

Proposed Residential Development, House 7 St Helen's York Road, Dun Laoghaire

Daylight and Sunlight Assessment Report
Applicant: RRYRDL Ltd

"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." - BR 209

Report Contents

1.0	Executive Summary	3
2.0	1.1 Summary of Assessment.....	3
	1.2 Impact Assessment Results Overview - Neighbouring Properties:.....	3
	1.3 Scheme Performance Results Overview:.....	6
	1.4 Supplementary Assessment Results Overview.....	7
	Methodology	8
3.0	2.1 Impact Assessment, Window Selection Criteria	9
	2.2 Preparing the analytical model.....	9
	2.3 Quantitative Impact Assessment Overview.....	11
	2.4 Qualitative Assessment - Shadow Study.....	13
	2.5 Quantitative Scheme Performance Assessment Overview.....	15
	Analysis of Results.....	
	3.1 Analysis of Impact Assessment Results.....	16
	3.2 Analysis of Scheme Performance Results.....	19
	Conclusion	
	4.0	
Appendix - Results.....		
A.0	Impact Assessment Results	22
A.1	Effect on Vertical Sky Component (VSC).....	24
	Effect on No Sky Line (NSL)	24
	Effect on Annual/Winter Probable Sunlight Hours (APSH/WPSH)	27
	Shadow Studies	
	B.1 Shadow Study 21 March	31
B.2	Shadow Study 21 June	31
	Shadow Study 21 December.....	34
C.0	Scheme Performance	38
C.1	Proposed House 7 Floor Plans	40
	Spatial Daylight Autonomy (SDA) in Proposed Units.....	40
	Sunlight Exposure (SE) in Proposed Units.....	41
	Supplementary Study Results.....	
	SDA study, under the I.S. EN 17037 criteria	45
D.2	Supplementary No Sky Line (NSL) assessment in proposed units.....	47
	Glossary	
E.1	Terms and Definitions.....	49
E.2	Definition of Effects.....	49
	Definition of Levels of Sunlight Exposure.....	50
F.0	Guidelines / Standards	52

The following report has been prepared by 3D Design Bureau (3DDB). 3DDB have over ten years' experience in producing daylight and sunlight assessments for large scale planning applications and are recognised as experts in the field. This report has been reviewed and overseen by Nicholas Polley and Richard Dalton. Nicholas is CEO of 3D Design Bureau and is a qualified Building Services Engineer (B.Sc.(Eng) Dip Eng) with over 25 years' experience in the industry. Richard is Associate Director of 3DDB and has a bachelor's degree in Building Information Modelling (BIM) with over 20 years' experience in the industry.

1.0

Executive Summary

1.1

Summary of Assessment

This report has been prepared by 3D Design Bureau (3DDB) and sets out a focused daylight and sunlight assessment in support of a first-party appeal to An Coimisiún Pleanála in respect of the proposed amendments at St Helen's, York Road. Planning permission for the parent scheme was granted by Dún Laoghaire-Rathdown County Council under Reg. Ref. D25A/0284/WEB. The permitted development comprises a mix of houses and apartments within the grounds of St Helen's, together with the retention of the existing Saint Helen's Christian Brothers Monastery building.

The permitted scheme has since been the subject of amendment applications, including internal alterations to Block A and Block B, which 3DDB has been involved in assessing from a daylight and sunlight perspective. This report relates specifically to the proposed amendment to House 7 and assesses the design submitted in support of the appeal.

The scope of this assessment is focused on specific daylight and sunlight metrics, grouped under two main categories. That are described in further detail in the next page (Impact Assessment & Scheme Performance)

Explanations of key terms and the relevant daylight and sunlight assessment standards are included in sections E.0 & F.0 at the end of this report.

Model States

As the proposed amendment forms part of a wider permitted development, the 'permitted state' has been adopted as the baseline against which the 'proposed state' is assessed. The permitted buildings are therefore represented within the analytical model and assumed to be constructed as granted, providing a realistic representation of the future surrounding context.

For the Impact Assessment, the applicable metrics are assessed by comparing the granted state with the proposed state. This isolates the potential effects arising specifically from the proposed House 7 on the surrounding properties, including the permitted buildings.

For the Scheme Performance assessment, the permitted buildings are retained within the surrounding context of the proposed state. This ensures that the daylight and sunlight performance of House 7 is assessed having regard to the likely future built environment within which it would be located.

This approach provides a consistent basis for both assessment categories while reflecting their respective purposes.

Impact Assessment

Following advice within section 2.2 of the BRE Guidelines (BR 209 - 2022), the surrounding context and permitted development were carefully considered to ensure all properties that may potentially experience a level of effect were included in the study. A more detailed explanation of the criterion applied can be found in section "2.1 Impact Assessment, Window Selection Criteria" on page 9.

The Impact Assessment has been undertaken in accordance with the BRE Guidelines. The potential levels of effect associated with the proposed amendment have been assessed by comparing the 'granted state' with the 'proposed state'. The granted state represents the permitted development, including the granted buildings surrounding House 7, while the proposed state incorporates the proposed amendment to House 7 within this permitted context. This approach allows the assessment to isolate the potential effect arising from the proposed amendment, rather than reassessing effects associated with the wider permitted development.

For definitions of the model states, including visual representations, please refer to section "2.2 Preparing the analytical model" on page 11.

The assessed properties, indicated in Figure 1.1 below, include:

- Saint Helen's Christian Brothers Monastery (1)
- Permitted Block C (2)



Figure 1.1: Scope of surrounding properties assessed. Colours correspond to the list above.

The focused impact assessment, in accordance with the BRE Guidelines, and which fall within the selection criteria, covered the following metrics:

- **Vertical Sky Component (VSC):** Assessment of the potential effect on daylight to the windows of the properties listed above.
- **No Sky Line (NSL):** Assessment of the potential effect on daylight distribution within relevant rooms of Saint Helen's Christian Brothers Monastery (1) and Permitted Block C (2), which internal layouts were available.
- **Annual and Winter Probable Sunlight Hours (APSH/WPSH):** Assessment of the potential effect on sunlight to windows orientated within 90° of due south. On this basis, this assessment only comprises the relevant windows/rooms along Saint Helen's Christian Brothers Monastery (1), with south facing windows/rooms.

The results of the impact assessments can be found in section A.0 on page 24. These results are summarised in section 1.2 and explained in section "3.1 Analysis of Impact Assessment Results" on page 19.

- Scheme Performance**

 - Spatial Daylight Autonomy (SDA):** Assessment of daylight availability within the habitable rooms of the proposed House 7.
 - Sunlight Exposure (SE):** Assessment of sunlight exposure within the same habitable rooms.

The results of these scheme performance assessments, which are in accordance with the BRE Guidelines, can be found in section C.0 on page 40. These results are summarised in section 1.3 and explained in section "3.2 Analysis of Scheme Performance Results" on page 20.

Supplementary scheme performance studies have also been carried out. These include an SDA assessment under the I.S. EN 17037 criterion, and a No Sky Line (NSL) study within proposed habitable rooms. The results of the supplementary scheme performance assessments can be found in section D.0 on page 45.

Qualitative Assessment

In addition to the quantitative assessments detailed in the 'Impact Assessment' and 'Scheme Performance' sections, a qualitative assessment has been undertaken to provide further understanding of the variation in sunlight across the surrounding environment. This includes:

- Shadow Study:** Hourly renderings illustrating shadow movement and extent of shadow on three key dates: the spring equinox (March 21st), summer solstice (June 21st), and winter solstice (December 21st) (section B.0 on page 31).



Figure 1.2: Indication of the proposed House 7, assessed for scheme performance.

Impact Assessment Results Overview - Neighbouring Properties:

The levels of effect in the tables below describe the effect the proposed development would have, based on its compliance with the various BRE Target Values. A full list of definitions and a numerical rationale for each can be found in the section "Definition of Effects" on page 50 of this report.

Effect to Daylight - Vertical Sky Component (VSC) :

Effect to Vertical Sky Component (VSC)	
Assessed Windows/Rooms Total	13
Compliance Total	12
Categorisation of Effects	
Beneficial Impact*	0
Negligible	12
Minor Adverse	0
Moderate Adverse	1
Major Adverse	0
n.a.**	0

Effect to Daylight - No Sky Line (NSL) [§] :

Effect to No Sky Line (NSK)	
Assessed Windows/Rooms Total	13
Compliance Total	12
Categorisation of Effects	
Beneficial Impact*	0
Negligible	12
Minor Adverse	1
Moderate Adverse	0
Major Adverse	0
n.a.**	0

Effect to Sunlight - Annual Probable Sunlight Hours (APSH): ‡

Effect to Annual Probable Sunlight Hours (APSH)	
Assessed Windows/Rooms Total	2
Compliance Total	2
Categorisation of Effects	
Beneficial Impact*	0
Negligible	2
Minor Adverse	0
Moderate Adverse	0
Major Adverse	0
n.a.**	0

Effect to Sunlight - Winter Probable Sunlight Hours (WPSH): ‡

Effect to Winter Probable Sunlight Hours (WPSH)	
Assessed Windows/Rooms Total	2
Compliance Total	2
Categorisation of Effects	
Beneficial Impact*	0
Negligible	2
Minor Adverse	0
Moderate Adverse	0
Major Adverse	0
n.a.**	0

* 'Beneficial Impact' will only be stated if the ratio of change is greater than 1.20 (an improvement of 20%). Should less perceptible improvements occur a 'Negligible' level of effect will be stated.

**In instances where a baseline value is particularly low, levels of effects can appear exaggerated. To mitigate such occurrences, if the baseline value in the VSC, APSH/WPSH or SOG studies is below 1%, 3DDB have categorised the level of effect as n.a. (not applicable).

§ NSL impact assessment was only carried out where sufficient room layout information was available.

‡ APSH/WPSH Note: as per the recommendations made in section 3.2.9 of the BRE Guidelines, only windows/rooms with an orientation within 90° of due south need to be included in the APSH/WPSH impact assessment. Therefore, the number of windows assessed in this study is typically reduced when compared with the VSC impact assessment.

1.3

Scheme Performance Results Overview:

Spatial Daylight Autonomy (SDA):

Spatial Daylight Autonomy (SDA) BRE 209 Criteria	
Unit Count	1
Rooms Assessed	4
Without Trees	
Compliant	4
Non-compliant	0
Compliance Rate*	100%
With Trees (Proposed and Existing Trees)	
Compliant	4
Non-compliant	0
Compliance Rate*	100%
Note: It is the expert opinion of 3DDB that the appropriate criteria for SDA assessments are that of the BRE guidelines (BRE 209)	

* Compliance rates stated for the SDA analysis are based on the rooms that have been assessed within the habitable rooms of the proposed House 7.

Sunlight Exposure (SE):

Sunlight Exposure (SE)	
Units Assessed	1
SE without deciduous trees	
Non-Compliant	0
Minimum	0
Medium	0
High	1
Compliance Rate*	100%
SE with all trees	
Non-Compliant	0
Minimum	0
Medium	0
High	1
Compliance Rate*	100%

For the interpretation of levels of Sunlight Exposure please refer to "E.3 Definition of Levels of Sunlight Exposure" on page 51.

* Compliance rates stated for the SE analysis are based on the unit that has been assessed.

1.4

Spatial Daylight Autonomy (SDA) under I.S. EN 17037 Criterion:
Supplementary Assessment Results Overview

Spatial Daylight Autonomy (SDA) under I.S. EN 17037 Criterion	
Unit Count	1
Rooms Assessed	4
Without Trees	
Compliant	3
Non-compliant	1
Compliance Rate*	c. 75%
With Trees (Proposed and Existing Trees)	
Compliant	3
Non-compliant	1
Compliance Rate*	c. 75%
Note: The study under the I.S. EN 17037 criterion should be considered a supplementary assessment. It is the expert opinion of 3DDB that the appropriate criteria are that of the BRE Guidelines (BRE 209)	

* Compliance rates stated for the SDA analysis are based on the rooms that have been assessed. In cases where rooms comply with the criteria of BR 209 but do not meet the criteria of I.S. EN 17037, it is the recommendation of 3D Design Bureau that these rooms will be adequately daylight. This recommendation is based on the fact that BR 209 provides room-specific criteria, unlike I.S. EN 17037. BR 209 considers the varying daylight requirements for different room types, which I.S. EN 17037 does not account for.

No Sky Line (NSL):

No Sky Line (NSL):	
Unit Count	1
Rooms Assessed	4
Yes	4
No	0
Compliance Rate*	100%
Note: As the BRE Guidelines do not provide a recommended minimum for NSL in proposed developments, compliance rates for NSL are calculated using a criteria applied by 3DDB.	

* Compliance rates stated for the NSL analysis are based on the rooms that have been assessed.

2.0 Methodology

2.1 Impact Assessment, Window Selection Criteria

To determine the properties to be included in the impact assessment, the decision chart taken from Figure 20 of the BRE Guidelines has been followed, as shown in Figure 2.1 below.

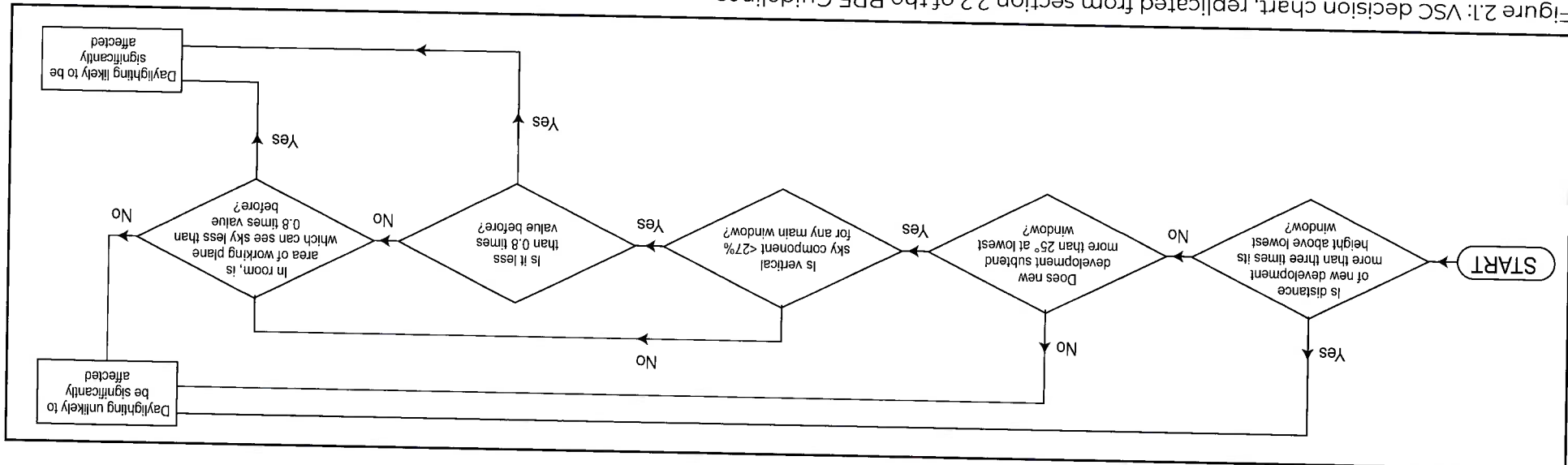


Figure 2.1: VSC decision chart, replicated from section 2.2 of the BRE Guidelines.

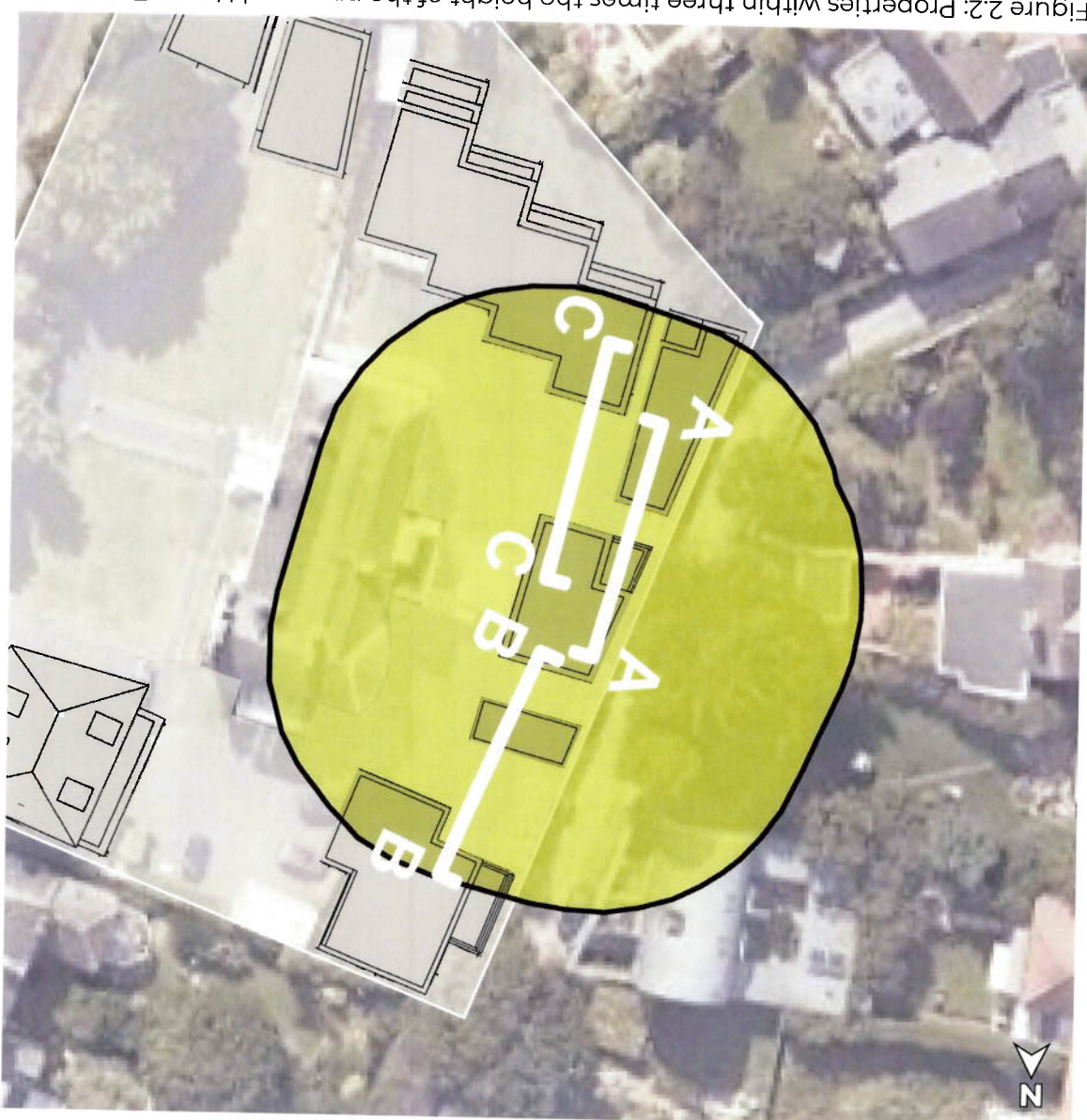


Figure 2.2: Properties within three times the height of the proposed House 7.

