



63 Welling Road, Orsett, RM16 3DW

**Daylight, Sunlight, and Overshadowing Assessment
for Surrounding Properties**

Document Issue Record

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Calculations are based on the drawings and information provided to us, which have been accepted in good faith as being accurate and valid. The accuracy of this information may have an impact on the daylight, sunlight, and overshadowing assessments.

We have used our best endeavours to ensure that all relevant windows within the neighbouring properties and that all external amenity spaces have been identified.

We can make no guarantee as to the status (successful/unsuccessful) of the planning application following the submission of our report.

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Contents

1.0	Executive Summary	4
2.0	Introduction	5
2.1	The Site and Development Proposal.....	6
2.2	Planning Policy and Guidance	8
2.3	Methodology.....	10
2.3.1	Daylight	10
2.3.2	Sunlight	10
2.3.3	Overshadowing	10
3.0	Dynamic Simulation Modelling	11
4.0	Surrounding Properties	12
4.1	Daylight Assessments.....	12
4.1.1	Vertical Sky Component.....	12
4.2	Sunlight Assessment	13
4.2.1	Annual and Winter Probable Sunlight Hours.....	13
4.3	Overshadowing Assessment	14

Figures

Figure 1 - Site Plan of 63 Welling Road, Orsett, RM16 3DW	6
Figure 2 - Existing (Top) and Proposed (Bottom) Architectural Floor Plans and Elevations.....	7
Figure 3 - BRE: Site Layout Planning for Daylight and Sunlight - A Guide to Good Practice.....	8
Figure 4 - EDSL TAS Computer Model of the Existing Site	11
Figure 5 - EDSL TAS Computer Model of the Proposed Site	11

Appendices

Appendix A - Drawing Register

Appendix B - Window Reference Diagrams

Appendix C - Overshadowing Assessment Shadow Castings

1.0 Executive Summary

A daylight, sunlight, and overshadowing assessment has been carried out for the adjacent property to the proposed extensions at 63 Welling Road, Orsett, RM16 3DW. This report outlines the results of the assessment in order to assist with the developments planning application.

Calculations have been based on the drawings and information provided to us by the client / architect, which have been accepted in good faith as being accurate and valid, internet and OS mapping sources, and publicly available planning records where available. The accuracy of this information may have an impact on the assessments carried out.

The methodology used for this assessment follows the most recognised guidance document for daylight and sunlight within dwellings and is titled 'Site Layout Planning for Daylight and Sunlight - A Guide to Good Practice' *Second Edition 2011*; by Paul Littlefair and is published by the BRE.

This assessment investigated the changes in natural light received between the existing and proposed schemes. The following daylight, sunlight, and overshadowing assessments were carried out with the use of computer modelling software in order to provide the most accurate results possible.

- Vertical Sky Component (VSC)
- Annual and Winter Probable Sunlight Hours
- Overshadowing Assessment

The VSC results for the surrounding windows show that they would receive no to negligible impact under the proposed scheme, as their VSC ratios are above 0.8 times their former values and they each still achieve a VSC value under the proposed scheme of greater than 27%. Each of the conservatory windows were also assessed and they all showed that they would receive no impact under the proposed scheme. Therefore, all of the neighbouring windows would meet the daylight requirements of the BRE Guide.

The sunlight results for the surrounding windows show that all of them would at worst only be negligibly affected by the proposed scheme, as they receive greater than 25% of the annual probable sunlight hours and greater than 5% of the winter sunlight hours under the proposed scheme, and the ratio between the existing and proposed is greater than 0.8 times their former value.

The conservatory windows were also assessed and showed that they would all receive no impact to the amount of annual and winter sunlight hours received under the proposed scheme. Therefore, all of the surrounding windows would meet the BRE Guidelines in regard to sunlight.

The overshadowing results show that the proposed development would have no impact on the amount of overshadowing experienced by the rear garden area of 61 Welling Road, therefore satisfying the requirements of the BRE Guidelines.

For the reasons stated above, we feel that the proposed development should be considered as acceptable overall in regard to its neighbourly impact on daylight and sunlight.

2.0 Introduction

EEABS (Elmstead Energy Assessments & Building Services) has been instructed by to undertake a daylight, sunlight, and overshadowing assessment for the adjacent property of the proposed new extensions located at 63 Welling Road, Orsett, RM16 3DW.

The client wished to determine if the proposed extensions could have any impact on the daylight and sunlight received by the adjacent property, as well as the amount of overshadowing that could occur within their rear garden.

Therefore, this report will investigate the changes in natural daylight and sunlight received between the existing and proposed plans for surrounding properties.

The key elements of this report are:

- To review the relevant guidance and methodology with respect to daylight, sunlight, and overshadowing that relate to the development.
- Calculate the surrounding properties levels of daylight, sunlight and overshadowing for the existing scheme in accordance with standard methodology.
- Calculate the surrounding properties levels of daylight, sunlight and overshadowing for the proposed scheme in accordance with standard methodology.
- To summarise and compare the findings against regulation guidelines for daylight and sunlight of neighbouring buildings, the overshadowing of amenity spaces.

2.1 The Site and Development Proposal

The site is located at 63 Welling Road, Orsett, RM16 3DW and can be seen outlined in red on the Site Plan below.

Also shown on the map below is the adjacent property at 61 Welling Road that has had its levels of daylight and sunlight evaluated under this assessment. As this is the closest property to the proposed development it serves to reason that if this building meets the target guidelines then so would any other property that is further away.

