

DAYLIGHT, SUNLIGHT & OVERSHADOWING

7-9 BRASSEY AVENUE
EASTBOURNE

VERSION 01

JULY 2023



Company Registration No: 10354408

CLIENT: Norton Property Ltd

CONSULTANT: XDA Consulting Ltd
School House
Lewes Road
Westmeston
East Sussex
BN6 8RH

Tel: 07709 425723
Email: hello@xdaconsulting.co.uk

PROJECT NAME: 7-9 Brassey Avenue Eastbourne

PROJECT REFERENCE: X200

Version	Date	Description of changes
01	27.07.2023	First issue

CONTENTS

1	INTRODUCTION.....	1
2	ASSESSMENT CRITERIA	1
3	METHODOLOGY	2
4	3D MODELS	2
5	RESULTS & DISCUSSION	8
6	CONCLUSIONS.....	10
7	APPENDIX 1: WINDOW REFERENCES.....	11

1 INTRODUCTION

XDA Consulting Ltd have been appointed to identify if there is any impact on the daylight, sunlight and overshadowing to adjacent property because of the proposed extension to 7-9 Brassey Avenue in Eastbourne. The design proposals include an extension at first floor level to create a 1-bedroom flat. This daylight assessment shall identify if there is any impact on the windows or garden of 11-13 Brassey Avenue.

The daylight study has been undertaken by Dr Dianne Bowles PhD MSc BSc (Hons) using dynamic modelling software IES Virtual Environment 2023.

2 ASSESSMENT CRITERIA

The criteria used for assessment of the impact of a proposed development on daylight, sunlight and overshadowing to existing dwellings is taken from the BRE Guidance document “BR 209: Site Layout Planning for Daylight and Sunlight, a Guide to Good Practice, 2022”.

2.1 VERTICAL SKY COMPONENT

The amount of skylight that reaches the windows is assessed by determining the Vertical Sky Component (VSC). The vertical sky component is the ratio of direct sky light that reaches a vertical plane (wall or window) to the amount of sky light that reaches the horizontal plane (the ground). This ratio is expressed as a percentage. The maximum VSC that could be achieved for a completely unobstructed window/wall is almost 40%.

When assessing the impact of a new development on existing buildings the BRE guidance suggests that if with a new development, an existing window has a VSC greater than 27% it should still receive sufficient skylight. If the VSC is reduced below 27% and less than 0.8 times its former value, then the occupants are likely to notice the loss of skylight.

2.2 ANNUAL PROBABLE SUNLIGHT HOURS

The BRE guidance summarises that a dwelling shall appear reasonably sunlit if the centre of a main living room window can receive 25% of annual probable sunlight hours, including at least 5% of annual probable sunlight hours in winter months between 21st September and 21st March.

When considering the impact of a development on an existing dwelling, the sunlight to the existing dwelling may be adversely affected if:

- receives less than 25% of annual probable sunlight hours and less than 0.80 times its former annual value; or less than 5% of annual probable sunlight hours between 21 September and 21 March and less than 0.80 times its former value during that period;
- and also has a reduction in sunlight received over the whole year greater than 4% of annual probable sunlight hours.

2.3 OVERSHADOWING

The BRE guidance states that the sunlight to a garden will be adversely affected if both of the following criteria are infringed upon:

1. The area of garden that can receive 2 or more hours of direct sunlight on 21st March is reduced to below 50% of the total area.
2. The total area of the garden that can receive 2 or more hours of direct sunlight on 21st March is reduced by 20% or more of the existing value as a result of the proposed development.

Therefore, where less than 50% of the garden is found to receive direct sunlight for at least 2 hours as a result of the development and the total area that still receives direct sunlight is less than 80% of the former value the garden is considered to be overshadowed.

3 METHODOLOGY

The Radiance module in the IES Virtual Environment (VE) software is used to calculate the vertical sky component (VSC). The VSC calculation uses the standard CIE overcast sky.

The SunCast module in IES VE is used to produce a solar exposure calculation to determine the number of hours each day a window receives sunlight from the sky. These results are used to calculate the Annual Probable Sunlight Hours. This module is also used to determine the area of overshadowing to each of the gardens.

