Daylight and Sunlight

Royal Free Hospital

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Reference: 14562

Date: 10/09/2019

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Client:	Planning Potential
Issue Date:	10th September 2019
Document References:	14562-coro-19-0910-(Daylight and Sunlight Report) Principles of Rights to Light Existing Drawings: 14562/01-03 (Rel01) Proposed Drawings: 14562/04-06 (Rel02) Daylight and Sunlight Results (Rel02)
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Appended to this report:

Appendix 01 - Principles of Daylight and Sunlight
Appendix 02 - Existing and Proposed Drawings
Appendix 03 - Daylight & Light Results

1.0 Executive Summary

GIA have been instructed to undertake a detailed technical assessment for the proposed Maggie's Cancer Care Centre development, which is located on the existing car park at the Royal Free Hospital within the London Borough of Camden. The purpose of this assessment is to understand the potential daylight and sunlight alterations caused by the proposed Studio Libeskind Architects scheme (received by GIA 14.08.2019) upon the relevant surrounding properties.

The daylight and sunlight review within this report considers residential properties only as they are recognised by the Building Research Establishment (BRE 2011) as having the highest expectation for natural daylight when compared to other uses, such as commercial buildings where artificial light is used during the majority of its occupation.

GIA's detailed analysis considers 146 windows serving 46 rooms, within three residential properties. When assessed against the VSC methodology, 143 of 146 (97%) windows will satisfy the BRE Guidelines. When assessed against the No Sky Line ('NSL') methodology for daylight and the Annual Probable Sunlight Hours ('APSH') for sunlight, all three residential properties demonstrated 100% compliance to the BRE Guidelines for these methodologies.

The three windows which experience transgressions against the VSC methodology serve a single room within the retirement complex referred to as Argenta House which is said to serve sleeping accommodation. In the first instance, the room should be considered similar to that of a bedroom in terms of its functionality and therefore is regarded as being less sensitive as per Section 2.2.8 of the BRE which states; *"bedrooms should be analysed, although they are less important".* This is largely due to the transient nature of the room as it is expected to be used at night when daylight and sunlight is less of a requirement.

In addition to this, the room has an overhanging balcony which has the effect of limiting the quantum of daylight and sunlight that can be received to the room beneath it. When the balconies are hypothetically removed from our assessment (a concept which is supported by the BRE), the two windows located beneath the balconies will meet the BRE guidelines for VSC.

The remaining window, serving the same room, is situated along the east elevation where no balconies are present. This window will experience a marginal transgression of 20.9%, against a value of 20%, which the BRE suggests would be unnoticeable to the buildings' occupants. Furthermore, S1.6 of the BRE suggest that; *"Although, it gives numerical guidelines, these should be interpreted flexibly since natural lighting is only one of many factors in site layout design".*

Given the high compliance rates in both assessments, GIA believes the impacts to the neighbouring properties are considered to be within the intention and application of the BRE guidelines and therefore should be considered acceptable.

2.0 Instructions

GIA have been instructed to undertake a detailed technical assessment to understand the potential daylight and sunlight changes that the proposed Studio Libeskind Architects scheme dated 14th August 2019 for the Royal Free Hospital Cancer Care Centre will have upon the surrounding residential properties.

In order to undertake these detailed technical assessments a three-dimensional model of the site and surrounding buildings has been created using photogrammetric survey information. This contextual model has been used to measure the daylight and sunlight implications as a result of successful implementation of the proposed scheme.

The daylight and sunlight review within this report considers residential properties only as they are recognised by the Building Research Establishment (BRE 2011) as having the highest expectation for natural light when compared to other uses – such as commercial. The criteria suggested within the BRE have been used to understand and compare the existing levels of light and the light achieved subsequent to the development of the Cancer Care Centre scheme.

3.0 Introduction

Daylight and Sunlight

The technical analysis that forms the basis of this report has been predicated against the methodologies set out within the Building Research Establishment Guidelines entitled 'Site Layout Planning for Daylight and Sunlight – A Guide to Good Practice (2011)'. The guidelines in question are precisely that; guidelines which provide a recommendation to inform site layout and design. They are not mandatory, nor do they form planning policy and their interpretation may be treated flexibility depending on the specifics of each site.

The BRE Guidelines provide three methodologies for daylight assessment, namely;

1) The Vertical Sky Component (VSC)
2) The No Sky Line (NSL); and
3) The Average Daylight Factor (ADF)

We have used the VSC and NSL assessment methods to analyse the effects of the proposed scheme on the surrounding properties. ADF is not generally recommended by the BRE for assessing daylight to existing surrounding properties, however, it may be used in certain circumstances and these are explained in more detail within the BRE handbook.

In addition, we have used one methodology provided by the BRE Guidelines for sunlight assessment, denoted as Annual Probable Sunlight Hours (APSH).

Appendix 01 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.

4.0 Sources of Information

In compiling this report we have used the following information:

GIA

Site Photographs

3D Model of the Scheme

VU.City Modelling

IR03-19-0503- VU.CITY Modelling

F!ND

OS Map

Aerial Photography

Studio Libeskind Architects

IR06-19-0814- DWG/ 3D Model

5.0 Assumptions

a) We have relied upon a photogrammetric model (circa 300mm tolerance) and site photographs to produce three-dimensional computer model which forms the basis of the technical analysis.

b) All residential buildings have been identified by reference to the Valuation Office Agency (VOA) search and/or external observation.

c) We have not sought access to the adjoining properties thus have made reasonable assumptions as to the internal layouts of the rooms behind the fenestration based upon the building form and architecture. This is normal practice where access to adjoining properties is not available. Unless the building form dictates otherwise, we assume a standard 4.2m deep room (14ft) for residential properties. The properties we have acquired room layouts include;

- Belle Vue Apartments
- Argenta House
- Christie Court (Partial Plans)

d) Floor levels have been assumed for the adjoining properties. This dictates the level of the working place which is relevant for the No Skyline assessment.

6.0 The Site

The Maggie's Cancer Care Centre site is outlined in red within figure 01 and is located to the south of Royal Free Hospital, situated along the south west portion of the hospital's boundary. Access to the site is limited to the west along Rowland Hill Street which joins onto the main thorough through, Haverstock Hill. It is worth noting that there are a number of larger buildings which overlook the car park site from the north west to the south. GIA's interpretation of the existing site can be viewed in figure 01 (below) and within drawing plots 14562-REL01-IS01-PLOTS-01 to 03 within Appendix 02.

Figure 01 – Site Location

7.0 The Proposal

The proposal seeks to develop a three storey plus roof garden building which will form a separate part of the hospital site as it operates as a Cancer Care Unit. It is understood that the scheme will occupy a small portion of the car park site, with the intention for ground works to clear the foliage which is seen along the south west boundary. GIA's understanding of the proposed scheme can be found in drawings 14562-REL01-IS01-PLOTS-04 to 06 within Appendix 02.

Our analysis of this option is based on the proposed scheme massing models produced by Studio Libeskind Architects received on 14th August 2019.

8.0 Surrounding Properties

GIA have created a three-dimensional computer model of the site and surrounding properties to allow for a detailed daylight and sunlight assessment. The technical analysis considers the changes in light condition experienced by the surrounding properties upon successful implementation of the development by reference to the BRE methodology and criteria.

The pertinent residential buildings relevant for daylight and sunlight assessments are highlighted with figure 02 (below) and include;

1. Belle Vue Apartments
2. Argenta House
3. Christie Court

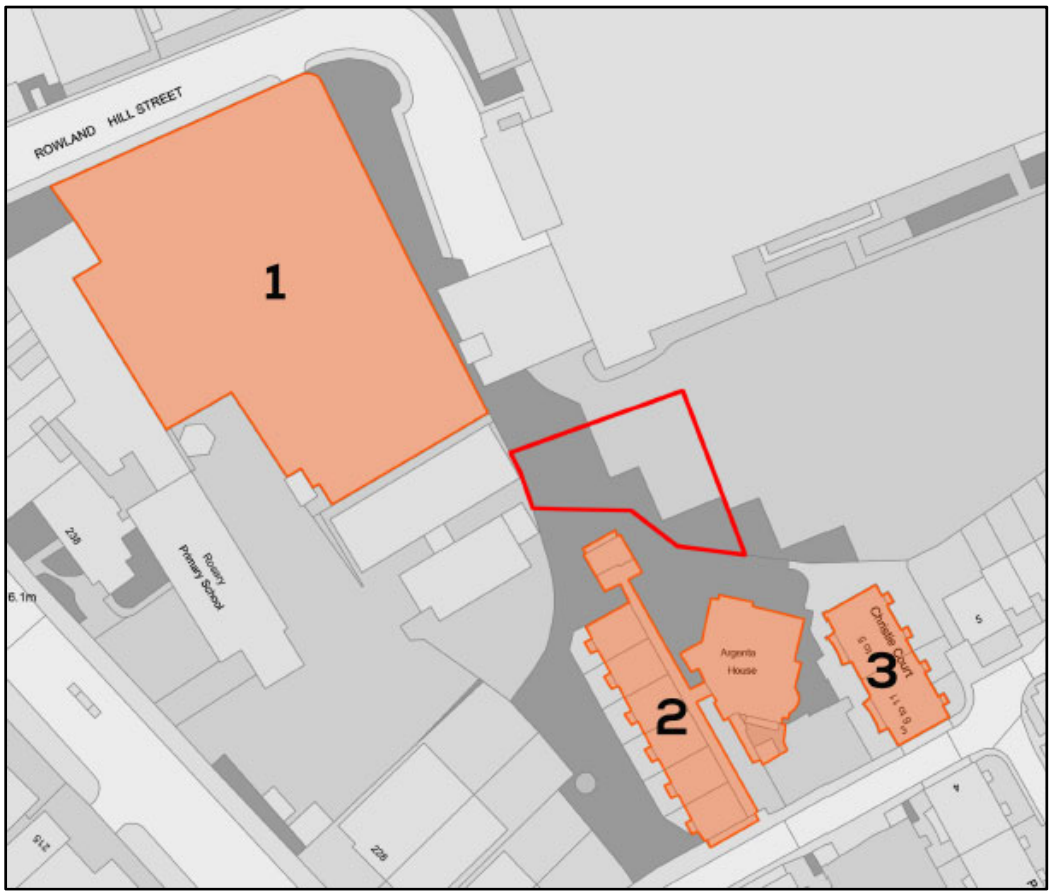


Figure 02 – Residential Properties

Following our assessment of the three residential buildings surrounding the development site, two remained compliant with the BRE, with the third experiencing minor transgressions against the 'Vertical Sky Component' (VSC) methodology. The three residential buildings are discussed in greater detail overleaf.