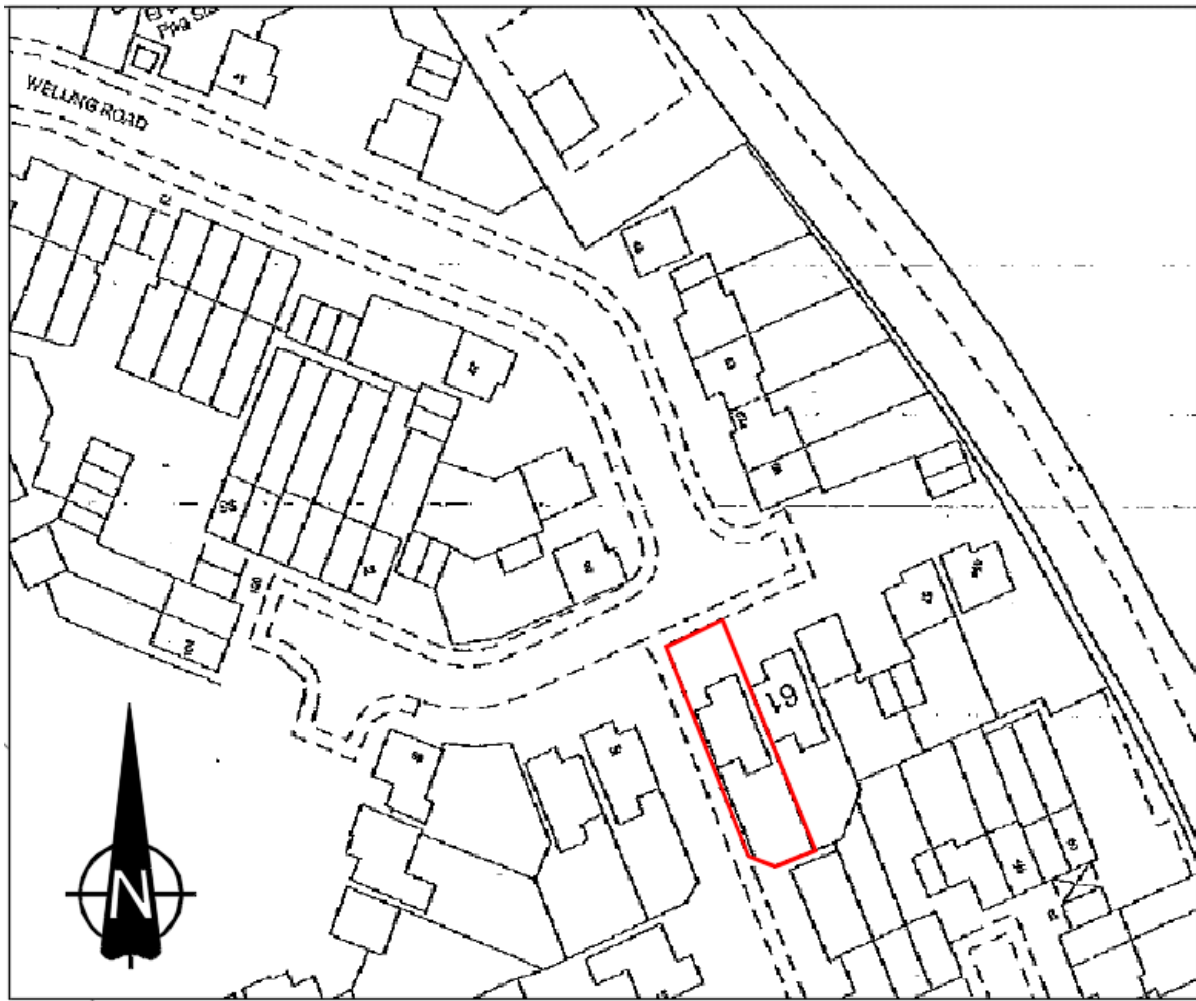


Figure 1 - Site Plan of 63 Welling Road, Orsett, RM16 3DW

The proposal is for a single storey extension to the rear of the property and for a first floor extension above part of the garage at the front of the property.

Figure 2 below shows architectural floor plans and elevations of the existing and proposed schemes.

This assessment has been based on the drawings and information provided to us by the client / architect, which have been accepted in good faith as being accurate and valid, internet and OS mapping sources, and publicly available planning records where available. A drawing register can be found within Appendix A.



Figure 2 - Existing (Top) and Proposed (Bottom) Architectural Floor Plans and Elevations

2.2 Planning Policy and Guidance

The most recognised guidance document for natural light within dwellings is titled 'Site Layout Planning for Daylight and Sunlight - A Guide to Good Practice' *Second Edition 2011*; by Paul Littlefair and is published by the Building Research Establishment.