4 3D MODELS

A 3D model of the existing property, the proposed dwelling and neighbouring buildings has been constructed based on the survey drawings from SJM Surveys and the following planning drawings from architect Platform 3:

- 22-P15-10 Existing Plans
- 22-P15-20 Existing Elevations
- 22-P15-40 Proposed Plans
- 22-P15-50 Proposed Elevations

Visuals of the 3D model are presented in Figure 4.1 to Figure 4.4 inclusive with model orientation illustrated in Figure 4.5. Note – boundary fence around garden of 11-13 Brassey Avenue has been included along with the edge of the building to the south as this would impact overshadowing.

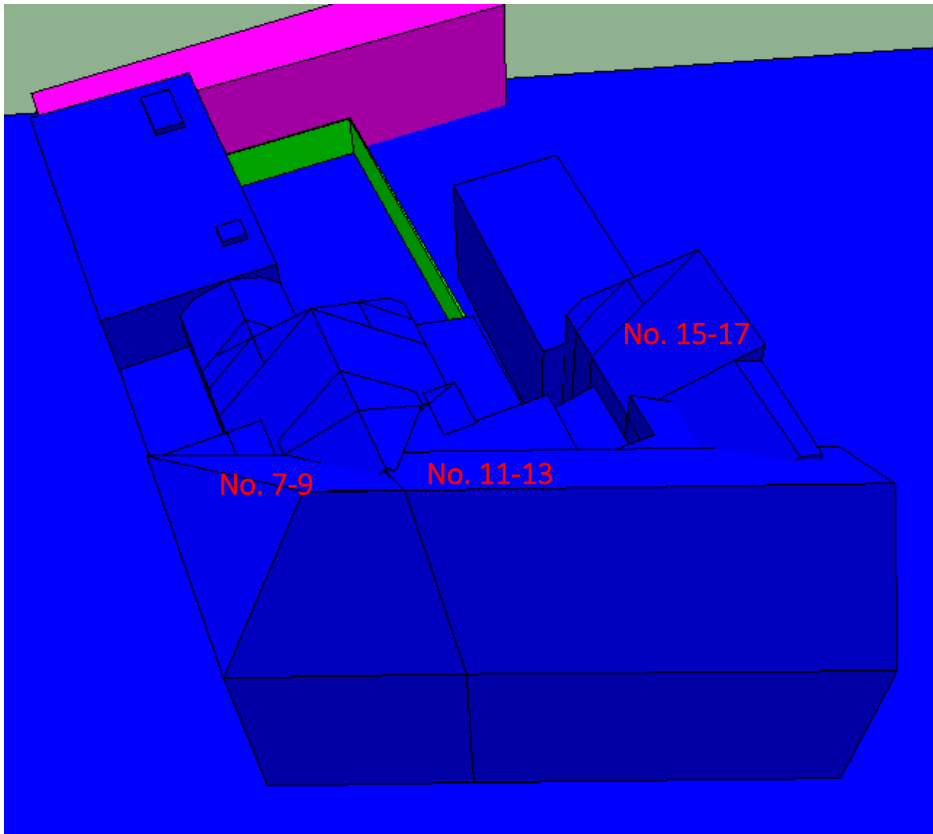
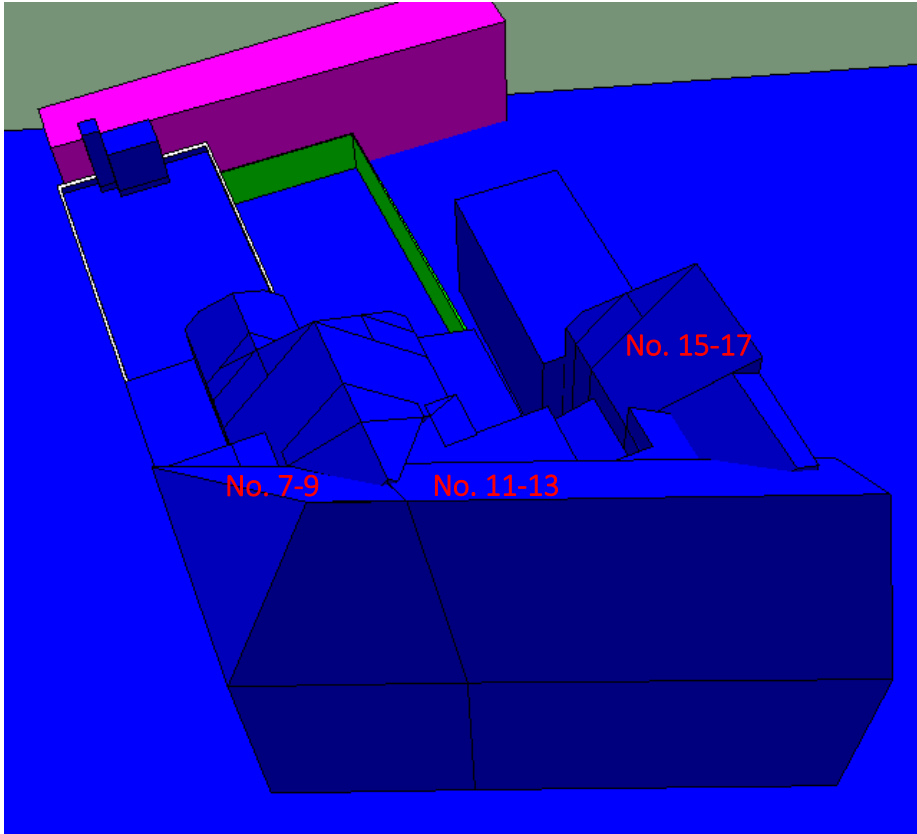