Belle Vue Apartments (Block C & D)

Belle Vue Apartments (Blocks C & D) is a newly developed residential complex which is located to the north west of the development site along Rowland Hill Street. GIA have been able to source room layouts for this property which have been used within our 3d site model to increase the accuracy of our results by informing the internal configuration. It is worth noting that in consideration of the distance between this property and the proposed development, only the ground to second floors have been modelled and assessed as the proposal does not protrude any higher and will therefore have no impact upon the upper floors.

Block C

Daylight

When undertaking our technical analysis of this building, GIA have considered there to be eight windows serving three separate rooms which are relevant for assessment. When assessed against the daylight methodology, the Vertical Sky Component ('VSC') 8/8 (100%) windows demonstrate BRE compliance.

When the three rooms are assessed against the No Sky Line ('NSL') methodology, 3/3 (100%) will meet the BRE criteria for this assessment.

Sunlight

In relation to sunlight, GIA have modelled and assessed four windows within this property that face within 90° due south of the development site. When assessed against the Annual Probable Sunlight Hours ('APSH') methodology, 4/4 (100%) windows will meet the BRE criteria for APSH.

Block D

Daylight

When undertaking our technical analysis of this building, GIA have considered there to be 30 windows serving 14 separate rooms which are relevant for assessment. When assessed against the VSC methodology, 30/30 (100%) windows demonstrate BRE compliance.

When the 14 rooms are assessed against the NSL methodology, 14/14 (100%) will meet the BRE criteria for this assessment.

Sunlight

In relation to sunlight, GIA consider there to be 20 windows within this property that face within 90° due south of the development site. When assessed against the Annual Probable Sunlight Hours (APSH) methodology, 20/20 (100%) windows will meet the BRE criteria for APSH.

Argenta House

Argenta House is a retirement housing complex which is located directly south of the development site. GIA have been able to source room layouts for this property which have been used within our 3d model of the site to increase the accuracy of our findings by informing the internal configuration. Upon review of the room layouts obtained, it is evident that a number of the windows facing onto the development site serve either sleeping accommodation or recreation rooms. GIA note that the sleeping accommodation is not dissimilar to that of a bedroom and draw on the BRE Guidelines which states in 2.2.8; *"bedrooms should be analysed, although they are less important".*

Daylight

When undertaking our technical analysis of this building, GIA have considered there to be 97 windows serving 26 separate rooms which are relevant for assessment. When assessed against the VSC methodology, 94/97 (96%) windows demonstrate BRE compliance. The three remaining windows (W4/F01, W6/F01, W7/F01) which do not meet the BRE criteria serve a single room defined as 'sleeping accommodation' and will undergo a change in VSC of 20.9%, 57.1% and 30.3% VSC respectively, against a 20% target value.

W4/F01 retains a VSC value of 26.5% which is marginally below the BRE's recommended 27% VSC. Given that our analysis illustrates a 0.9% change beyond the BRE's recommended 20% target value, such an alteration is considered to be marginal and unnoticeable.

The two remaining windows (W6/F01, W7/F01) are situated along the elevation which has balconies and have low existing values of 2.8% and 10.9% and therefore any reduction in VSC will have the potential to cause a disproportionately large percentage change, as the existing window VSC values are low. The absolute change in VSC to these windows will be 1.2% and 7.6% respectively. Both windows are, however, beneath overhanging balconies which are a significant contributing factor to the results shown.

Where balconies are concerned, the amount of light being received is typically less as the overhang cuts out light from the top part of the sky which even a small obstruction can have a relatively large impact on VSC and on the area receiving daylight.

In any case, Section 2.2.11 of the BRE Guidelines suggest that *"One way to demonstrate this would be to carry out an additional calculation of the VSC and area receiving direct sunlight, for both the existing and proposed situations, without the balcony in place."*

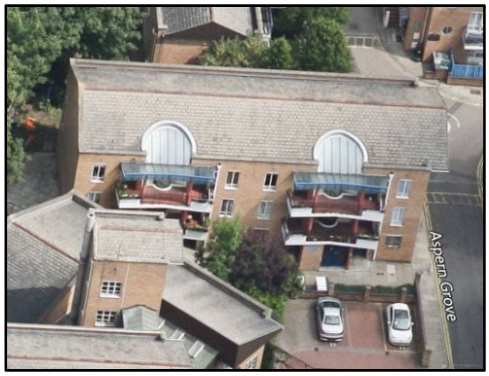
GIA have undertaken a second assessment without the balconies which indicate that both windows (W6/F01, W7/F01) will demonstrate BRE compliance, which indicates that it is the architectural form of the façade itself, rather than the extent of the proposed development, which is driving the transgressions to these windows.

Notwithstanding the above, the 26 rooms are assessed against the NSL methodology, 26/26 (100%), which includes the aforementioned 'sleeping accommodation', will meet the BRE criteria for this assessment.

Sunlight

In relation to sunlight, GIA consider there to be no windows within this property which face within 90° due south of the development site relevant for assessment, therefore, no reduction in sunlight is expected.

Christie Court



Christie Court is located to the south east of the development site. GIA have been able to source partial room layouts for this property and have therefore used these to inform the internal configuration.

Daylight

When undertaking our technical analysis of this building, GIA have considered there to be 11 windows serving three separate rooms which are relevant for assessment. When assessed against the VSC methodology, 11/11 (100%) windows demonstrate BRE compliance.

When the three rooms are assessed against the No Sky Line (NSL) methodology, 3/3 (100%) will meet the BRE criteria for this assessment.

Sunlight

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

9.0 Conclusions

GIA have assessed three properties surrounding the development site which have been identified as residential in use. Of the three properties assessed, two properties (Christie Court and the Bell Vue apartments) will fully meet the BRE criteria for both daylight and sunlight, in that every window and room required to be assessed will satisfy the VSC, NSL and APSH assessments. The single residential property which does not fully meet the BRE recommendations, experiences minor VSC transgressions to a single bedroom/ sleeping accommodation, however, satisfies both NSL and APSH assessments.

Our analysis concludes, that the single impacted room along the first floor of Argenta House serves sleeping accommodation, which already has low existing values, is already burdened by overhanging balconies. When the balconies are removed from the assessment in accordance with the BRE document, these windows will pass the VSC test. The one remaining window will experience a very small transgression of 20.9% against a 20% target value. It is worth reiterating at this point that Section 2.2.8 of the BRE Guidelines states; *"bedrooms should also be analysed although they are less important"*.

In GIA's opinion, the overall impact of the proposed development is considered to be negligible to minor adverse, GIA are of the opinion that the impact of the proposed scheme and should be considered within the intention and application of the BRE Guidelines for an inner urban environment.

Appendix 01

Principles of Daylight and Sunlight

Principles of Daylight and Sunlight

Background

The quality of amenity and open spaces is often stipulated within planning policy for protection or enhancement and is often a concern for adjoining properties and other interested parties.

Historically the department of environment provided guidance in the issues, and in this country, this role has now been taken on by the Building Research Establishment (BRE), the British Standards Institutions (BSI) and the charted institute of building services engineers (CIBSE). Fortunately they have collaborated in many areas, to provide as much unified advice as possible in the form of industry best practice.

Many local planning authorities consider daylight and sunlight an important factor for determining planning applications. Policies refer to both the protection of daylight and sunlight amenity within existing properties as well as the creation of proposed dwellings with high levels of daylight and sunlight amenities.

In terms of considering what is material local authorities typically refer to the BRE guidelines and apply their criteria set out within. The guidelines were originally produced out in 1991, but superseded by the BRE guidelines (2011*) site layout planning for daylight and sunlight.*

Where developers are seeking to maximise their development value, it is often in the area of daylight and sunlight issues that they may seek to push the boundaries. Particularly in London, there is a priority on the creation of more housing thus resulting in the densification of urban areas. Local authorities vary in their attitude of how flexible they can be with the degree of impact on the daylight and sunlight amenity enjoyed by neighbouring owners and it is one factor among many planning aspects considered when determining an application. In city centres where high density is common, the protection of amenity is more challenging and there are many factors that need to be taken into account: each case has to be considered on its own merits.