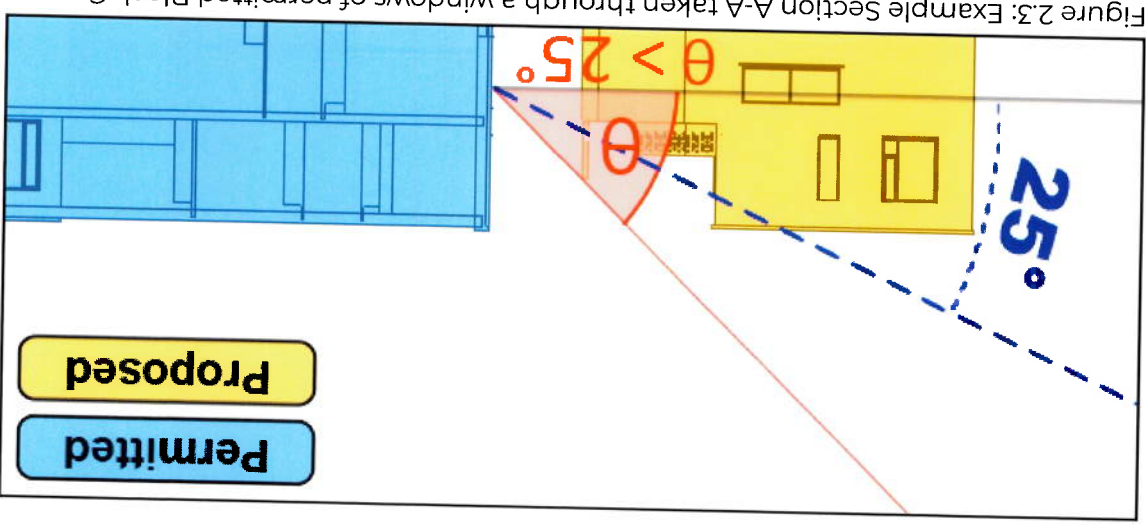


Figure 2.3: Example Section A-A taken through a window of permitted Block C.

If the proposed development subside an angle of 25° or more in this section, then a VSC assessment should be conducted. Figure 2.3 shows a perpendicular section taken through a window of permitted Block C, within the granted site, which provides an example of where the proposed development subside an angle of 25° when measured in a perpendicular section through an existing window.

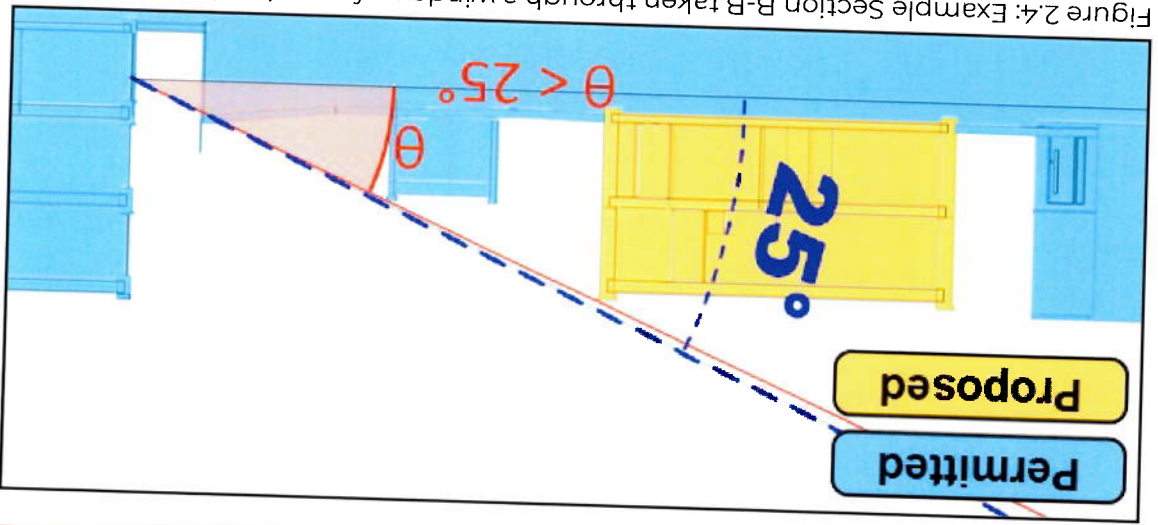


Figure 2.4: Example Section B-B taken through a window of permitted Block B.

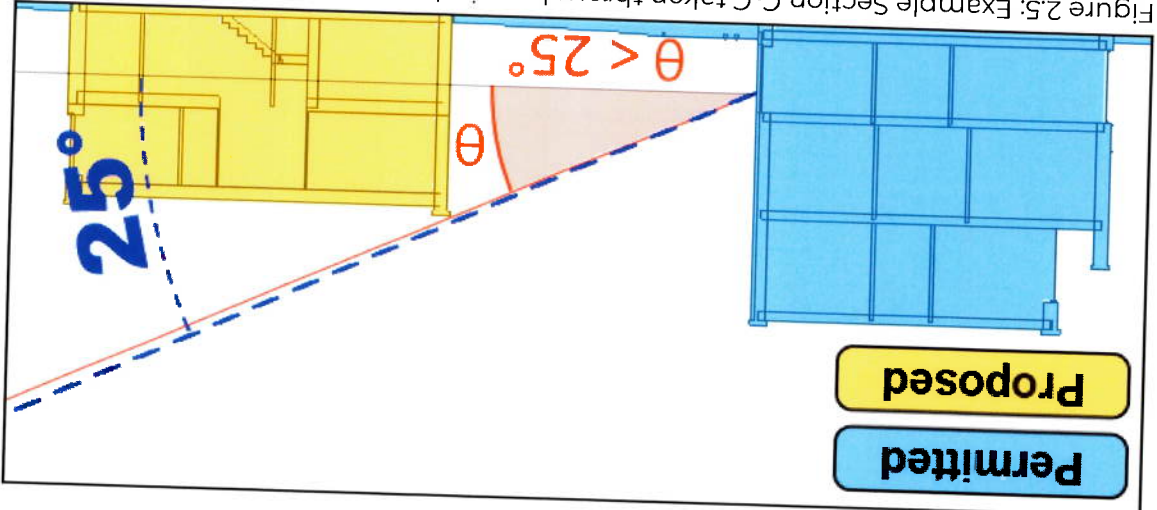


Figure 2.5: Example Section C-C taken through a window of permitted House 6.

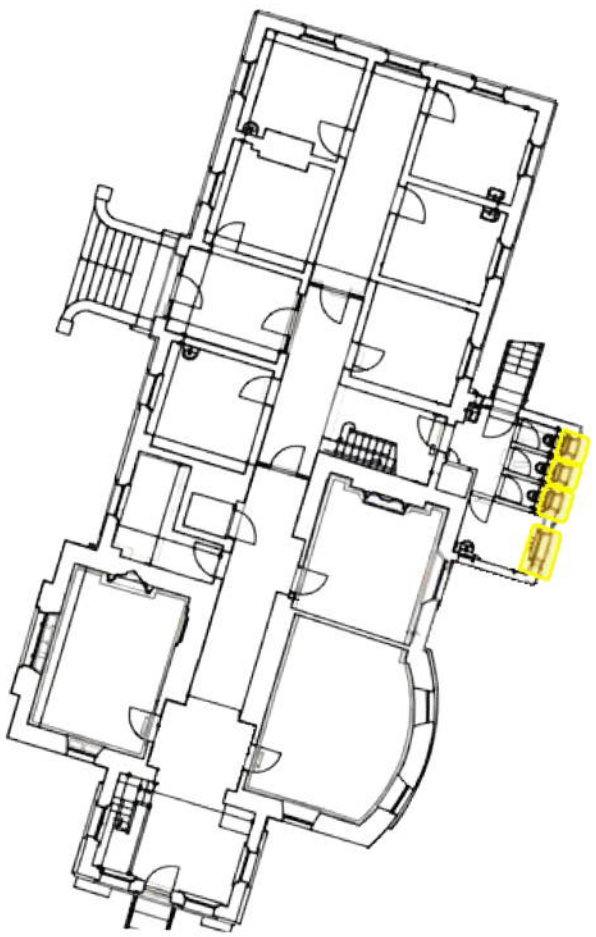
Additionally, if a proposed obstruction falls within 45° when measured both in a plan and elevation view, then it is also appropriate to conduct a VSC impact assessment to determine if daylight will be affected. This is referred to in section 2.2.17 of the BRE Guidelines as the '45° approach'. The 45° approach has been taken into consideration when determining which properties to include in the impact assessment, with no additional windows identified for assessment on this basis.

Accordingly, the Saint Helen's Christian Brothers Monastery and permitted Block C have been taken forward for detailed impact assessment.

In some cases, windows may satisfy the geometric criteria for further assessment but can be excluded where they are confirmed as serving non-habitable spaces. In the case of the Saint Helen's Christian Brothers Monastery, available information has been used to identify windows facing the proposed House 7 which serve cellar/storage space at basement level and WCs at upper levels. These windows have therefore been excluded from the assessment, as illustrated in Figure 2.6. The same information has also been used to identify multiple windows serving the same room and, where appropriate, these have been considered together in accordance with the BRE Guidelines.

According to section 2.2.10 of the BRE Guidelines, it is advisable that where VSC assessments are conducted, a No Sky Line (NSL) assessment should also be carried out where room layouts are known. However, an NSL assessment requires accurate dimensions and layouts of the existing rooms and windows. NSL assessments are often not feasible when assessing impact on existing properties.

Figure 2.6: Saint Helen's Christian Brothers Monastery layout available and excluded windows location.



For this assessment, detailed internal layout information was available for the Saint Helen's Christian Brothers Monastery and permitted Block C, and NSL has therefore been assessed for the relevant rooms within these properties. A detailed description regarding the methodology of the VSC assessment can be found in 2.3.1 on page 13.

Section 3.2.9 of BRE Guidelines also applies the 25° rule to determine the need for an impact assessment for loss of sunlight (APSH/WPSH). They also advise that only windows with an orientation within 90° of due south should be assessed. The BRE recommends assessing the main living rooms of dwellings and conservatories, while APSH/WPSH assessments are typically not required for kitchens and bedrooms.

In practice, 3DDB include all windows meeting the proximity criteria in an APSH/WPSH assessment if they are reasonably assumed to serve habitable spaces. This approach avoids distinguishing whether the windows serve bedrooms or living areas, thereby eliminating the need to make assumptions about the specific functions of rooms in existing dwellings.

While section 2.1.21 and 2.2.23 of the BRE Guidelines recommends conducting an impact assessment on the lowest window where daylight/sunlight is needed, if a property is found to have a window potentially affected by the proposed development, based on the previously explained criteria, other windows facing the proposed development on that property may also be assessed. This approach provides a more comprehensive understanding of the overall impact on the property.

2.2

2.2.1

Preparing the analytical model

Building the Model States

The project architect, NDBA Architects supplied 3DDB with AutoCAD drawings of the proposed House 7 from which the original detailed 3D analytical model was updated.

In line with standard practice, a desktop-based approach has been adopted to gather information regarding the existing subject site and its surroundings. In lieu of a bespoke on-site survey, a combination of available survey information, aerial photography, and Ordnance Survey data was used to model the context and assessed buildings. As information gathered from online sources is not as precise as a physical survey, a reasonable tolerance should be allowed for the placement of windows, boundary treatments, and the results generated.

Permitted model state

As illustrated in Figure 2.7, the permitted model state reflects the surrounding context together with the development permitted under the parent permission, with the permitted buildings represented as if constructed as granted. This includes any structures that are to be demolished as part of the granted stage. Existing trees were placed using photogrammetry information, with assumptions made regarding exact size, position and species.

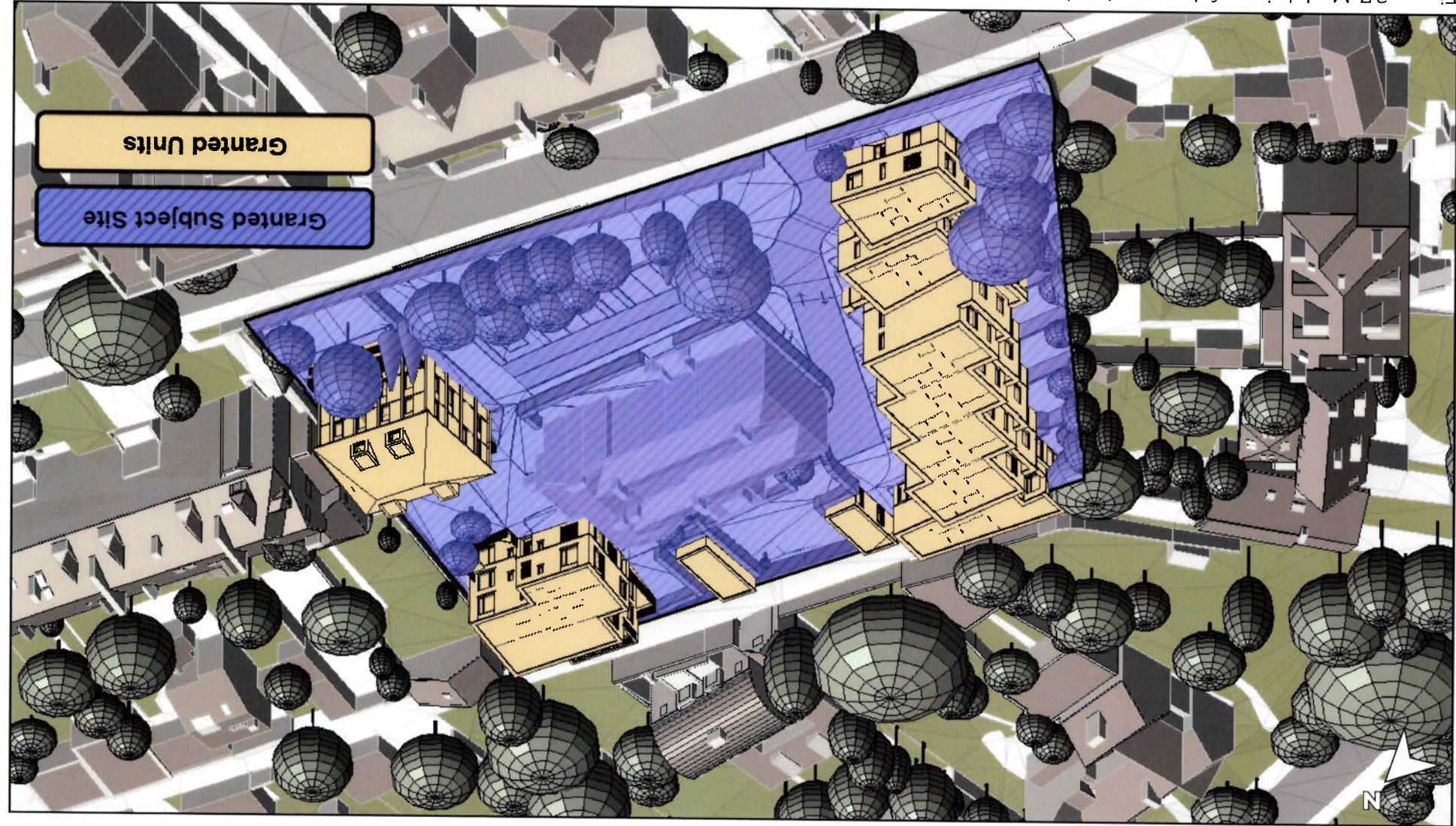


Figure 2.7: Model view of the permitted model state

Proposed model state

As illustrated in Figure 2.8, the proposed model state reflects the subject site if the development is built as proposed. The Proposed buildings (House 7) have been accurately positioned in their location on the subject site with relevant surrounding context included.

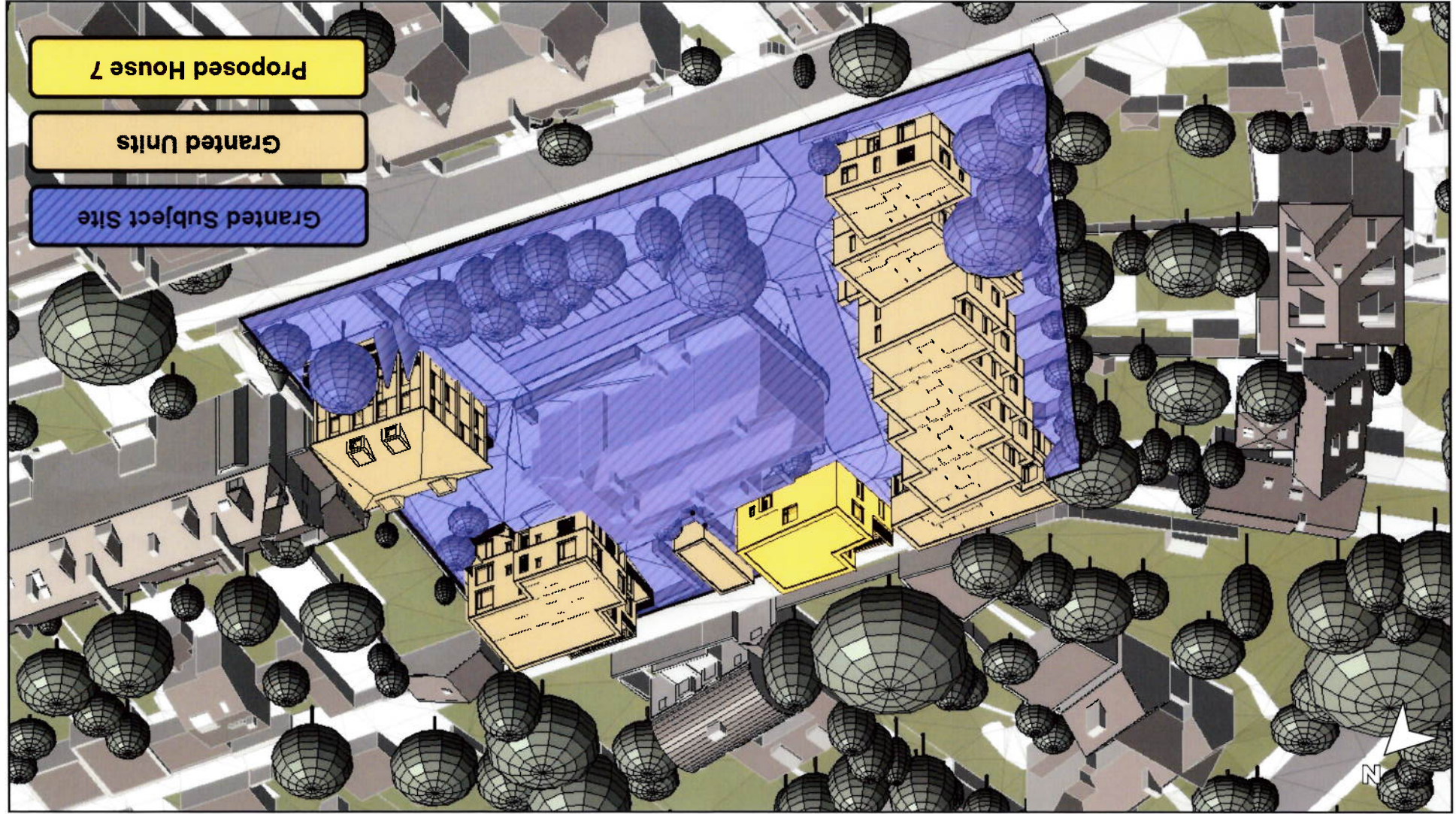


Figure 2.8: Model view of the proposed model state

The assessment model includes all surrounding windows identified in accordance with the screening criteria for impact assessment, as set out in section 2.1 of this report. This ensures that all receptors with the potential to experience an adverse effect have been captured within the VSC and APSH/WPSH analysis, including the granted buildings. All of the above information was subsequently used to prepare a digital analytical model in software specifically designed for daylight and sunlight analysis.