Figure 4.1 Existing development & proposed extension with adjacent properties – view from north

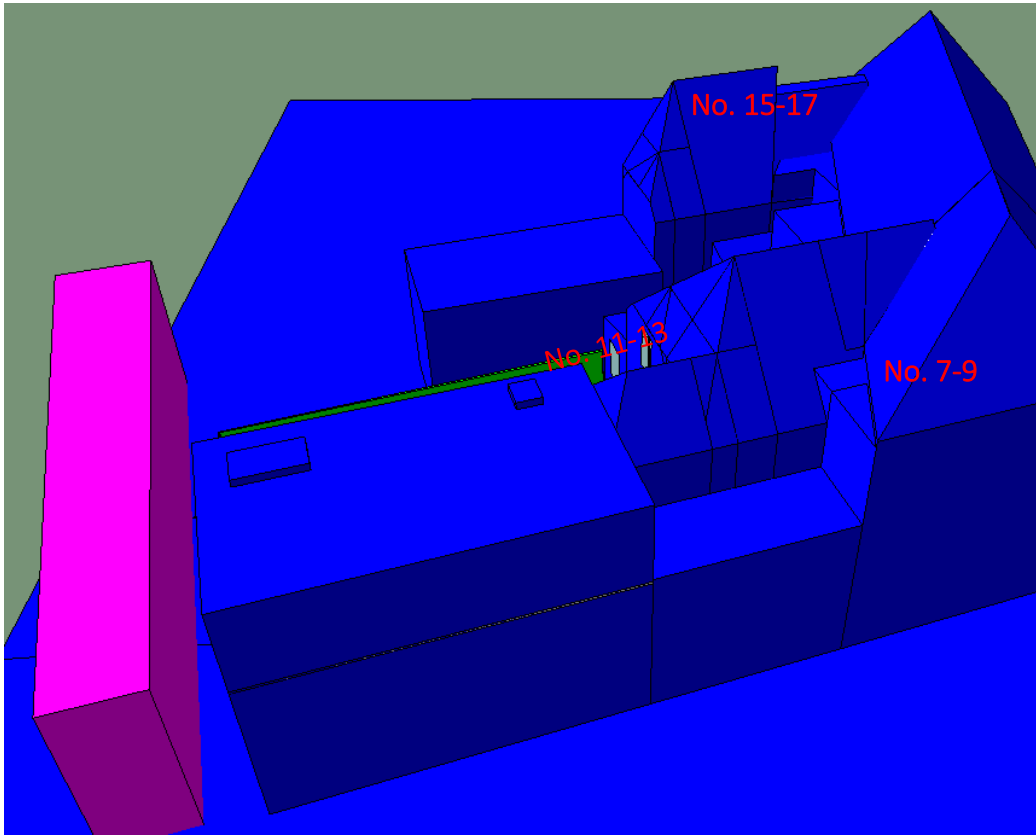
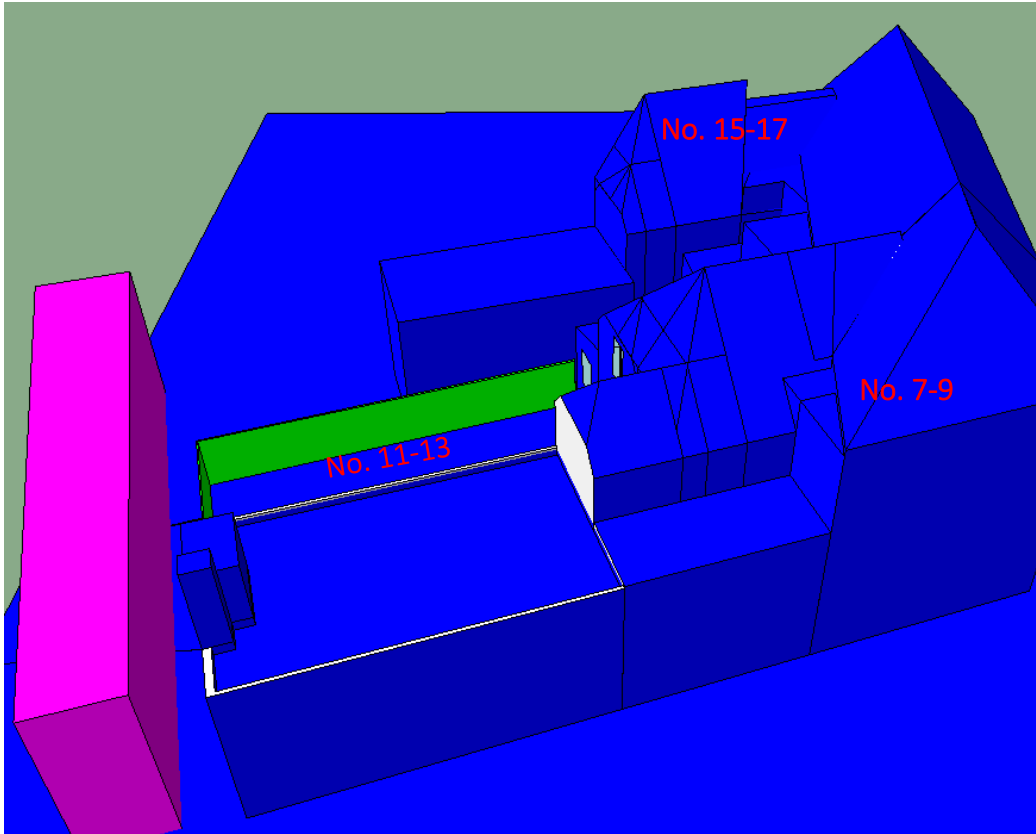