The BRE Guidelines

The guidelines are typically refereed to for daylight and sunlight amenity issues, however they were not intended to be used as an instrument of planning policy. In the introduction of 'Site Layout Planning for Daylight and Sunlight (2011)', section 1.6 (page 1), states that:-

> *"The guide is intended for building designers and their clients, consultants and planning officials. The advice given here is not mandatory and this document 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 because natural lighting is only one of many factors in site layout design (see Section 5). In special circumstances the developer or Planning Authority may wish to use different target values. For example, in an historic city centre, or in an area with modern high rise buildings, a higher degree of obstruction may be unavoidable if new developments are to match the height and proportions of existing buildings".*

Again, the paragraph 2.2.3 (page 7) of the document states:-

> *"Note that 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 numerical criteria suggested by the BRE are therefore designed to provide industry advice/guidance to plan/design with daylight in mind. Alternative values may be appropriate in certain circumstances such as highly dense urban areas around London, for e.g. The approach to creating alternative criteria is detailed within Appendix F of the BRE.

Measurement and Criteria for Daylight and Sunlight as set out in the BRE Guidelines

The BRE guidelines state that they are;

> *"intended for use for rooms in adjoining dwellings where daylight is required, including living rooms, kitchens and bedroom. Windows to bathrooms, toilets, garages need not be analysed."*

They are therefore primarily designed to be used for residential properties however, the BRE guidelines continue to state that they may be applied to any existing non-residential buildings where there may be a reasonable expectation of daylight including; schools, hospitals, hostels, small workshop and some offices.

Daylight

In the first instance, if a proposed development falls beneath a 25 degree angle taken from the centre point of the lowest window, then the BRE suggests that no further analysis is required as there will be adequate sky light (i.e. sky visibility). This rule is applied when considering the scope of any assessments.

The BRE guidelines provide two methods for calculating daylight to existing surrounding properties:

- Vertical Sky Component (VSC)
- No Sky Line (NSL) also refer4eed to as daylight distribution

A further method, the Average Daylight Factor (ADF) is provided for calculating daylight within proposed properties. However, it is sometimes applied as a supplementary assessment for exiting surrounding properties.

Each method is described below:

Vertical Sky Component

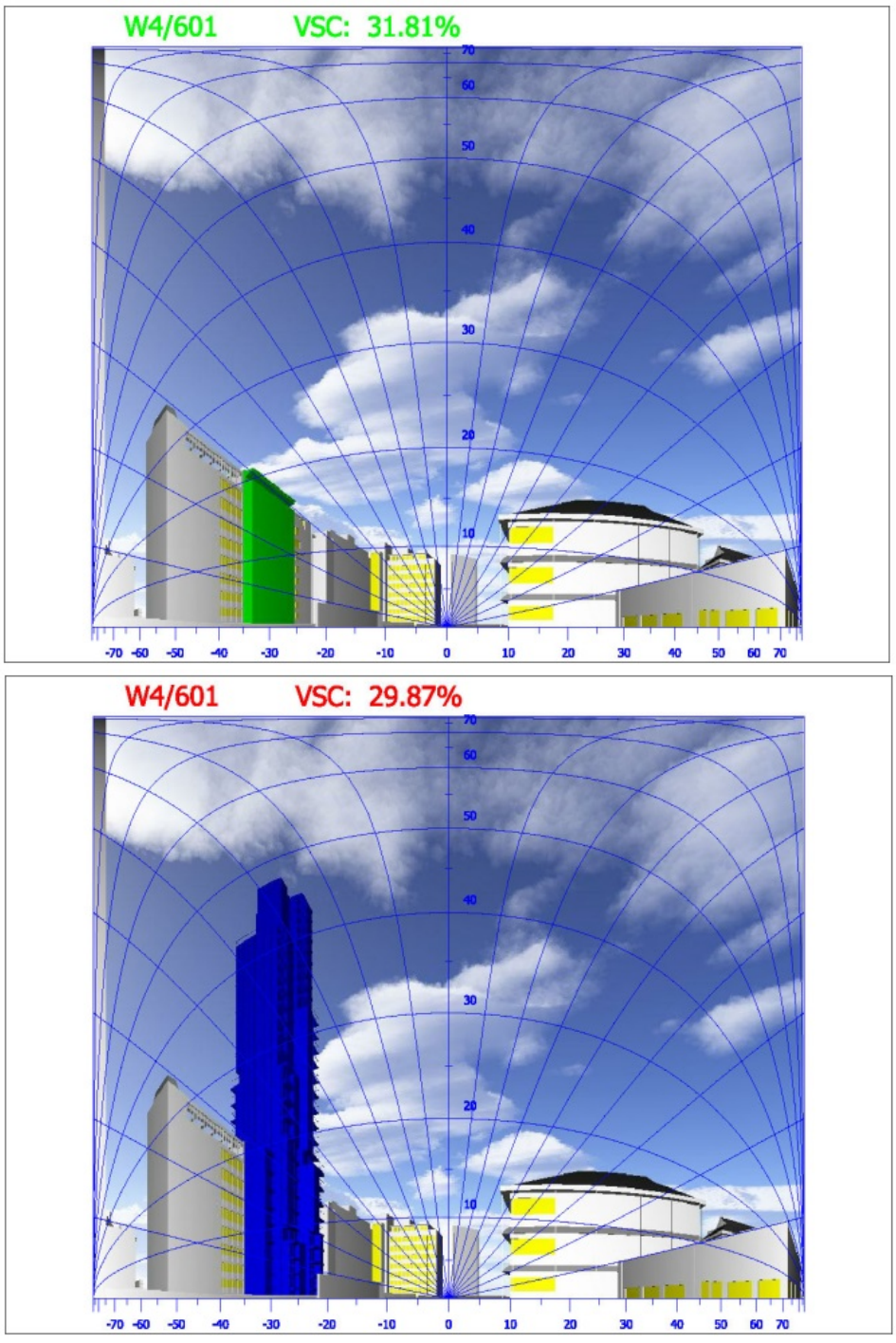
Methodology

This is defined in the BRE as:-

> *"Ratio of that part of illuminance, at a point on a given vertical plane that is received directly from a CIE standard overcast sky, to illuminate on a horizontal plane due to an unobstructed hemisphere of this sky."*

This statement means, in practice that if one had a totally unobstructed view of the sky, looking in a single direction, then just under 40% of the complete hemisphere would be visible. The measurement of this vertical sky component is undertaken using two indicators, namely a skylight indicator and a transparent direction finder.

Alternatively a further method of measuring the VSC, which is easier to understand both in concept and analysis, is often more precise and can deal with more complex instructions, is that of the Waldram diagram.



The point of reference is the same as for the skylight indicator, at the centre of the outward window face. Effectively a snap shot is taken from that point of the sky in front of the window, before and after the obstruction is put in place together with all the relevant obstructions to it, i.e. the buildings.

An unobstructed sky from that point of reference would give a vertical sky component of 39.6%, corresponding to 50% of the hemisphere, and therefore the purpose of the diagram is to discover how much sky remains once obstructions exist in front of that point.

Criteria

The BRE Handbook provides criteria for:

(a) New Development
(b) Existing Buildings
(c) Adjoining Development Land

(a) New Development

Paragraph 2.1.21 of the BRE states that:

"Obstructions can limit access to light from the sky. This can be checked by measuring or calculating the angle of visible sky 'theta', angle of obstruction or Vertical Sky Component (VSC) at the centre of the lowest window where daylight is required. If VSC is:

- at least 27% ('theta' is greater than 65 degrees, obstruction angle less than 25 degrees) conventional window design will usually give reasonable results.
- between 15% and 27 % ('theta' is between 45 degrees and 65 degrees, obstruction angle between 25 degrees and 45 degrees) special measures (larger windows, changes to room layout) are usually needed to provide adequate daylight.
- between 5% and 15% ('theta' is between 25 degrees and 45 degrees, obstruction angle between 45 degrees and 65 degrees) it is very difficult to provide adequate daylight unless very large windows are used.
- less than 5% ('theta' less than 25 degrees, obstruction angle more than 65 degrees) it is often impossible to achieve reasonable daylight, even if the whole window wall is glazed."

(b) Existing Buildings

Para 2.2.21 (page 11) of the BRE states:

"If any part of a new building or extension measured in a vertical section perpendicular to a main window wall of an existing building, from the centre of the lowest window, subtends an angle of more than 25 degree to the horizontal, then the diffuse daylighting of the existing building may be adversely affected. This will be the case if the vertical sky component measured at the centre of an existing main window is less than 27%, and less than 0.8 times its former value".

The VSC provide a quick and simple test which looks to give an early indication of the potential for light at the window face. However considered in isolation, it does not, in any fashion, indicate the quality of actual light within a space. It does not take into account the window size, the room size or room use. It helps by indicating that if there is an appreciable amount of sky visible from a given point there will be a reasonable potential for daylighting.

