



DAYLIGHT & SUNLIGHT

IMPACT ON NEIGHBOURING
PROPERTIES REPORT

**Central Mental Hospital,
Dundrum, Dublin**

Land Development Agency

15 February 2022

GIA No: **17967**

PROJECT DATA:

Client **Land Development Agency**
 Architect **Reddy Architecture + Urbanism**
 Project Title **Central Mental Hospital, Dundrum, Dublin**
 Project Number **17967**

REPORT DATA:

Report Title **Impact on Neighbouring Properties Report**
 GIA Department **Daylight and Sunlight**
 Dated **15 February 2022**
 Prepared by **EMHY**
 Checked by **KFR**
 Type **Final**

Revisions	No:	Date:	Notes:	Signed:

SOURCES OF INFORMATION:

Information Received
 Release Number **Rel_05_17967_CAD**
 Issue Number **01-EvP-(IR16-17)**
02-EvP-(IR16-17-20)
 Site Photos **Google maps**
 3D models **IR04-21-0319-VU.CITY (Model)**
IR16 -21-1202 - Reddy Architects (drawings and models)
IR17-21-1209 - Reddy Architecture (Amended Block 6 model and Proposed SHD Site Plan)
IR20-22-0112 -Reddy Architecture (site model Wall)

CONTENTS

USER TIP:
Click any heading to go directly to that content.

1	EXECUTIVE SUMMARY	2
2	THE SITE	4
3	POLICY & THE WIDER CONTEXT	6
4	BRE GUIDELINES & CONTEXT METHODOLOGY	8
5	DAYLIGHT & SUNLIGHT IMPACTS TO NEIGHBOURING PROPERTIES	12
6	CUMULATIVE ASSESSMENT	22
7	OVERSHADOWING	26
8	CONCLUSIONS	27

APPENDICES (BOUND SEPARATELY)

APPENDIX 01
ASSUMPTIONS

APPENDIX 02
PRINCIPLES OF DAYLIGHT, SUNLIGHT & OVERSHADOWING

APPENDIX 03
DRAWINGS

APPENDIX 04
RESULTS

APPENDIX 05
TRANSIENT OVERSHADOWING STUDY

USER TIP:
Return to the contents list from any page by clicking on the GIA logo.

1 EXECUTIVE SUMMARY

GIA have assessed the proposed Reddy Architecture + Urbanism scheme (“proposed development”) for the site at the former Central Mental Hospital, Dundrum, Dublin, to understand the potential changes in light to the relevant surrounding properties.

- 1.1 GIA have been instructed to undertake a detailed technical assessment for the Strategic Housing Development at the Central Mental Hospital site in Dundrum, Dublin (“proposed development”). The purpose of this assessment is to understand the potential daylight and sunlight alterations caused by the Reddy Architecture + Urbanism (“Reddy Architects”) scheme upon the relevant surrounding properties.
- 1.2 The assessments set out in this report have been undertaken with regard to the advice and recommendations set out within the Building Research Establishment Guidelines (BRE) entitled ‘Site Layout Planning for Daylight and Sunlight: A Guide to Good Practice’ 2011, hereafter referred to as the “BRE Guidelines”. The criteria suggested within the BRE have been used to understand and compare the existing levels of light and the light achieved subsequent the implementation of the proposed masterplan development.
- 1.3 GIA note that large portions of the site are currently vacant with the neighbouring properties sitting within close proximity to the site boundary, meaning it is inevitable that some degree of change in light condition would occur for this site to be developed at the capacity intended. It is worth mentioning at this stage that Section 1.6 of the BRE Guidelines states that
“although it gives numerical guidelines, these should be interpreted flexibly since natural light is only one of many factors in site layout design”.
- 1.4 GIA’s detailed analysis considers 1099 windows across 155 individual properties, which have been selected due to their planning use, proximity and orientation towards the development site. When assessed against the Vertical Sky Component (“VSC”) methodology for daylight, **1089/1099 (99%)** windows will satisfy BRE Guidelines. Where BRE transgressions occur, they generally range between slight or moderate in nature, with no significant impacts anticipated.
- 1.5 When assessed against the Annual Probable Sunlight Hours (“APSH”) methodology for sunlight, **639/641 (99%)** windows that face within 90° due south of the development site will meet BRE criteria for this assessment.
- 1.6 In GIA’s experience, the proposed development performs exceptionally well from a daylight and sunlight perspective particularly when one appreciates the density sought on this site. The massing arrangement, orientation and tiered nature of the proposed apartment blocks means that the impact on the neighbouring environment has been minimised. Whilst there are some slight to moderate BRE transgressions, there are generally mitigating circumstances associated with the impact, such as the vacant/ low rise existing site conditions, or in some cases the self-limiting nature of overhanging walkways/ projections.
- 1.7 GIA have also provided an additional cumulative analysis in order to account for the s.34 application which forms part of the greater masterplan development within the Central Mental Hospital site (highlighted yellow within figure 02). The outcome of this assessment indicates that all of the neighbouring windows assessed will not experience any further changes to daylight and sunlight amenity and will produce the same compliance rates as the proposed Strategic Housing Development. This scenario is discussed further within section 6 of this report.
- 1.8 On the balance and in context of the site, the impacts to the neighbouring properties are considered to be within the intention and application of the BRE guidelines and therefore should be considered by GIA to be acceptable in daylight and sunlight terms.



Figure 01: Illustration of the proposed development (SHD Application) designed by Reddy Architecture + Urbanism



Figure 02: Proposed Strategic Housing Development (in teal) and Proposed s.34 Development (in yellow)

2 THE SITE

GIA have been instructed to review and advise on the daylight, sunlight and overshadowing impacts associated with the implementation of the Strategic Housing Development at the former Centre Mental Hospital site in Dundrum, Dublin.

THE SITE

- 2.1 The Site is located within Dún Laoghaire–Rathdown County Council. The site is bound by Dundrum Road and Annville Grove to the west, Mulvey Park to the north, Friarsland Road to the east and Larchfield Road to the south. In its current condition, the site comprises the Central Mental Hospital which was originally opened in 1850.
- 2.2 GIA's interpretation of the existing site can be seen within Figure 03 (below) and within Appendix 03.



Figure 03: Existing Site

PROPOSED DEVELOPMENT

- 2.3 The Land Development Agency intend to apply to An Bord Pleanála (the Board) for permission for a Strategic Housing Development with a total application site area of c. 9.56 hectare, on the lands at the Central Metal Hospital, Dundrum Road, Dundrum, Dublin 14.
- 2.4 The development will consist of the demolition of existing structures (3,736 sqm) including;
- Former swimming pool/sports hall and admissions unit (2,750 sqm);
 - Two storey redbrick building (305 sqm);
 - Temporary structures including portacabins (67 sqm);
 - Removal of security fence at Dundrum Road entrance; and
 - Demolition of element Gate Lodge (4 sqm).
- 2.5 The development will also consist of alterations and partial demolition of the perimeter wall, including;
- Removal of section of perimeter wall adjacent to Rosemount Green (south);
 - Formation of a new opening in perimeter wall at Annville Grove to provide a pedestrian and cyclist access and associated gate
 - Removal of section of perimeter wall at the existing Dundrum Road access;
 - Alterations and removal of sections of wall adjacent to Dundrum Road, including the provision of a new vehicular, cyclist and pedestrian access
- 2.6 The development with a total gross floor area of c.106,770 sqm (c. 106,692 sqm including retained existing building), will consist of 977 residential units comprising;
- 940 no. apartments;
 - 17 no. duplex apartments; and
 - 20 no. two and three storey houses.
- 2.7 The development will also consist of 3,889 sqm of non-residential uses, comprising;
- Change of use and renovation of existing Gate Lodge building to provide a cafe unit (78 sqm);
 - 7 no. retail units (1,419 sqm);
 - 1 no. medial unit (245 sqm);
 - A new childcare facility (463 sqm); and
 - A new community centre facility, including a multi-purpose hall, changing rooms, meeting rooms, storage and associated facilities (1,684 sqm).
- 2.8 GIA's interpretation of the proposed development that forms part of the SHD application can be seen within Figure 04 (below) and within Appendix 03.