Relevant weather and climatic data has been obtained for this report using a localised EnergyPlus Weather File (IRL_Dublin.039690_IWEC.epw).

As stated in section 3.3.9 of the BRE Guidelines, the exact shapes of trees are "almost impossible to predict". When modelling trees for assessments tree geometry is simplified. Where tree survey information is not provided, the position and size of existing trees are estimated using photogrammetry information. The shape of the trees is simplified and an average transmittance value is applied using information from table G1 from the BRE Guidelines.

BR 209 provides guidance on how trees should be treated depending on the study being carried out, as summarised below:

Impact to Vertical Sky Component (VSC) and Annual / Winter Probable Sunlight Hours (APSH / WPSH)

Section G1.2 of the BRE Guidelines states that when assessing the effect a new development would have on existing buildings, "it is usual to ignore the effect of existing trees". This is because daylight is at its scarcest and most valuable in winter when most trees will not be in leaf. Evergreen trees should be included, particularly where a dense belt or group of evergreens is specifically planned as a windbreak or for privacy purposes.

Sunlight Exposure (SE)

Section G3.1 of the BRE Guidelines states that as deciduous trees would not be in full leaf on the recommended assessment date (March 21st), sunlight would be expected to penetrate deciduous trees. However, as trees have so many variables, it is impossible to accurately represent how they would affect sunlight at a given time. The suggested methodology (BR 209) to allow for this is to run the sunlight exposure study in two states. Firstly, with all trees as opaque objects and secondly, without deciduous trees in the assessment model. This gives a range of potential sunlight hours.

Spatial Daylight Autonomy (SDA)

BR 209 recommends when assessing daylight in a proposed building, it is appropriate to run the assessment with trees represented over the course of the whole year. Light transmittance values for the modelled trees are varied to account for summer and winter foliage.

Taking average dates from *BRE Digest 350*, appropriate light transmittance values are applied to deciduous trees to represent the 'full leaf' and 'bare branch' states.

Evergreen trees are represented as 'full-leaf' throughout the year.

The BRE Guidelines (section G2.3) also state:

"The calculation model should account for the obstruction to daylight caused by the trees. This needs to be done by modelling a representative shape of the trees. Often trees are irregularly shaped and simple modelling, using height and spread data and assuming a circular tree, will give inaccurate results. A special survey on site is generally required to produce the required data on the tree profile, using a clinometer or other device to measure tree height. Buildings and other solid objects should also be taken into account."

In the absence of a 'special survey' being conducted, as mentioned above, simplified models representing trees are used. The information for these trees is taken from photogrammetry information and an arborist report when available. A reasonable tolerance should be applied to the results generated to account for trees not being represented exactly as they appear on site.

Units are also assessed without trees to give an understanding of how the architecture performs should trees not be factored into the calculation.

I.S. EN 17037 does not give any guidance on how trees should be represented. For the purpose of this report, the SDA calculation under the I.S. EN 17037 criteria is carried out with trees represented in the same manner as the BR 209 assessment. Units are also assessed without trees to give an understanding of how the architecture performs should trees not be factored into the calculation.

No Sky Line (NSL)

Because some sky can usually be seen through a tree canopy, deciduous trees are not included in the No Sky Line assessment model. Evergreen trees may be included in this assessment, particularly if there is a dense belt or group planned for windbreak or for privacy purposes.

Shadow Study

The hourly renderings of the shadow study are generated with evergreen trees represented as opaque objects, where applicable, and typically without deciduous trees. This method best represents the methodology used for the impact assessment and allows for a better understanding of potential shadows cast by the proposed development through the tree canopy.

2.3
2.3.1

Quantitative Impact Assessment Overview
Effect on Vertical Sky Component (VSC)

A proposed development could potentially have a negative effect on the level of daylight that a neighbouring property receives, if the obstructing building is large in relation to their distance from the existing dwelling.

Section 2.1 outlines the decision process which was used to determine the appropriate properties to be included in the VSC impact assessment.

For proposed developments, all properties within a distance of three times the height of the proposed development are considered with regard to an impact assessment. Should the angle from the windows to the proposed development subtend 25° in a perpendicular section, then VSC is calculated in both the baseline and proposed model states, and a comparison made.





A No Sky Line assessment requires accurate dimensions and layouts of both rooms and windows. However, the required information is rarely available for existing dwellings. As such, it is not common practice to carry out a No Sky Line (NSL) impact assessment.

VSC can be defined as the amount of skylight that falls on a vertical wall or window.

Where applicable, this report assesses the percentage of direct sky illuminance that falls on the assessment point of neighbouring windows that could be affected by the proposed development.

Section 2.1.6 of the BRE Guidelines states that if the VSC is:

- At least 27%, then conventional window design will usually give reasonable results;
- Between 15% and 27%, then special measures (larger windows, changes to room layout) are usually needed to provide adequate daylight;
- Between 5% and 15%, then it is very difficult to provide adequate daylight unless very large windows are used;
- Less than 5%, then it is often impossible to achieve reasonable daylight, even if the whole window wall is glazed.

Where a VSC assessment is warranted, the values for each relevant window/room may be calculated in the corresponding model states, as outlined in section 2.2 on page 11. A comparison of these results can be used to indicate the level of effect.

A proposed development could possibly have a noticeable effect on the daylight received by an existing window, if the following occurs:

- The VSC value drops below the guideline value of 27%; **and**
- The VSC value is less than 0.8 times the existing value.

In instances where a baseline value is less than 1%, the impact will be considered 'non-applicable' (n.a.).

Under BRE Guidelines (section 2.2.2), only habitable rooms need to be assessed for effect to VSC. In the absence of design layouts or floor plans, or information pertaining to the internal 'as-built' layouts, assumptions have been made regarding the function of the windows of the existing surrounding properties (i.e. what room type is served by the window being assessed).

Typically, the effect on ground floor windows is greater than the effect on windows of subsequent floors. However, floors above ground floor level may be included in this study to give a more comprehensive assessment.

Assessment Points

The VSC impact assessment is carried out on the windows/rooms of the neighbouring properties that could be affected by the proposed development as highlighted in Figure 1.1 on page 4.

The assessment points for measuring VSC are taken from the centre point of a standard window. If the window being assessed is a full height window, the assessment point is taken at 1600 mm above the finished floor level.

Weighted Averages

If it can be determined or reasonably assumed that multiple windows are servicing the same room, each window has been assessed and a room VSC will be calculated by applying a weighted average calculation to the results. When calculating weighted averages the proportion of the total glazing area represented for each window is taken into account. It should be noted that estimations typically need to be made regarding window sizes, so a tolerance should be applied regarding calculated weighted averages.

In instances where weighted averages have been calculated, the VSC figures will be stated for each window on an individual basis as well as the calculated figure to be applied to the room, but the level of effect will only be stated for the room.

Project Assessment

Following the BRE decision chart, as illustrated in Figure 2.1 on page 9, a VSC impact assessment has been carried out on the windows/rooms of the neighbouring properties that could be affected by the proposed development.

The assessed properties are the Saint Helen's Christian Brothers Monastery and Block C, as indicated in Figure 1.1 on page 4.

No VSC impact assessment was conducted for other properties that are within three times the height of the proposed House 7. This is because none of the windows to these properties satisfy the relevant BRE screening criteria, namely the 25° test (measured in a perpendicular section) or the 45° approach (measured in both plan and elevation).

The results for the VSC assessment can be found in the appendix results section A.1 on page 24, with analysis of the results in section 3.1.1 on page 19.

2.3.2 Effect on Annual/Winter Probable Sunlight Hours (APSH/WPSH)

Annual/Winter Probable Sunlight Hours (APSH/WPSH) is a measure of sunlight that a given window may expect to receive over the period of a year. The percentage of APSH/WPSH that windows in existing properties receive might be affected by a proposed development.

A proposed development could potentially have a negative effect on the level of sunlight that a neighbouring property receives, if the obstructing building is located to the south and is large in relation to its distance from the existing dwelling. This can be determined if the distance of a proposed development is less than three times its height from an existing dwelling, and the angle from an existing window to the proposed development subtends an angle of 25° to the horizontal when measured in a perpendicular section.



Whether a window is considered for APSH/WPSH impact assessment is based on its orientation. A south-facing window will, in general, receive the most sunlight. North facing windows may receive sunlight on only a handful of occasions in a year, and windows facing eastwards or westwards will receive sunlight only at certain times of the day. Taking this into account, section 3.2.3 of the BRE Guidelines suggests that windows with an orientation within 90 degrees of due south should be assessed.

Section 2.1 outlines the decision process which is used to determine the appropriate properties to be included in an APSH/WPSH impact assessment.

The APSH/WPSH for each of the assessed windows should be calculated in the relevant model states, as outlined in section 2.2 on page 11. A comparison between the results generated using these model states can be used to determine the level of effect.

If it can be determined or reasonably assumed that multiple windows are servicing the same room, the APSH/WPSH will be assessed for the room as opposed to each individual window. When APSH/WPSH is assessed for a room it considers sunlight coming from all windows, but does not double count if sunlight is reaching multiple windows at the same time. If a room can receive more than 25% of APSH, including at least 5% of the WPSH, then the room should receive enough sunlight. Despite being two components of the same technical study, the results for APSH and WPSH are presented separately in this report. This approach distinguishes between annual and winter sunlight impacts, thereby facilitating a more detailed analysis of the effect of the proposed development.

A proposed development could possibly have a noticeable effect on the sunlight received by an existing window/room, if the following occurs:

- The APSH or WPSH value drops below the annual (25%) or winter (5%) guidelines; **and**
 - The APSH/WPSH value is less than 0.8 times the baseline value; **and**
 - There is a reduction of more than 4% to the annual APSH.
- In some circumstances, the available sunlight during the winter period (WPSH) may both drop below the recommended minimum of 5% with a proposed value of less than 0.8 times the baseline value, but the reduction to annual probable sunlight (APSH) is less than 4%. Such occurrences are considered compliant with the BRE Guidelines (Section 3.2.6), and the impact to WPSH will be stated as 'n.a.' on that basis.

Additionally, where a baseline value is less than 1%, the impact will be considered 'non-applicable' (n.a.)

According to section 3.2.3 of the BRE Guidelines, only main living-rooms, or rooms comprising living space, need to be assessed for effect on sunlight. In the absence of design layouts or floor plans, or information pertaining to the internal 'as-built' layouts, all windows assumed to be servicing habitable rooms will be included in the APSH/WPSH assessment provided they are orientated within 90° of due south and are in relative close proximity to the proposed development. Typically, the effect on ground floor windows is greater than the effect on windows of subsequent floors. However, floors above ground floor level may be included in this study to give a more comprehensive assessment.

Assessment Points

The assessment points for measuring APSH/WPSH are taken from the centre point of a standard window. If the window being assessed is a full height window, the assessment point is taken at 1600 mm above the finished floor level.

The APSH/WPSH impact assessment has been carried out on the windows/rooms of the neighbouring properties that could be affected by the proposed development as indicated in Figure 1.1 on page 4, with an orientation within 90 degrees of due south.

As indicated on Figure 1.2 on page 5, the assessed property is the Saint Helen's Christian Brothers Monastery. No APSH/WPSH assessment has been conducted for Block C on the basis that the windows of this property that face the proposed House 7 do not have an orientation within 90° of due south.

No APSH/WPSH impact assessment was conducted for other properties that are within three times the height of the proposed House 7. This is because none of the windows to these properties satisfy the relevant BRE screening criteria, namely the 25° test (measured in a perpendicular section) or the 45° approach (measured in both plan and elevation).

The results for the APSH/WPSH assessment can be found in the appendix results section A.3 on page 29, with analysis of the results in section 2.3.2 on page 14.

2.4 Qualitative Assessment - Shadow Study

2.4.1 Shadow Study

A shadow study has been carried out to allow a qualitative comparison between the relevant model states, as outlined in section 2.2 on page 11. This visual representation of the shadows cast by the proposed development can be found in the hourly shadow diagrams in the appendix results section B.0 on page 31.

Hourly renderings have been shown from sunrise to sunset on the following dates in 2026:

- Spring equinox: March 21st Sunrise 6:32 | Sunset 18:32. (GMT)
- Summer solstice: June 21st Sunrise 5:04 | Sunset 21:49. (BST) (Daylight savings)
- Winter solstice: December 21st Sunrise 8:45 | Sunset 16:00. (GMT)

The shadow study has been generated using the same model states as described in section 2.2.1. In certain cases, assumptions or estimations may have been made when modelling elements of the surrounding context and/or proposed site details when creating the various model states. Therefore, it is advisable for a reasonable tolerance to be applied when interpreting shadows in the qualitative assessment.

The hourly renderings of the shadow study will be generated without deciduous trees and with evergreen trees, where applicable, represented as opaque objects when present in the model states.

Note: The spring equinox (March 21st) and autumn equinox (September 21st) yield similar shadows, albeit with a one hour difference as daylight saving time (BST) would be in effect. Only the spring equinox was included in the shadow study images in accordance with section 3.3.14 of the BRE Guidelines.

2.5

2.5.1

Spatial Daylight Autonomy in Proposed Habitable Rooms (SDA)

Since the publication of the 3rd edition of the BRE Guidelines (BR 209 - 2022), Spatial Daylight Autonomy (SDA) is the recommended metric for assessing daylight access within a proposed development. Spatial Daylight Autonomy replaces Average Daylight Factor (ADF) in this regard, which was the recommended metric under the 2nd edition of the BRE Guidelines (BR 209 - 2011).

Spatial Daylight Autonomy assesses whether a room receives sufficient daylight on a working plane during standard operating hours on an annual basis. A given target value should be achieved across 50% of the working plane for half of the daylight hours.

There are two methods for calculating SDA:

- **Calculation method using illuminance level:** This requires the use of a detailed daylight calculation method where hourly (or sub-hourly) internal daylight illuminance values for a typical year are computed using hourly (or sub-hourly) sky and sun conditions derived from climate data appropriate to the site. This calculation method determines daylight provision directly from simulated illuminance values on the reference plane. The illuminance value of at least half the required area of the space should equal or exceed the target values.
- **Calculation method using daylight factor:** The daylight factor method assumes a constant ratio between internal and external illuminance. The daylight factors in the space shall be calculated by any reliable method that is based on the ISO 15469:2004 standard overcast sky (TYPE 1 or TYPE 16). Daylight factors are to be predicted across grid of points on a plane 0.85m above the floor of the space. The daylight factor of at least half the required area of the space should equal or exceed the target values.

It is the opinion of 3DDB that the calculation method using illuminance level better represents a real-world scenario as it accounts for the quality of daylight based on orientation. As such, the illuminance methodology has been adopted as the preferred SDA assessment methodology by 3DDB. A localised EnergyPlus Weather File is used to apply the relevant climate information. In the case of this report, the weather file used is IRL_Dublin.039690_IWEC.epw.

In terms of housing, BR 209 provides target SDA values to be received across at least 50% of the working plane for at least half the daylight hours. The target values differ based on the function of the room assessed:

- 200 Lux for kitchens
- 150 Lux for living rooms
- 100 Lux for bedrooms

Where rooms serve more than one function, the higher SDA target value should be taken.

Under I.S. EN 17037 at least 50% of the working plane should receive above 300 lux for at least half the daylight hours, with 95% of the working plane receiving above 100 Lux for all rooms. The target SDA values do not vary depending on the room function under this criteria.

This study has assessed the Spatial Daylight Autonomy (SDA) received in the habitable rooms of the proposed development under the BR 209 criterion. The SDA of the proposed development has been calculated under the I.S. EN 17037 criterion as part of a supplementary assessment.

Defining Rooms

The definition of rooms are typically taken directly from the architectural drawings supplied by the project architect. Sometimes, the applied names of rooms may differ slightly, e.g. A "Kitchen / Living / Dining room (KLD)" may be referred to as a 'Living / Kitchen / Dining room' (LKD).

According to section 2.1.14 of the BRE Guidelines areas like bathrooms, stairwells, garages, and storage areas do not have a special requirement for daylight. As such these spaces have not been assessed.

Where an SDA assessment has been conducted, an indication of the assessed space in each room will be indicated in the floor plans that correspond to the SDA results in the appendix section "Proposed House 7 Floor Plans" on page 40.

Working Plane

The calculation of SDA is carried out on a hypothetical working plane which lies 850 mm from the finished floor level in residential units and 700 mm in academic and office spaces.

In the BR 209 study the working plane is offset 300 mm from the room boundaries. Under the I.S. EN 17037 criteria the working plane is offset 500 mm from the room boundaries. The working plane has a grid density of c. 300 mm.

2.5.2

Sunlight Exposure in Proposed Habitable Rooms (SE)

The results for the study on SDA for the proposed House 7 can be found in the appendix results section C.2 on page 41. Analysis of the results can be found in section 3.2.1 on page 20.

The results of the supplementary SDA study under the I.S. EN 17037 criterion can be found in section D.0 on page 45.

This study indicates the daylight potential of the proposed development. As-built daylight performance within the occupied development may vary from the results of this assessment due to changes to the exterior context, weather conditions and/or occupiers choice of interior finishes and furniture placement.

Sunlight Exposure (SE)

Since the publication of the 3rd edition of the BRE Guidelines (BR 209 - 2022), Sunlight Exposure (SE) is the recommended metric for assessing sunlight access within a proposed development. Sunlight Exposure replaces APSH/WPSH in this regard, which was the recommended metric under the 2nd edition of the BRE Guidelines (BR 209 - 2011).

Sunlight exposure (SE) is a measure of sunlight that a given window may expect to receive on a given date between the 1st of February and the 21st of March. Section 3.1.10 of the BRE guidelines suggests that March 21st (equinox) is used as the assessment date.

In the presence of trees, SE results have been generated, both with deciduous trees as opaque objects and without the inclusion of deciduous trees, in accordance with section C3 of the BRE Guidelines. Evergreen trees have been included as opaque objects, where applicable, in both states.

The level of sunlight exposure is categorised as follows:

- 1.5 Hours - Minimum • 3 Hours - Medium • 4 Hours - High

The recommendation for dwellings is that at least one habitable room, preferably a main living room, should receive at least the minimum criterion. Should no room within a given unit meet the recommended minimum level of sunlight exposure, it will be stated as non-compliant.

Sunlight exposure is assessed on habitable rooms within a proposed development. The assessment point for windows is 1.2m above the finished floor level, or 0.3m above the sill level (whichever is higher). If a room has multiple windows, the amount of sunlight received by each can be added together provided they occur at different times and sunlight hours are not double counted.

The criterion applies to rooms of all orientations, although if a room faces significantly north of due east or west it is unlikely to be met. As such, it is not always possible to achieve full compliance, especially in developments that contain single aspect units.