Figure 4.2 Existing development & proposed extension with adjacent properties – view from east

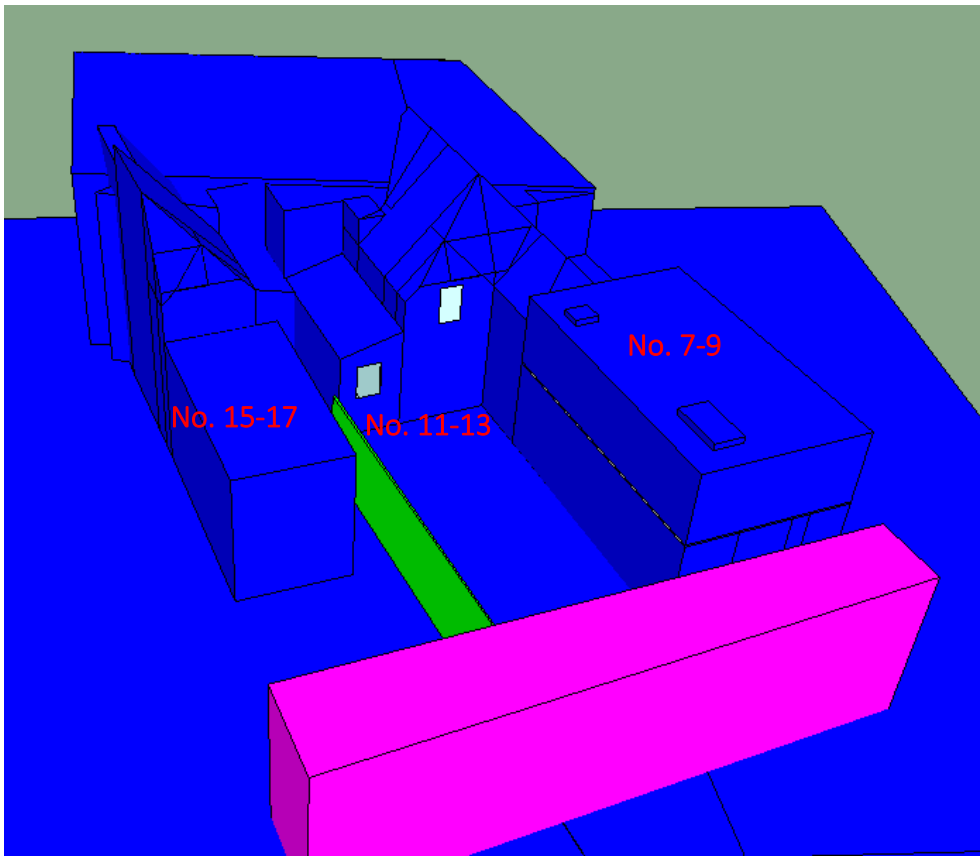
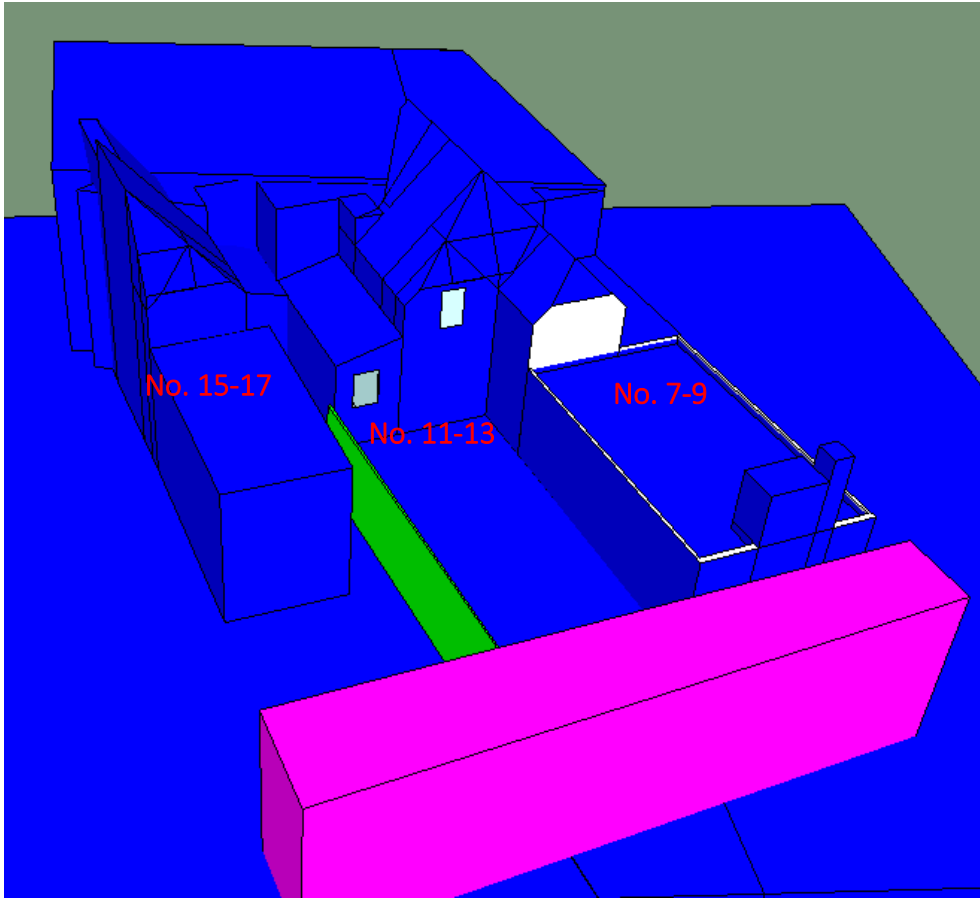


Figure 4.3 Existing development & proposed extension with adjacent properties – view from south