(c) Adjoining Development Land

Paragraph 2.3.10 of the BRE guidelines states:

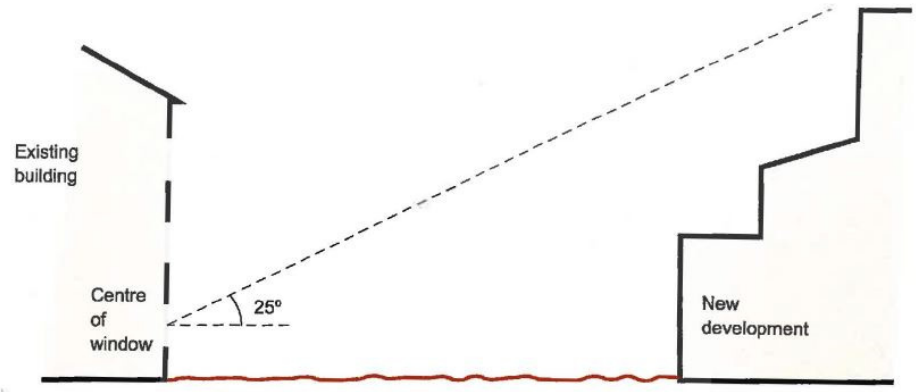
"in broad general terms, a development site next to a proposed new building will retain the potential for good diffuse daylighting providd that on each common boundary:

(a) no new building, measured in a vertical section perpendicular to the boundary, from a point 1.6m above ground level, subtends an angle of more than 43 degrees to the horizontal;

(b) or, If (a) is not satisfied, then all points 16.m above the boundary line are within 4m (measured along the boundary) of a point which has a VSC (looking towards the new building(s)) of 17% or more 2m above ground level are within 4m (measured sideways) of a point which has a vertical sky component of 27% or more.

Alternative VSC criteria as per Appendix F of the BRE guidelines

The 27% VSC target criteria is based upon a sub-urban type environment whereby a 25 degree line was taken from the centre point on a ground floor window as shown below:



However, in city centre locations and urban areas where density levels are increasing, these values may not be considered appropriate. The BRE guidelines provide that "*different targets may be used based on the special requirements of the proposed development or its location*" (paragraph F1).

Appendix F of the BRE suggests several approaches as to how alternative targets may be considered including:

- Consented scheme - use of an extant planning permission to establish alternative benchmark criteria for VSC and APSH. It is not appropriate to treat a permitted scheme in the same manner as an existing building and allow a 20% reduction beyond this. if the levels of daylight and sunlight retained are similar to a previously consented scheme then it follows these levels should be considered acceptable again, notwithstanding other planning considerations.
- Mirror massing – to ensure a development matches the height and proportions of existing buildings, the VSC and APSH targets could be set to those of a mirror image of the same height and size, an equal distance away from the boundary (paragraph F5).
- Consider surrounding context and existing obstruction angles as well as spacing to height ratios.

In addition, due to the requirements for external amenity space within local planning policies, many residential buildings are served by balconies. Balconies can restrict the view of the sky dome whereby even the modest obstruction may result in a large relative impact on the VSC. The BRE guidelines therefore provide that an assessment can be carried out comparing the levels of VSC with and without the balconies in place for both the existing and proposed scenarios, to establish whether it is the presence of the balcony or the size of the new obstruction that is the main factor in the loss of light (paragraph 2.2.11).

No Sky Line

Methodology

The NSL method is a measure of the distribution of daylight at the working plane within a room. The 'working plane' means a horizontal 'desktop' plane 0.85m in height for residential properties. The NSL divides those areas of the working plane which can receive direct sky light from those which cannot. If a significant area of the working plane lies beyond the NSL (i.e. it receives no direct sky light), then the distribution of daylight in the room will be poor and supplementary electric lighting may be required.

It is similar to the VSC approach in that a reduction of 0.8 times in the area of sky visibility at the working plane may be deemed to be noticeable. It is however, very dependent upon knowing the actual room layouts or having a reasonable understanding of the likely layouts.

It is assessed by plotting the area of a room which can see the sky and which cannot, referred to as the NSL contour or daylight distribution contour. The contours assist in helping to understand the way the daylight is distributed within a room and the comparisons of existing and limitations of proposed circumstances within neighbouring properties. Like the VSC method, it relates to the amount of visible sky but does not consider the room use in its criteria, it is simply a test to assess the change in position of the No Sky Line, between the existing and proposed situation. It does take into account the number and size of windows to a room, but does not give any quantitative or qualitative assessment of the light in the rooms, only where sky can or cannot be seen.

Criteria

BS 8206 Part 2 (para 5.7) that the:

> *"uniformity of daylight is considered to be unsatisfactory if a significant part of the working plane (normally more than 20%) lies behind the no-sky line".*

Therefore, it is implied that an NSL of at least 80% would be considered satisfactory in regards to deep rooms which are lit by windows on one side, the BRE Guidelines state (para, 2.2.10):

In regards to the alteration as a result of a proposed development or obstruction the BRE provide that the daylight may be adversely affected if *" the area of the working plane in a room which can receive direct skylight is reduced to less than 0.8 times its former value. ".*

Average Daylight Factor

Methodology

The Average Daylight Factor (ADF) is defined within the 2011 BRE Guidelines as:

> *'a ratio of total daylight flux incident on a reference area to the total area of the reference area, expressed as a percentage of outdoor luminance on a horizontal plane, due to an unobstructed sky of assumed or known luminance distribution'.*

Whilst the BRE guidelines provide this measure as a tool to understand daylight within proposed dwellings not existing dwellings, if room layouts are known it can provide a useful supplementary measure of daylight and is often requested by many local authorities.

The ADF method of assessment considers:

- The diffuse visible transmittance of the glazing to the room in question (i.e. how much light gets through the window glass). A transmittance value of 0.8% is assumed for single glazing and 0.65% for double glazed windows;
- The net glazed area of the window in question;
- The total area of the room surfaces (ceiling, walls, floor and windows); and
- The angle of visible sky reaching the window(s) in question

In addition, the ADF method makes allowance for the average reflectance of the internal surfaces of the room and of external obstruction (assumed to be 0.5 unless otherwise stated).

Criteria

The criteria for ADF is taken from the British Standard 8206 part II which gives the following criteria based on the room use:

- Bedroom – 1% ADF
- Living room – 1.5% ADF
- Kitchen – 2% ADF

Where a room has multiple uses such as a living kitchen diner (LKD) or a studio apartment, the highest value is taken so in these cases the required ADF is 2%.

Sunlight

Methodology

The BS 8206 part 2 (section 5.2) states that:

> *"Provided that the entry of sunlight is properly controlled, it is generally welcome in most buildings in the UK. Dissatisfaction can arise as much from the permanent exclusion of sunlight as from its excess. The provision of sunlight is important in dwellings, particularly during winter months. Sunlight is especially valued in habitable rooms used for long periods during the day."*

Principles of Daylight and Sunlight

Sunlight is measured using a sun indicator which contains 100 spots, each representing 1% of Annual Probable Sunlight Hours (APSH). Where no obstruction exists the total APSH would amount to 1486 hours and therefore each spot equates to 14.86 hours of the total annual sunlight hours.

The number of spots is calculated for both the whole year and also during the winter period (21st September to 21st March) prior to an obstruction and after the obstruction is put in place. This provides a percentage of APSH for each of the time periods for each window assessed. The 2011 BRE Guidelines note that:

- *"In housing, the main requirement for sunlight is in living rooms, where it is valued at any time of day, but especially in the afternoon."*

- *"all main living rooms of dwellings…should be checked if they have a window facing within 90° of due south. Kitchens and bedrooms are less important, although care should be taken not to block too much sun"; and*

- *"If the main living room to a dwelling has a main window facing within 90° of due north, but a secondary window facing within 90° of due south, sunlight to the secondary window should be checked."*

- *"…a south facing window will, in general, receive most sunlight, while a north facing one will receive it only on a handful of occasions. East and west facing windows will receive sunlight only at certain times of day".*

When a room has multiple windows, not all may have a southerly orientation however, these windows may contribute to the levels of sunlight within a given room even if by 1-2% APSH. As well as the assessment on a window basis the BRE guidelines provide that an assessment can be undertaken on a room basis.

Whilst the emphasis of the BRE guidelines is in regards to living rooms, it is not always possible to determine the room uses within all of the properties assessed and therefore typically all windows or all rooms with windows facing within 90 degrees of due south and facing the site are assessed.

Criteria

The BRE provide that for existing buildings a window maybe 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; and
- Receives less than 0.8 times its former sunlight hours in either time period; and
- Has a reduction in sunlight for the whole year more than 4% APSH.

In terms of the assessment on a room basis the criteria applied is the same.

For proposed buildings the BRE provide (paragraph 3.1.15) that a dwelling or building which has a particular requirement for sunlight will appear reasonably sunlit provided:

- At least one main window faces within 90 degrees of due south; and

- Centre of one main living room window can receive 25% of APSH including 5% APSH in the winter months.

It continues that where groups of dwellings are planned the layout should aim to maximise the number of living rooms that meet the above recommendations.

Overshadowing

As well as daylight and sunlight amenity to neighbouring dwellings, planning policy often refers to the levels of overshadowing to amenity areas such as parks, public squares, playgrounds etc. The BRE guidelines provide two methods of calculation in regards to overshadowing which are as follows:

Sun Hours on Ground

Methodology

This method of overshadowing assessment uses the sun on ground indicator to determine the areas which receive direct sunlight and those which do not. This method applies to both new and existing areas of amenity space. The BRE Guidelines suggest that the Spring Equinox (21st March) is a suitable date for the assessment as this is the midpoint of the suns position throughout the year. Using specialist software, the path of the sun is tracked to determine where the sun would reach the ground and where it would not.