Figure 04: Proposed Development (Strategic Housing Development Application)

3 LEGISLATION AND POLICY

3.1 Below we have detailed sections from the following documents as they are, in our opinion, the most pertinent in relation to daylight and sunlight matters and how we have approached the effects of the Proposed Development on the relevant neighbouring properties.

- *The Planning and Development Act 2000 as amended.*
- *Strategic Housing Development (SHD) Legislative Provisions*
- *Project Ireland 2040 - 'National Development Plan 2018-2027' and 'National Planning Framework'*
- *Regional Spatial and Economic Strategy (RSES) for Eastern and Midland Regional Assembly*
- *Dún Laoghaire-Rathdown Development Plan (2016-2022)*
- *Design Standards for New Apartments (DSFNA) (2018)*
- *Building Research Establishment (BRE) Guidelines "Site Layout Planning for Daylight and Sunlight: A Guide to Good Practice" (2011) (Best Practice Guidance).*

THE PLANNING AND DEVELOPMENT ACT (2000)

3.2 The Planning and Development Act 2000 is the primary legislation which deals with a number of planning-related issues. This legislation combines all former planning acts, setting out the details of the regional planning guidelines, development plans and local area plans. Moreover, it provides the statutory basis for the protection of natural and architectural heritage, the provision of social and affordable housing, and the conduct of Environmental Impact Assessments.

STRATEGIC HOUSING DEVELOPMENT (SHD) LEGISLATIVE PROVISIONS

3.3 The Strategic Housing Development (SHD) legislative provisions were introduced in 2017 by the Planning and Development (Housing) and Residential Tenancies Act 2016 in order to speed up the planning application process for large-scale residential developments of 100 or more units, or student housing with 200 or more units. The SHD system means such applications are required to be decided upon within a 16-week time frame. The SHD scheme is a key policy measure intended to

tackle the housing crisis within Ireland. Following the commencement of the majority of the Planning and Development (Amendment) (Large-scale Residential Development) Act 2021 in December 2021, the SHD system is in the process of being replaced by the Large-scale Residential Developments scheme.

PROJECT IRELAND 2040 - 'NATIONAL DEVELOPMENT PLAN 2018 - 2027' AND 'NATIONAL PLANNING FRAMEWORK'

3.4 Project Ireland 2040 is the government's long-term strategy to improve Ireland as the population increases by transforming investment decisions for public infrastructure through a reformed integrated strategy that will prevent urban sprawl. This is achieved through the integration of two key documents; The National Development Plan 2018-2027, and The National Planning Framework.

3.5 The National Planning Framework ('NPF') seeks to guide development and investment decisions for each region of Ireland to ensure planning and development that follows national objectives.

3.6 The National Development Plan ('NDP') provides a ten-year strategy for public capital investment of around €116 Billion to enable the implementation of the NPF.

REGIONAL SPATIAL AND ECONOMIC STRATEGY (RSES) FOR THE EASTERN AND MIDLAND REGION

3.7 The RSES is a strategic plan which identifies regional assets, opportunities and pressures and provides appropriate policy responses in the form of Regional Policy Objectives. At this strategic level it provides a framework for investment to better manage spatial planning and economic development to sustainably grow the Region to 2031 and beyond.

3.8 The principal statutory purpose of the RSES is to support the implementation of Project Ireland 2040 - National Planning Framework and National Development Plan 2019-2027 and the economic policies of the Government by providing a long-term strategic planning and economic framework for the development of the Regions.

DUN LOAGHAIRE-RATHDOWN DEVELOPMENT PLAN (2016-2022)

3.9 The County Development Plan 2016-2022 was adopted by the Council on the 16th March 2016. The objective of Dún Laoghaire-Rathdown County Council is to achieve high standards design and layout to create and foster high quality, secure and attractive areas for living.

3.10 Section 8.2.3.1 within the plan set out various criteria to be taken into account when assessing applications including;

"levels of privacy and amenity, the relationship of buildings to one another, including the consideration of overlooking, sunlight/daylight standards and the appropriate use of screening devices".

DESIGN STANDARDS FOR NEW APARTMENTS (DSFNA) (2020)

3.11 Paragraph 6.6 of this document states that planning authorities should have regard to quantitative performance approaches to daylight provision outlined in guides like the BRE guide 'Site Layout Planning for Daylight and Sunlight' (2nd edition) or BS 8206-2: 2008 - 'Lighting for Buildings - Part 2: Code of Practice for Daylighting' when undertaken by development proposers which offer the capability to satisfy minimum standards of daylight provision.

3.12 Paragraph 6.7 goes on to explain that; 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. This may arise due to design constraints 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 street scape solution.

BUILDING RESEARCH ESTABLISHMENT (BRE) GUIDELINES "SITE LAYOUT PLANNING FOR DAYLIGHT AND SUNLIGHT: A GUIDE TO GOOD PRACTICE" (2011) (BEST PRACTICE GUIDANCE)

3.13 The most recognised guidance document is published by the Building Research Establishment and entitled 'Site Layout Planning for Daylight and Sunlight - A Guide to Good Practice', Second Edition, 2011; herein referred to as the 'BRE Guidelines'.

3.14 The BRE Guidelines are not mandatory and themselves state that they should not be used as an instrument of planning policy, however in practice they are heavily relied upon as they provide a good guide to approach, methodology and evaluation of daylight and sunlight impacts.

3.15 In conjunction with the BRE Guidelines further guidance is given within the British Standard (BS) 8206-2:2008:

'Lighting for buildings - Part 2: Code of practice for daylighting'.

3.16 In this assessment, the BRE Guidelines has been used to establish the extent to which the Proposed Development meets current best practice guidelines. In cases where the Development is likely to reduce light to key windows the study has compared results against the BRE criteria.

3.17 Whilst the BRE Guidelines provide numerical guidance for daylight, sunlight and overshadowing, these criteria should not be seen as absolute targets since, as the document states, the intention of the guide is to help rather than constrain the designer. The Guide is not an instrument of planning policy, therefore whilst the methods given are technically robust, it is acknowledged that some level of flexibility should be applied where appropriate.

4 BRE GUIDELINES & CONTEXT METHODOLOGY

The Building Research Establishment (BRE) have set out in their handbook 'Site Layout Planning for Daylight and Sunlight – A Guide to Good Practice (2011)', guidelines and methodology for the measurement and assessment of daylight and sunlight.