The sunlight exposure assessment focuses on habitable residential rooms. Unless sunlight access is deemed important for the functionality of a non-residential room in a proposed development, it will not be included in the study, which remains limited to residential rooms.

Project Assessment

The results for the study on sunlight exposure for the proposed House 7 can be found in the appendix results section C.3 on page 43, with analysis of the results in section 3.2.2 on page 20.

This study predicts the sunlight potential of the proposed units. Real-world performance post-construction can vary based on actual weather patterns and any alterations to the external environment.

Project Assessment

Table No. 2.5.1 - Material Palette for SDA Calculations						
Object	Material	Reflectance	Object	Material	Transmittance	Reflectance
Exterior walls	Standard Brick	0.3	Interior Walls	Pastel paint	0.7	
	Light Brick	0.4	Interior Ceiling	White paint	0.8	
	Dark Brick	0.15	Interior Floor	Light timber	0.4	
	Render	0.6	Miscellaneous		0.5	
	Concrete	0.4			0.68	
	Paving	0.4	Class	Glass transmittance value	0.91	
Tarmac	0.2	Maintenance factor		0.62		
Grass	0.2	Glass adjusted for maintenance		0.5		
		Frosted glass		0.5		

Material Palette

Following consultation with the design team, material values used for SDA calculations are as per the table below:



2.5.3 No Sky Line in Proposed Habitable Rooms (NSL)

The No Sky Line divides the areas of the working plane which can receive direct skylight, from those which cannot. It indicates the distribution of direct daylight within a room.

Section D3 of the BRE Guidelines recommends the No Sky Line study as an appropriate metric for an impact assessment to daylight, but only where room layouts are known.

"The calculation can only be carried out where room layouts are known. Using estimated room layouts is likely to give inaccurate results and is not recommended."

All advice regarding NSL in the BRE Guidelines (section 2.2) is in relation to impact assessments. NSL is not mentioned in the BRE section regarding daylight in new developments. Nevertheless, an NSL assessment was carried out on the proposed development as a supplementary study as it is requested in the DCC Development Plan 2022-2028 (Section 5.1, Appendix 16). Although the proposed development is not under Dublin City Council's jurisdiction, the NSL study has been included to provide consistency across 3DDB daylight and sunlight assessments.

Since the BRE Guidelines do not provide a recommended minimum NSL for proposed developments, compliance rates are calculated using criteria applied by 3DDB, derived from the logic of the Guidelines. Specifically, an NSL of 80% is considered an appropriate benchmark; this aligns with Section 2.2.10 of the BRE Guidelines, which states that supplementary electric lighting is required if a significant portion of the working plane—defined as 20% or more—lies beyond the No Sky Line.

The results of the supplementary NSL study for the proposed House 7 can be found in section D.0 on page 45.

3.0

3.1.1

Effect on Vertical Sky Component (VSC), No Sky Line (NSL) and APSH/WPSH

The effect on VSC has been assessed for 13 no. windows/rooms across the two properties included within the Impact Assessment: Saint Helen's Christian Brothers Monastery and permitted Block C. All assessed receptors are located within the granted subject site.

For the assessed properties, multiple windows serve the same room. In the VSC impact assessment, each individual window is assessed and a weighted average based on the window size is calculated to determine the level of effect on the room. Windows labelled with a hash-tag and a serial number denote that the window is part of a room. The room will be identified with the hash tag, but without the serial number. (e.g. windows 'Xa#' and 'Xa#' would determine the weighted VSC for room 'Xa#').

Using the rationale explained in section E.2 on page 50, the effect on the VSC of these windows (or rooms if an average of multiple windows has been taken) 12 no. of the 13 no. assessed windows/rooms record a 'negligible' VSC effect, with 1 no. recording a 'moderate adverse' effect.

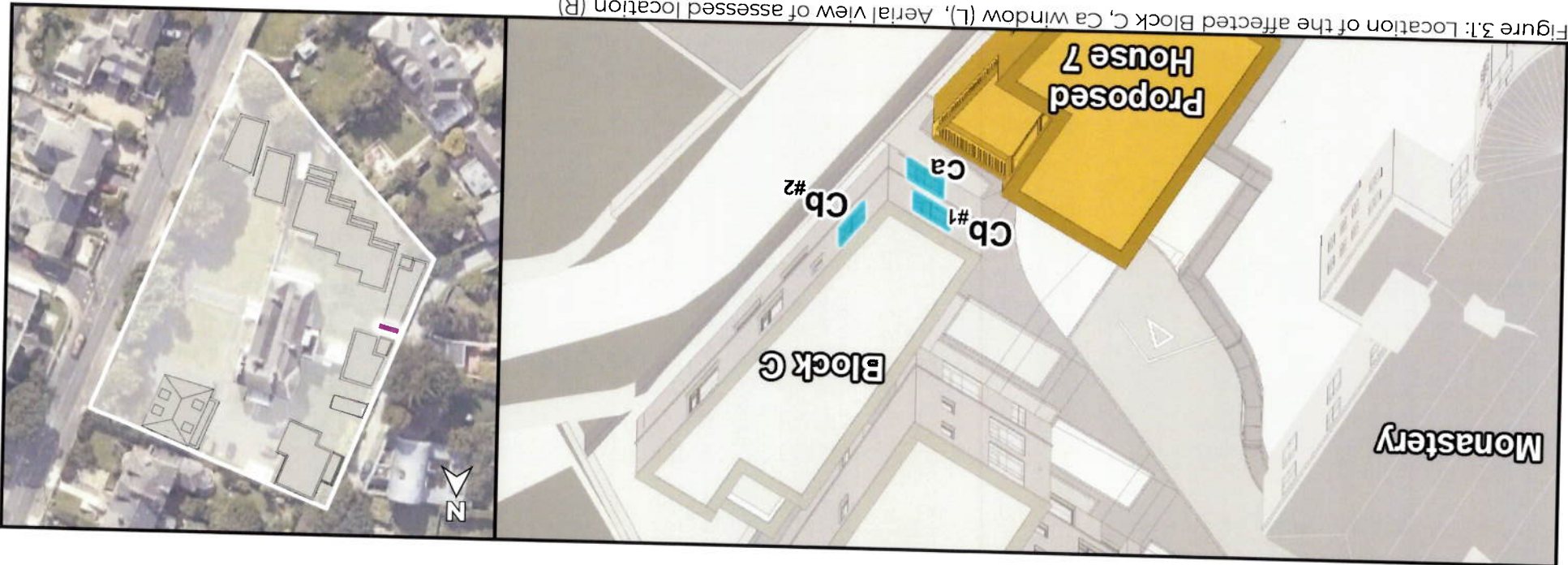


Figure 3.1: Location of the affected Block C, Ca window (L), Aerial view of assessed location (R)

As internal layout information was available for both Saint Helen's Christian Brothers Monastery and permitted Block C, following BRE methodology, the relevant rooms have also been assessed for No Sky Line (NSL) to provide further understanding of daylight distribution. All the 11 no. assessed rooms at the Monastery record 'negligible' NSL effects. At permitted Block C, the ground-floor bedroom associated with window Ca records a 'minor adverse' NSL effect, while the upper-floor bedroom records a 'negligible' effect.

The NSL results provide additional context to the VSC findings. While the ground-floor bedroom at Block C records a 'moderate adverse' VSC effect, the corresponding NSL assessment records a 'minor adverse' effect. This indicates that, while daylight availability at the window is reduced, the corresponding change in daylight distribution across the room is more limited.

To further analysis this isolated instance of non compliance, a supplementary Spatial Daylight Autonomy (SDA) assessment has also been undertaken for the affected ground-floor bedroom at Block C. Permitted Block C has been granted but has not yet been constructed. In this context, BR 209 Appendix F9(!!) recognises the use of daylight illuminance targets with the new development in place as an alternative criterion when considering loss of light to an unbuilt development. The affected bedroom achieves the applicable SDA criterion both with and without the new development.

The affected bedroom achieves the applicable SDA criterion both with and without trees represented in the analytical model, recording 57% with trees and 85% without trees. While this supplementary assessment does not replace the VSC result, it provides further context by demonstrating that the bedroom achieves the applicable daylight criterion in the proposed state, including when trees are represented within the model.

The relationship between permitted Block C and House 7 provides further context to this result. In the granted state, the area immediately adjoining House 7 and closest to Block C is already occupied by the permitted communal bin and bicycle storage structure. The proposed House 7 incorporates this area within its overall footprint, with residential accommodation extending alongside and above it.

The effect on sunlight has also been considered through the Annual and Winter Probable Sunlight Hours (APSH/WPSH) assessment. Of the receptors identified for Impact Assessment, 2 no. windows/rooms at the Saint Helen's Christian Brothers Monastery meet the applicable orientation criteria for assessment. Both record a 'negligible' level of effect for APSH and WPSH, indicating limited change to annual and winter sunlight availability at these receptors as a result of the proposed amendment.

The results of the study on VSC can be found in section A.0 on page 24. The NSL assessments can be found in section A.2 on page 27. The AP5H/WPSH results can be found in section A.3 on page 29.

3.2 Analysis of Scheme Performance Results

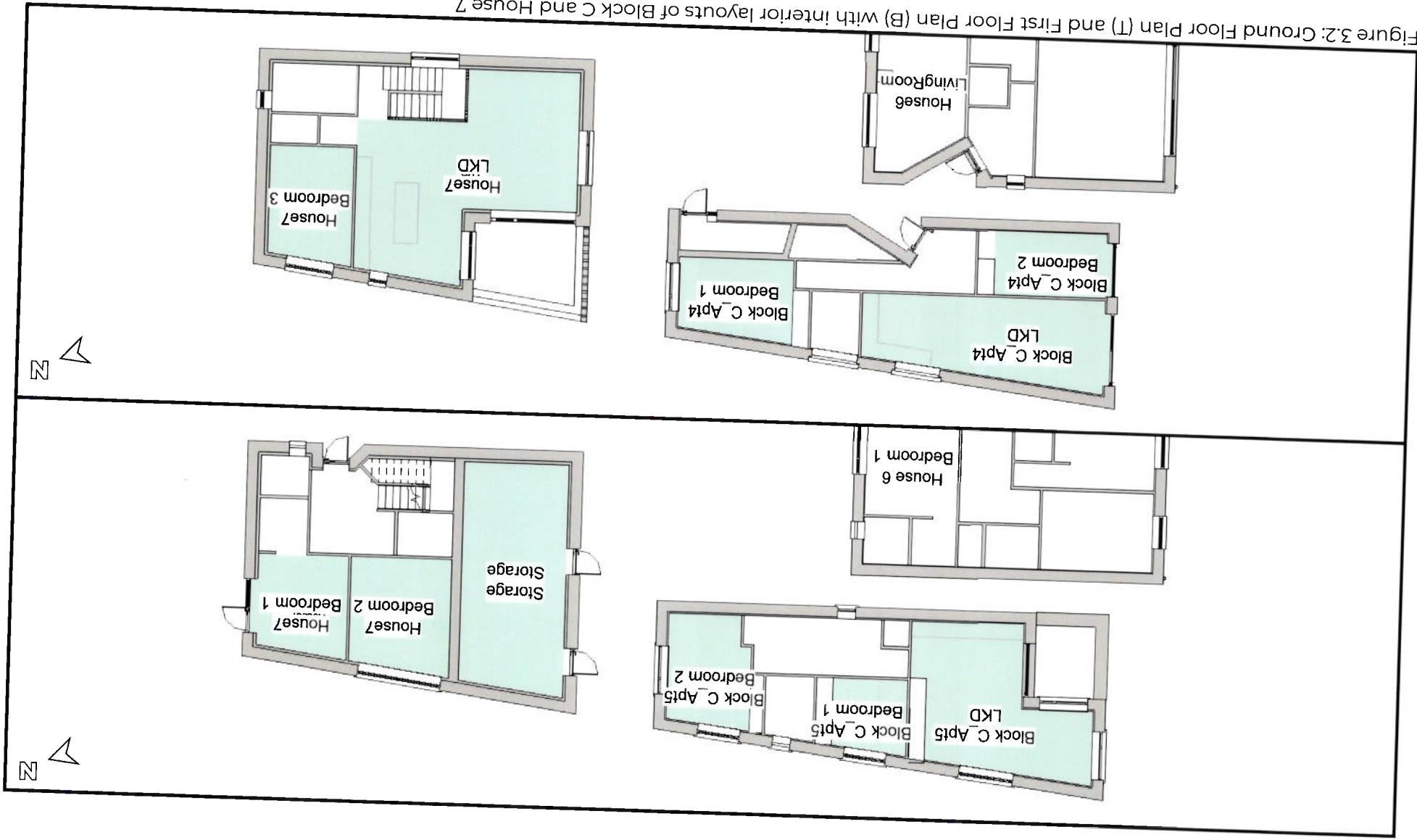
3.2.1 Spatial Daylight Autonomy (SDA)

This study has assessed the Spatial Daylight Autonomy (SDA) for all 4 no. habitable rooms within the proposed House 7 both with and without trees. This dual approach ensures a comprehensive understanding of the proposed House 7 daylight potential.

Under the criteria as set out in the BR 209, whether trees are considered or not, the SDA value in all 4 no. habitable rooms meets or exceeds the appropriate target values, which translates in a compliance rate of 100% in both scenarios.

The results can be considered in the context of the internal layout of House 7 and its relationship with the permitted Block C. At ground-floor level, the habitable rooms within House 7 are positioned away from the Block C massing, with the communal bin and bicycle storage area occupying the side of House 7 closest to Block C. This arrangement limits the influence of Block C on daylight availability within the habitable rooms of House 7, as illustrated in Figure 3.2 below.

Floor plans indicating unit numbers can be found in section C.1 on page 40. The results for the study on SDA can be seen in section C.2 on page 41.



3.2.2 Sunlight Exposure (SE)

A sunlight exposure assessment has been carried out on all 4 no. habitable rooms within the proposed House 7: the first-floor LKD and three bedrooms. As part of this assessment, surrounding trees have been incorporated into the analytical model and treated as opaque elements.

The assessments have been carried out in two states:

- All trees (evergreen and deciduous) included in the assessment model.
- Only evergreen trees included in the assessment model.

This approach provides a range of potential sunlight hours, accounting for the seasonal variability of deciduous trees and is in accordance with section C3 of the BRE Guidelines.

Using the rationale explained in section E.3 on page 51, House 7 achieves a 'high' level of sunlight exposure in both tree states and therefore meets the BRE Guidelines.

The main living space, comprising the dual-aspect first-floor LKD, receives 8.6 hours of direct sunlight on 21 March, achieving the 'high' level of sunlight exposure. The multiple aspects provided to the unit, together with its separation from surrounding buildings, provide context to the level of sunlight achieved.

No recommendation is made regarding the performance of a development as a whole for SE performance within the BRE Guidelines. However, it is the opinion of 3DDB that the proposed development performs adequately in this regard.

The results for the study on SE in the habitable rooms of the proposed units can be seen in section C.3 on page 43.

4.0 Conclusion



3D Design Bureau (3DDB) were commissioned to carry out a focused daylight assessment, sunlight assessment, and shadow study in support of the first-party appeal to An Coimisiún Pleanála in respect of the proposed amendment to House 7 at St Helen's, York Road, Dún Laoghaire.

The impact assessment for this report has quantified the effect House 7 would have on the level of daylight and sunlight received by neighbouring and permitted properties that fall under the criteria outlined in section "2.1 Impact Assessment, Window Selection Criteria" on page 9. These include: Saint Helen's Christian Brothers Monastery and permitted Block C in Figure 4.1 below.

The Impact Assessment demonstrates that the effects associated with the proposed amendment are limited. Of the 13 no. windows/rooms assessed for VSC, 12 no. record a 'negligible' effect. The single 'moderate adverse' VSC effect occurs at a ground-floor bedroom within permitted Block C. The corresponding NSL assessment records a 'minor adverse' effect, with SDA testing of that ground floor bedroom presenting as compliant, which provides more insight into the daylight distribution of this bedroom with the proposed House 7 in place. The remaining 12 no. rooms assessed for VSC & NSL, comprising the upper-floor bedroom at Block C and all assessed rooms at the Monastery, record 'negligible' effects.



Figure 4.1: Existing and permitted properties included in the impact assessment. Proposed House 7, assessed as part of the scheme performance assessment, is highlighted in yellow.

For the APPSH/WPSH assessment, 2 no. windows/rooms at the Saint Helen's Christian Brothers Monastery have been assessed, with both recording 'negligible' levels of effect for annual and winter sunlight. The results therefore indicate limited change to sunlight availability at the assessed receptors as a result of the proposed amendment.

Under Scheme Performance the assessments quantified the daylight and sunlight available within the 4 no. habitable rooms of the proposed House 7. All rooms meet the BR 209 SDA target values both with and without trees, representing a 100% compliance rate. For sunlight, House 7 meets the BR 209 recommendation in both tree states, with the unit achieves a 'high' level of sunlight exposure.

Overall, the assessment demonstrates that the proposed amendment to House 7 performs well in terms of its own daylight and sunlight provision, while resulting in a limited and a localised single effect within the surrounding permitted context.

Appendix - Results

Appendix Contents

A.0	Impact Assessment Results	24
	A.1 Effect on Vertical Sky Component (VSC)	24
	A.2 Effect on No Sky Line (NSL)	27
	A.3 Effect on Annual/Winter Probable Sunlight Hours (APSH/WPSH)	29
B.0	Shadow Studies	31
	B.1 Shadow Study 21 March	31
	B.2 Shadow Study 21 June	34
	B.3 Shadow Study 21 December	38
C.0	Scheme Performance	40
	C.1 Proposed House 7 Floor Plans	40
	C.2 Spatial Daylight Autonomy (SDA) in Proposed Units	41
	C.3 Sunlight Exposure (SE) in Proposed Units	43
D.0	Supplementary Study Results	45
	D.1 SDA study, under the I.S. EN 17037 criteria	45
	D.2 Supplementary No Sky Line (NSL) assessment in proposed units.	47
E.0	Glossary	49
F.0	Guidelines / Standards	52

Assessment criteria and detailed analysis of results can be found in the accompanying report.

A.0 Impact Assessment Results

A.1 Effect on Vertical Sky Component (VSC)

Below is an example of the table used to describe the effect on VSC.

Table Example: A.1 - VSC Impact Assessment						
A	B	C	D	E	F	G
Window Number	Granted VSC Value	Proposed VSC Value	Ratio of Proposed VSC to Granted VSC	Recommended Minimum VSC	Level of Compliance with BRE Guidelines	Effect of Proposed Development

A: Window Number
The number in this column will identify the assessed window. All windows are represented visually in the corresponding figure.

B: Granted VSC Value

The *Granted VSC Value* represents the VSC value of the assessed window which is calculated in the granted model state (as explained in the "Building the Model States" on page 11).

C: Proposed VSC Value

The *Proposed VSC Value* represents the VSC value of the assessed window which is calculated in the proposed model state (as explained in the "Building the Model States" on page 11).

D: Ratio of Proposed VSC to Granted VSC

This column expresses the ratio of change between the Granted VSC value and the proposed VSC value. Section 2.2.23 of the BRE Guidelines recommend that if the proposed value is less than 0.8 times the baseline value, then the reduction in daylight is more likely to be perceptible.