Criteria

The BRE guidelines recommend that at least half of an amenity space should receive at least 2 hours of direct sunlight on March 21st. In regards to existing spaces where the existing sunlit area is less than half of the area, the area which receives 2 hours of sunlight should not be reduced by more than 20% (it should retain 0.8 times its former value).

Transient Overshadowing

The BRE guidelines suggest that where large buildings are proposed which may affect a number of gardens or open spaces, it is useful to plot a shadow plan to illustrate the location of shadows at different times of the day and year. For the purpose of this assessment, shadow has been mapped at the following times of the year:

- 21st March (spring equinox)
- 21st June (Summer solstice)
- 21st December (winter solstice)

The September equinox is not assessed as this would provide the same results as those for March 21st.

For each of these dates the overshadowing is calculated at hourly intervals throughout the day however some images may not be present given the early sun set during the winter period.

The BRE guidelines do not provide any criteria for transient overshadowing. Therefore the analysis provides a description of where additional shadow is cast as a result of a development with professional judgement to determine the effect comparing the shadow resulting from the proposed development against that of the existing site.

Light pollution and Solar Glare

Light pollution is defined as any light emitting from artificial sources into spaces where it is not wanted for example from offices into neighbouring residential properties where it could cause a nuisance. The ILP Guidance notes provide details of how to measure light pollution and criteria based on the urban density of the respective area to determine the acceptability of the light levels.

Solar glare is particularly important at pedestrian and road junctions as well as along railway lines where the glare can cause a temporary blinding of drivers or pedestrians. Glare can occur from reflective materials such as glazed areas or metal cladding on the facades. This assessment is therefore undertaken from viewpoints surrounding the site at junctions and positioned at the drive's eye level. Focal points are dictated by the location of signals or oncoming traffic.

Other Amenity Considerations

Daylight and sunlight is one factor among many under the heading of residential amenity considerations for any given development design or planning application; others include:

- outlook
- sense of enclosure
- privacy
- access to outdoor space e.g. balconies or communal garden/courtyard

Appendix 02

Drawings

PLAN VIEW EXISITNG

SCALE 1:500

SOURCES OF INFORMATION

IR03-VERTEX MODELLING
Recieved 03.05.2019

IR05-LIBESKIND
Recieved 13.05.2019

.

NOTES:
EXISTING SCENARIO SHOWN IN SEPIA
ALL HEIGHTS AND DIMENSIONS GIVEN IN m AOD
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N.B. DO NOT SCALE OFF THIS DRAWING

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DRAWING NAME:
PLAN VIEW EXISTING

DWN BY	SCALE	CHK BY	DATE	REV No.
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PROJ No.	REL No.	ADDR No.	IS No.	DWG No.
14562	01	-	01	01

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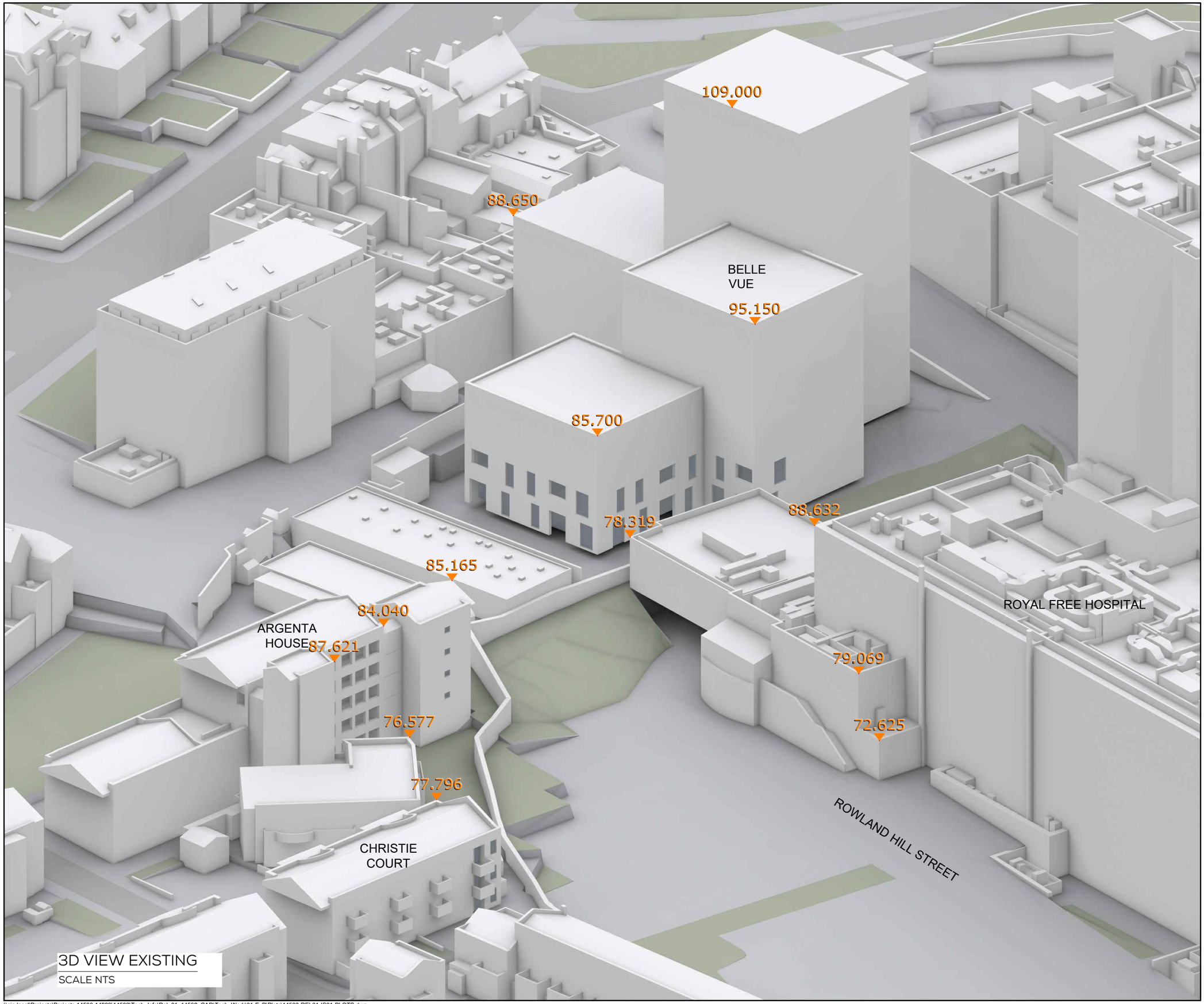

3D VIEW EXISTING

SCALE NTS

SOURCES OF INFORMATION

IR03-VERTEX MODELLING
Recieved 03.05.2019

IR05-LIBESKIND
Recieved 13.05.2019

NOTES:
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3D VIEW EXISTING

DWN BY	SCALE	CHK BY	DATE	REV No.
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PROJ No.	REL No.	ADDR No.	IS No.	DWG No.
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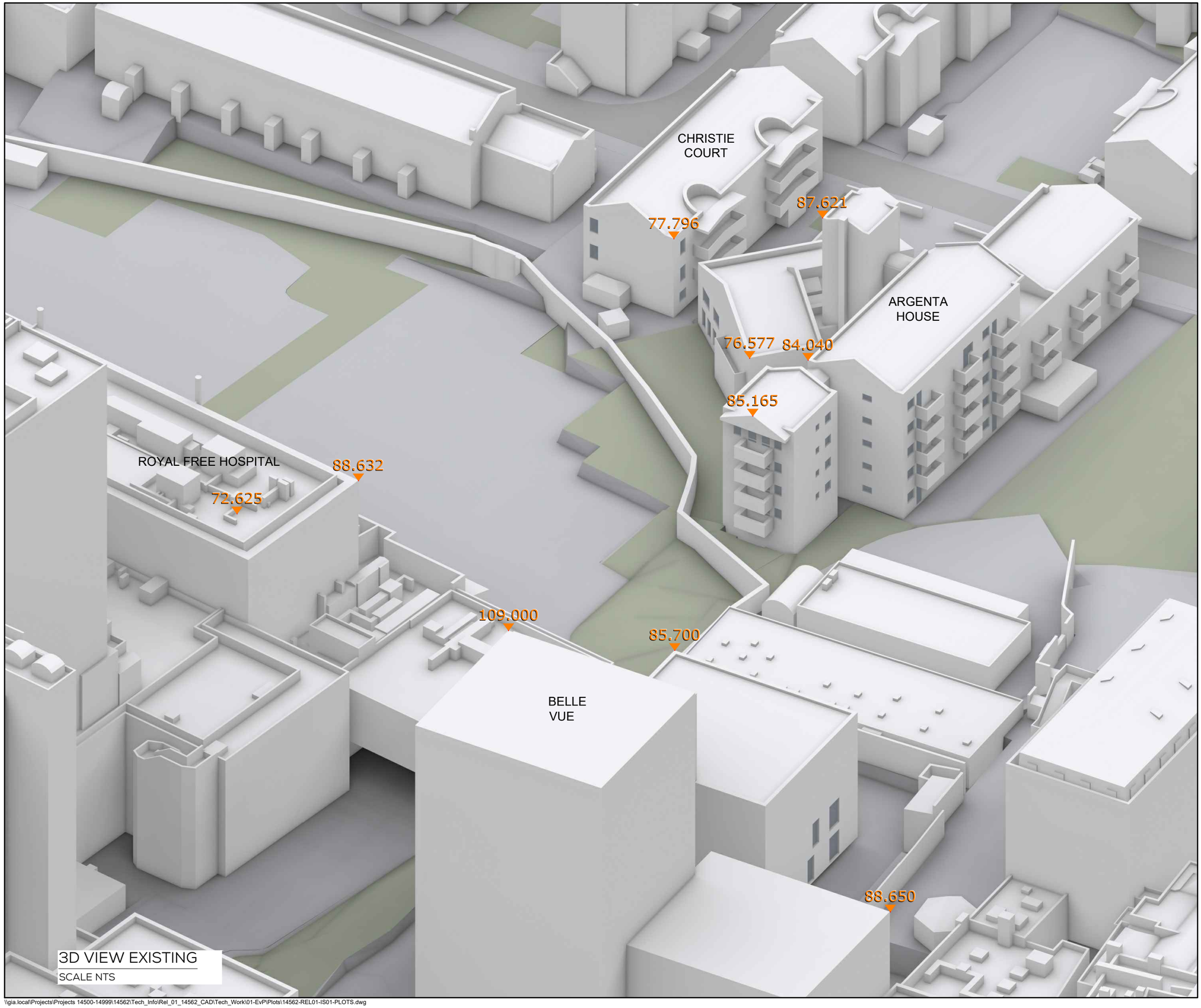

