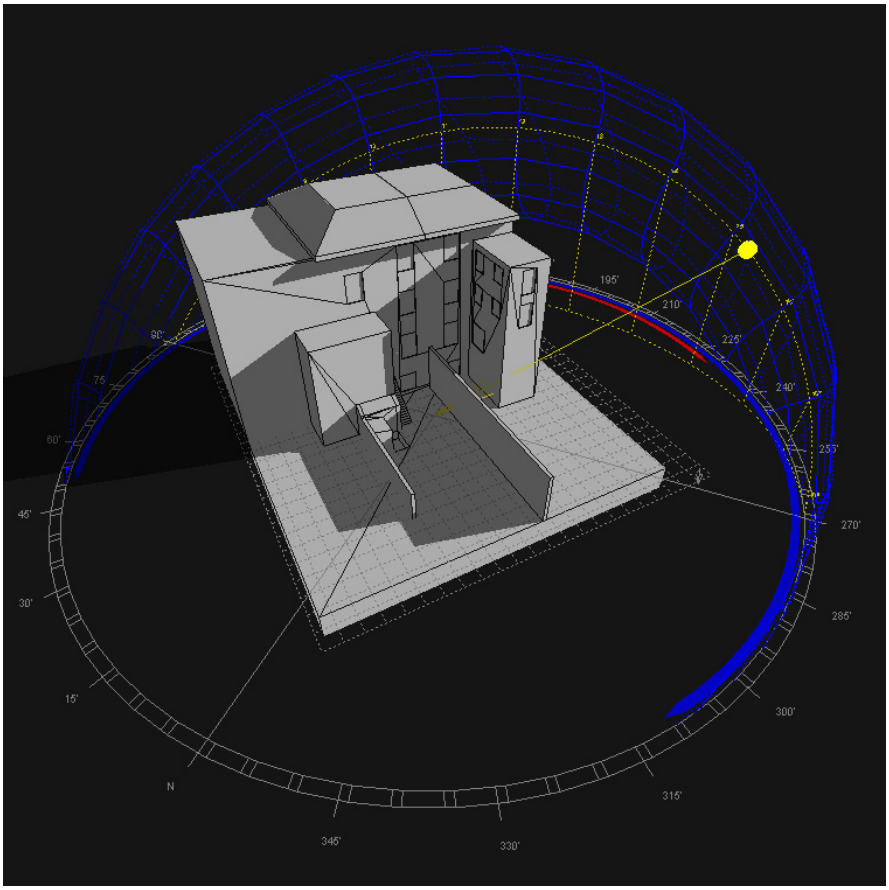

Daylight, Sunlight and Overshadowing Report

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1. Introduction

This report is intended to assess the daylight, sunlight and overshadowing impacts of the proposed extension at 30 Downshire Hill and should be read in conjunction with the Design Access Statement. The approach is based on the Building Research Establishment's (BRE) guidance on the loss of light to existing buildings as a result of neighbouring development.

The BRE guide entitled 'Site Layout Planning for Daylight and Sunlight 2011' is used by local authorities when deciding over planning applications and is generally accepted as good practice by Town and Country Planning authorities.

With careful planning, site development can avoid any unacceptable loss of light to nearby properties and thereby evade difficulties in obtaining planning permission avoiding the possibility of abortive design.

We have considered daylight and sunlight issues from the outset of the project by undertaking relatively simple checks at an early stage.

This study pays particular attention to the rear windows of the immediately adjacent property at no. 31 to see whether there is any infringement to that properties right to light.
The impact of the proposed design on sunlight availability to nearby north-west facing windows was assessed to prove that there would be no impact to .

Sunlight availability to nearby amenity space was also considered as part of the study in accordance with BRE guidance.

Fig 1. OS map/ location map

2. Methodology

Specialist Environmental Design simulation software, Autodesk Ecotect, was used to carry out daylight and sunlight assessments where necessary. The following methodology was used to carry out the daylight assessments. The methodology is based on the guidelines set out in the BRE "*Site Layout Planning for Daylight and Sunlight, A Guide to Good Practice" (1991).*

It should be noted that although the numerical values stated in the BRE provide useful guidance to designers, consultants and planning officials, these are purely advisory and may vary depending on context.