DAYLIGHT

- 4.1 Section 2.2.5 of the BRE Guidelines outlines an initial assessment to understand whether a neighbouring residential property will require testing for daylight impacts. The 25-degree rule is completed by undertaking the following steps:

"First, draw a section in a plane perpendicular to each affected main window wall of the existing building (BRE Guidelines - Figure 14). Measure the angle to the horizontal subtended by the new development at the level of the centre of the lowest window. If this angle is less than 25° for the whole of the development, then it is considered unlikely to have a substantial effect on the diffuse skylight enjoyed by the existing building. If, for any part of the new development, this angle is more than 25°, a more detailed check is needed to find the loss of skylight to the existing building."

- 4.2 The flowchart illustrated in figure 05 (page to the right) demonstrates the steps and criteria outlined within the BRE Guidelines to understand whether the daylighting (VSC and NSL) may be significantly affected.

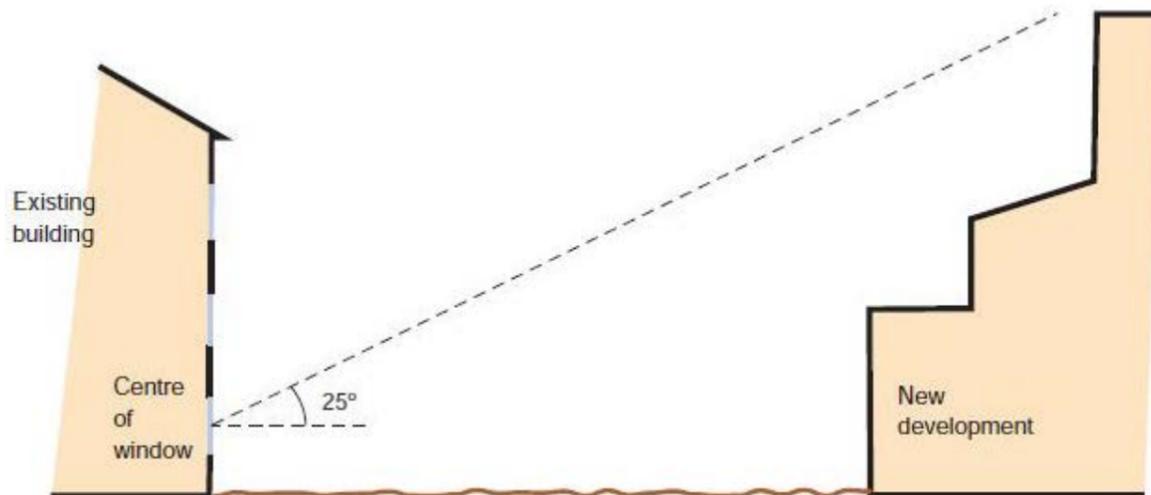


Figure 05: BRE Guidelines Figure 14

- 4.3 The BRE Guidelines provide two methodologies for daylight assessment of neighbouring properties, namely;

- The Vertical Sky Component (VSC); and
- The No Sky Line (NSL).

The Vertical Sky Component (VSC):

- 4.4 The VSC considers the potential for daylight by calculating the angle of vertical sky at the centre of each of the windows serving the residential buildings which look towards the site. This is a more simplistic approach and it could be considered as a "rule of thumb" to highlight whether there are any potential concerns to the amenity serving a particular property.

2.2.7 'If this VSC is greater than 27% then enough skylight should still be reaching the window of the existing building. Any reduction below this level should be kept to a minimum. If the VSC, with the new development in place, is both less than 27% and less than 0.8 times its former value, occupants of the existing building will notice the reduction in the amount of skylight.'

- 4.5 It is acknowledged that the BRE document are predicated against a 2-3 storey suburban model, therefore the application of its guidelines in inner urban environments should be treated flexibly.

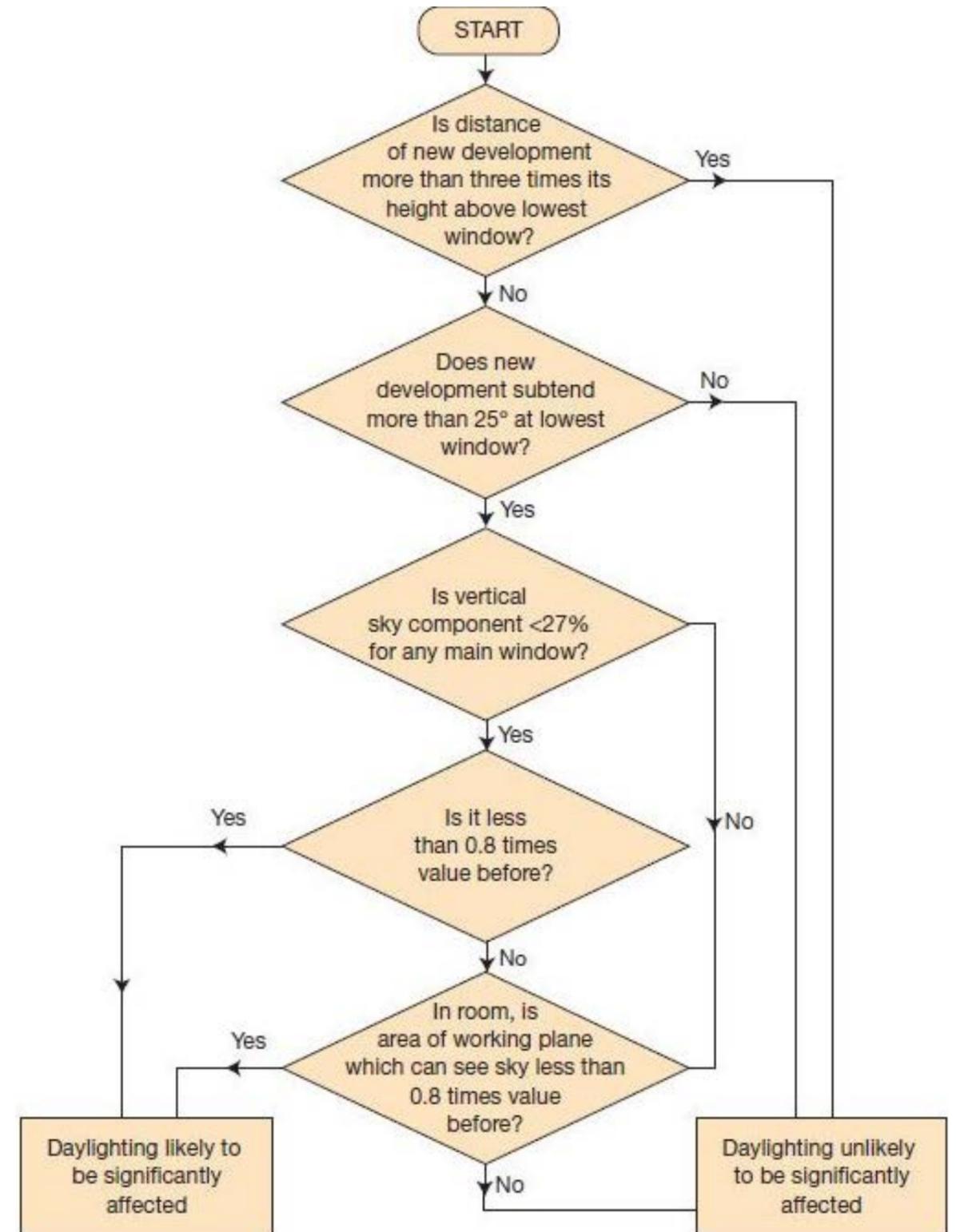


Figure 06: BRE Guidelines Figure 20

4.6 Note that the BRE acknowledges this and states;

2.2.3 The numerical values given here are purely advisory. Different criteria may be used based on the requirements for daylighting in an area viewed against other site layout constraints.