E: Recommended minimum VSC

The *BRE Target Value* for each window has been set according to section 2.2.23 of the BRE Guidelines. The Guidelines state that a proposed development could possibly have a noticeable effect on the daylight received by an existing window, if the VSC value **both** drops below the guideline value of 27% **and** the VSC value is less than 0.8 times the baseline value.

Therefore, to determine the *recommended minimum Value*, 80% of the *Baseline VSC value* has been calculated. If this value is above the 27% threshold, a target value of 27% will be applied. If 80% of the baseline value is below 27%, then 80% of the baseline value is the appropriate target value.

F: Level of Compliance with the BRE Guidelines

This column states the compliance of the *Proposed VSC Value* with the *recommended minimum VSC* as per the BRE Guidelines. In essence, it shows whether or not the assessed window would experience a perceptible level of impact. If the window complies with the BRE Guidelines this cell will state "*BRE Compliant*". If the window does not meet the criteria as set out in the BRE Guidelines, a percentage of compliance with the *recommended minimum* will be stated.

G: Effect of Proposed Development

The levels of effect in this column describe the effect an assessed window will experience, based on its compliance with the *BRE Target Value*. A full list of definitions and a numerical rationale for each can be found in the section "*Definition of Effects*" on page 50.

It should be noted that the figures displayed in the table of results have been rounded off. A manual calculation of these figures may yield a negligible difference and should not be considered an error.

A.1.1 Saint Helen's Christian Brothers Monastery

Window Number	Granted VSC Value	Proposed VSC Value	Ratio of Proposed VSC to Granted VSC	Recommended minimum VSC*	Level of Compliance with BRE Guidelines	Effect of Proposed Development**
Moh#1	25.28%	25.28%	1.00	20.22%	BRE Compliant	-
Moh#2	32.75%	32.02%	0.98	26.20%	BRE Compliant	-
Moh#3	31.93%	30.70%	0.96	25.54%	BRE Compliant	-
Moh#	30.03%	29.37%	0.98	24.02%	BRE Compliant	-
MO!	20.20%	19.57%	0.97	16.16%	BRE Compliant	Negligible
MOk	20.83%	20.28%	0.97	16.66%	BRE Compliant	Negligible
MOl	29.33%	28.63%	0.98	23.46%	BRE Compliant	Negligible
Mom#1	29.21%	28.68%	0.98	23.37%	BRE Compliant	Negligible
Mom#2	23.92%	23.92%	1.00	19.14%	BRE Compliant	-
Mom#	26.57%	26.30%	0.99	21.25%	BRE Compliant	-
M1h#1	36.76%	36.76%	1.00	27.00%	BRE Compliant	Negligible
M1h#2	36.23%	36.23%	1.00	27.00%	BRE Compliant	-
M1h#	36.38%	36.38%	1.00	27.00%	BRE Compliant	-
M1!	24.20%	24.20%	1.00	19.36%	BRE Compliant	Negligible
M1k	26.54%	26.54%	1.00	21.23%	BRE Compliant	Negligible
M1l	34.29%	34.29%	1.00	27.00%	BRE Compliant	Negligible
M1m#1	34.08%	34.08%	1.00	27.00%	BRE Compliant	Negligible
M1m#2	31.20%	31.20%	1.00	24.96%	BRE Compliant	-
M1m#	32.64%	32.64%	1.00	26.11%	BRE Compliant	-
Mbc#1	17.50%	17.50%	1.00	14.00%	BRE Compliant	Negligible
Mbc#2	27.69%	26.14%	0.94	22.15%	BRE Compliant	-
Mbc#3	28.26%	25.64%	0.91	22.61%	BRE Compliant	-
Mbc#	22.79%	21.73%	0.95	18.23%	BRE Compliant	Negligible

Table No. A.11 - VSC Results:

* Section 2.2.23 of the BRE Guidelines states that in order for a proposed development to have a noticeable effect on the VSC of an existing window, the value needs to both drop below the stated target value of 27% and be less than 0.8 times the baseline value.

** For the interpretation of level of effects please refer to "E.2 Definition of Effects" on page 50.

If it can be determined or reasonably assumed that multiple windows serve the same room, each individual window is labelled with a hash-tag and a serial number (e.g. Xa#1, Xa#2). Each window is assessed, and a weighted average is calculated to determine the level of effect on the room. Rooms are identified with a hash-tag at the end (e.g. Xa#). In such cases, the effect of proposed development column will display a dash (-) for the individual windows, with the overall level of effect indicated in the row corresponding to the room.

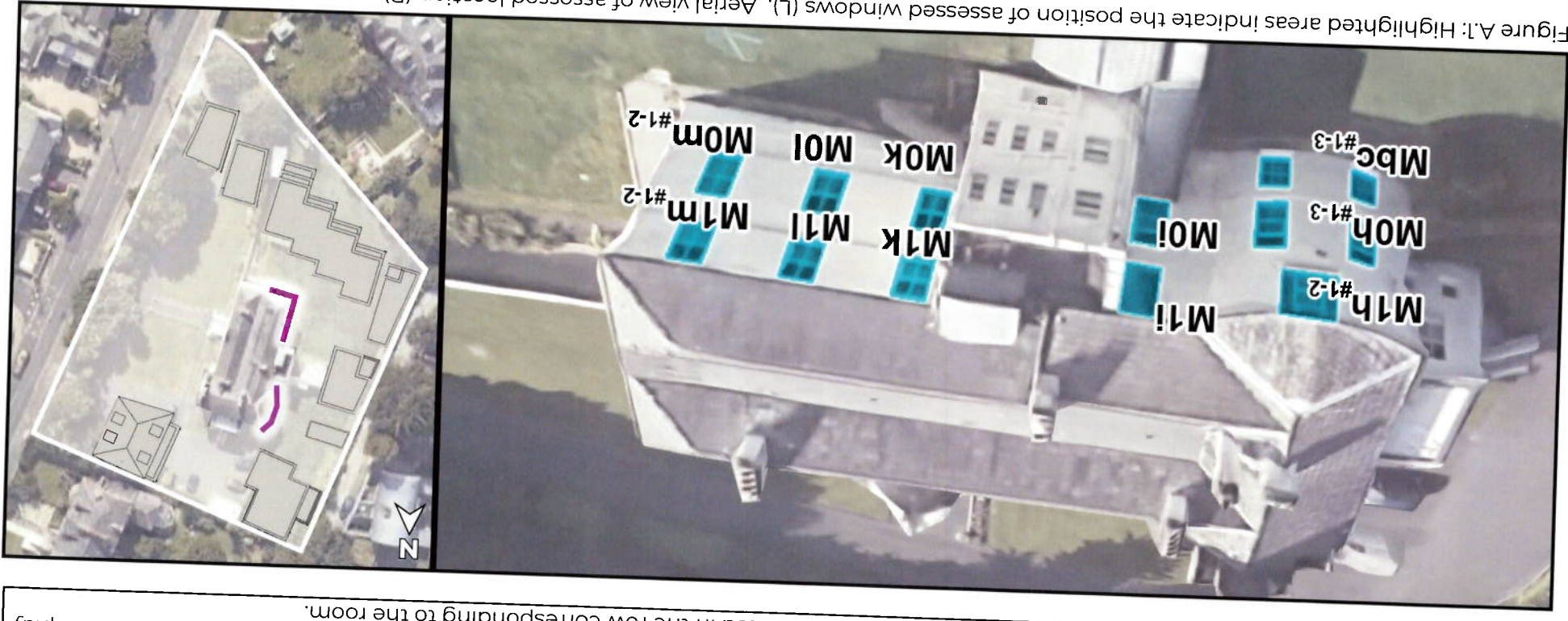


Figure A.1: Highlighted areas indicate the position of assessed windows (L), Aerial view of assessed location (R)

A.1.2 Permitted Block C

Table No. A.1.2 - VSC Results:						
Window Number	Granted VSC Value	Proposed VSC Value	Ratio of Proposed VSC to Granted VSC	Recommended minimum VSC*	Level of Compliance with BRE Guidelines	Effect of Proposed Development**
Ca	21.85%	11.48%	0.53	17.48%	66%	Moderate Adverse
Cb#1	28.31%	25.63%	0.91	22.65%	BRE Compliant	-
Cb#2	30.19%	30.19%	1.00	24.15%	BRE Compliant	-
Cb#	29.19%	27.76%	0.95	23.35%	BRE Compliant	Negligible

* Section 2.2.23 of the BRE Guidelines states that in order for a proposed development to have a noticeable effect on the VSC of an existing window, the value needs to both drop below the stated target value of 27% **and** be less than 0.8 times the baseline value.

** For the interpretation of level of effects please refer to "E.2 Definition of Effects" on page 50.

If it can be determined or reasonably assumed that multiple windows serve the same room, each individual window is labelled with a hash-tag and a serial number (e.g. Xa#1, Xa#2). Each window is assessed, and a weighted average is calculated to determine the level of effect on the room. Rooms are identified with a hash-tag at the end (e.g. Xa#). In such cases, the 'effect of proposed development' column will display a dash (-) for the individual windows, with the overall level of effect indicated in the row corresponding to the room.

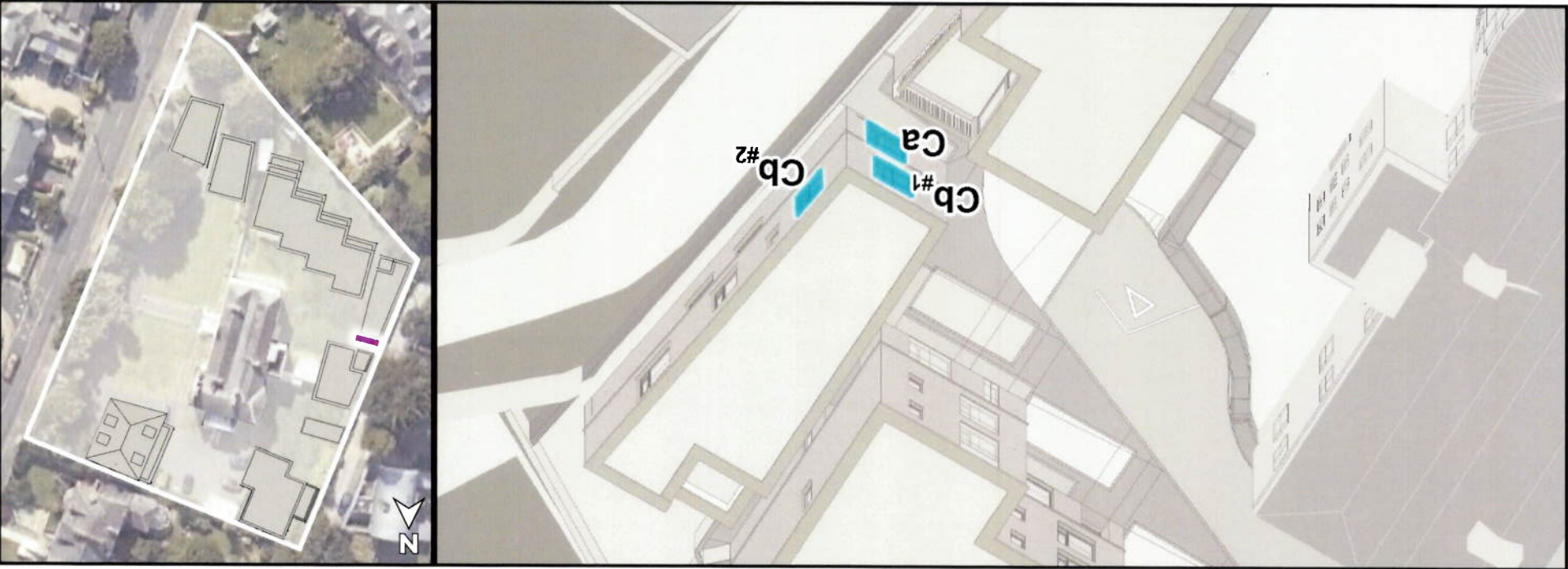


Figure A.2: Highlighted areas indicate the position of assessed windows (L), Aerial view of assessed location (R)

A.2 Effect on No Sky Line (NSL)

Below is an example of the table used to describe the effect on NSL.

Table Example. A.2 - NSL Impact Assessment						
A	B	C	D	E	F	G
Room Number	Granted NSL Value	Proposed NSL Value	Ratio of Proposed NSL to Granted NSL	Recommended minimum NSL	Level of Compliance with BRE Guidelines	Effect of Proposed Development

A: Room Number
The number in this column will identify the assessed room. The relevant façade of the assessed rooms are represented visually in the corresponding figure.

B: Granted NSL Value

The *Baseline NSL Value* represents the NSL value of the assessed room which is calculated in the granted model state (as explained in the "Building the Model States" on page 11).

C: Proposed NSL Value

The *Proposed NSL Value* represents the NSL value of the assessed room which is calculated in the proposed model state (as explained in the "Building the Model States" on page 11).

D: Ratio of Proposed NSL to Baseline NSL

This column expressed the ratio of change between the baseline NSL value and the proposed NSL value. The BRE Guidelines recommend that if the proposed value is less than 0.8 times the baseline value, then the reduction in daylight is more likely to be perceptible.

E: Recommended minimum NSL

The *BRE Target Value* for each room has been set according to the BRE Guidelines. The Guidelines state that a proposed development could possibly have a noticeable effect on the daylight received by an existing room, if the NSL value drops below the guideline value of 80% **and** the NSL value is less than 0.8 times the baseline value.

F: Level of Compliance with the BRE Guidelines
Therefore, to determine the *recommended minimum Value*, 80% of the *Baseline NSL value* has been calculated. If this value is above the 80% threshold, then 80% of the baseline value is the appropriate target value.

This column states the compliance of the *Proposed NSL Value* with the *recommended minimum NSL* as per the BRE Guidelines. In essence, it shows whether or not the assessed room would experience a perceptible level of impact. If the room complies with the BRE Guidelines this cell will state "*BRE Compliant*". If the room does not meet the criteria as set out in the BRE Guidelines, a percentage of compliance with the *recommended minimum* will be stated.

G: Effect of Proposed Development

The levels of effect in this column describe the effect an assessed room will experience, based on its compliance with the *BRE Target Value*. A full list of definitions and a numerical rationale for each can be found in the section "Definition of Effects" on page 50.

It should be noted that the figures displayed in the table of results have been rounded off. A manual calculation on these figures may yield a negligible difference and should not be considered an error.



A.2.1 Saint Helen's Christian Brothers Monastery and Block C - Effect on No Sky Line (NSL)

Table No. A.2.1 - NSL Impact Assessment						
Room Number	Granted NSL Value	Proposed NSL Value	Ratio of Proposed NSL to Granted NSL	Recommended minimum NSL	Level of Compliance with BRE Guidelines	Effect of Proposed Development
M0h#	97.21%	97.18%	1.00	77.77%	BRE Compliant	Negligible
M0i#	91.68%	91.65%	1.00	73.34%	BRE Compliant	Negligible
M0k#	87.57%	87.56%	1.00	70.06%	BRE Compliant	Negligible
M0i#	94.95%	94.95%	1.00	75.96%	BRE Compliant	Negligible
M0m#	97.44%	97.44%	1.00	77.95%	BRE Compliant	Negligible
M1h#	97.08%	97.08%	1.00	77.66%	BRE Compliant	Negligible
M1i#	98.31%	98.31%	1.00	78.65%	BRE Compliant	Negligible
M1k#	94.07%	94.07%	1.00	75.26%	BRE Compliant	Negligible
M1i#	94.79%	94.79%	1.00	75.83%	BRE Compliant	Negligible
M1m#	97.34%	97.34%	1.00	77.87%	BRE Compliant	Negligible
Mbc#	91.68%	91.68%	1.00	73.34%	BRE Compliant	Negligible
Ca#	99.65%	63.96%	0.64	79.72%	80%	Minor Adverse
Cb#	97.76%	97.76%	1.00	78.21%	BRE Compliant	Negligible

* The BRE Guidelines state that in order for a proposed development to have a noticeable effect on the daylight received by an existing room, the value needs to both drop below the guideline value of 80% **and** be less than 0.8 times the baseline value.

** For the interpretation of level of effects please refer to "E.2 Definition of Effects" on page 50.

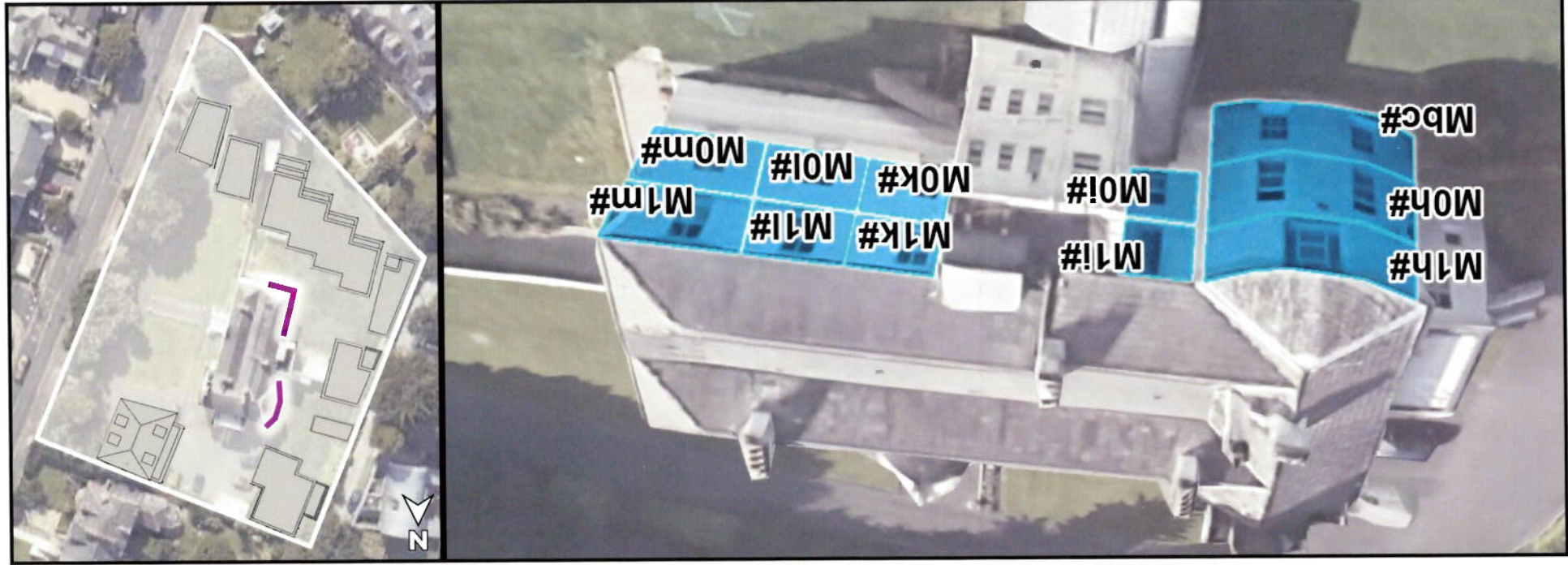


Figure A.4: Highlighted areas indicate the position of assessed windows (L), Aerial view of assessed location (R)