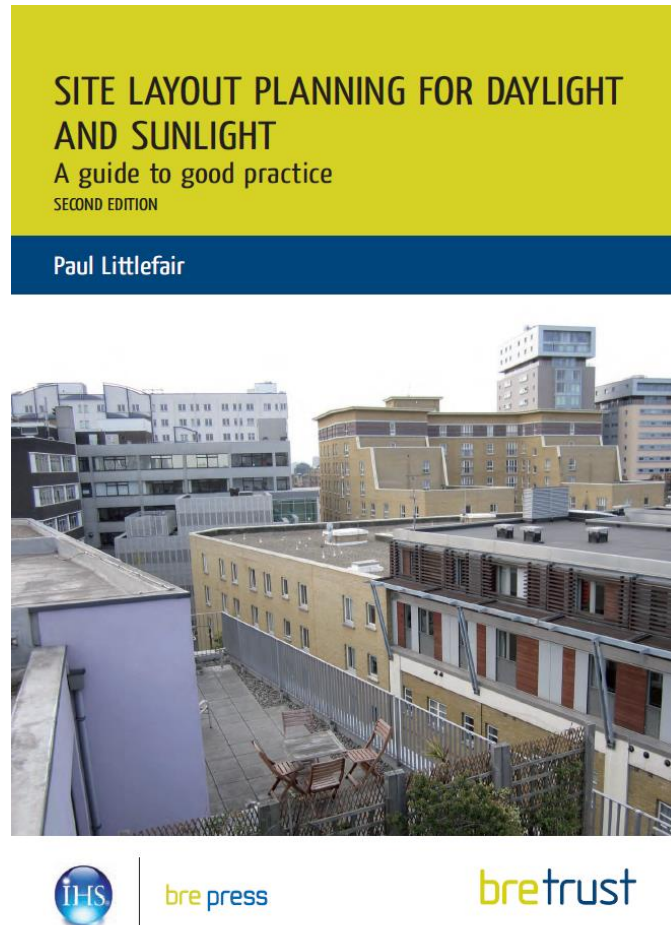


Figure 3 - BRE: Site Layout Planning for Daylight and Sunlight - A Guide to Good Practice

Although the BRE guide clearly states that its recommendations are not mandatory and the document should not be considered as an instrument of planning policy, it can be used in conjunction with the British Standard BS 8206-2:2008, Lighting for Buildings - Part 2: Code of Practice for Daylighting.

While the BRE Guidelines are the most recognised document for natural light within dwellings they also do state that:

"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. In special circumstances the developer or planning authority may wish to use different target values."

As the numerical values within the BRE guide are purely advisable, Appendix I of the guide provides further assistance on how to assess the impact to daylight and sunlight of the surrounding properties.

Criteria	Impact
Where the loss of skylight or sunlight fully meets the guidelines and only a small number of windows or limited area of open space lose light.	None / Negligible
<p>Where the loss of skylight or sunlight is only just within the guidelines and a large number of windows or open spaces are affected.</p> <p>Where the loss of skylight or sunlight does not meet the guidelines but one or more of the following applies:</p> <ul style="list-style-type: none"> • Only a small number of windows or limited area of open spaces are affected. • The loss of light is only just outside the guidelines. • The affected room has other sources of light. • The affected building/room or open space has a low requirement for light. 	Minor Adverse
<p>Where the loss of skylight or sunlight does not meet the guidelines and one or more of the following applies:</p> <ul style="list-style-type: none"> • A large number of windows or large area of open space are affected. • The loss of light is substantially outside the guidelines. • All windows within a particular property are affected. • The affected indoor or outdoor spaces have a particularly strong requirement for skylight or sunlight. 	Major Adverse

The methodology and target benchmarks set out within the BRE guide have been used to assess the surrounding properties under the existing and proposed schemes.

We generally consider a value greater than 0.8 times its former value to have a Negligible impact, between 0.5 and 0.8 to have a minor impact, and a value less than 0.5 to have a major impact.

The BRE Guide states that these guidelines “are intended for rooms in adjoining properties where daylight is required, including living rooms, kitchens and bedrooms. Windows to bathrooms, toilets, storerooms, circulation areas and garages need not be analysed. The guidelines may also be applied to any existing non-domestic building where the occupants have a reasonable expectation to daylight”

Any trees located close to proposed development have been excluded from the model as recommended by the BRE Guide, which states “Where the effect of a new building on existing buildings nearby is being analysed, it is usual to ignore the effect of existing trees.”

2.3 Methodology

The following methodology and calculations set out within the BRE Guide 'Site Layout Planning for Daylight and Sunlight - A Guide to Good Practice' *Second Edition 2011* were used to carry out the daylight, sunlight, and overshadowing assessment for the surrounding properties of the proposed new extensions located at 63 Welling Road, Orsett, RM16 3DW.

2.3.1 Daylight

Vertical Sky Component (VSC)

The Vertical Sky Component (VSC) is a ratio (expressed as a percentage) of the direct sky illuminance falling on the outside mid-point of a window, to the horizontal illuminance under a standard CIE overcast sky. For example, a window looking across an unobstructed field would achieve the highest possible value of just under 40% (39.6%).

For a window to be considered as receiving a good level of daylight, a VSC value of 27% should be achieved. However, for existing windows if the VSC value is less than 27%, then a window is still said to achieve a good level of daylight provided its VSC is within 0.8 times of its former value.

2.3.2 Sunlight

Annual and Winter Probable Sunlight Hours

To determine if an adequate amount of sunlight is achieved within a room the following criteria needs to be met. At least one main window wall should face within 90° of due south and at least one window should receive at least 25% of annual probable sunlight hours, including at least 5% of annual probable sunlight hours in the winter months between 21st September and 21st March.

The term Annual probable sunlight hours means the total amount of hours during a year in which direct sunlight will reach the ground. The winter annual probable sunlight hours are the same thing but only during 21st September to 21st March.

If any of the surrounding windows that face within 90° of due south fail to meet the 25% of annual probable sunlight hours and 5% of winter sunlight hours, then they can still be said to receive a good amount of sunlight providing they are within 0.8 times of their former value or the reduction in sunlight received over the whole year is not greater than 4%.

The BRE guide states that the above guidance is to be applied for living room windows only.

2.3.3 Overshadowing

To be determined as adequately sunlit throughout the year, at least half of a garden and other similar amenity spaces should receive at least two hours of sunlight on 21st March.

For the existing garden or amenity spaces being calculated due to the proposed development, the results should be within 0.8 times of their former values in order for a loss of light to not be noticeable.