Dense urban areas, for example, may often experience greater site constraints when compared to low-rise suburban areas, and thus a high degree of obstruction is often unavoidable.

Due to lack of information surrounding buildings have been modelled as accurately as possible, with the aid of Ordinance Survey data, photographs and on site dimensions.

Trees and vegetation have been ommitted from the model but should not impact the conclusions as this is set out as a comparative study.

Fig.2 View from King's Grove Road

4. Diffuse daylighting to Windows

Diffuse daylight is the light received from the sun which has been diffused through the sky. Even on a cloudy day when the sun is not visible, a room will continue to be lit with light from the sky.

The BRE daylight calculations measure the percentage of the sky visible from the centre of each main window. This is known as the Sky Component. Diffuse daylighting will be adversely affected if after a development the Sky component is both less than 27% and less than 0.8 times its former value.

The Vertical Sky Component (VSC) is *the ratio of the direct sky illuminance falling on the vertical wall at a reference point, to the simultaneous horizontal illuminance under an unobstructed sky.* To maintain good levels of daylight, the Vertical Sky Component of a window needs to be 27% or greater.

If the VSC is less than 27%, then a comparison of existing and proposed levels of VSC level would need to be calculated. Good levels of daylighting can still be achieved if VSC levels are within 0.8 of their former value. otherwise, the Average Daylight Factor of the internal rooms would need to be calculated.

4.1 Results

A VSC test has been undertaken on three relevant adjacent windows at 31 Downshire Hill.
The VSC results for the existing condition (fig 4, 6 and 8) is below 27% as would be expected for an urban site with a high degree of obstruction such as this. The proposed development should therefore not bring VSC levels below 80% of the existing condition.

Figures 4 to 9 and Table 1 shows that both windows A and B fully comply with BRE recommended daylight levels.

	Existing Condition	Proposed Condition	Comparative %
Window A	2.6	2.1	80.7
Window B	4.9	4.1	83.6
Window C	16.4	15.7	95.7