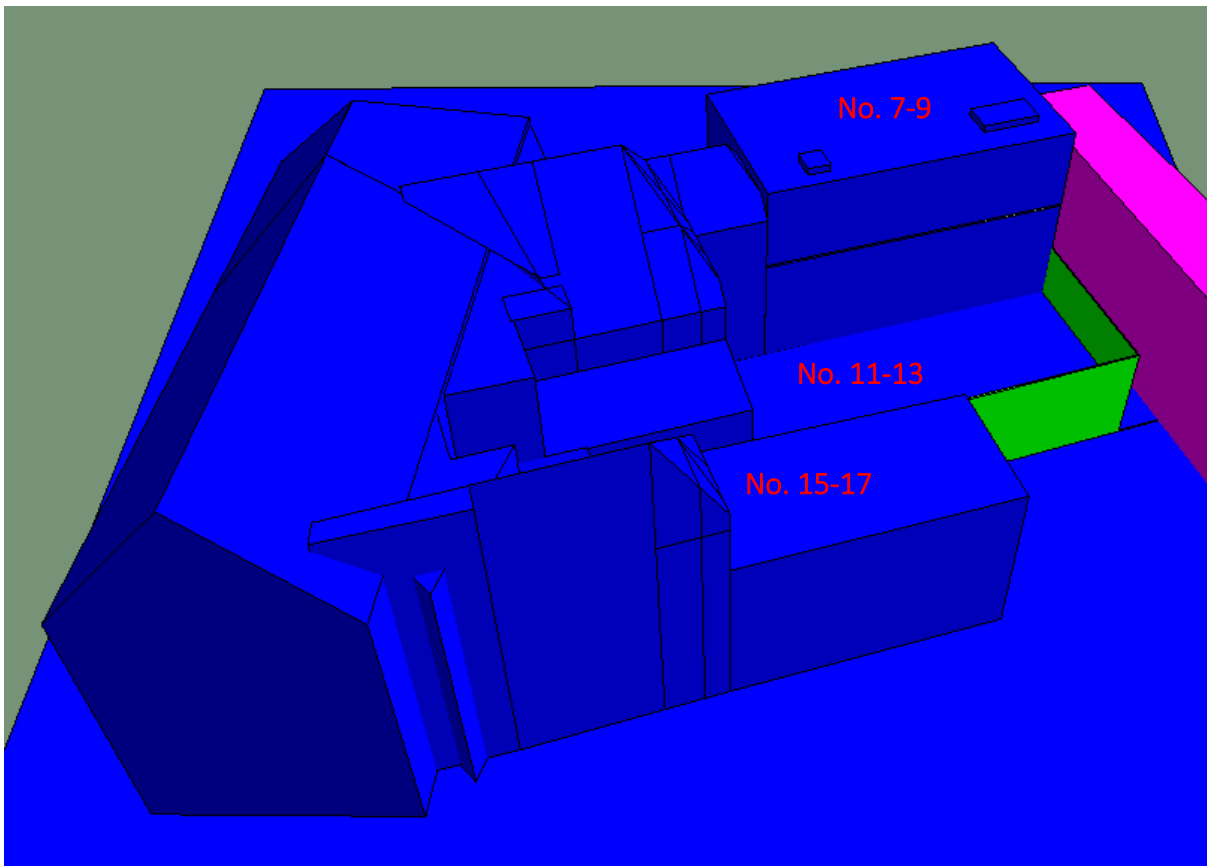