The No Sky Line (NSL);

4.7 The No Sky Line or Daylight Distribution method simply assesses the change in position of where in the room the sky can be seen or not seen in the existing and proposed situations. It takes into account the number and size of windows to a room, but still does not give any qualitative or quantitative assessment of the light in the room, only where sky can or cannot be seen. The NSL assessment is only appropriate where room layouts are known.

Sunlight

4.8 There is one methodology provided by the BRE Guidelines for sunlight assessment, denoted as Annual Probable Sunlight Hours (APSH).

Annual Probable Sunlight Hours (APSH);

4.9 This assessment is used to assess only those receptors which face within 90 degrees due south of the development. APSH is a measure of sunlight that any given window may expect over a year period. The BRE guidance recognises that sunlight is less important than daylight in the amenity of a room and is heavily influenced by orientation.

4.10 Section 3.2.11 of BRE Guidelines summarizes that for existing buildings, the sunlight to a window may be adversely affected if a point at the centre of a window receives:

- Less than 25% of the APSH during the whole year, of which 5% APSH must be in the winter period;
- Receives less than 0.8 times its former sunlight hours in either time period;
- Has a reduction in Sunlight for the whole year of more than 4% APSH.

4.11 It is an inevitable consequence of the built-up urban environment that daylight and sunlight will be more limited in dense urban areas. It is well acknowledged that in such situations there may be many planning

and urban design matters to consider other than daylight and sunlight.

Overshadowing

4.12 The BRE Guidelines provide two methods of overshadowing assessment, the Sun Hours on Ground and Transient Overshadowing studies.

Sun Hours On Ground (SHOG)

4.13 Section 3.3.17 of the BRE Guidelines states:

“It is recommended that for it to appear adequately sunlit throughout the year, at least half of a garden or amenity area should receive at least two hours of sunlight on the 21st March. If, as a result of new development, an existing garden or amenity area does not meet the above and the area which can receive two hours of sun on the 21st March is less than 0.8 times its former value, then the loss of sunlight is likely to be noticeable. If a detailed calculation cannot be carried out, it is recommended that the centre of the area should receive at least two hours of sunlight on 21st March”.

Transient Overshadowing Study (TOS)

4.14 The Transient Overshadowing Study is a qualitative assessment which takes into account the shadow case by the sun path at various times of the day. Section 3.3.13 of the BRE Guidelines states:

“Where a large building is proposed which may affect a number of gardens or open spaces it is often illustrative to plot a shadow plan showing the location of the shadows at different times of day and year”.

4.15 Appendix O1 of this report elaborates on the mechanics of each of the above assessment criteria, explains the appropriateness of their use and the parameters of each specific recommendation.

INTENTIONALLY BLANK PAGE

5 DAYLIGHT & SUNLIGHT IMPACTS TO NEIGHBOURING PROPERTIES

This section details the daylight and sunlight impacts in relation to the relevant properties neighbouring the Site.

5.1 GIA have created a three-dimensional computer model of the site and surrounding properties based on photogrammetric modelling techniques. This contextual model has been used to measure the daylight, sunlight and overshadowing implications of the proposed scheme. All relevant assumptions made in producing this model can be found in Appendix 01.

SURROUNDING PROPERTIES

5.2 GIA have considered 155 residential properties neighbouring the site, all of which are highlighted either orange or yellow on the map within figure 07.

5.3 The properties at Mulvey Park (north) that are highlighted yellow within figure 07 have been discounted from our detailed technical assessments as they have been assessed with reference to the 25° angle test in accordance with BRE methodology.

5.4 The purpose of this assessment is to ascertain whether or not these properties are likely to

experience a noticeable impact to their current levels of daylight and sunlight upon the implementation of the proposed development. The BRE suggests that if the whole of the development sits within the 25° angle, then it is considered unlikely to have a substantial effect on the diffuse skylight enjoyed by the existing buildings. If any part of the new development sits beyond the profile of the 25° angle, a more detailed check is needed to find the loss of skylight to the existing building.

5.5 It is clear from figures 08-09 on the right that both the proposed SHD development and S.34 proposed development will sit comfortably below the profile of the 25° angles which has been drawn from the centre of the lowest windows on the ground floor of the properties at Mulvey Park, therefore, it is reasonable to conclude that no adverse impact to neighbouring daylight and sunlight amenity will occur to these properties following implementation of the developments and therefore further detailed testing is not deemed relevant.



Figure 07: Sensitive Receptors (SHD site boundary)

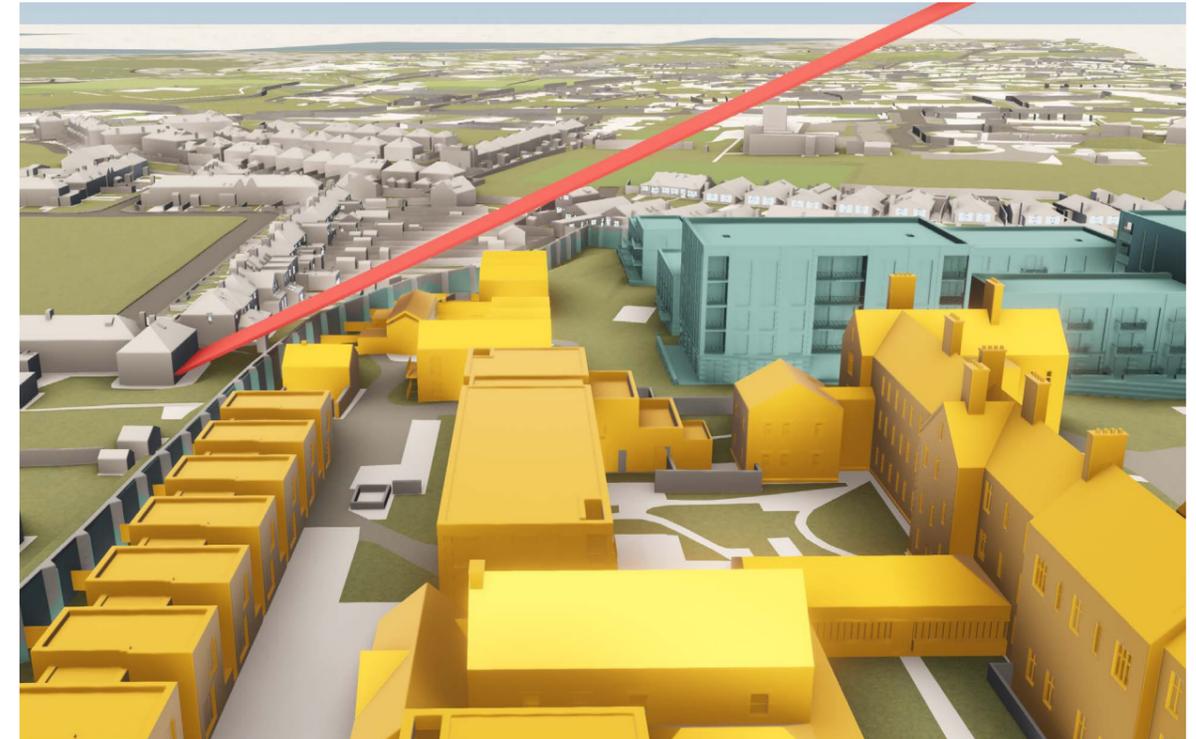


Figure 08: Example of 25-degree angle test



Figure 09: Example of 25-degree angle test

5.6 GIA have conducted detailed daylight and sunlight testing on **1099** windows across **155** residential properties neighbouring the site. Our technical analysis reveals that **150 of the properties adhere to numerical values set out within the BRE Guidelines** and are therefore not discussed further. The full set of results can be found within Appendix 04 of this report. The five properties that fall below guidance for daylight and/or sunlight are highlighted orange within figure 10 and are listed below;

- J Dundrum Road
- Annville Residence (Block 2)
- 2-3 Annville Grove
- 1 Annville Grove
- 42 Friarsland Road

5.7 Where changes in daylight and sunlight occur to the above mentioned properties, the impacts are fully discussed in the following sections. We have included window maps for each property to indicate the location of windows which fall below guidance are on the building. Windows which meet BRE guidance will be shown in green, whereas windows which fall below BRE guidance will be shown in orange. All results can be found in Appendix 04.