Table.1 Comparative VSC results

Fig.3 Rear elevation showing assessed neighbouring window positions

Comparative Study between Existing and Proposed conditions - Window A

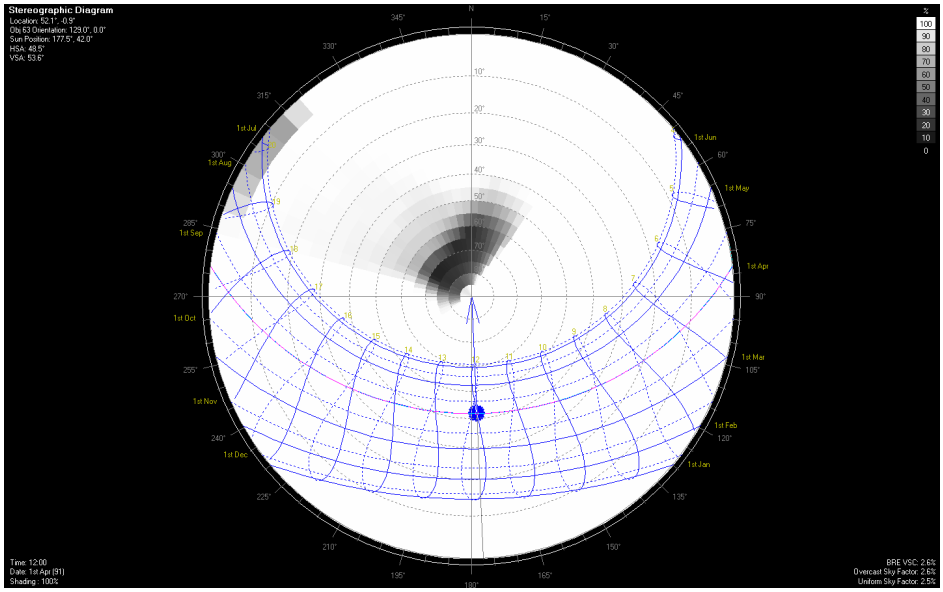

Fig.4 - Existing VSC Condition Window A

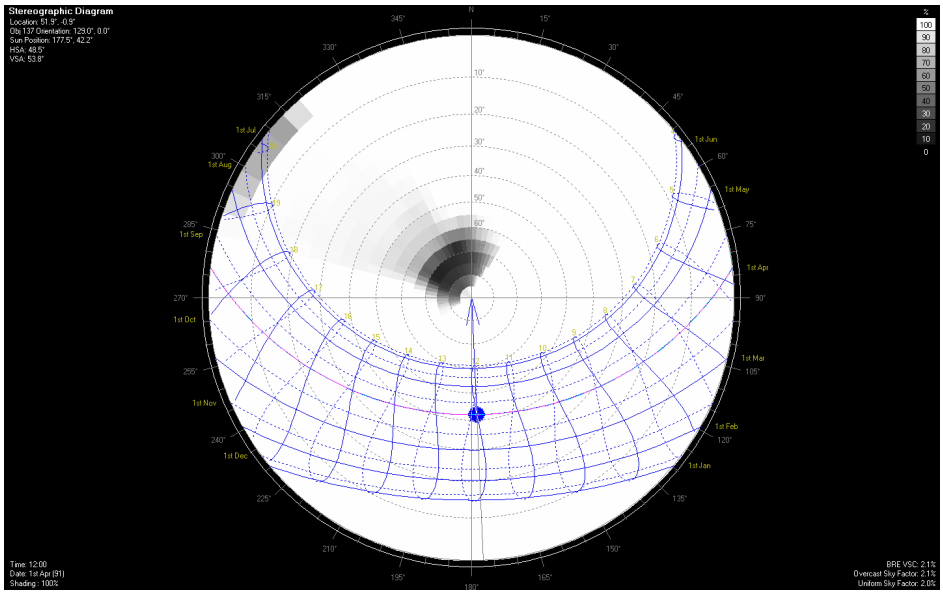

Fig.5 - Proposed VSC Condition Window A

Comparative Study between Existing and Proposed conditions - Window B

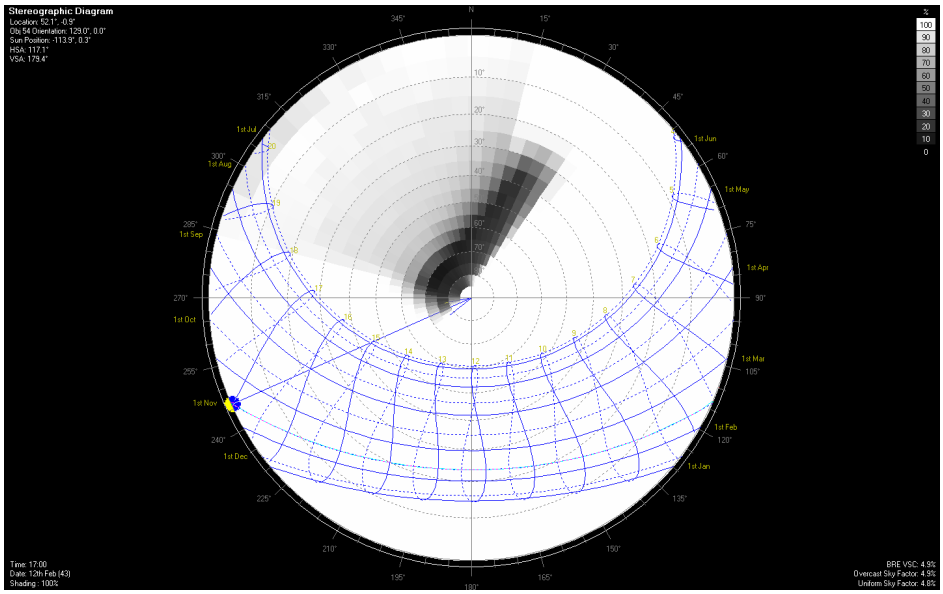

Fig.6 - Existing VSC Condition Window B

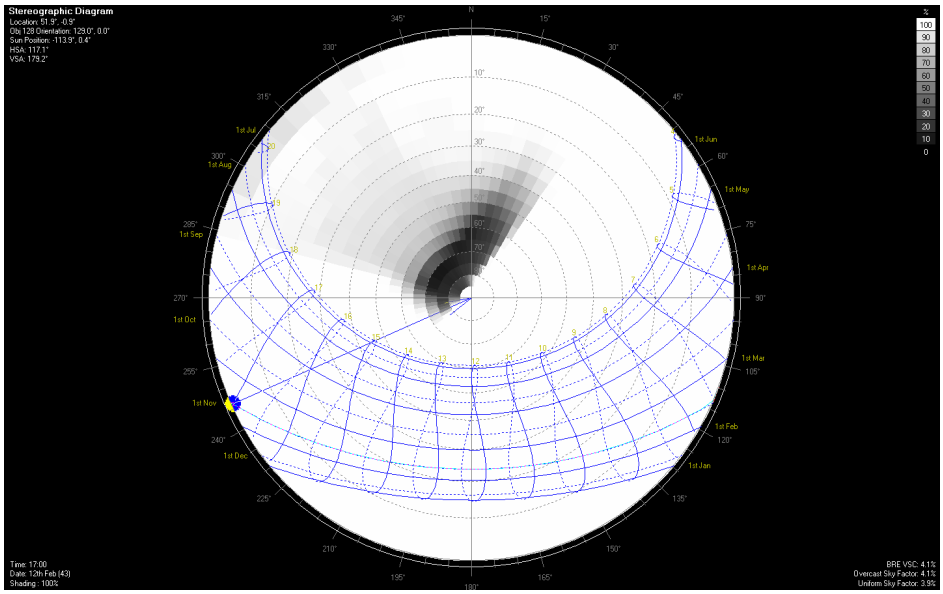

Fig.7- Proposed VSC Condition Window B

Comparative Study between Existing and Proposed conditions - Window C

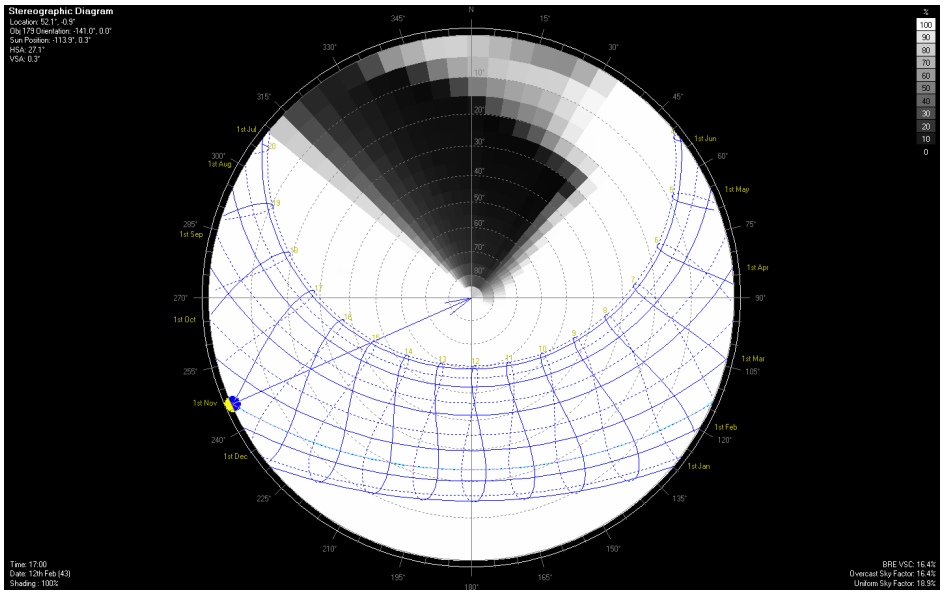

Fig.8 - Existing VSC Condition Window C