3D VIEW EXISTING

SCALE NTS

SOURCES OF INFORMATION

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Recieved 03.05.2019

IR05-LIBESKIND
Recieved 13.05.2019

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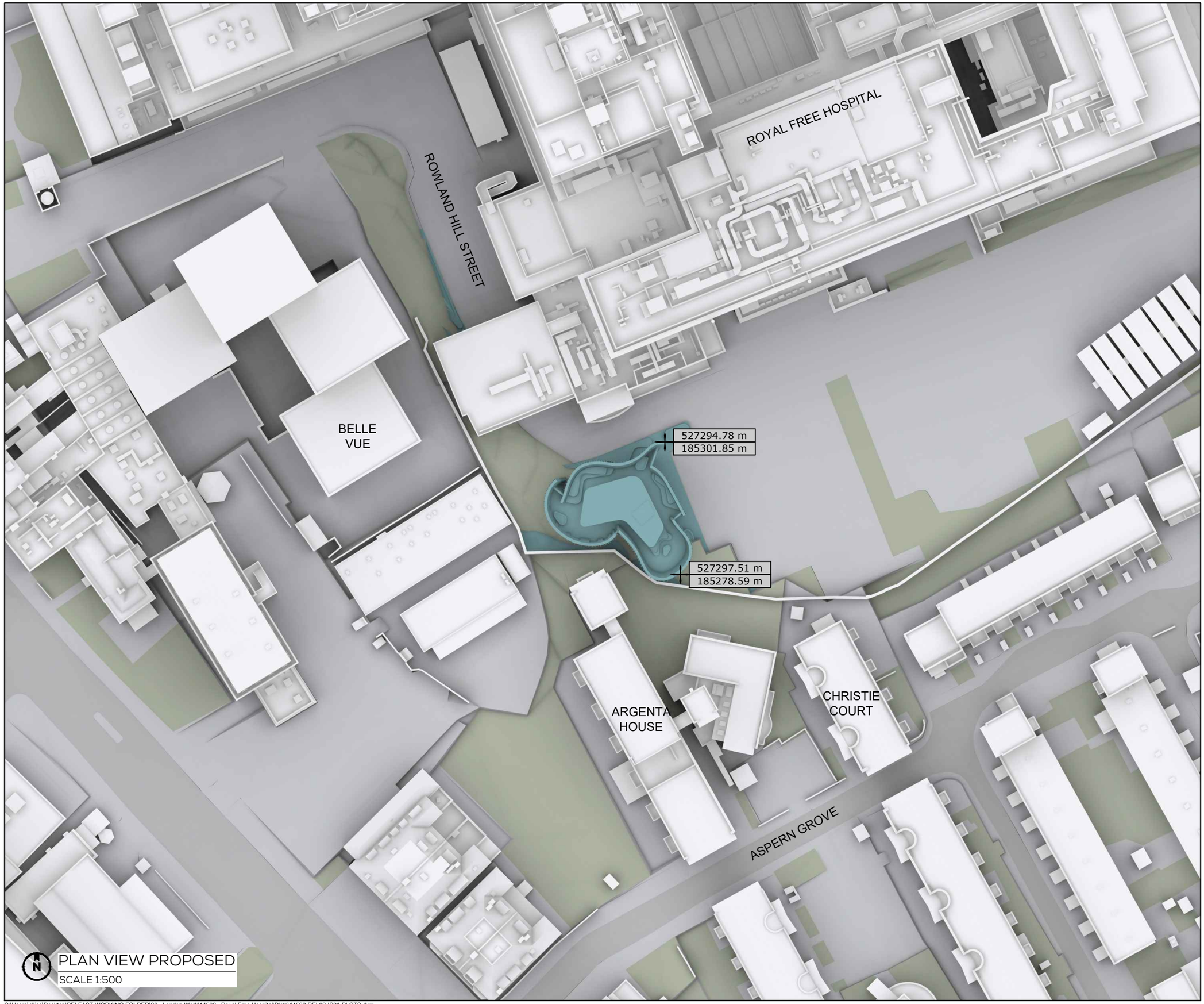
Proposed



PLAN VIEW PROPOSED
SCALE 1:500

SOURCES OF INFORMATION

IR03-VERTEX MODELLING
Recieved 03.05.2019

IR06-LIBESKIND
Recieved 14.08.2019

NOTES:
PROPOSED SCHEME SHOWN IN TEAL
ALL HEIGHTS AND DIMENSIONS GIVEN IN m AOD

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DRAWING NAME:
PLAN VIEW PROPOSED

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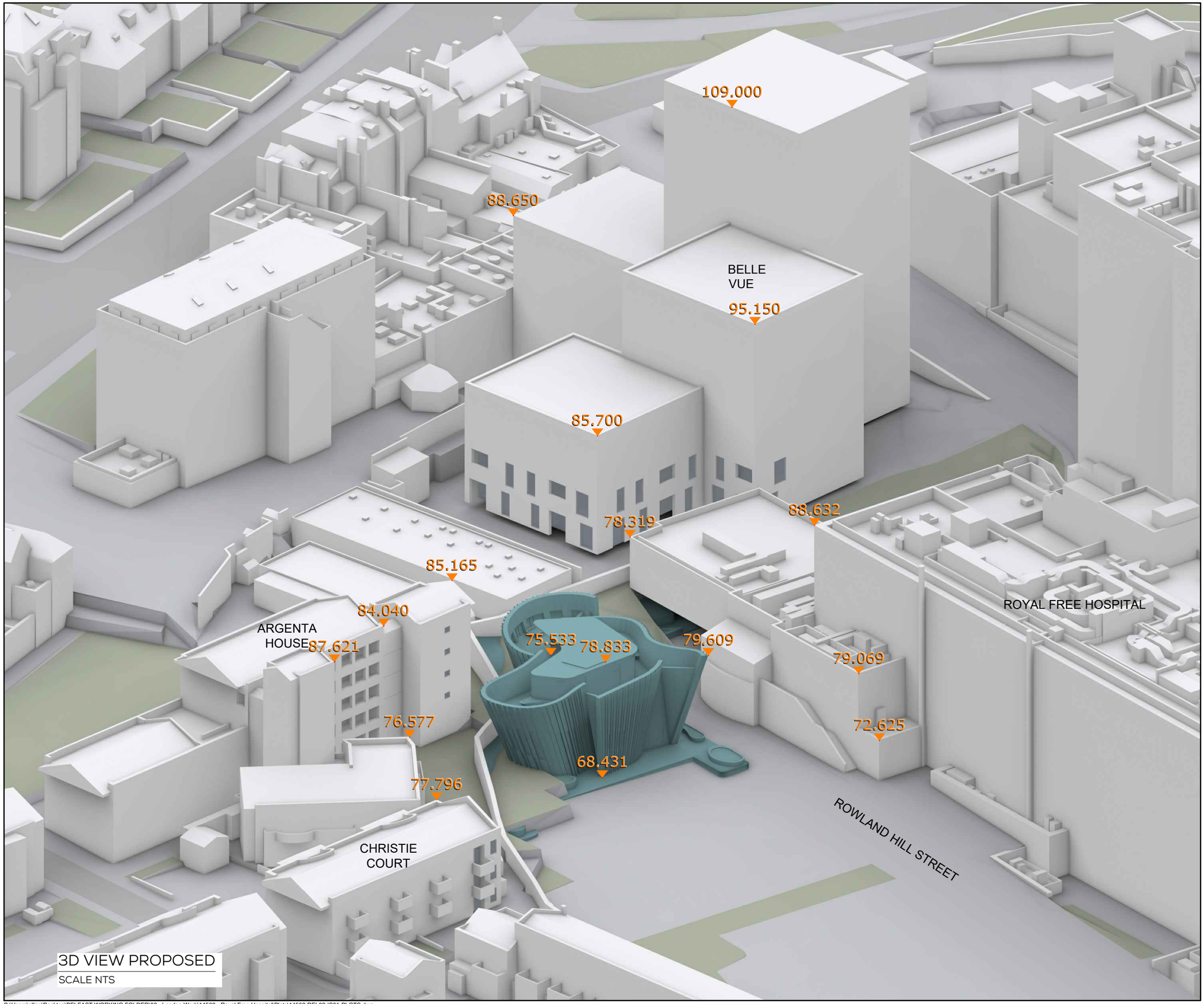