DISCUSSION OF RESULTS

5.8 GIA have summarised the daylight results in table format (Table 01) for the five properties falling below BRE guidance for daylight and/or sunlight.

Address	DAYLIGHT						SUNLIGHT					
	Total No. Windows	No. Windows that meet the BRE	VSC				Total No. of Windows	No. Windows that meet the BRE	APSH			
			Below BRE Guidelines						Below BRE Guidelines			
			20-29.9% Reduction	30-39.9% Reduction	>40% Reduction	Total			APSH Below 25%	Total	WPSH Below 5%	Total
J DUNDRUM ROAD (SORRENTO)	2	0	2	0	0	2	2	2	0	0	0	0
ANNAVILLE RESIDENCE BLOCK 2	12	6	3	3	0	6	0	0	0	0	0	0
2-3 ANNAVILLE LODGE	22	20	2	0	0	2	12	12	0	0	0	0
1 ANNAVILLE GROVE	9	9	0	0	0	0	5	4	1	1	1	1
42 FRIARSLAND ROAD	16	16	0	0	0	0	7	6	0	0	1	1

Table 01: Daylight & Sunlight Results (for properties which experience BRE transgressions)

Impacted Properties

5.9 There is one property along Dundrum Road that experiences transgressions to daylight and sunlight upon implementation of the proposed development, as seen within figure 11 and illustrated by orange shading. The north-eastern portion of the site is currently vacant and not built upon. A consequence of an underdeveloped site from a natural daylight and sunlight perspective is that the neighbouring properties along Dundrum Road sit within close proximity to the western site boundary and will inevitably experience some degree of change in light condition when taller buildings are proposed opposite.

5.10 The remaining properties experiencing impacts along Annville Grove and Friarsland Road, all are discussed in the subsequent pages of the report.

5.11 It should be noted that in some cases (properties along Dundrum Road) we were unable to determine the street name/ number, and therefore we have adopted our own lettering system which correlates with the numerical results appended to this report.



Figure 10: Not fully BRE compliant (in orange) against Strategic Housing Development application

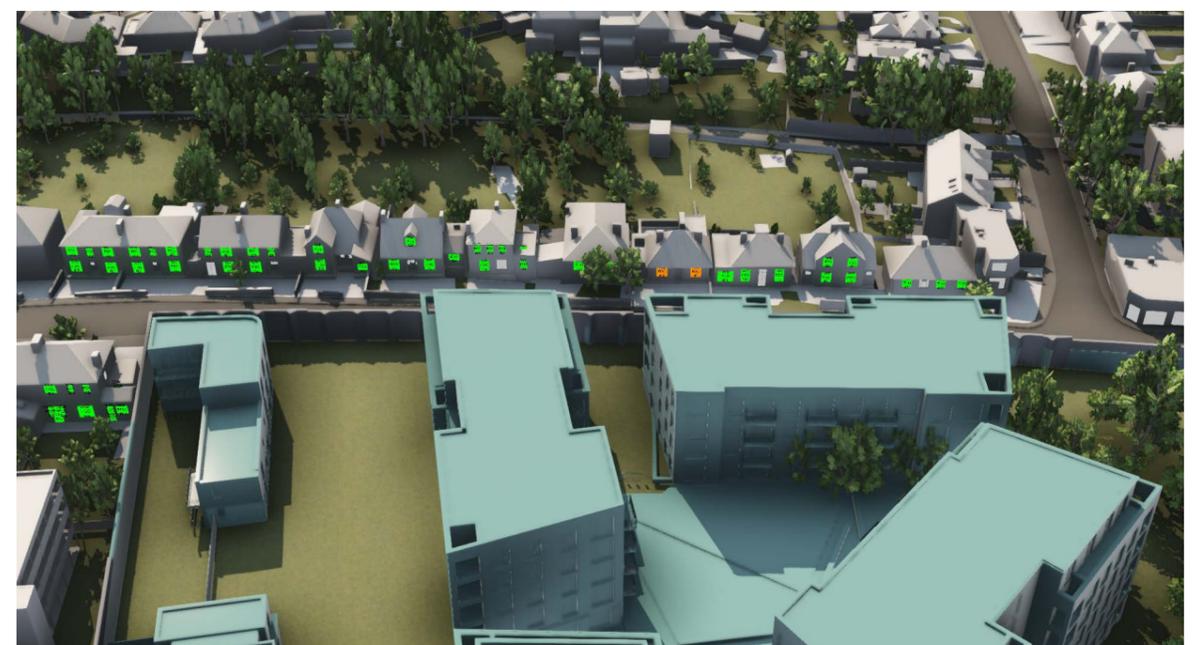


Figure 11: Windows falling below BRE Guidance for VSC in orange. Those passing are shown in green.

J Dundrum Road (Sorrento)



5.15 The single level residential dwelling on Dundrum Road known as 'Sorrento' is located to the west of the development site. GIA have been able to source floor plans for this property in order to understand the uses of rooms that have windows directly orientated towards the development site. The existing floor plans were obtained from a refused planning application (planning reference: D17B/0124) which were available on the online Dun Loaghaire-Rathdown planning portal. When undertaking our technical analysis of this building, GIA have considered there to be two windows serving two rooms (bedroom and study) which are relevant for assessment.

Sunlight

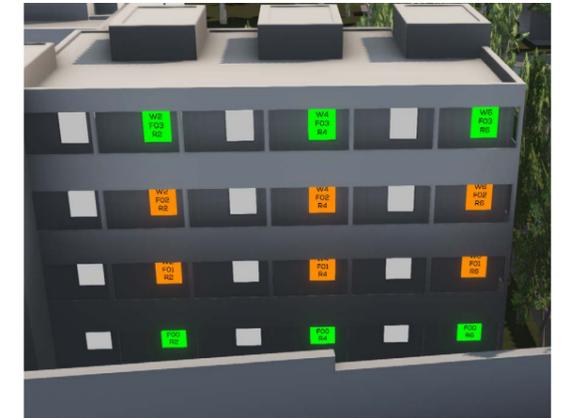
5.18 When assessed against the sunlight methodology (APSH), both windows that face within 90° due south of the development site will experience less than a 20% change, or enjoy more than 25% of APSH, meaning they will meet BRE criteria for this assessment.

Daylight

5.16 When assessed against the VSC methodology for daylight, the two windows assessed will experience slight VSC alterations of 22.2% and 21.2% respectively (against a BRE target value of 20%). The windows retain good VSC values of 20.7% and 20.8% respectively.