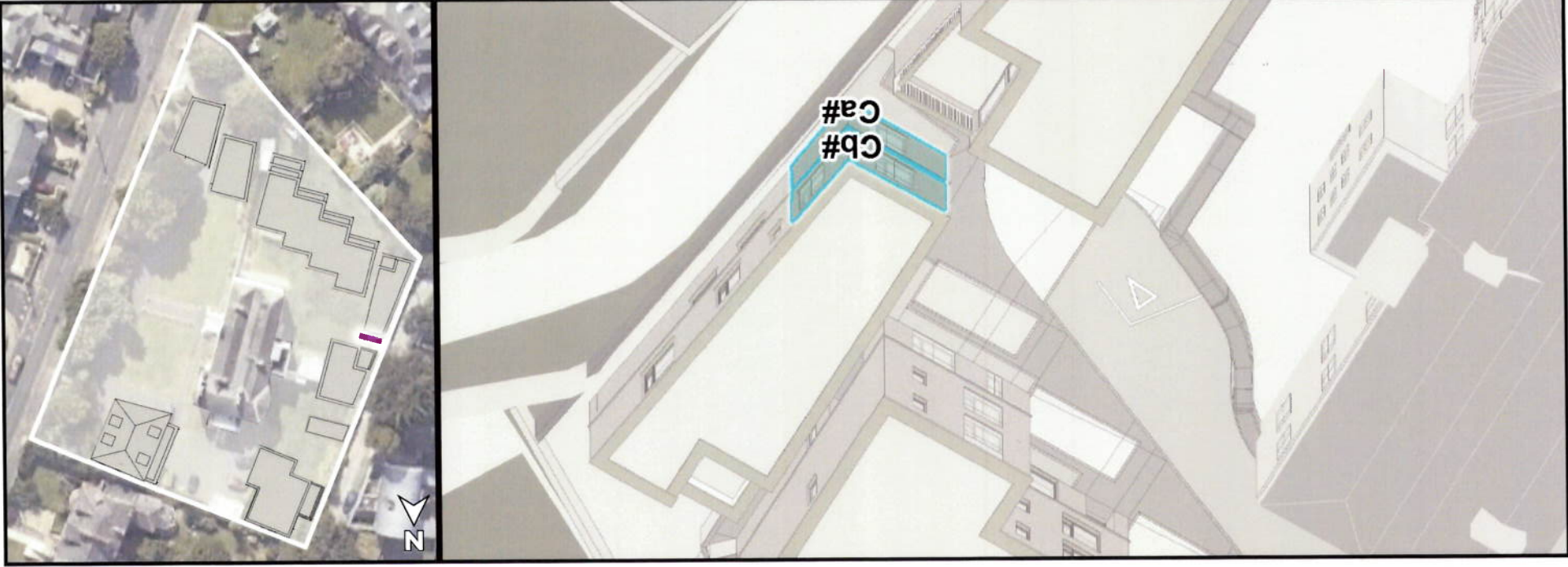


Figure A.3: Highlighted areas indicate the position of assessed windows (L), Aerial view of assessed location (R)

A.3 Effect on Annual/Winter Probable Sunlight Hours (APSH/WPSH)

Below is an example of the table used to describe the effect to the APSH/WPSH of existing windows / rooms.

Table Example. A.3 - APSH/WPSH Impact Assessment						
A	B	C	D	E	F	G
Window / Room Number	Granted APSH/WPSH	Proposed APSH/WPSH	Ratio of Granted APSH/ WPSH	Recommended Minimum APSH/WPSH	Level of Compliance with BRE Guidelines	Effect of Proposed Development

A: Window / Room Number

The number in this column will identify the assessed window / room. All windows / rooms are represented visually in the corresponding figure.

B: Granted APSH/WPSH

The *Granted APSH/WPSH Value* represents the percentage of the probable sunlight hours that the assessed window / room can receive, calculated in the granted model state (as explained in the "Building the Model States" on page 11). The *annual* and *winter* assessments will be represented in separate tables.

C: Proposed APSH/WPSH

The *Proposed APSH/WPSH Value* represents the percentage of probable sunlight hours that the assessed window / room can receive, calculated in the proposed model state (as explained in the "Building the Model States" on page 11). **D: Ratio of Proposed to Granted APSH/WPSH**
This column expresses the ratio of change between the granted APSH/WPSH value and the proposed APSH/WPSH value. Section 3.2.13 of the BRE Guidelines recommends that if the proposed value is less than 0.8 times the baseline value, then the reduction to sunlight is more likely to be perceptible.

E: Recommended Minimum APSH/WPSH

The *BRE Target Value* for each window / room has been set according to section 3.2.13 of the BRE Guidelines. The Guidelines state that a proposed development could possibly have a noticeable effect on the sunlight received by an existing window / room, if the APSH value drops below the annual (25%) or WPSH value below the winter (5%) guidelines; **and** the APSH/WPSH value is less than 0.8 times the baseline value; **and** there is a reduction of more than 4% to the APSH. Therefore, to determine the *recommended minimum APSH Value* for the annual study, 80% of the baseline APSH value has been calculated. If this value is above the 25% threshold, a target value of 25% will be applied. If 80% of the baseline value is below 25%, then 80% of the baseline value is the appropriate target value. In circumstances where the baseline value is low, the recommended minimum may be the baseline value minus 4% in line with the full BRE criteria. To determine the *recommended minimum WPSH Value* for the winter study, 80% of the *Granted winter APSH value* has been calculated. If this value is above the 5% threshold, a target value of 5% will be applied. If 80% of the granted value is below 5%, then 80% of the baseline value is the appropriate target value.

F: Level of Compliance with BRE Guidelines

This column states the compliance of the *Proposed APSH/WPSH Value* with the *recommended minimum APSH/WPSH* as per the BRE Guidelines. In essence, it shows whether or not the assessed window / room would experience a perceptible level of impact. If the window / room complies with the BRE Guidelines this cell will state "*BRE Compliant*". If the window / room does not meet the criteria as set out in the BRE Guidelines, a percentage of compliance with the *recommended minimum* will be stated.

G: Effect of Proposed Development

The levels of effect in this column describe the effect an assessed window / room will experience, based on its compliance with the *BRE Target Value*. A full list of definitions and a numerical rationale for each can be found in the section "*Definition of Effects*" on page 50. It should be noted that the figures displayed in the table of results have been rounded off. A manual calculation of these figures may yield a negligible difference and should not be considered an error.

A.3.1 Saint Helen's Christian Brothers Monastery - Annual Probable Sunlight Hours

Table No. A.3.1 - APSH Results:						
Window / Room Number	Baseline APSH	Proposed APSH	Ratio of Proposed APSH to Baseline APSH	Recommended minimum APSH*	Level of Compliance with BRE Guidelines	Effect of Proposed Development**
M0m#	65.28%	65.28%	1.00	25.00%	BRE Compliant	Negligible
M1m#	78.66%	78.66%	1.00	25.00%	BRE Compliant	Negligible

A.3.2 Saint Helen's Christian Brothers Monastery - Winter Probable Sunlight Hours

Table No. A.3.2 - WPSH Results:						
Window / Room Number	Baseline WPSH	Proposed WPSH	Ratio of Proposed WPSH to Baseline WPSH	Recommended minimum WPSH*	Level of Compliance with BRE Guidelines	Effect of Proposed Development**
M0m#	12.41%	12.41%	1.00	5.00%	BRE Compliant	Negligible
M1m#	23.02%	23.02%	1.00	5.00%	BRE Compliant	Negligible

* Section 3.2 of the BRE Guidelines states that in order for a proposed development to have a noticeable effect on the APSH/WPSH of an existing window / room, the value needs to drop below the stated target value of 25% (annual) / 5% (winter) **and** be less than 0.8 times the baseline value **and** it has to have a reduction in sunlight received over the whole year greater than 4% of annual probable sunlight hours.

** For the interpretation of level of effects please refer to "E.2 Definition of Effects" on page 50.

† Windows that have a reduction of less than 4% in the APSH assessment may be indicated as "n.a." in the WPSH assessment regardless of values. # If it can be determined or reasonably assumed that multiple windows are servicing the same room, APSH/WPSH has been calculated for the room rather than the individual windows.

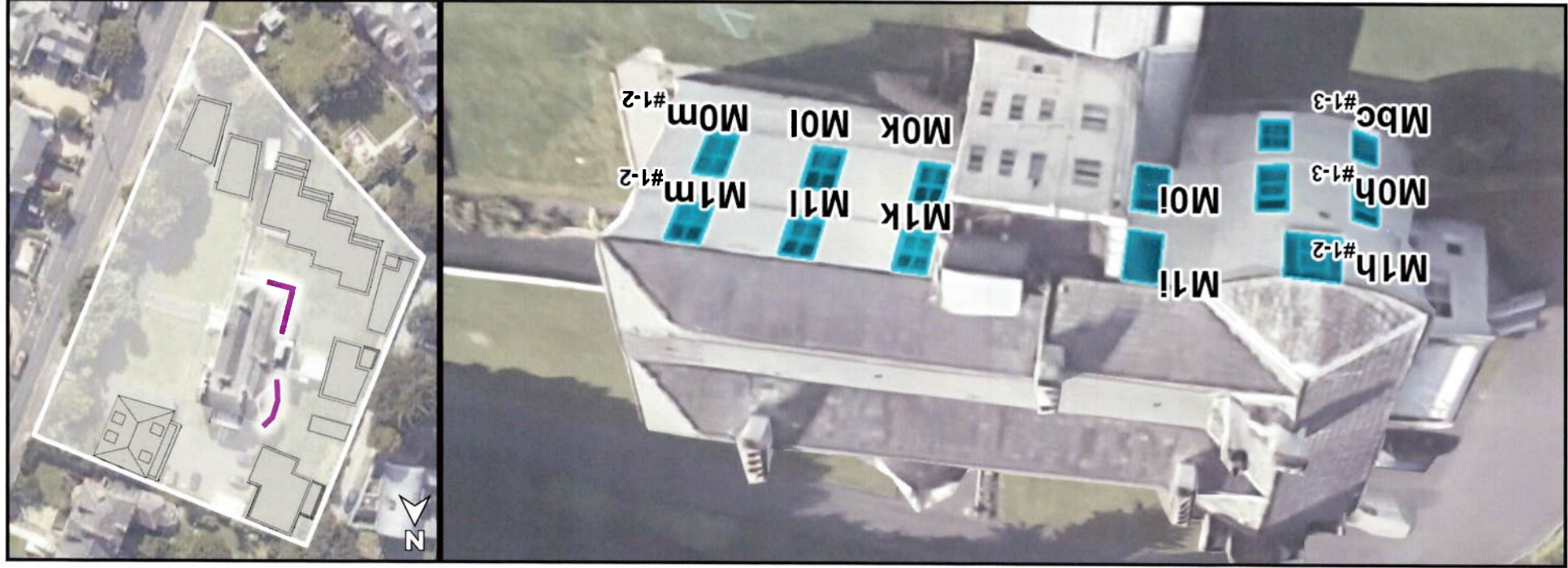


Figure A.5: Highlighted areas indicate the position of assessed windows (L), Aerial view of assessed location (R)



March 21st 11:00		March 21st 12:00		March 21st 13:00		March 21st 14:00	
Proposed							

March 21st 15:00

March 21st 16:00

March 21st 17:00

March 21st 18:00

Granted



Proposed



March 21st
Sunrise 6:32 | Sunset 18:32

Project: Proposed Res Dev House 7,
St Helen's York Road, Dun Laoghaire
Applicant: RRYRDL Ltd

Permitted
(D25A/0284/WEB)

Proposed

June 21st 10:00

June 21st 11:00

June 21st 12:00

June 21st 13:00

Granted



Proposed



June 21st
Sunrise 5:04 | Sunset 21:49

Project: Proposed Res Dev House 7,
St Helen's York Road, Dun Laoghaire

Applicant: RRYRDL Ltd

Permitted
(D25A/0284/WEB)

Proposed

Granted



Proposed



June 21st
Sunrise 5:04 | Sunset 21:49

Applicant: RRYRDL Ltd

Project: Proposed Res Dev House 7,
St Helen's York Road, Dun Laoghaire

Permitted
(D25A/0284/WEB)

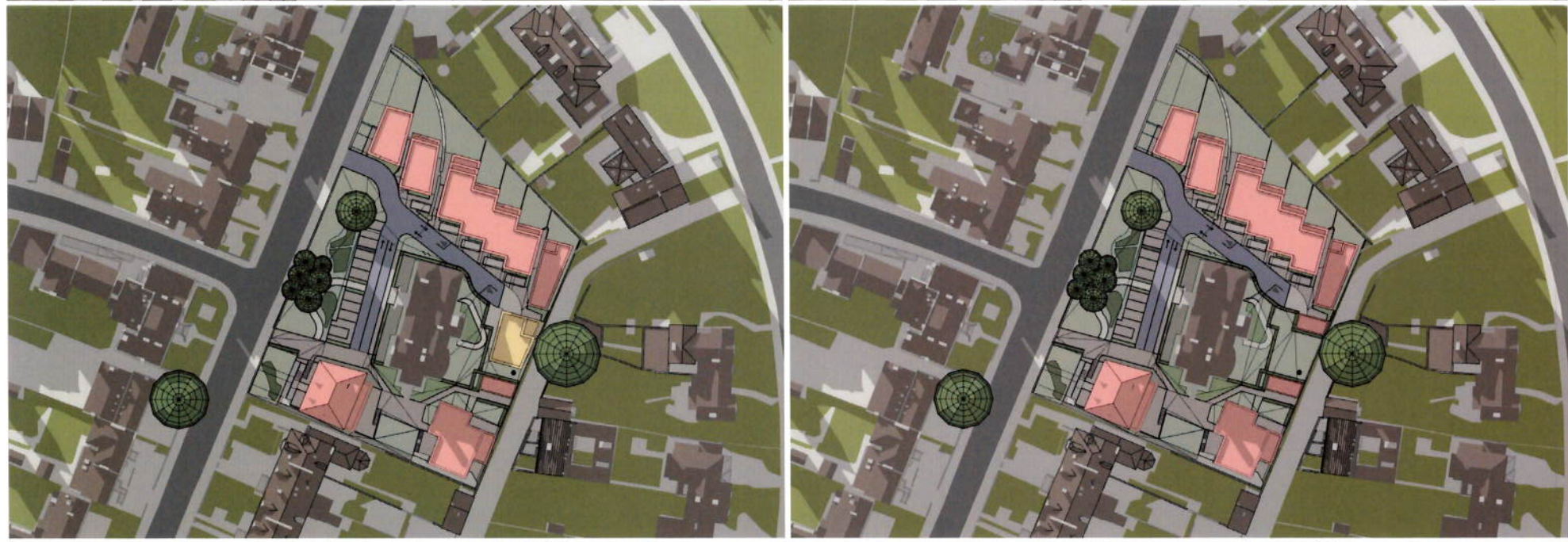
Proposed



3D DESIGN BUREAU



December 21st 9:00



December 21st 10:00



December 21st 11:00



December 21st 12:00

B.3	Shadow Study 21 December	December 21st Sunrise 8:45 Sunset 16:00	Applicant: RRYRDL Ltd	 3D DESIGN BUREAU
	St Helen's York Road, Dun Laoghaire	Permitted (D25A/0284/WEB)	Proposed	



An aerial view of a building complex, likely a school or institutional building, featuring several large red-roofed structures and green trees. The building is situated in a residential area with other houses visible in the background.

An aerial photograph of a proposed development site. The site is a large, irregularly shaped plot of land, mostly green, located between residential areas. The proposed development is outlined in black and includes several red-shaded rectangular buildings of varying sizes, a central yellow-shaded rectangular building, and a large central open area. A blue line, possibly a stream or a path, winds through the site. There are three circular green areas, likely representing trees or landscaped zones, and a cluster of small green circles representing a parking area. The surrounding area includes residential houses with brown roofs and green lawns, and a road runs along the top and right edges of the site.

An aerial view of a residential development. A central green space is divided by a winding path. Several buildings are visible, some with red roofs. There are three circular green spaces with trees. The surrounding area is a mix of green and brown, indicating a mix of vegetation and built-up areas.

An aerial photograph of a proposed development site. The site is a large, irregularly shaped plot of land, outlined in black. Within the site, several buildings are shown in red, and a central area is colored yellow. A blue line, possibly a path or drainage system, winds through the site. The surrounding area includes residential buildings with brown roofs, green lawns, and a road. Two circular green structures, possibly ventilation stacks or trees, are visible on the left side of the site.

An aerial view of a residential development. The central area features a large green space with a winding path and several trees. The surrounding area is filled with houses and streets, with some buildings highlighted in red.

An aerial view of a residential development. The central area features a winding water feature, possibly a stream or canal, surrounded by green spaces and trees. Several buildings are visible, including a large central structure and smaller houses. The surrounding area is a mix of green fields and residential buildings.

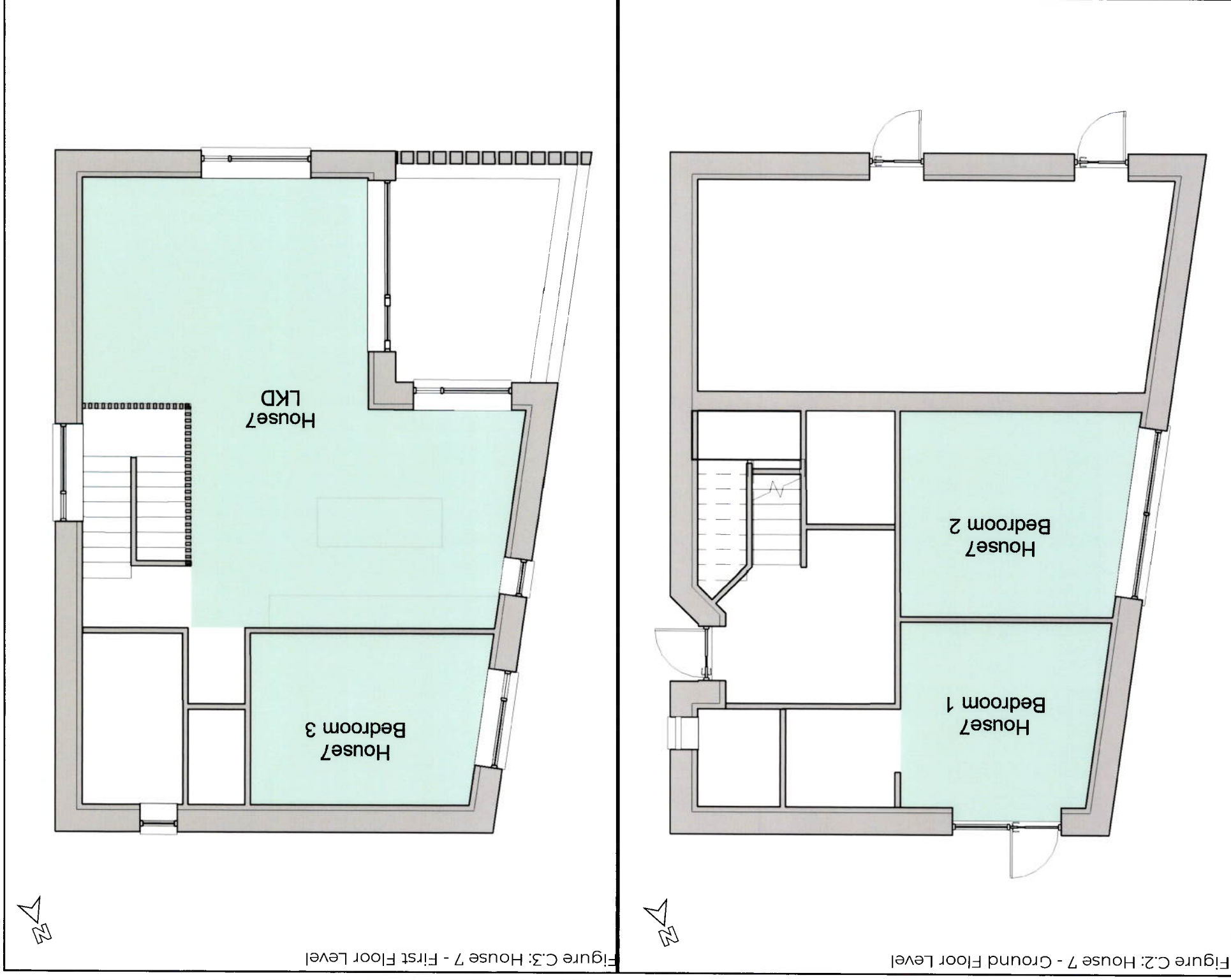
An aerial photograph of a proposed development site. The site is a triangular plot bounded by a road on the left and a curved road on the right. The proposed development is shown in red and orange, featuring a large central building, several smaller structures, and a parking area. The surrounding area includes existing residential buildings, green spaces, and a road network. Three circular green areas, likely representing trees or landscaping, are marked on the site plan.