SOURCES OF INFORMATION

IR03-VERTEX MODELLING
Recieved 03.05.2019

IR06-LIBESKIND
Recieved 14.08.2019

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ALL HEIGHTS AND DIMENSIONS GIVEN IN m AOD

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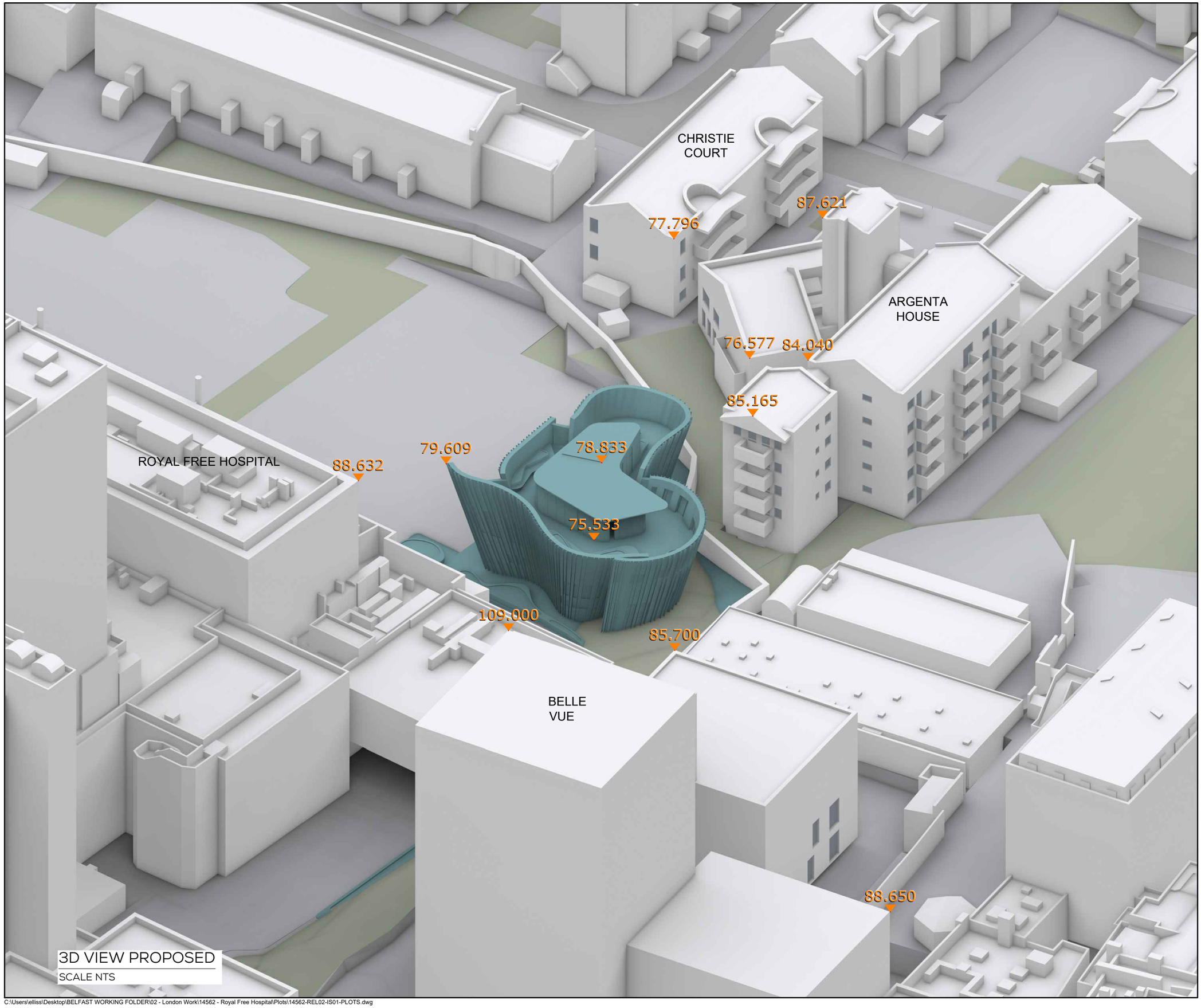

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Recieved 14.08.2019

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Appendix 03

Daylight and Sunlight Results

Assessment 01

Vertical Sky Component (VSC)
No Skyline (NSL)
Annual Probable Sunlight Hours (APSH)

						VSC (WINDOW)				VSC (ROOM)				NSL				APSH (WINDOW)						APSH (ROOM)					
FLOOR	ROOM	PROPERTY TYPE	ROOM USE	ROOM NOTES	WINDOW	EX. %	PR. %	LOSS	LOSS %	EX. %	PR. %	LOSS	LOSS %	EX. %	PR. %	LOSS SQM	LOSS %	EX.		PR.		LOSS %		EX.		PR.		LOSS %	
																		ANNUAL	WINTER	ANNUAL	WINTER	ANNUAL	WINTER	ANNUAL	WINTER	ANNUAL	WINTER	ANNUAL	WINTER
ARGENTA HOUSE																													
F00	R1	RESIDENTIAL	LKD		W3/F00 / - (2)	2.5	2.4	0.1	4.0%	14.5	14.3	0.2	1.4%	95.6	95.3	0.1	0.3%	1	0	1	0	0.0%	0.0%	33	12	33	12	0.0%	0.0%
			LKD		W4/F00 / - (2)	17	17	0	0.0%									11	1	11	1	0.0%	0.0%						
			LKD		W5/F00 / - (2)	23.4	23.4	0	0.0%									25	5	25	5	0.0%	0.0%						
			LKD		W6/F00 / - (2)	17.3	17.3	0	0.0%									25	11	25	11	0.0%	0.0%						
	R2	RESIDENTIAL	LKD		W2/F00 / - (2)	0	0	0	-	10.8	10.8	0	0.0%	77.9	77.9	0.0	0.0%	0	0	0	0	0.0%	0.0%	46	13	46	13	0.0%	0.0%
			LKD		W7/F00 / - (2)	16.7	16.7	0	0.0%									32	11	32	11	0.0%	0.0%						
			LKD		W8/F00 / - (2)	18	18	0	0.0%									38	12	38	12	0.0%	0.0%						
	R3	RESIDENTIAL	LKD		W1/F00 / - (2)	0	0	0	-	13.1	13.1	0	0.0%	70.1	70	0.0	0.0%	0	0	0	0	0.0%	0.0%	37	13	37	13	0.0%	0.0%
			LKD		W9/F00 / - (2)	23.3	23.3	0	0.0%									30	6	30	6	0.0%	0.0%						
			LKD		W10/F00 / - (2)	17.6	17.6	0	0.0%									26	12	26	12	0.0%	0.0%						
	R4	RESIDENTIAL	LIVING ROOM		W11/F00 / - (2)	16.1	16.1	0	0.0%	19.1	18.8	0.3	1.6%	90.8	90.8	0.0	0.0%	33	11	33	11	0.0%	0.0%	44	14	44	14	0.0%	0.0%
			LIVING ROOM		W12/F00 / - (2)	15.6	15.6	0	0.0%									32	12	32	12	0.0%	0.0%						
			LIVING ROOM		W13/F00 / - (2)	28.6	28.3	0.3	1.0%									1	0	1	0	0.0%	0.0%						
			LIVING ROOM		W14/F00 / - (2)	29.2	28.8	0.4	1.4%									1	0	1	0	0.0%	0.0%						
			LIVING ROOM		W15/F00 / - (2)	29.3	28.9	0.4	1.4%									1	0	1	0	0.0%	0.0%						
			LIVING ROOM		W16/F00 / - (2)	26	26	0	0.0%									4	0	4	0	0.0%	0.0%						
			LIVING ROOM		W17/F00 / - (2)	13.4	12.8	0.6	4.5%									4	0	4	0	0.0%	0.0%						
			LIVING ROOM		W18/F00 / - (2)	11.7	11.4	0.3	2.6%									2	0	2	0	0.0%	0.0%						
			LIVING ROOM		W19/F00 / - (2)	10.4	10.3	0.1	1.0%									1	0	1	0	0.0%	0.0%						
F01	R1	RESIDENTIAL	BEDROOM		W4/F01 / - (2)	33.5	26.5	7	20.9%	17.1	13.1	4	23.4%	96.9	83.5	1.7	13.8%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
			BEDROOM		W5/F01 / - (2)	18.3	14.9	3.4	18.6%									N/A	N/A	N/A	N/A	N/A	N/A						
			BEDROOM		W6/F01 / - (2)	2.8	1.2	1.6	57.1%									N/A	N/A	N/A	N/A	N/A	N/A						
			BEDROOM		W7/F01 / - (2)	10.9	7.6	3.3	30.3%									N/A	N/A	N/A	N/A	N/A	N/A						
	R2	RESIDENTIAL	LKD		W8/F01 / - (2)	3.4	3	0.4	11.8%	18.8	18.8	0	0.0%	90.7	88.5	0.4	2.5%	12	0	11	0	8.3%	0.0%	41	10	40	10	2.4%	0.0%
			LKD		W9/F01 / - (2)	11.2	9.5	1.7	15.2%									14	1	13	1	7.1%	0.0%						
			LKD		W10/F01 / - (2)	17.8	17.7	0.1	0.6%									14	2	13	2	7.1%	0.0%						
			LKD		W11/F01 / - (2)	29.2	29.2	0	0.0%									39	9	39	9	0.0%	0.0%						
			LKD		W12/F01 / - (2)	27.1	27.1	0	0.0%									33	7	33	7	0.0%	0.0%						
	R3	RESIDENTIAL	LKD		W3/F01 / - (2)	2.8	2.6	0.2	7.1%	15.8	15.6	0.2	1.3%	95.6	95.6	0.0	0.0%	1	0	1	0	0.0%	0.0%	38	14	38	14	0.0%	0.0%
			LKD		W13/F01 / - (2)	18.4	18.4	0	0.0%									14	1	14	1	7.1%	0.0%						
			LKD		W14/F01 / - (2)	25.1	25.1	0	0.0%									28	7	28	7	0.0%	0.0%						