5.17 As we have been able to obtain floor plans for this property we have also considered the daylight assessment known as No Sky Line ('NSL') which considers the change in daylight distribution within a room in the existing and proposed scenarios. When the two site facing rooms within this property are assessed against the NSL daylight methodology, both rooms will experience an alteration of less than 20% and will therefore satisfy BRE criteria for this assessment.

Annaville Residences (Block 2)



5.19 Block 2 at Annaville Residences is a four-storey residential apartment complex located to the south of Block 10 within the development site. GIA have sourced floor plans for this property in order to understand the uses of rooms that have windows directly orientated towards the development site. The floor plans were obtained from a planning application (reference: D03A/0279) which were available on the Dun Loaghaire-Rathdown planning portal. There are 24 windows facing onto the development site, however, floor plans indicate that every second window on the row will serve an entrance/ utility room, which have therefore been discounted from the analysis as non-habitable space. When undertaking our technical analysis of this building, GIA have therefore considered there to be 12 windows serving 12 kitchens which are relevant for assessment.

Daylight

5.20 When assessed against the VSC daylight methodology, 6/12 windows will meet the BRE criteria for this assessment. The remaining six windows falling below BRE recommendations serve single aspect kitchens, three of which experience slight VSC alterations between 24.1% and 26.9%. The remaining three kitchens located on the 1st floor experience slightly greater losses between 33.7% and 34.4%. It is important to note that all impacted windows are recessed beneath external walkways which can self-limit the amount of light reaching the centre point of the window.

5.21

5.22 GIA have included a waldram analysis as seen within figure 12 (visual representation of VSC test) to demonstrate the burden overhanging structures can have on the VSC or APSH analysis.

5.23 As we have been able to obtain floor plans from a planning application (planning reference: D03A/0279) from the online Dun Loaghaire-Rathdown planning portal for this property, we have also considered the daylight assessment known as No Sky Line ('NSL') which considers the change in daylight distribution within a room in the existing and proposed scenarios. When the 12 site facing rooms within this property are assessed against the NSL daylight methodology, all 12 rooms will experience less than a 20% change and will therefore satisfy BRE criteria for this assessment.

Sunlight

5.24 GIA do not consider there to be any windows within this property which face within 90° due south of the development site relevant for sunlight assessment.

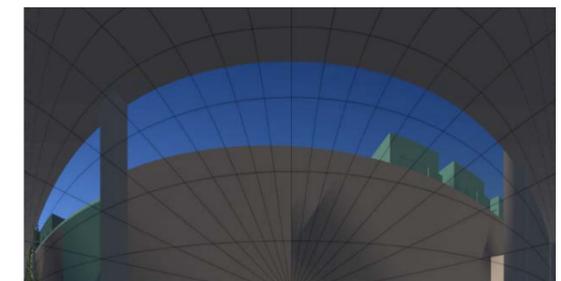
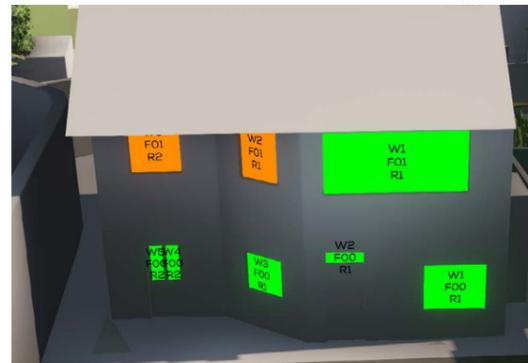


Figure 12: Waldram Image

2-3 Annville Lodge



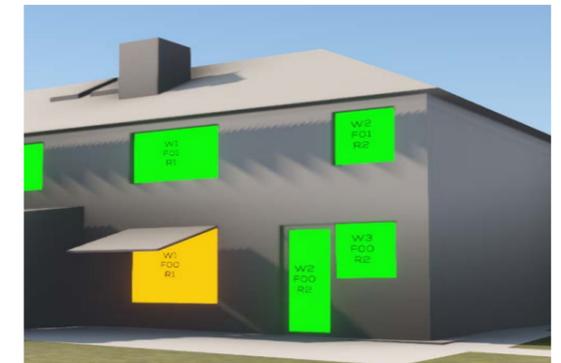
Sunlight

5.28 There are 12 windows within this property that face within 90° due south of the development site. When assessed against the sunlight methodology (APSH) all 12 windows will experience less than a 20% change, or enjoy more than 25% of APSH, meaning they will meet BRE criteria for this assessment.

Daylight

5.27 When assessed against the VSC daylight methodology, 20/22 (91%) windows demonstrate BRE compliance as they will experience either no change at all (by virtue of being at the rear of the property and not facing the site) or less than 20% change. The two windows (W2/F01 and W3/F01) falling short of guidance experience slight VSC changes of 24.5% and 20.8% respectively. It is important to note that both windows are recessed beneath the overhanging roof structure, meaning that the amount of light being received is typically less as the overhang above the window cuts out light from the top part of the sky. This means that even a small obstruction opposite can have a relatively large impact on VSC which is the case here.

1 Annville Grove



Sunlight

5.29 1 Annville Grove is a two-storey semi-detached dwelling located to the west of Block 06 within the development site. GIA have been unable to acquire floor plans for this property, therefore, certain assumptions have been made where rooms layouts and uses are unknown. Based on external observations of a typical house type, it is likely that the ground floor rooms serve a kitchen/living space and first floor rooms serve bedrooms/circulation space.

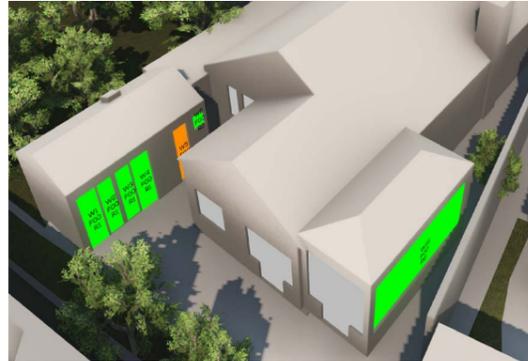
5.30 When undertaking our technical analysis of this building, GIA have considered there to be nine windows which are relevant for assessment.

Daylight

5.31 When assessed against the VSC daylight methodology, 9/9 (100%) windows will experience less than a 20% change and will therefore meet BRE criteria for this assessment.

5.32 There are five windows within this property that face within 90° due south of the development site. When assessed against the sunlight methodology (APSH), 4/5 (80%) will will experience less than a 20% change, or enjoy more than 25% of APSH, meaning they will meet BRE criteria for this assessment. The one window (W1/F00) that falls short of BRE guidance will see annual sunlight levels reduced from 15% to 10% (against a BRE target value of 25%) and winter sunlight levels reduced from 4% to 2% (against a BRE target value of 5%). This window sits beneath an overhanging structure which would limit the access to direct sunlight. However, it is clear from the image above that the structure itself appears to let light through, whereas GIA have adopted a worst case and modelled the it as if it were solid.

42 Friarsland Road



5.33 The single level dwelling at 42 Friarsland Road is located to the east of Block 02 within the development site. GIA have been unable to acquire floor plans for this property; therefore, certain assumptions have been made where rooms layouts and uses are unknown. Based on external observations of a typical house type and review of aerial imagery, we assume that the rooms facing towards the development site serve living areas/ kitchen, although this is not certain due to restricted access.