3.0 Dynamic Simulation Modelling

EDSL TAS Dynamic Simulation Modelling software was used to carry out the daylight, sunlight, and overshadowing calculations, as this can provide a more accurate means of assessment over the 'by hand' indicator method outlined within the BRE guide.

The daylight calculations are carried out under a standard CIE overcast sky. For the sunlight and overshadowing calculations, the computer model uses actual hourly weather data for the proposed location, in this instance CIBSE London TRY weather data was used.

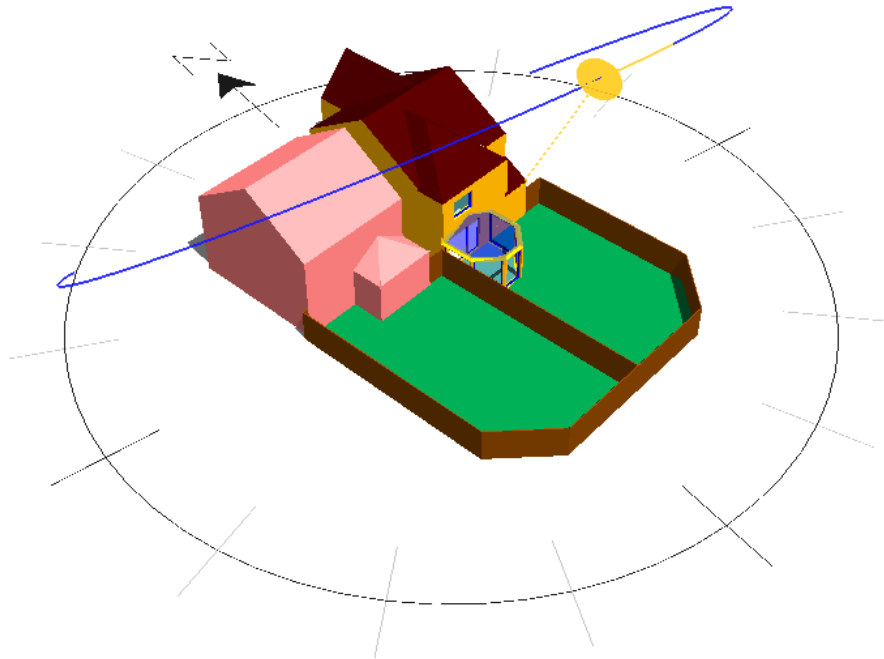


Figure 4 - EDSL TAS Computer Model of the Existing Site

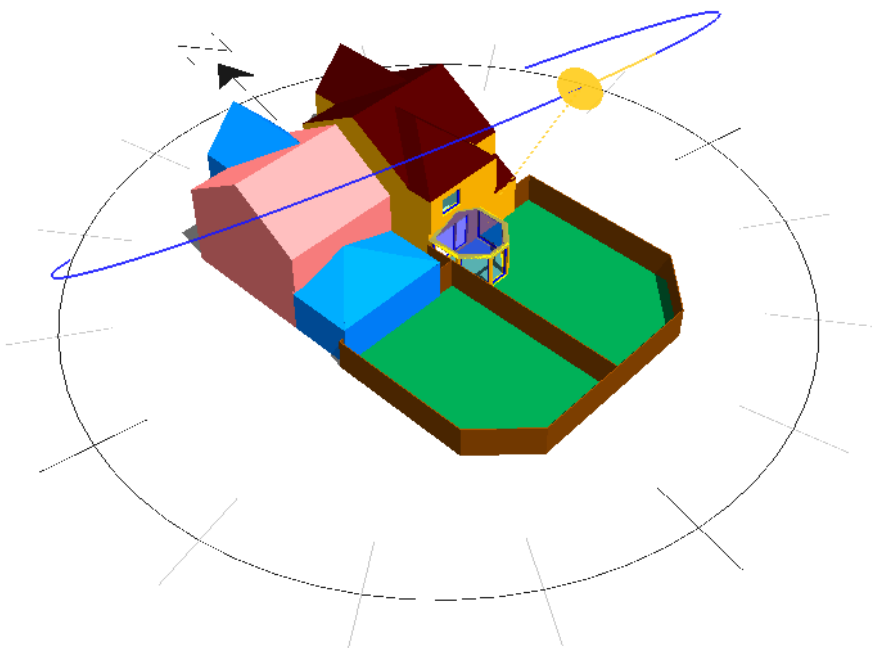


Figure 5 - EDSL TAS Computer Model of the Proposed Site

4.0 Surrounding Properties

The windows that were most likely to be affected by the proposed development have undergone the following calculations and can be found in Appendix B - Window Reference Diagrams.

4.1 Daylight Assessments

4.1.1 Vertical Sky Component

The VSC calculated for the surrounding windows can be found in the tables below.

Property	Win Ref	Orientation (°)	VSC Existing (%)	VSC Proposed (%)	VSC Ratio	Overall Impact
61 Welling Road	W1	349	29.04	27.11	0.93	Negligible
	W2	349	33.40	31.82	0.95	Negligible
	W3	169	34.19	34.08	1.00	Negligible
	W4	169	38.95	38.95	1.00	None

The VSC results for the surrounding windows show that they would receive no to negligible impact under the proposed scheme, as their VSC ratios are above 0.8 times their former values and they each still achieve a VSC value under the proposed scheme of greater than 27%. Each of the conservatory windows were also assessed and they all showed that they would receive no impact under the proposed scheme. Therefore, all of the neighbouring windows would meet the daylight requirements of the BRE Guide.