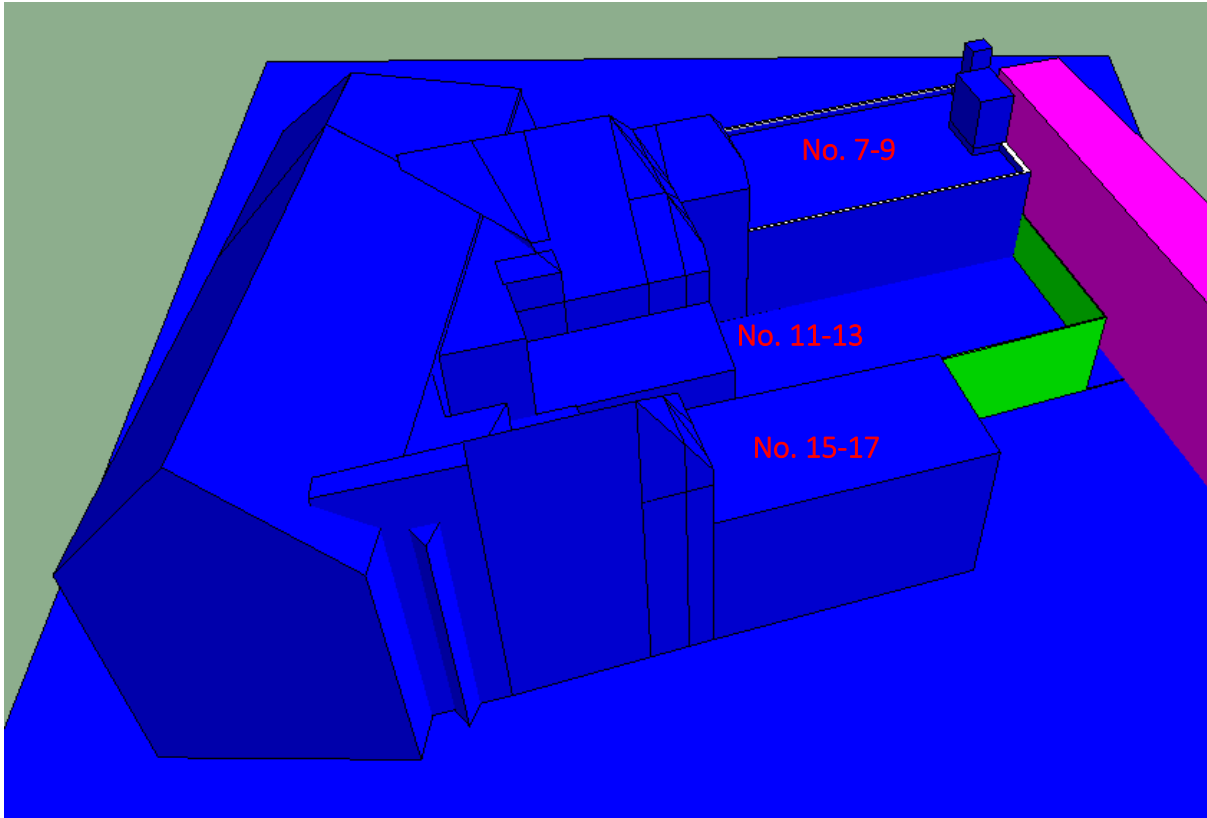