An aerial photograph of a residential neighborhood. A central area is outlined in black, indicating the proposed development site. This site includes a large, irregularly shaped building footprint with several red-roofed sections, a yellow-roofed section, and a brown-roofed section. There are also green spaces with trees and a blue area that might be a pond or a large lawn. Surrounding this central site are various existing houses with brown roofs and green lawns. A road runs along the top and right sides of the site.

Proposed

C.0 Scheme Performance

C.1 Proposed House 7 Floor Plans



C.2 Spatial Daylight Autonomy (SDA) in Proposed Units

Below is an example of the table used to describe the spatial daylight autonomy results in proposed units.

Table Example. C.2 - Scheme Performance SDA					
A		B		C	D
Unit Number	Room Description	Target Lux*	Without Trees		E
			% of area above target Lux* (recommendation ≥50%)		With Trees
F		Compliance with BR 209 Criteria			

This column identifies the assessed unit. All unit numbers are determined by the architect's drawings, unless otherwise stated.

B: Room Description

Room Description details which room in the unit has been assessed, e.g. bedroom, LKD, etc.

C: Target Lux

Under BR 209 the appropriate target lux levels to be achieved across 50% of the working plane of a room differ depending on the room type. Kitchens have a target lux of 200, living rooms have a target lux of 150 and bedrooms have a target lux of 100. In a room providing more than one function, such as an LKD, the higher target value should be taken i.e. 200 Lux.

D: % of area above target Lux (Without Trees)

BR 209 recommends target lux levels to be achieved across at least 50% of the working plane for at least half the daylight hours. The target values differ depending on the room function, 200 lux for kitchens, 150 lux for Living Rooms or 100 lux for Bedrooms.

This column states percentage of the working plane of the assessed room that is capable of receiving more than the appropriate target lux for at least half the daylight hours with trees excluded from the analytical model. The figures shown in this column should be considered part of a supplementary study that helps identify if trees are having an effect on daylight within the proposed units.

E: % of area above target Lux (With Trees)

BR 209 recommends target lux levels to be achieved across at least 50% of the working plane for at least half the daylight hours. The target values differ depending on the room function, 200 lux for kitchens, 150 lux for Living Rooms or 100 lux for Bedrooms.

This column states percentage of the working plane of the assessed room that is capable of receiving more than the appropriate target lux for at least half the daylight hours with the foliage of deciduous trees varied to account for summer and winter conditions, i.e. full leaf and bare branch.

F: Compliance with BR 209 Criteria

This column states if the assessed room achieves the recommended level of daylight as per BR 209 with consideration to the various tree states.

If the target lux level is achieved across at least 50% of the working plane, for half the daylight hours, both with and without trees, this column will state: 'Compliant';

If the target lux level is not achieved across at least 50% of the working plane, for half the daylight hours, both with and without trees, this column will state: 'Non-compliant';

If the target lux level is achieved across at least 50% of the working plane, for half the daylight hours, without trees but is not achieved with trees, this column will state: 'Trees affecting compliance';

Compliance rates will be stated for SDA, both with and without trees.

It should be noted that the figures displayed in the table of results have been rounded off. A manual calculation of these figures may yield a negligible difference and should not be considered an error.

C.2.1 SDA Results: House 7

Table No. C.2.1 - SDA Results:					
Unit Number	Room Description	Target Lux*	% of area above target Lux* (recommendation ≥50%)		Compliance with BR 209 Criteria*
			Without Trees***	With Trees**	
House7	LKD	200	100%	100%	Compliant
House7	Bedroom 1	100	100%	97%	Compliant
House7	Bedroom 2	100	100%	100%	Compliant
House7	Bedroom 3	100	100%	100%	Compliant

* For information regarding the criteria under the various guidelines including target Lux please refer to section 2.5.1 on page 16.

** Under the BR 209 study the SDA has been calculated with indicative trees represented accounting for annual foliage.

*** The SDA assessment without trees indicates the level of daylight within the proposed development when trees are not included in the analytical model. This study provides an understanding of how trees affect daylight within the proposed development.

The SDA circa compliance rates across the assessed units can be found in section 3.2.1 on page 20.

For floor plans of the assessed units please refer to section C.1 on page 40.

C.3 Sunlight Exposure (SE) in Proposed Units

Below is an example of the table used to describe the SE performance of proposed habitable rooms.

Table Example. C.3 - Scheme Performance Sunlight Exposure								
Unit Number		Room Description	Deciduous Trees as Opaque Objects		Without Deciduous Trees			
			C	D	E	F	G	H
			SE Hours on March 21st	Level of SE on March 21st	Unit compliance based on highest performing room	SE Hours on March 21st	Level of SE on March 21st	Unit compliance based on highest performing room

A: Unit Number
This column identifies the assessed unit. All unit numbers are determined by the architect's drawings, unless otherwise stated.

B: Room Description

Room Description details which room of the unit has been assessed, e.g. bedroom, living room, etc.

C: SE Hours on March 21st (Deciduous Trees as Opaque Objects)

This column will state the number of hours the assessed room can expect to receive on March 21st with the assessment carried out with deciduous trees as opaque objects.

D: Level of SE on March 21st (Deciduous Trees as Opaque Objects)

BR 209 recommends a minimum sunlight exposure of 1.5 hours for a proposed unit with preference given to main living rooms. BR 209 categorises sunlight exposure as minimum, medium and high, this column will categorise the level of sunlight exposure with deciduous trees as opaque objects based on the following:

- Less than 1.5 hours: *Below minimum*,
- Between 1.5 hours and 3 hours: *Minimum*
- Between 3 hours and 4 hours: *Medium*
- At least 4 hours: *High*

E: Unit compliance based on highest performing room (Deciduous Trees as Opaque Objects)

A proposed unit is considered to be compliant provided any habitable room within the unit is capable of receiving at least 1.5 hours of sunlight on the assessment date. This column will identify the highest performing room within a unit and state compliance for the associated unit based on that room with the assessment carried out with deciduous trees as opaque objects.

Typically unit compliance will be stated for the best performing room per unit only, with lesser performing rooms indicated with a dash (-).

F: SE Hours on March 21st (Without Deciduous Trees)

This column will state the number of hours the assessed room can expect to receive on March 21st with the assessment carried out without deciduous trees.

G: Level of SE on March 21st (Without Deciduous Trees)

BR 209 recommends a minimum sunlight exposure of 1.5 hours for a proposed unit with preference given to main living rooms. BR 209 categorises sunlight exposure as minimum, medium and high, this column will categorise the level of sunlight exposure without deciduous trees using the same criteria as the study with deciduous trees as opaque objects.

H: Unit compliance based on highest performing room (Without Deciduous Trees)

A proposed unit is considered to be compliant provided any habitable room within the unit is capable of receiving at least 1.5 hours of sunlight on March 21st. This column will identify the highest performing room within a unit and state compliance for the associated unit based on that room with the assessment carried out without deciduous trees. Typically only one room per unit will be populated in this column, with lesser performing rooms indicated with a dash (-).

It should be noted that the figures displayed in the table of results have been rounded off. A manual calculation of these figures may yield a negligible difference and should not be considered an error.

C.3.1 SE Results: House 7

Table No. C.3.1 - Sunlight Exposure Results:							
Unit Number	Room Description	Deciduous Trees as Opaque Objects*		Without Deciduous Trees*		SE Hours on March 21st***	Unit compliance based on highest performing room**
		High	Compliant	8.60	High		
House 7	LKD	8.60	Compliant	8.60	High	Compliant	Compliant
House 7	Bedroom 1	0.00	Below Minimum	0.00	Below Minimum	-	-
House 7	Bedroom 2	2.50	Minimum	3.00	Medium	-	-
House 7	Bedroom 3	0.00	Below Minimum	0.00	Below Minimum	-	-

* Rooms are tested with deciduous trees as opaque objects and without deciduous trees to account for the range of possible sunlight hours.

** Section 3.1.15 of the BRE Guidelines recommends that for a unit to be compliant at least one habitable room should receive a minimum of 1.5 hours of direct sunlight on March 21st, preferably a main living room. The SE circa compliance rates can be found in section 3.2.2 on page 20.

*** For the interpretation of levels of Sunlight Exposure please refer to "E.3 Definition of Levels of Sunlight Exposure" on page 51.

For floor plans of the assessed units please refer to section C.1 on page 40.

D.0 Supplementary Study Results

D.1 SDA study, under the I.S. EN 17037 criteria

Below is an example of the table used to describe the supplementary study results for proposed units in the assessment of SDA under the I.S. EN 17037 criteria. In cases where rooms comply with the criteria of BR 209 but do not meet the criteria of I.S. EN 17037, it is the recommendation of 3D Design Bureau that these rooms will be adequately daylight. This recommendation is based on the fact that BR 209 provides room-specific criteria, unlike I.S. EN 17037. BR 209 considers the varying daylight requirements for different room types, which I.S. EN 17037 does not account for.

Table Example. D.1 - Supplementary Scheme Performance SDA (I.S. EN 17037 criteria)

Table Example. D.1 - Supplementary Scheme Performance SDA (I.S. EN 17037 criteria)						
Unit Number		Room Description	C	D	E	F
			Area above 300 Lux	Area above 100 Lux	Area above 300 Lux	Area above 100 Lux
			No Trees		With Trees	
Compliance with I.S. EN 17037 Criteria		C				

This column identifies the assessed unit. All unit numbers are determined by the architect's drawings, unless otherwise stated.

B: Room Description

Room Description details which room in the unit has been assessed, e.g. bedroom, LKD, etc.

C: % of area above 300 Lux (No Trees)

I.S. EN 17037 recommends at least 50% of the working plane receives above 300 lux for at least half the daylight hours. This column states percentage of the working plane of the assessed room that is capable of receiving more than 300 lux for at least half the daylight hours when the assessment is carried out without trees in the analytical model.

D: % of area above 100 Lux (No Trees)

I.S. EN 17037 recommends at least 95% of the working plane receives above 100 lux for at least half the daylight hours. This column states percentage of the working plane of the assessed room that is capable of receiving more than 100 lux for at least half the daylight hours when the assessment is carried out without trees in the analytical model.

E: % of area above 300 Lux (With Trees)

I.S. EN 17037 recommends at least 50% of the working plane receives above 300 lux for at least half the daylight hours. This column states percentage of the working plane of the assessed room that is capable of receiving more than 300 lux for at least half the daylight hours with the foliage of deciduous trees varied to account for summer and winter conditions, i.e. full leaf and bare branch.

F: % of area above 100 Lux (With Trees)

I.S. EN 17037 recommends at least 95% of the working plane receives above 100 lux for at least half the daylight hours. This column states percentage of the working plane of the assessed room that is capable of receiving more than 100 lux for at least half the daylight hours with the foliage of deciduous trees varied to account for summer and winter conditions.

G: Compliance with I.S. EN 17037 Criteria

This column states if the assessed room achieves the recommended level of daylight as per I.S. EN 17037 with consideration to the various tree states.

If the recommended lux levels are achieved on the working plane, for half the daylight hours, both with and without trees, this column will state: 'Compliant';
If the recommended lux levels are not achieved on the working plane, for half the daylight hours, both with and without trees, this column will state: 'Non-compliant';
If the recommended lux levels are achieved on the working plane, for half the daylight hours, without trees but are not achieved with trees, this column will state: 'Trees affecting compliance';

Compliance rates will be stated for SDA compliance with trees in all of the above states.

It should be noted that the figures displayed in the table of results have been rounded off. A manual calculation of these figures may yield a negligible difference and should not be considered an error.



D.1.1 Supplementary SDA Results (I.S. EN 17037 criteria): House 7

Table No. D.1.1 - Supplementary SDA Results (I.S. EN 17037 criteria):						
Unit Number	Room Description	No Trees		With Trees		Compliance with I.S. EN 17037 criteria*
		Area above 300 Lux*	Area above 100 Lux*	Area above 300 Lux*	Area above 100 Lux*	
House7	LKD	100%	100%	95%	100%	Compliant
House7	Bedroom 1	31%	100%	15%	100%	Non-compliant
House7	Bedroom 2	100%	100%	59%	100%	Compliant
House7	Bedroom 3	100%	100%	73%	100%	Compliant

* For information regarding the criteria under the various guidelines including target Lux please refer to section 2.5.1 on page 16. For floor plans of the assessed units please refer to section C.1 on page 40.

D.2 Supplementary No Sky Line (NSL) assessment in proposed units.

Below is an example of the table used to describe the supplementary assessment results for 'No Sky Line' in proposed units.

Table Example. D.2 - Supplementary Scheme Performance NSL				
A		B	C	D
Unit Number	Room Description			
No Sky Line (NSL)				
	% of room where the sky is visible from the working plane			Above 80%

A: Unit Number
This column identifies the assessed unit. All unit numbers are determined by the architect's drawings, unless otherwise stated.

B: Room Description
Room Description details which room in the unit has been assessed, e.g. bedroom, LKD, etc.

C: % of room where the sky is visible from the working plane
This column states the percentage of the room from which there is a direct line of sight to the sky when assessed at the working plane height, which is 850mm above the finished floor level in residential rooms or 700mm above the finished floor level in offices or classrooms.

D: Above 80%
Whilst the BRE Guidelines only provide recommendations for NSL in the context of an impact analysis, section 2.2.10 states that "Supplementary electric lighting will be needed if a significant part of the working plane (20% of the room or more) lies beyond the No Sky Line."
If this column states: 'Yes', it signifies that the sky will be visible from more than 80% of the working plane.
If this column states: 'No', it signifies that the sky will be visible from less than 80% of the working plane and supplementary electric lighting may be required.

D.2.1 Supplementary NSL Results: House 7

Table No. D.2.1 - Supplementary NSL Results:			
Unit Number	Room Description	No Sky Line (NSL)	
		% of room where the sky is visible from the working plane	Above 80%*
House7	LKD	100%	Yes
House7	Bedroom 1	99%	Yes
House7	Bedroom 2	94%	Yes
House7	Bedroom 3	99%	Yes

* Whilst the BRE Guidelines do not provide target values for NSL in a proposed development, section 2.2.10 states that "Supplementary electric lighting will be needed if a significant part of the working plane (20% of the room or more) lies beyond the No Sky Line."

For floor plans of the assessed units please refer to section C.1 on page 40.

E.0 Glossary

E.1 Terms and Definitions

Below is a list of daylight and sunlight terminology that may be used in this report depending on the assessments carried out.

Skylight

Non directional ambient light cast from the sky and environment.

Sunlight

Direct parallel rays of light emitted from the sun.

Daylight

Combined skylight and sunlight.

Overcast sky model

A completely overcast sky model, used for daylight calculation.

Cloudless sky model

A completely cloudless sky model, used for sunlight exposure calculation.

Model State

The model state is a term used to describe the configuration of the digital model used to run analysis. Model states will typically reflect a baseline state and a proposed or cumulative state. For a definition of the model states used in the analysis carried out in this report, please refer to "Preparing the analytical model" on page 11.

Vertical Sky Component (VSC)

Ratio of that part of illuminance, at a point on a given vertical plane, that is received directly from an overcast sky model, to illuminance on a horizontal plane due to an unobstructed hemisphere of this sky. Usually the 'given vertical plane' is the outside of a window wall. The VSC does not include reflected light, either from the ground or from other buildings.

Annual Probable Sunlight Hours (APSH) / Winter Probable Sunlight Hours (WPSH)

Annual Probable Sunlight Hours (APSH) and Winter Probable Sunlight Hours (WPSH) are a measure of sunlight that a given window may expect over a one-year period (1 Jan - 31 Dec), or the winter period (21 Sep - 21 Mar) respectively.

North facing windows may receive sunlight on only a handful of occasions in a year, and windows facing eastwards or westwards will receive sunlight only at certain times of the day. Taking this into account, section 3.2.9 of the BRE Guidelines suggests that windows with an orientation within 90 degrees of due north need not be assessed.

Sun On Ground (SOG)

Assessment of what portion of a garden or amenity space is capable of receiving 2 hours or more of direct sunlight on March 21st.

Sunlight Exposure (SE)

The number of hours of direct sunlight a room can expect to receive on a given date between February 1st and March 21st at a determined point on the windows.

Spatial Daylight Autonomy (SDA)

Spatial Daylight Autonomy assesses whether a space receives sufficient daylight on a working plane during standard operating hours on an annual basis. For compliance, the target value is achieved across 50% of the working plane for half of the occupied period.

No Sky Line (NSL)

The No Sky Line divides points on the working plane which can and cannot see the sky.

Working plane

Horizontal, vertical or inclined plane in which a visual task lies. Normally the working plane may be taken to be horizontal, 850 mm above the floor in houses and factories, 700 mm above the floor in offices. The plane is offset 300mm from the room boundaries under BR 209 criteria, and 500mm from the room boundaries under I.S. EN 17037 criteria.

LKD

Living / Kitchen / Dining room.

BRE Target Value

When assessing the effect a proposed development would have on a neighbouring property, a target value will be applied. This applied target value is generated as per the criteria set out for each study in the BRE Guidelines.

Alternative Target Value

It could be appropriate to use alternative target values when conducting assessment of effect on existing properties. If such instances occur the rationale will be clearly explained and the instances where the alternative target values have been applied will be clearly identified.

Level of BRE Compliance

Each table in the study that has a column identified as "Level of BRE Compliance", identifies how an assessed instance performs in relation to the appropriate target value. If the instance is in compliance with the recommendations as made in the BRE Guidelines the value will be expressed as "BRE Compliant". If the instance does not meet the criteria as set out in the BRE Guidelines a percentage will be expressed to determine the level of compliance with the recommendation. This value determines the definition of effect.