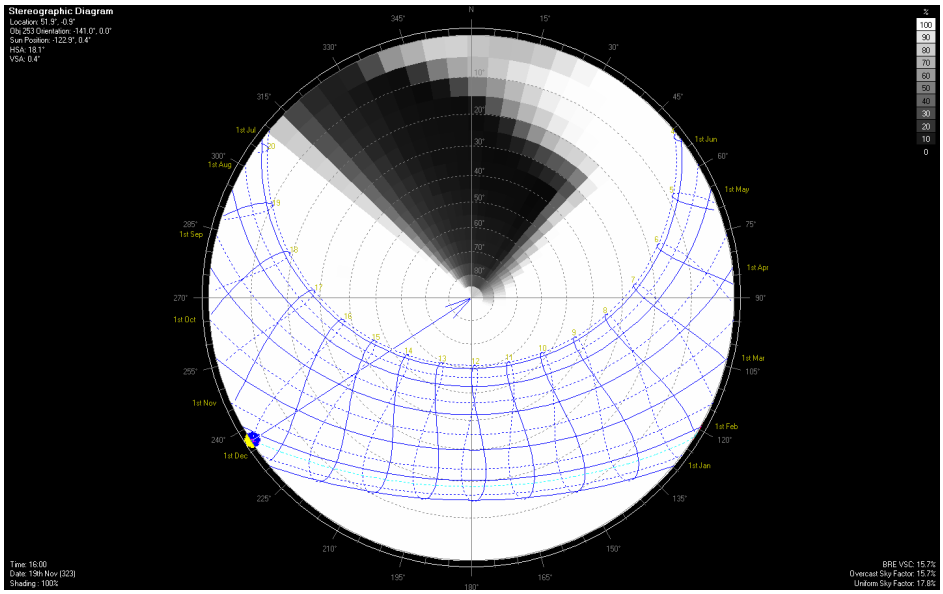

Fig.9 - Proposed VSC Condition Window C

5. Sunlight availability to Windows

Sunlight is measured in terms of how many hours of sun a window will receive over the course of a year.

The BRE sunlight tests are only applicable to windows which face within 90 degrees of due south. The BRE guidance recommends that main windows should receive at least 25% of the total annual probable sunlight hours, including at least 5% of the annual probable sunlight hours in the winter months between 21st September and 21st March.

Sunlight availability will be adversely affected if the total number of sunlight hours falls below these targets and is less than 0.8 times the amount prior to the development.

Using computer modelling and simulation techniques to trace the path of the sun through the sky for each day of the year, an accurate assessment of the number of sunlight hours a window will receive both before and after the development can be determined.

5.1 Results

In this instance there are no affected windows which face within 90 degrees of due South. The windows in question are North-West facing and as the sun comes round in the latter part of the day the windows are completely overshadowed by the existing rear extension at no. 31.
A simple sun path study indicates that overshadowing would not be an issue in this instance due to orientation and existing obstruction. The proposed design at no.30 has zero impact on sunlight availability.