Figure 4.4 Existing development & proposed extension with adjacent properties – view from west

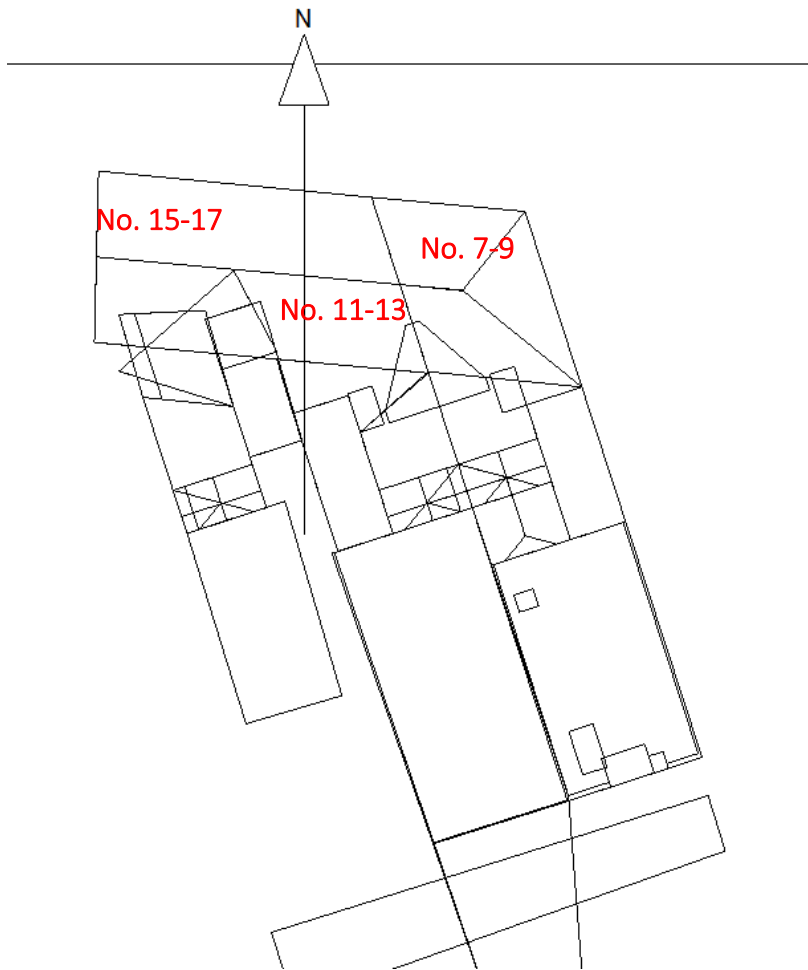


Figure 4.5 Site plan showing orientation of building model

5 RESULTS & DISCUSSION

The section reviews the impact of the proposed development on the adjacent windows and gardens.