4.2 Sunlight Assessment

4.2.1 Annual and Winter Probable Sunlight Hours

Only living room windows within 90° of due south need to have the amount of sunlight they can receive assessed (Due south is taken as 180°, therefore a windows orientation should be between 90° and 270°). The orientation of each of the windows can be seen within the VSC results.

To provide a comprehensive assessment any window within 90° of due south has been assessed.

Property	Win Ref	APSH Ext (%)	APSH Pro (%)	Ratio	Overall Impact	WPSH Ext (%)	WPSH Pro (%)	Ratio	Overall Impact
61 Welling Road	W3	80	79	0.99	Negligible	29	28	0.97	Negligible
	W4	84	84	1.00	None	31	31	1.00	None

The sunlight results for the surrounding windows show that all of them would at worst only be negligibly affected by the proposed scheme, as they receive greater than 25% of the annual probable sunlight hours and greater than 5% of the winter sunlight hours under the proposed scheme, and the ratio between the existing and proposed is greater than 0.8 times their former value.

The conservatory windows were also assessed and showed that they would all receive no impact to the amount of annual and winter sunlight hours received under the proposed scheme. Therefore, all of the surrounding windows would meet the BRE Guidelines in regard to sunlight.

4.3 Overshadowing Assessment

The garden amenity area of 61 Welling Road has also had its levels of potential overshadowing assessed.

Overshadowing assessment results can be seen in the table below, the lit area is the area of the zone that receives at least 2 hours of sunlight on the 21st of March.

Outside Space	Area (m ²)	Existing Scheme Lit Area (m ²)	Proposed Scheme Lit Area (m ²)	Ratio	Overall Impact
61 Welling Road - Rear Garden	82.57	70.68	70.68	1.00	None

The overshadowing results show that the proposed development would have no impact on the amount of overshadowing experienced by the rear garden area of 61 Welling Road, therefore satisfying the requirements of the BRE Guidelines.

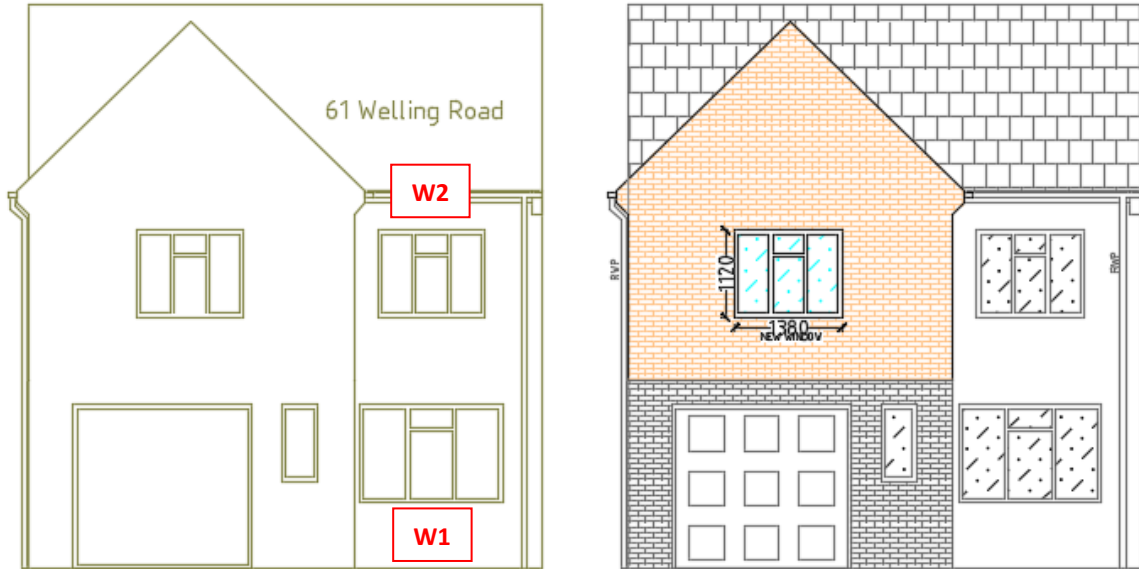
Shadow cast images for the existing and proposed schemes at select times of the day on the 21st March Equinox can be found within Appendix C.

Appendix A - Drawing Register

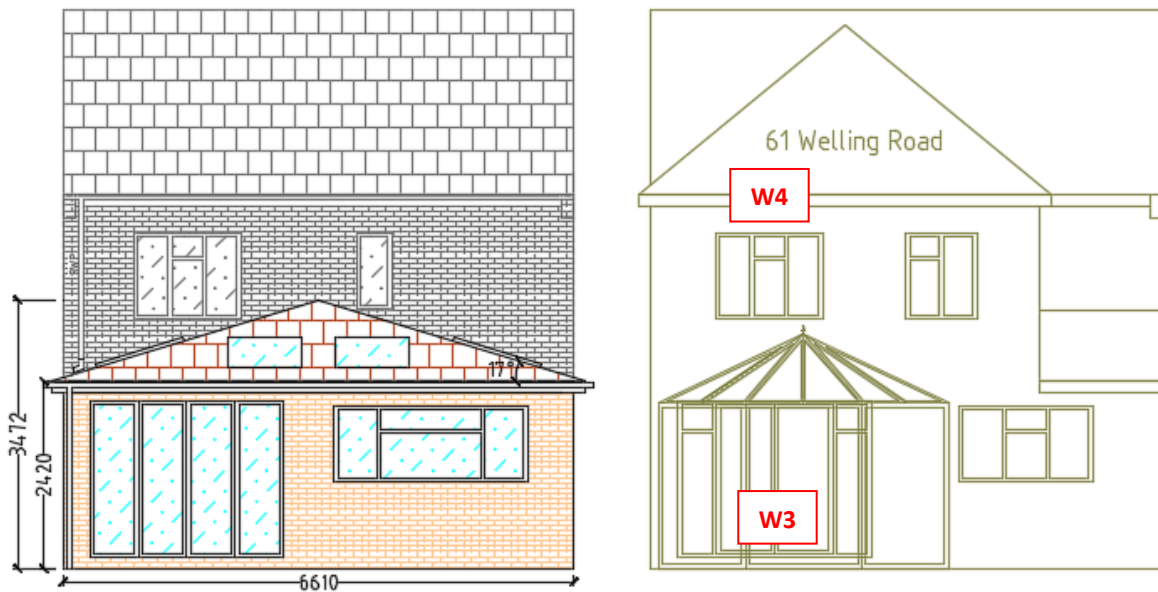
Drawing Number	Drawing Title
63WR-02 - 1	Existing Plans and Elevations
63WR-02 - 2	Proposed Plans and Elevations
63WR-02 - 3	Site and Location Plan