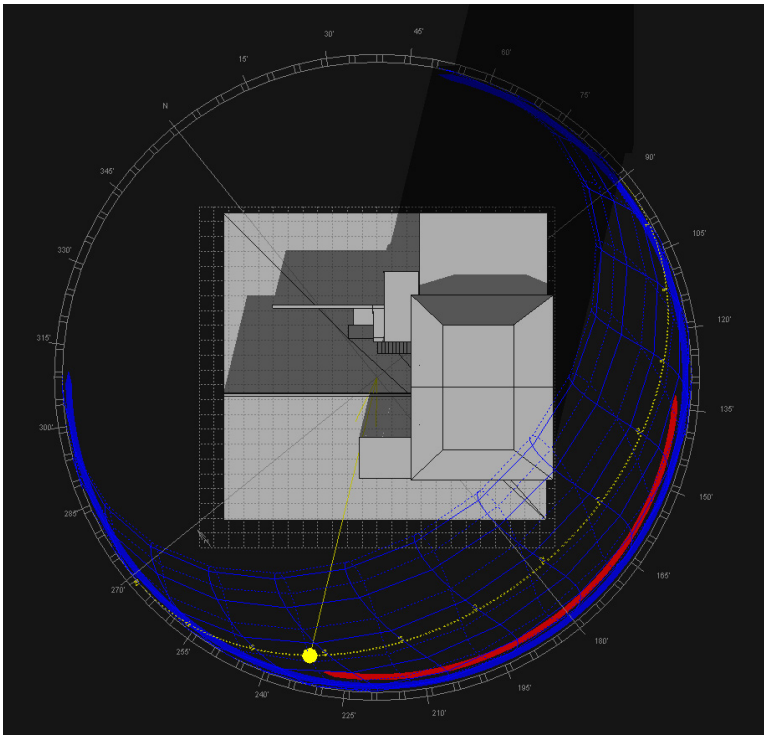

Fig.10 - Site plan view sunpath diagram

6. Summary and Conclusions

The analysis has shown that the proposed development will have no significant impact on the sunlight and daylight conditions for neighbouring properties in accordance with BRE assessment criteria.

The study demonstrates that the proposal does not significantly contribute to any sunlight obstruction to neighbouring windows or amenity space within the urban site with the existing buildings in such close proximity.

The daylighting studies also demonstrate that there is no significant impact to daylighting levels within neighbouring properties.

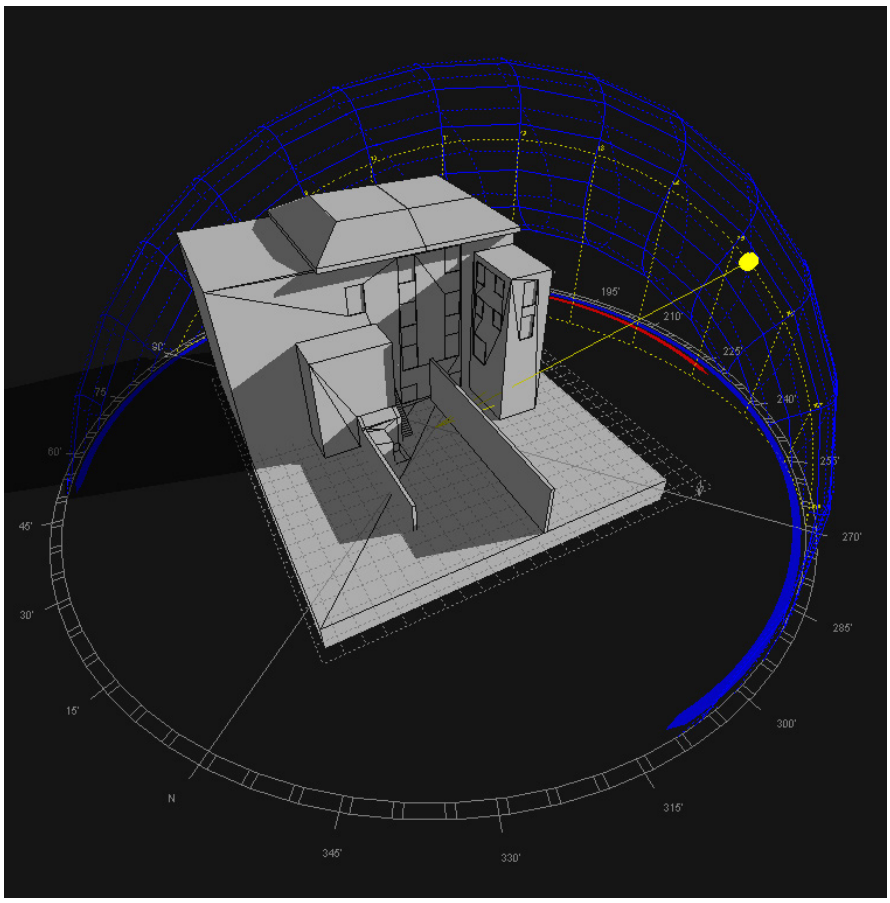

Fig.11- 3D view sunpath diagram