5.1 VERTICAL SKY COMPONENT

The BRE guidance states that if with a new development, an existing window has a VSC greater than 27% it should still receive sufficient skylight. If the VSC is reduced below 27% and less than 0.8 times its former value, then the occupants are likely to notice the loss of skylight.

The VSC results are presented in Table 5.1 with the window references are given in Appendix 1.

Dwelling	Window No.	Existing VSC	Guidance met currently? ($\geq 27\%$)	80% VSC Threshold	Proposed VSC	reduced below 27%?	Reduced beyond threshold?	BRE compliant
11-13 Brassey Avenue	1	36.0	✓	28.8	33.7	No	No	✓
	2	32.7	✓	26.2	29.8	No	No	✓

Table 5.1 Daylight results (VSC) for windows adjacent to the proposed development site

The results demonstrate that there will be no noticeable change to the daylight received by the adjacent windows.

Therefore, there shall be negligible impact to the daylight of 11-13 Brassey Avenue.

5.2 ANNUAL PROBABLE SUNLIGHT HOURS

The BRE guidance outlines that the sunlight to an existing dwelling may be adversely affected if the centre of the window:

- receives less than 25% of annual probable sunlight hours and less than 0.80 times its former annual value; or less than 5% of annual probable sunlight hours between 21 September and 21 March and less than 0.80 times its former value during that period;
- and also has a reduction in sunlight received over the whole year greater than 4% of annual probable sunlight hours.

BRE guidance suggests that all main living rooms of dwellings, and conservatories, should be checked if they have a window facing within 90° of due south.

As the room functions the windows serve are unknown, all windows have been analysed and the results are presented in Table 5.2 and demonstrates the sunlight to the windows will remain relatively unchanged.

Therefore, the sunlight impact to 11-13 Brassey Avenue is negligible.

Dwelling	Window No.	Existing APSH %		80% Threshold		Proposed APSH %		BRE Guidance met?
		Annual	Winter	Annual	Winter	Annual	Winter	
11-13 Brassey Avenue	1	54.90	21.92	43.92	17.54	47.99	18.25	✓
	2	65.63	33.79	52.50	27.03	62.07	29.46	✓

Table 5.2 Sunlight results for adjacent windows

5.3 OVERSHADOWING

The BRE guidance states that the sunlight to a garden will be adversely affected if both of the following criteria are infringed upon:

- The area of garden that can receive 2 or more hours of direct sunlight on 21st March is reduced to below 50% of the total area.
- The total area of the garden that can receive 2 or more hours of direct sunlight on 21st March is reduced by 20% or more of the existing value as a result of the proposed development.

The results from the IES SunCast analysis, comparing the overshadowing for the existing and proposed situation, are shown in Table 5.3. The results demonstrate the overshadowing shall increase slightly however this is considered a negligible amount in the BRE guidance.

Garden	No. Hours >50% Of Garden Receives Direct Sunlight		Av. Area Receiving Direct Sunlight (Sqm)			BRE Impact Guidance Met?
	Existing	Proposed	Existing	80% Threshold	Proposed	
11-13 Brassey Ave	0	0	18.81	15.05	17.56	✓

Table 5.3 Overshadowing results of adjacent garden.

6 CONCLUSIONS

This report has assessed the potential impact on daylight, sunlight and overshadowing by the proposed extension at 7-9 Brassey Avenue in Eastbourne.

The results discussed in the previous section demonstrate there will be negligible impact on daylight, sunlight and overshadowing to 11-13 Brassey Avenue.

This study has been undertaken following the process outlined in the BRE Guidance document “BR 209: Site Layout Planning for Daylight and Sunlight, a Guide to Good Practice, 2022. The guidance states: *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.*

7 APPENDIX 1: WINDOW REFERENCES