5.34 When undertaking our technical analysis of this building, GIA have considered the to be 16 windows which are relevant for assessment.

Daylight

5.35 When assessed against the VSC daylight methodology, 16/16 (100%) windows will experience less than a 20% change and therefore demonstrate BRE compliance.

Sunlight

5.36 There are seven windows within this property that face within 90° due south of the development site. When assessed against the sunlight methodology (APSH) all windows will demonstrate BRE compliance for annual sunlight, as they retain in excess of 25% or experience less than a 20% change. One window (W5/F00) which has been highlighted orange in the image above will see winter sunlight levels reduced from 1% to 0% (against a BRE target value of 5%) in the proposed scenario. It is likely that such a change in winter sunlight will go unnoticed due to the already low levels of winter sunlight received in the existing scenario.

INTENTIONALLY BLANK PAGE

6 CUMULATIVE ASSESSMENT

This section details the cumulative impact of the Strategic Housing Development application and the additional s.34 Development application at the Central Mental Hospital site in Dundrum, Dublin 14.

6.1 GIA have also been asked to review the cumulative schemes within the wider site boundary and neighbouring the development site. Of those, our professional opinion is that we should only consider the cumulative impact of the future S34 application of the subject site upon the neighbouring properties.

SECTION 34 APPLICATION

6.2 The Section 34 application within the site seeks to retain the chapel, infirmary, coach house and hospital within the northern section of the development site and construct three new blocks containing c.73 no. dwellings (studios, duplexes and houses).

6.3 GIA's interpretation of the proposed development that forms part of the S.34 application is highlighted yellow within Figure 13. Further drawings can be seen within Appendix O3 of this report.

6.4 GIA have considered the same properties as assessed against the SHD application which have also been highlighted orange within figure 14.

6.5 When we consider the cumulative impact of both the SHD and S34 applications, none of the neighbouring properties will experience any further reduction in daylight and sunlight amenity. The compliance rates for Vertical Sky Component daylight methodology and Annual Probable Sunlight Hours methodology will both remain at 99% for this cumulative assessment.

NEIGHBOURING SCHEMES

6.6 Within Table O2 (overleaf) we have provided an extensive list of the approved planning applications which are located within close proximity to the development site that have been selected, in consultation with expert consultants for the purposes of EIA cumulative impact assessment. Further detail surrounding the selected projects is set out in Chapter 21 of the enclosed EIAR. GIA can confirm that due to the significant separation distances between these applications, the development site and the pertinent neighbouring properties, cumulative analysis in relation to daylight and sunlight is not deemed to be necessary.'



Figure 13: Proposed Strategic Housing Development (in teal) and Proposed s.34 Development (in yellow)



Figure 14: Sensitive Receptors (s.34 application)

PLANNING REF.	ADDRESS	DECISION DATE	DECISION
D18A/1201 ABP-304745-19	Barn Elms Estate, 68 Churchtown Road Upper, Churchtown, Dublin 14	04 Jun 2019	DLRCC - GRANT PERMISSION ABP - GRANT PERMISSION
ABP30768320 (SHD)	Green Acres Convent, Drumahill House and the Long Acre, Upper Kilmacud Road, Dundrum, Dublin 14	10 Nov 2020	ABP - GRANT PERMISSION
ABP30446919	Greenacres, Longacre and Drumahill House, Upper Kilmacud Road, Dundrum, Dublin 14	26 Aug 2019	GRANT PERMISSION
D16A/0818	Site of approximately 1.23 hectares at Greenacres, Kilmacud Road Upper, Dublin 14	10 Mar 2017	GRANT PERMISSION
D 2 1 A / 0 6 1 5 ABP-311439-21	Site measuring 0.29ha, Bounded by Kilmacud Road Upper to the north, Drummartin Link Road to the west, and Hazelbrook Apartments to the east and south, Dublin 14	25 Aug 2021	DLRCC - REFUSE PERMISSION Application under appeal
D18A/1166	Site of 0.326ha bounded by Kilmacud Road Upper to the north, Drummartin Link Road to the west and Hazelbrook Apartments to the east and south, Dublin 14	06 Dec 2019	GRANT PERMISSION
ABP31013821	Mount Saint Mary's and Saint Joseph's, Dundrum Road, Dundrum, Dublin 14	25 Aug 2021	GRANT PERMISSION
ABP30526119	Building 5, Dundrum Town Centre, Sandyford Road, Dublin 18.	02 Dec 2019	GRANT PERMISSION
D19A/0162	Former Shell Garage, Roebuck Road, Clonskeagh, Dublin 14	05 Jul 2019	GRANT PERMISSION
D17A/1124	Site of c.2.75 hectares at Knockrabo, Mount Anville Road, Goatstown, Dublin 14 (Phase 2).	06 Sep 2018	GRANT PERMISSION
ABP30835320	the car sales premises currently known as Vector Motors (formerly known as Victor Motors), Goatstown Road, Dublin 14, D14FD23	03 Feb 2021	GRANT PERMISSION
TA 06D.TA0001	University College Dublin, Belfield, Dublin 4	09 Jan 2018	GRANT PERMISSION FOR PHASES 1 AND 2 & REFUSE PERMISSION FOR PHASE 3
D20A/0328	University College Dublin, Belfield, Dublin 4	08 Dec 2020	GRANT PERMISSION
D19A/0001	Site of c.3.73 h on lands located at the Sports Precinct in University College Dublin, Richview, Clonskeagh, Dublin 14	26 Jun 2019	GRANT PERMISSION
D18A/0243	Site of c.0.8 ha on lands located at the NovaUCD, Merville House, University College Dublin Campus, Belfield, Dublin 4 (Merville House is a Protected Structure)	16 May 2018	GRANT PERMISSION
D 2 0 A / 0 0 3 0 ABP-307514-20	On a site of c. 7.56ha at University College Dublin Campus, Belfield, Dublin 4 (the overall campus includes Protected Structures)	17 Jun 2020	GRANT PERMISSION
D18A/0244	On a site of C. 0.72 University College Dublin Campus, Belfield, Dublin 4 (the overall campus includes Protected Structures)	21 June 2018	GRANT PERMISSION
D20A/0028	On a site of C. 0.72 University College Dublin Campus, Belfield, Dublin 4 (the overall campus includes Protected Structures)	17 Jun 2020	GRANT PERMISSION
D16A/0962	Site of c.0.6ha adjoining the Lochlann Quinn School of Business & the Sutherland School of Law, UCD campus, Belfield, Dublin 4	25 Apr 2017	GRANT PERMISSION
D 1 8 A / 0 6 5 7 ABP-302639-18	Beech Hill Office Campus, Beech Hill Road, Dublin 4	30 Aug 2018	REFUSE PERMISSION GRANT PERMISSION
D20A/0350	On a site of c. 0.33 ha principally located at Block 1, 2 and 3, Belfield Office Park, Beech Hill Road, Clonskeagh, Dublin 14	17 Aug 2020	GRANT PERMISSION
D18A/1160	Site of c.0.43 ha principally located at Block nos. 1, 2 & 3 Belfield Office Park, Beech Hill Road, Clonskeagh, Dublin 14	-	GRANT PERMISSION AND RETENTION
3774/21	The Former Paper Mills Site, Clonskeagh Road, Clonskeagh, Dublin 6.	-	-