Appendix B - Window Reference Diagrams

61 Welling Road – Front Window References



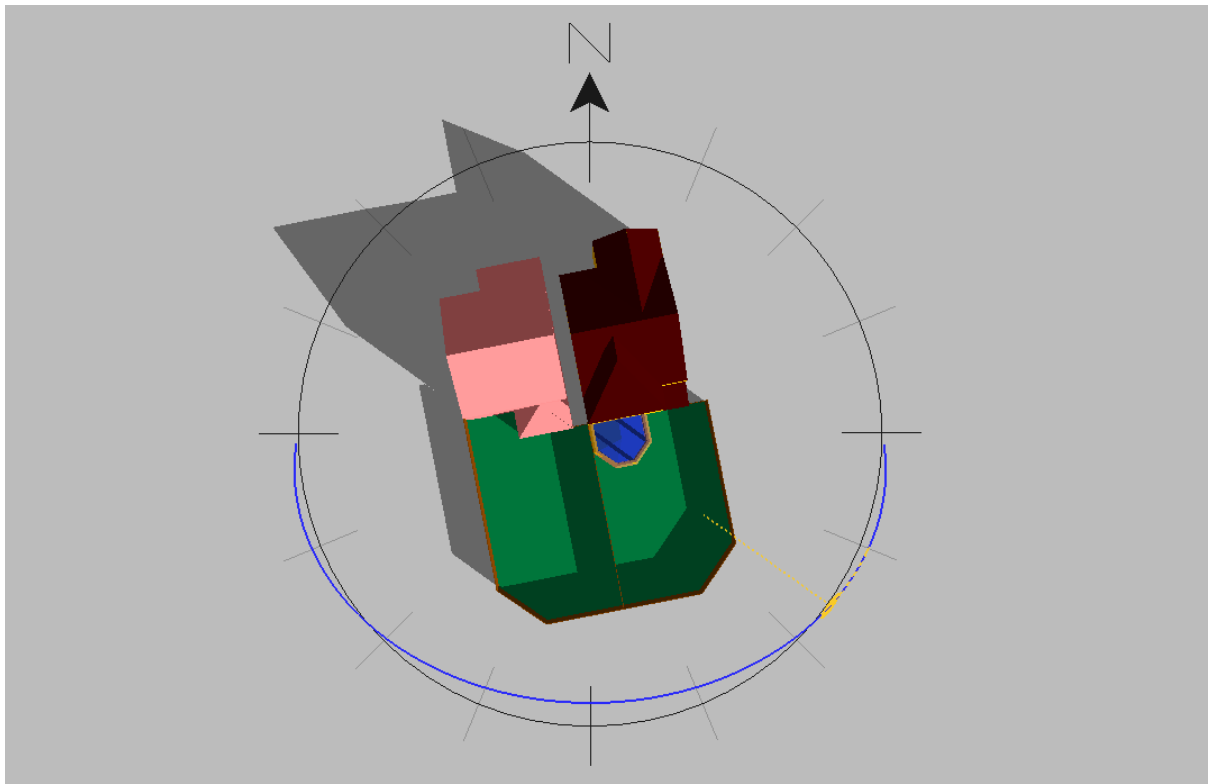
61 Welling Road – Rear Window References