LUX

Lux is a standardised unit of measurement of light level intensity. A measurement of 1 lux is equal to the illumination of a one metre square surface that is one metre away from a single candle.



Sections H3 and H4 of the BRE Guidelins states that:

"Adverse impacts occur when there is a significant decrease in the amount of skylight and sunlight reaching an existing building where it is required, or in the amount of sunlight reaching an open space. The assessment of impact will depend on a combination of factors, and there is no simple rule of thumb that can be applied."

Assuch, planning authorities should consider a range of localised factors when making decisions. The terminology suggested in section H6 of the BRE Guidelins is listed below, whilst the assessment of impact should depend on a combination of factors. The BRE Guidelins (section H2) also state:

"Where a new development affects a number of existing buildings or open spaces, the clearest approach is usually to assess the impact on each one separately. It is also clearer to assess skylight and sunlight impacts separately."

Taking this advice, 3DDB have categorised the level of effect on each window/room/open space on an individual basis. In quantifying the levels of effect, 3DDB have assigned numerical values to the levels of compliance with the BRE recommendations. By applying a numerical logic to the terminology used in defining the levels of effect there is no ambiguity regarding how the levels of effect have been categorised within this report.

The list of definitions given below is taken from 'Appendix H: Environmental impact assessment' of the BR 209 with a clear indication of how they have been applied in the context of this report.

Negligible

For the purposes of this Sunlight and Daylight Assessment Report a 'Negligible' level of effect will be stated if the level of effect is within the criteria as recommended in the BRE Guidelins and the applied target value has been achieved.

Minor Adverse

For the purposes of this Sunlight and Daylight Assessment Report, a 'Minor Adverse' level of effect will be stated if the level of effect is marginally outside of the criteria as stated in the BRE Guidelins. Typically a 'Minor Adverse' level of effect will be applied if the level of daylight or sunlight is reduced to equal or greater than 80% and less than 100% of the applied target value.

Moderate Adverse

For the purposes of this Sunlight and Daylight Assessment Report, a 'Moderate Adverse' level of effect will be stated if the level of daylight or sunlight is reduced to equal or greater than 50% and less than 80% of the applied target value. 'Moderate Adverse' levels of effect are quite typical in instances where a proposed development is planned on an under-developed plot of land.

Major Adverse

An effect which, by its character, magnitude, duration or intensity alters a sensitive aspect of the environment. For the purposes of this Sunlight and Daylight Assessment Report a 'Major Adverse' level of effect will be stated if the proposed development reduces the availability of daylight or sunlight of a neighbouring property to significantly below a baseline level. A 'Major Adverse' level of effect will be stated if the level of daylight or sunlight is reduced to less than 50% of the applied target value.

Beneficial Impact

In relation to sunlight or daylight access, it is conceivable that a proposed development could yield positive effects on the neighbouring properties. In such circumstances the development would typically involve a reduction to the size or scale of built form (e.g. such as the demolition of a building or the removal of a large belt of evergreen trees, which might result in an increase in light access). Where such improvements occur, a 'Beneficial Impact' will only be stated if the ratio of change is greater than 1.20 (an improvement of 20%). Should less perceptible improvements occur a 'Negligible' level of effect will be stated.

Not Applicable (n.a.)

In instances where a baseline value is particularly low, levels of effects can appear exaggerated. To mitigate such occurrences, if the baseline value in the VSC, APSh/WPSH or SOC studies is below 1%, 3DDB have categorised the level of effect as n.a. (not applicable). Windows/rooms that have a reduction of less than 4% in the APSh assessment may be indicated as "n.a." in the WPSH assessment regardless of values.

Averged Windows (-)

If it can be determined or reasonably assumed that multiple windows are servicing the same room, each window will be assessed and a weighted average will be calculated. In such instances the level of effect for the room will be stated, but the level of effect for the individual windows contributing towards the average will be left blank in the table. This will be indicated in the tables with the dash symbol. (-)



E.3 Definition of Levels of Sunlight Exposure

For interiors, access to sunlight can be quantified. BR 209 recommends that a space should receive a minimum of 1.5 hours of direct sunlight on a selected date between 1 February and 21 March with cloudless conditions. It is suggested that 21 March (equinox) be used. The medium level of recommendation is three hours and the high level of recommendation four hours. For dwellings, at least one habitable room, preferably a main living room, should meet at least the minimum criterion.

Level of Sunlight Exposure:

The level of sunlight exposure will be stated for each assessed room in the tables under section "C.3 Sunlight Exposure (SE) in Proposed Units" on page 43. Below is a list of the terms used to categorise the levels of sunlight exposure:

Below Minimum

Sunlight exposure will be categorised as 'below minimum' if the potential sunlight for the assessed room is less than 1.5 hours on March 21st. Note: the recommendation is that a room within a proposed unit is capable of receiving 1.5 hours of direct sunlight on March 21st. If an individual room of a proposed unit does not achieve this recommendation, it does not mean that the unit is non-compliant.

Minimum

A 'minimum' level of sunlight exposure will be stated if the potential sunlight for the assessed room is between 1.5 hours and 3 hours on March 21st.

Medium

A 'medium' level of sunlight exposure will be stated if the potential sunlight for the assessed room is between 3 hours and 4 hours on March 21st.

High

A 'high' level of sunlight exposure will be stated if the potential sunlight for the assessed room is greater than 4 hours on March 21st.

Unit Compliance:

In addition to the level of sunlight exposure expressed for each room, compliance will be stated on a unit-by-unit basis. A proposed unit is considered to be compliant if any habitable room within the unit is capable of receiving at least 1.5 hours of sunlight on the assessment date.

Non-Compliant

If no habitable rooms within a proposed unit can receive 1.5 hours of sunlight on the assessment date, the unit will be categorised as 'Non-Compliant'.

Compliant

If at least one habitable room within a proposed unit can receive 1.5 hours or more of sunlight on the assessment date, the unit will be categorised as 'Compliant'.

Typically unit compliance will be stated for the best performing room per unit only, with lesser performing rooms indicated with a dash (-). However, if more than one room in a given unit is considered to be the best performing room (i.e. they have the same number of SE hours on March 21st), then the unit compliance column will be populated in the first instance only.



F.0 Guidelines / Standards

While the scope of this report is focused on specific Impact Assessment and Scheme Performance metrics, this section provides an overview of the wider daylight and sunlight guidelines, standards and associated assessment metrics for informative purposes.

Overview

Neither the British Standard, European Standard, British Annex to the European Standard nor the BRE Guidelines (BR 209) set out rigid standards or limits. They are all considered advisory documents. The BRE Guide is preceded by the following very clear statement as to how the design advice contained therein should be used:

"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."

That the recommendations of the BRE Guidelines are not suitable for rigid application to all developments in all contexts, is of particular importance in the context of national and local policies for the consolidation and densification of urban areas or when assessing applications for highly constrained sites (e.g. lands in close proximity or immediately to the south of residential lands). A compromise may have to be made concerning daylight and sunlight compliance to achieve national or local planning objectives.

It is the expert opinion of 3D Design Bureau, that the BRE Guidelines (BR 209) are the most appropriate guiding document for daylight and sunlight assessment. For daylight within proposed developments, a supplementary study has also been carried out under the criteria of I.S. EN 17037. The rationale for this opinion is outlined below.

BR 209 - Site Layout Planning for Daylight and Sunlight: a Guide to Good Practice (2022)

This document will be referred to as the *BRE Guidelines*, the *BRE Guide* or *BR 209* in this report.

At the time of writing this report, the BRE Guidelines are in the third edition (BR 209). The BRE Guidelines set out recommendations for appropriate levels of daylight and sunlight within a proposed development, as well as providing guidance on impacts arising from a proposed development to surrounding properties and amenity areas.

Upon publication of the 3rd Edition of the BR 209 (2022), the 2nd edition (2011) has been withdrawn. Among the updates from the 2nd to the 3rd edition are some changes in the recommended metrics to use for carrying out scheme performance assessments.

Daylight within proposed developments was previously assessed under the 2011 guidelines using an 'Average Daylight Factor' assessment (ADF). This has been replaced with a 'target illuminance assessment', also known as a 'Spatial Daylight Autonomy' assessment (SDA).

Sunlight within proposed developments was previously assessed under the 2011 guidelines using an 'Annual / Winter Probable Sunlight Hours' assessment (APSH/WPSH). This has been replaced with a 'Sunlight Exposure' assessment (SE). However, APSH/WPSH is still recommended for sunlight impact assessments.

As such, no ADF or APSH/WPSH assessment will be included as part of a scheme performance assessment under the updated guidelines.

Details of the criteria for new metrics, and all other relevant metrics, can be found in the methodology section on Page 9 of this report.

It is the expert opinion of 3D Design Bureau that the BRE Guidelines are the most appropriate guiding document for assessing daylight potential within a proposed development. The rationale for this opinion is outlined in the Dublin City Council development plan (2022-2028), which states:

"Prior to 2018, Ireland had no standard for daylight. In 2018, the National Standards Authority of Ireland adopted EN 17037 to directly become IS EN 17037. It is important to note that no amendments were made to this document and unlike BS EN 317037 [sic – likely intended to reference BS EN 17037], it does not contain a national annex. It offers only a single target for new buildings (there are no space by space targets – e.g. a kitchen would have the same target as a warehouse or office). It does not offer guidance on how new developments will impact on surrounding existing environments. These limitations make it unsuitable for use in planning policy or during planning applications. BR 209 must still be used for this purpose."

While the BRE Guidelines draw reference from BS EN 17037, there are some subtle differences between BR 209 and BS EN 17037. For the purposes of this report, the BRE Guidelines (BR 209) is considered the appropriate reference document. A detailed description of the various recommendations for impact assessment and scheme performance is contained in section "2.3 Quantitative Impact Assessment Overview" on page 13 of this report.

EN 17037:2018: Daylight in Buildings (2018)

EN 17037 is a European Standard that provides recommendations for daylight within spaces. (Emphasis added)

EN 17037:2018 recommends that 300 lux should be received across 50% of a hypothetical reference plane of any room for half of the daylight hours of the year, with no less than 100 lux received across 95% of the reference plane. No distinction is made for the function of the room for target lux levels within this standard.

It is the opinion of 3D Design Bureau that these target values are less appropriate for proposed residential developments than the recommendations made in the BRE Guidelines, which apply room-specific target values for appropriate LUX levels.

Recommendations made in EN 17037 regarding Sunlight Exposure for proposed developments have been incorporated into the BRE Guidelines. As such, Sunlight Exposure is deemed the appropriate assessment for sunlight within habitable rooms of the proposed development.

EN 17037 also makes recommendations related to glare and quality of view out. These aspects are not addressed in this report as these assessments have less relevance in a residential context where occupants have the freedom to move about in order to improve level of glare or alter the view out.

1.5. EN 17037:2018 Daylight in Buildings (2018)

I.S. EN 17037 is a direct adoption of the European Standard EN 17037:2018 that provides recommendations for daylight within spaces.

The target values given within I.S. EN 17037 are directly adopted from EN 17037. As such, there are no room-specific recommendations for daylight. Because of these limitations, it is the expert opinion of 3D Design Bureau, that the recommendations made in the BRE Guidelines are more appropriate to use than those within I.S. EN 17037. Regardless, a supplementary SDA study has been carried out on the proposed development using the criterion of I.S. EN 17037, with compliance rates stated. However, this should be considered a supplementary study.

BS EN 17037:2018: Daylight in Buildings (2018)

BS EN 17037 is the British Annex to the European Standard (see above). The British Annex acknowledges that a rigid application of the European Standard "may not be achievable". It states "... it is the opinion of the UK committee that the recommendations for daylight provision in a space [...] may not be achievable for some buildings, particularly dwellings." In BS EN 17037, daylight recommendations differ depending on the function of a room. Target lux levels are applied across 50% of the reference plane of a room for half of the daylight hours. The target lux levels are:

- 200 Lux for kitchens
 - 150 Lux for living rooms
 - 100 Lux for bedrooms
- No minimum is stated to be achieved across 95% of the working plane. If a space has dual purposes it is advised that the higher target value should be applied.

Planning Design Standards for Apartments: Guidelines for Planning Authorities (2025)

In July 2025, the Department of Housing, Local Government and Heritage published an updated guidance document for new apartments, 'Planning Design Standards for Apartments: Guidelines for Planning Authorities, 2025'. This document, which may be referred to by the simplified name 'Apartment Guidelines', supersedes the previous guidance document for apartments 'Sustainable Urban Housing: Design Standards for New Apartments, 2023'.

Unlike the 2023 edition, the current Apartment Guidelines do not directly reference any specific guidance document for daylight and sunlight. Instead, they refer to 'Sustainable Residential Development and Compact Settlements Guidelines (2024)':

"The provision of acceptable levels of natural light in new apartment developments is an important planning safeguard against a detrimental impact on the amenity of other sensitive occupiers of adjacent properties. Section 5.3.7 of the SRDCSCs outlines requirements for the provision of acceptable levels of daylight in new residential developments and adjoining properties." (emphasis added.)

The relevant section of 'Sustainable Residential Development and Compact Settlements Guidelines' (SRDCSC), 5.3.7, is referenced in the following section of this report.

Paragraph 6.7 of the superseded 2023 apartment guidelines states:

"Where an applicant cannot fully meet all of the requirements of the daylight provisions above, this must be clearly identified and a rationale for any alternative, compensatory design solutions must be set out, which planning authorities should apply their discretion in accepting taking account of its assessment of specific. This may arise due to a design constraints [sic] associated with the site or location and the balancing of that assessment against the desirability of achieving wider planning objectives. Such objectives might include securing comprehensive urban regeneration and or an effective urban design and streetscape solution."

Although the above requirement has been removed from the 2025 apartment guidelines, the request remains in some local authority development plans. As such, the design team may still provide a rationale and/or compensatory design solutions for instances where daylight and/or sunlight recommendations have not been achieved.

Note: Section 3.2 of the 'Urban Development and Building Height Guidelines 2018', provides similar guidance as the '2023 apartment guidelines' as referenced above. However, it should be noted that at the time of publication of the 'Urban Development and Building Height Guidelines (2018)', BR 209 was in its second edition, first published in 2011. Since then, a third edition of BR 209 has been published (June 2022) and the 2nd edition has been withdrawn. BR 209 no longer references BS 8206-2:2008, which has also been withdrawn. The standard now referenced in BR 209 edition 3 is BS EN 17037.

Sustainable Residential Development and Compact Settlements Guidelines (2024)

Often referred to as "The Compact Growth Guidelines" this document advises on compact growth principles as a means to promote sustainable development, efficient land use, and infrastructure while minimising sprawl and environmental degradation, contributing to sustainable urban growth, enhancing livability and support broader planning objectives.

In regard to daylight, section 5.3.7 states:

"The provision of acceptable levels of daylight in new residential developments is an important planning consideration,



in the interests of ensuring a high quality living environment for future residents. It is also important to safeguard against a detrimental impact on the amenity of other sensitive occupiers of adjacent properties.

(a) The potential for poor daylight performance in a proposed development or for a material impact on neighbouring properties will generally arise in cases where the buildings are close together, where higher buildings are involved, or where there are other obstructions to daylight. Planning authorities do not need to undertake a detailed technical assessment in relation to daylight performance in all cases. It should be clear from the assessment of architectural drawings (including sections) in the case of low-rise housing with good separation from existing and proposed buildings that undue impact would not arise, and planning authorities may apply a level of discretion in this regard.

(b) In cases where a technical assessment of daylight performance is considered by the planning authority to be necessary regard should be had to quantitative performance approaches to daylight provision outlined in guides like A New European Standard for Daylighting in Buildings IS EN 17037:2018, UK National Annex BS EN 17037:2019 and the associated BRE Guide 209 2022 Edition (June 2022), or any relevant future standards or guidance specific to the Irish context.

In drawing conclusions in relation to daylight performance, planning authorities must weigh up the overall quality of the design and layout of the scheme and the measures proposed to maximise daylight provision, against the location of the site and the general presumption in favour of increased scales of urban residential development. Poor performance may arise due to design constraints associated with the site or location and there is a need to balance that assessment against the desirability of achieving wider planning objectives. Such objectives might include securing comprehensive urban regeneration and or an effective urban design and streetscape solution."

The Compact Growth Guidelines should be applied within statutory development plans and during the consideration of individual planning applications. Flexibility in interpretation allows planning authorities to tailor recommendations to specific local contexts and planning objectives.

Dun Laoghaire-Rathdown County Development Plan (2022-2028)

The guidance provided in the Dun Laoghaire-Rathdown County Development Plan 2022-2028 (DLR) references the 2nd Edition of the BRE guidelines (BR 209).

Section 12.3.4.2 of the DLR Development Plan states:

"Development shall be guided by the principles of Site Layout Planning for Daylight and Sunlight. A guide to good practice (Building Research Establishment Report, 2011) and/or any updated, or subsequent guidance, in this regard."

The DLR Development Plan allows for consideration of any updated or subsequent guidance and, therefore, the 3rd edition of the BRE guidelines (BR 209), which was released in 2022 after the publication of the DLR Development Plan, is considered as the primary document.

Guidelines / Standards Summary

According to the aforementioned guiding documents, the following assessments are typically conducted for a daylight and sunlight study, depending on the specific requirements of the project.

Impact on the Surrounding Properties

Impact to daylight is assessed through a Vertical Sky Component (VSC) on all relevant surrounding windows: A VSC impact assessment is typically conducted, where appropriate, on the relevant surrounding windows determined by the BRE decision chart as illustrated in Figure 2.1 on page 9.

Impact to daylight can be further assessed through a No Sky Line (NSL) on surrounding properties: Section D3 of the BRE Guidelines recommends a No Sky Line study "where room layouts are known". Consequently, NSL assessments are typically conducted only on properties where detailed floor plans have been provided.

Impact to sunlight in neighbouring properties is assessed through an Annual Probable Sunlight Hours (APSH) and Winter Probable Sunlight Hours (WPSH) on all relevant surrounding windows: An APSH/WPSH impact assessment is typically conducted, where appropriate, on the relevant surrounding windows/rooms that have an orientation within 90° of due south.

Impact to sunlight in neighbouring gardens and/or amenity areas is assessed through a Sun on Ground (SOG) assessment in all surrounding amenity spaces: A SOG impact assessment is typically carried out, where appropriate, on the neighbouring gardens/amenity spaces located within close proximity and to the north of the subject site.

Performance of the Proposed Development

Target Illuminance in all habitable rooms: A target illuminance assessment, also known as a Spatial Daylight Autonomy (SDA) assessment. The two recommended methodologies for this assessment are detailed in section 2.5.1 on page 16. In a scheme performance assessment, the SDA is typically calculated for the habitable rooms of the proposed development. A supplementary SDA assessment may also be conducted under the criteria of IS EN 17037.

When conducting a scheme performance assessment for sunlight in the habitable rooms of the proposed development, Sunlight Exposure (SE) is the relevant metric.

Sun on Ground (SOG) in all amenity spaces: A SOG assessment is typically carried out, for the amenity spaces of the proposed development.

No Sky Line (NSL) in all habitable rooms: An NSL assessment is typically conducted for the habitable rooms of the proposed development as a supplementary study as part of a scheme performance assessment.