PLANNING REF.	ADDRESS	DECISION DATE	DECISION
ABP30459019	Walled Garden, Gort Mhuire, Dundrum, Dublin 14	16 Sep 2019	GRANT PERMISSION
ABP30459019	Walled Garden, Gort Mhuire, Dundrum, Dublin 14	16 Sep 2019	GRANT PERMISSION
ABP30815720	Marmalade Lane, Wyckham Avenue, Dundrum, Dublin 16	06 Jan 2021	GRANT PERMISSION
ABP30943021	2.12 ha at Our Lady's Grove, Goatstown Road, Dublin 14	03 Jun 2021	GRANT PERMISSION
PROPOSED PROJECTS			
ABP31128721	c.0.9ha at No. 97A Highfield Park (D14P710), and No. 1 Frankfort Castle (D14 HY03), No. 2 Frankfort Castle (D14DE72) and Frankfort Lodge (D14C9P2), Old Frankfort, Dublin 14	REGISTERED: 03 Sep 2021	N/A
ABP31182621	Lands at Knockrabo, Mount Anville Road,, Goatstown, Dublin 14	REGISTERED: 01 Nov 2021	N/A
D21A/0692	Overall site of c.1.17 ha University College Dublin Campus, Belfield, Dublin 4	REGISTERED: 04 Nov 2021	N/A

Table 02: Neighbouring Cumulative Schemes

7 OVERSHADOWING

7.1 GIA have completed a Transient Overshadowing Study ('TOS') to demonstrate the overshadowing effect of the proposed schemes on the surrounding built environment. The full analysis can be viewed within Appendix 05, containing visuals of the overshadowing position at regular hourly intervals between 8:00am and 5:00pm on the 21st March (Spring Equinox) and 21st June (Summer Solstice). The plots for the 21st December (Winter Solstice) contain visuals at hourly intervals between 9:00am and 3:00pm.

7.2 The Transient Overshadowing assessment is a qualitative assessment which takes into account

the shadow case by the sun path at various times of the day. Section 3.3.13 of the BRE Guidelines states: "Where a large building is proposed which may affect a number of gardens or open spaces it is often illustrative to plot a shadow plan showing the location of the shadows at different times of day and year".

7.3 Overall, it is clear from the imagery that any shadowing on neighbouring properties will be generally be brief and insignificant.

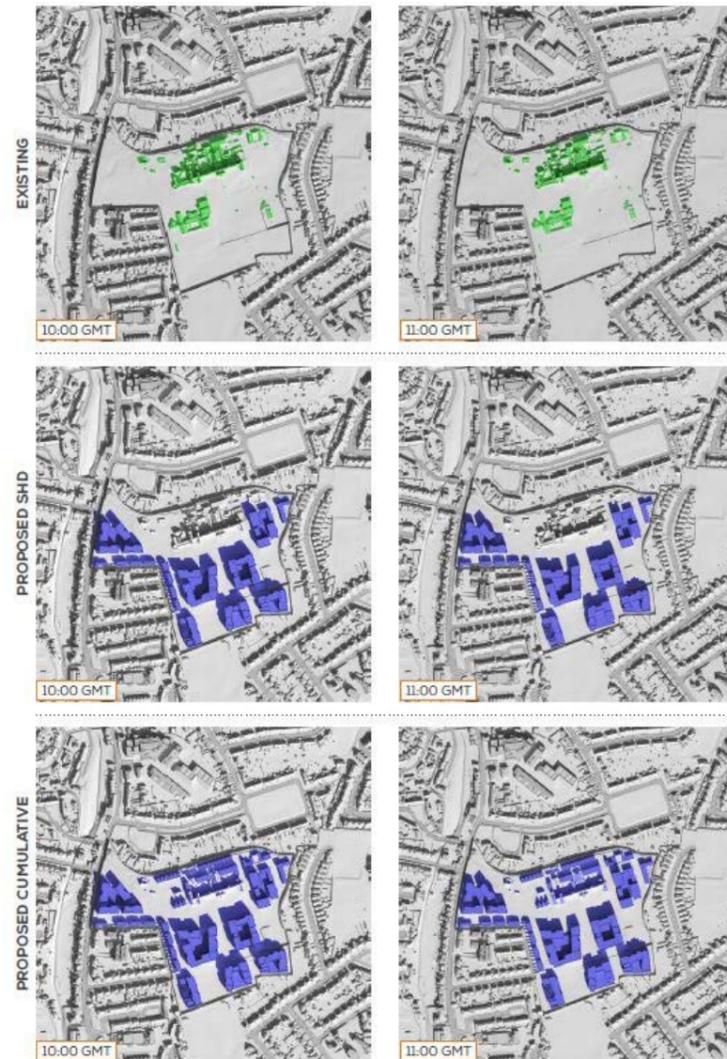


Figure 15: Example of Transient Overshadowing Study

8 CONCLUSIONS

GIA have undertaken a daylight and sunlight assessment in relation to the Proposed Strategic Housing Development at the Central Mental Hospital site in Dundrum, Dublin 14. The technical analysis has been undertaken in accordance with the BRE Guidelines.

8.1 GIA have completed a comprehensive technical analysis of the daylight and sunlight impacts produced by the Reddy Architects masterplan scheme at the former Central Mental Hospital site in Dundrum, Dublin.

8.2 In accordance with Section 2.2.5 of the BRE Guidelines, we conducted an initial daylight assessment, the 25° angle test, on the neighbours to the north at Mulvey Park. This assessment revealed that the proposed buildings within the proposed development and cumulative development would fall below that parameters of the 25° angle test, indicating there will be no adverse impact to the daylight and sunlight amenity following the implementation of the developments. These select properties were therefore discounted from more detailed testing.

8.3 Our detailed analysis considers 1099 windows across 155 individual properties, which have overall demonstrated excellent compliance rates of 99% when assessed against the VSC methodology for daylight and 99% Against the APSH method for sunlight. The results of the cumulative assessment

which includes the s.34 application of the subject site also produces the same compliance results which is very positive.

8.4 It should be noted that where BRE transgressions do occur within five of the neighbouring properties, they are generally slightly beyond BRE guidance, and in most cases will still enjoy relatively good levels of daylight and sunlight. In some cases there are contributing factors, such as overhanging walkways or balconies or structural features which contribute to the reason certain windows do not strictly meet the recommended guidance. Therefore, it is worth reiterating the sentiment in Section 1.6 of the BRE Guidelines which states that

8.5 "although it gives numerical guidelines, these should be interpreted flexibly since natural light is only one of many factors in site layout design".

8.6 GIA believe that on the balance and in context of the site, the impacts to the neighbouring properties are within the intention and application of the BRE guidelines and therefore should be considered acceptable in daylight and sunlight terms.



For further details please contact us on:

LONDON

T 020 7202 1400

E mail@gia.uk.com

The Whitehouse
Belvedere Road
London SE1 8GA

MANCHESTER

T 0161 672 5100

E manchester@gia.uk.com

2 Commercial Street
Manchester
M15 4RQ

BELFAST

T 02892 449 674

E belfast@gia.uk.com

River House
48-60 High Street
Belfast BT1 2BE

BRISTOL

T 0117 374 1504

E bristol@gia.uk.com

33 Bristol
Colston Avenue
Bristol BS1 4UA

DUBLIN

T 020 7202 1400

E hello@giasurveyors.ie

77 Lower Camden Street
Dublin Ireland
D02 XE80