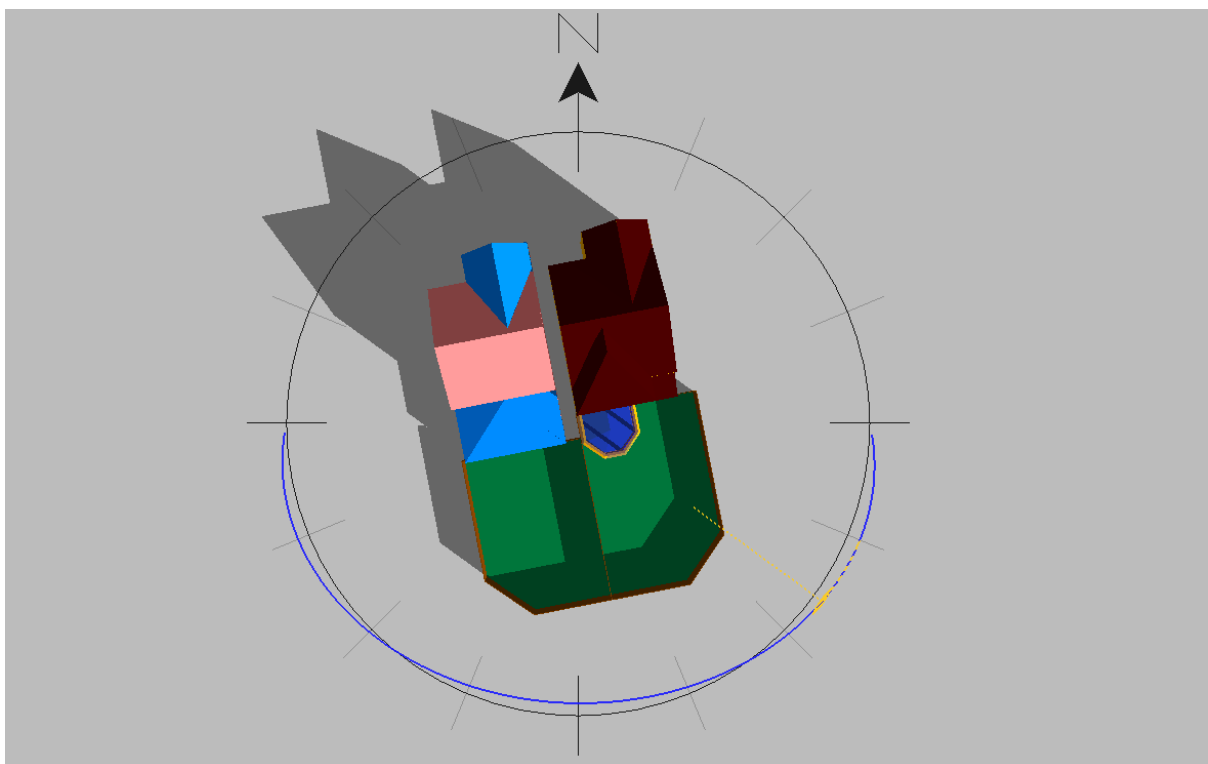
Window W3 is the main window within the conservatory that serves the main part of the house. The conservatory windows were also assessed and the results showed that there would be no impact to their amount of daylight or sunlight received.

Appendix C - Overshadowing Assessment Shadow Castings

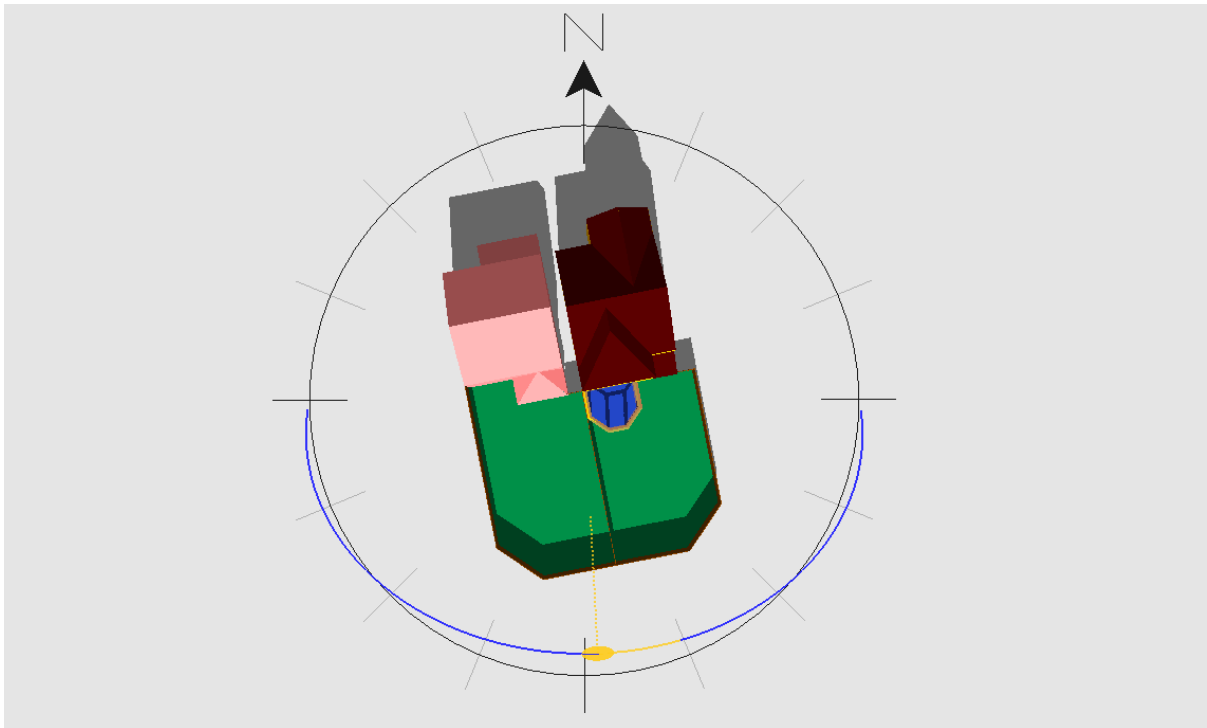
Existing Site - 09:00 March 21st



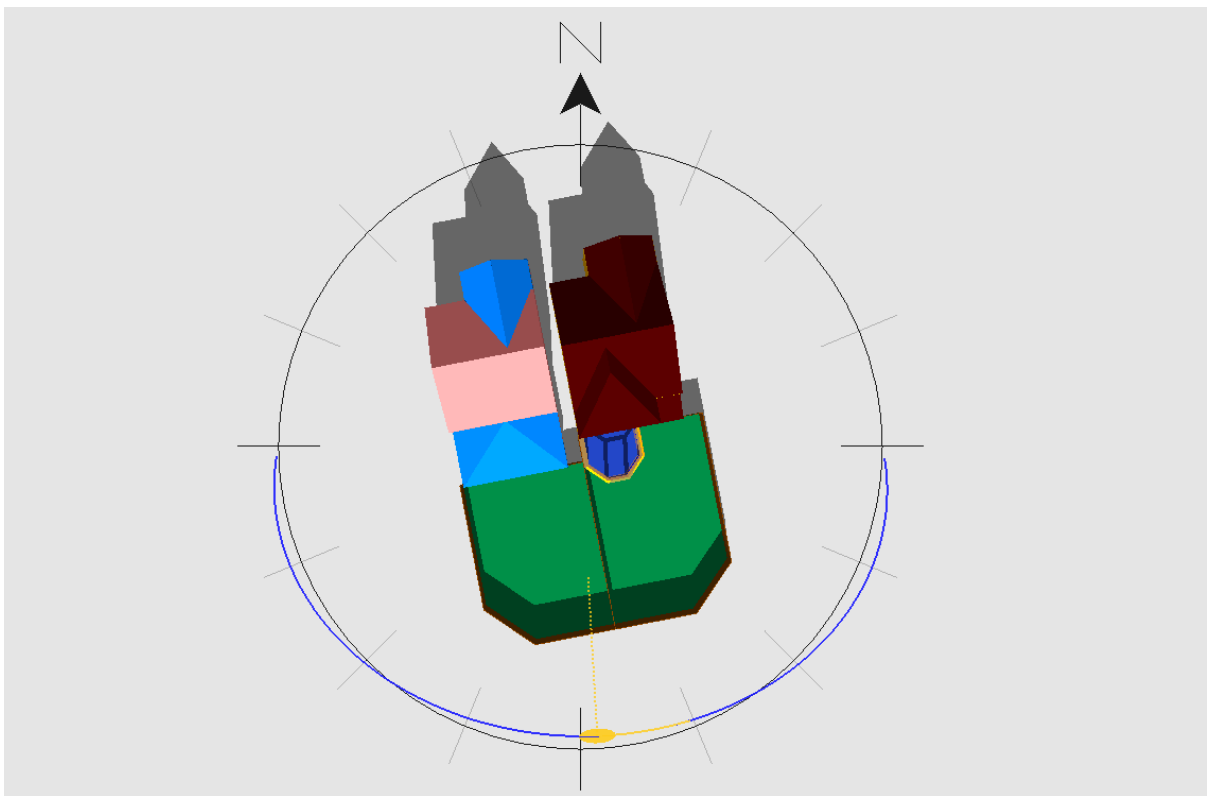
Proposed Site - 09:00 March 21st



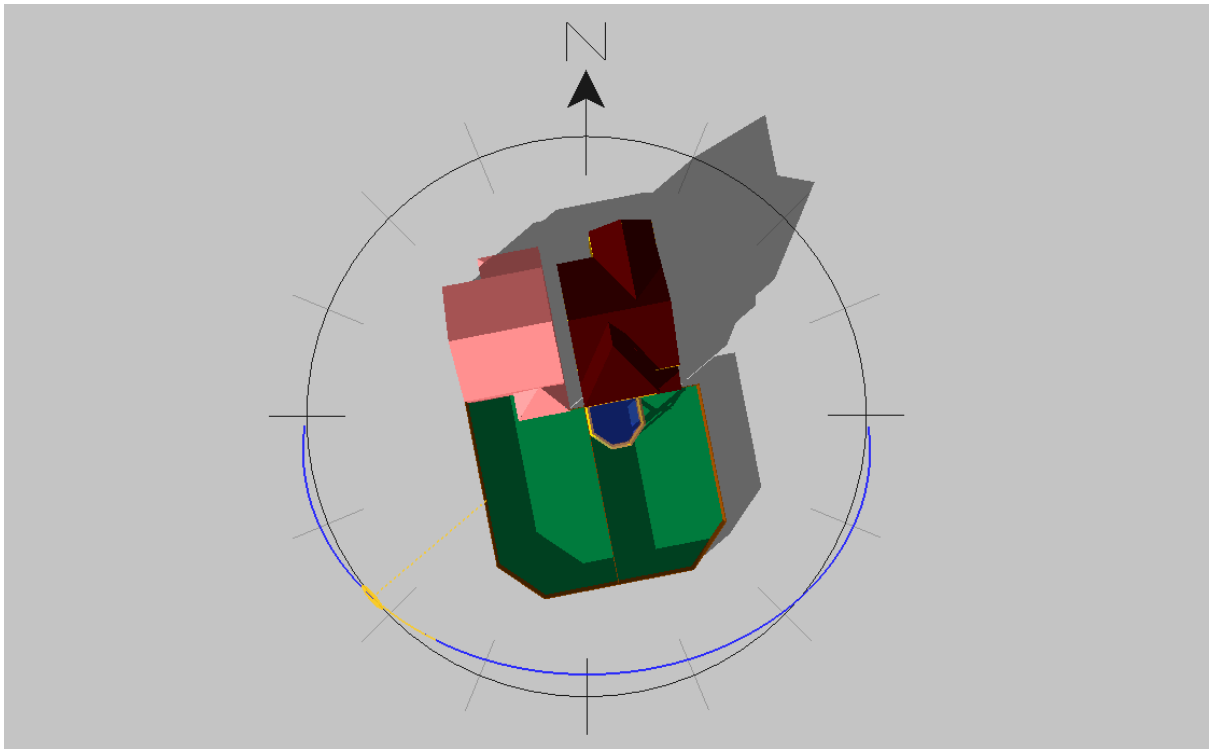
Existing Site - 12:00 March 21st



Proposed Site - 12:00 March 21st



Existing Site - 15:00 March 21st



Proposed Site - 15:00 March 21st