(1) KITCHEN SMALLER THAN 13m2

(2) INC\HZ = SKY COMPONENT (INCLINED\HORIZONTAL WINDOWS)

(3) SINGLE ASPECT ROOM DEEPER THAN 5m

						VSC (WINDOW)				VSC (ROOM)				NSL				APSH (WINDOW)						APSH (ROOM)					
FLOOR	ROOM	PROPERTY TYPE	ROOM USE	ROOM NOTES	WINDOW	EX. %	PR. %	LOSS	LOSS %	EX. %	PR. %	LOSS	LOSS %	EX. %	PR. %	LOSS SQM	LOSS %	EX.		PR.		LOSS %		EX.		PR.		LOSS %	
																		ANNUAL	WINTER	ANNUAL	WINTER	ANNUAL	WINTER	ANNUAL	WINTER	ANNUAL	WINTER	ANNUAL	WINTER
ARGENTA HOUSE (CONTINUED)																													
			LKD		W15/F01 / - (2)	19.1	19.1	0	0.0%									29	14	29	14	0.0%	0.0%						
	R4	RESIDENTIAL	LKD		W2/F01 / - (2)	0.3	0.3	0	0.0%	11.9	11.9	0	0.0%	91.1	91.1	0.0	0.0%	0	0	0	0	0.0%	0.0%	50	16	50	16	0.0%	0.0%
			LKD		W16/F01 / - (2)	18.3	18.3	0	0.0%									37	15	37	15	0.0%	0.0%						
			LKD		W17/F01 / - (2)	19.6	19.6	0	0.0%									42	15	42	15	0.0%	0.0%						
	R5	RESIDENTIAL	LKD		W1/F01 / - (2)	0	0	0	-	14.4	14.4	0	0.0%	84.5	84.5	0.0	0.0%	0	0	0	0	0.0%	0.0%	37	13	37	13	0.0%	0.0%
			LKD		W18/F01 / - (2)	25	25	0	0.0%									31	7	31	7	0.0%	0.0%						
			LKD		W19/F01 / - (2)	19.3	19.3	0	0.0%									28	13	28	13	0.0%	0.0%						
	R6	RESIDENTIAL	BEDROOM		W20/F01 / - (2)	30.4	30.3	0.1	0.3%	30.4	30.3	0.1	0.3%	93.3	93.2	0.0	0.1%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	R7	RESIDENTIAL	BEDROOM		W21/F01 / - (2)	30.9	30.7	0.2	0.6%	30.9	30.7	0.2	0.6%	98.7	98.7	0.0	0.0%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
F02	R1	RESIDENTIAL	BEDROOM		W4/F02 / - (2)	34.7	33.8	0.9	2.6%	18	17.5	0.5	2.8%	98.1	98.1	0.0	0.0%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
			BEDROOM		W5/F02 / - (2)	19.3	19.2	0.1	0.5%									N/A	N/A	N/A	N/A	N/A	N/A						
			BEDROOM		W6/F02 / - (2)	3.3	3.3	0	0.0%									N/A	N/A	N/A	N/A	N/A	N/A						
			BEDROOM		W7/F02 / - (2)	12	11.8	0.2	1.7%									N/A	N/A	N/A	N/A	N/A	N/A						
	R2	RESIDENTIAL	LKD		W8/F02 / - (2)	4	4	0	0.0%	20	20	0	0.0%	92.7	92.7	0.0	0.0%	13	2	12	2	7.7%	0.0%	45	11	44	11	2.2%	0.0%
			LKD		W9/F02 / - (2)	12.4	12.3	0.1	0.8%									14	2	14	2	0.0%	0.0%						
			LKD		W10/F02 / - (2)	18.6	18.6	0	0.0%									14	2	13	2	7.1%	0.0%						
			LKD		W11/F02 / - (2)	30.8	30.8	0	0.0%									42	10	42	10	0.0%	0.0%						
			LKD		W12/F02 / - (2)	28.6	28.6	0	0.0%									35	7	35	7	0.0%	0.0%						
	R3	RESIDENTIAL	LKD		W3/F02 / - (2)	3.4	3.4	0	0.0%	16.9	16.9	0	0.0%	96.9	96.9	0.0	0.0%	2	1	2	1	0.0%	0.0%	39	15	39	15	0.0%	0.0%
			LKD		W13/F02 / - (2)	20	20	0	0.0%									14	1	14	1	0.0%	0.0%						
			LKD		W14/F02 / - (2)	26.6	26.6	0	0.0%									30	7	30	7	0.0%	0.0%						
			LKD		W15/F02 / - (2)	20.5	20.5	0	0.0%									31	14	31	14	0.0%	0.0%						
	R4	RESIDENTIAL	LKD		W2/F02 / - (2)	2.1	2.1	0	0.0%	13.6	13.6	0	0.0%	96.7	96.7	0.0	0.0%	0	0	0	0	0.0%	0.0%	54	17	54	17	0.0%	0.0%
			LKD		W16/F02 / - (2)	20	20	0	0.0%									40	16	40	16	0.0%	0.0%						
			LKD		W17/F02 / - (2)	21.3	21.3	0	0.0%									46	16	46	16	0.0%	0.0%						
	R5	RESIDENTIAL	LKD		W1/F02 / - (2)	1.1	1.1	0	0.0%	15.9	15.9	0	0.0%	95.2	95.2	0.0	0.0%	0	0	0	0	0.0%	0.0%	42	15	42	15	0.0%	0.0%
			LKD		W18/F02 / - (2)	26.8	26.8	0	0.0%									35	8	35	8	0.0%	0.0%						
			LKD		W19/F02 / - (2)	21.1	21.1	0	0.0%									32	15	32	15	0.0%	0.0%						
F03	R1	RESIDENTIAL	BEDROOM		W4/F03 / - (2)	35.7	35.7	0	0.0%	18.8	18.8	0	0.0%	98.4	98.4	0.0	0.0%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
			BEDROOM		W5/F03 / - (2)	20.3	20.3	0	0.0%									N/A	N/A	N/A	N/A	N/A	N/A						
			BEDROOM		W6/F03 / - (2)	4	4	0	0.0%									N/A	N/A	N/A	N/A	N/A	N/A						

(1) KITCHEN SMALLER THAN 13m2

(2) INC\HZ = SKY COMPONENT (INCLINED\HORIZONTAL WINDOWS)

(3) SINGLE ASPECT ROOM DEEPER THAN 5m

						VSC (WINDOW)				VSC (ROOM)				NSL				APSH (WINDOW)						APSH (ROOM)					
FLOOR	ROOM	PROPERTY TYPE	ROOM USE	ROOM NOTES	WINDOW	EX. %	PR. %	LOSS	LOSS %	EX. %	PR. %	LOSS	LOSS %	EX. %	PR. %	LOSS SQM	LOSS %	EX.		PR.		LOSS %		EX.		PR.		LOSS %	
																		ANNUAL	WINTER	ANNUAL	WINTER	ANNUAL	WINTER	ANNUAL	WINTER	ANNUAL	WINTER	ANNUAL	WINTER
ARGENTA HOUSE (CONTINUED)																													
			BEDROOM		W7/F03 / - (2)	13.2	13.2	0	0.0%									N/A	N/A	N/A	N/A	N/A	N/A						
	R2	RESIDENTIAL	LKD		W8/F03 / - (2)	4.7	4.7	0	0.0%	21.3	21.3	0	0.0%	94.6	94.6	0.0	0.0%	14	2	14	2	0.0%	0.0%	52	12	52	12	0.0%	0.0%
			LKD		W9/F03 / - (2)	13.5	13.5	0	0.0%									17	2	17	2	0.0%	0.0%						
			LKD		W10/F03 / - (2)	19.4	19.4	0	0.0%									16	2	16	2	0.0%	0.0%						
			LKD		W11/F03 / - (2)	32.7	32.7	0	0.0%									50	11	50	11	0.0%	0.0%						
			LKD		W12/F03 / - (2)	30.6	30.6	0	0.0%									42	8	42	8	0.0%	0.0%						
	R3	RESIDENTIAL	LKD		W3/F03 / - (2)	3.8	3.8	0	0.0%	18.2	18.2	0	0.0%	99.2	99.2	0.0	0.0%	2	1	2	1	0.0%	0.0%	42	17	42	17	0.0%	0.0%
			LKD		W13/F03 / - (2)	23	23	0	0.0%									16	1	16	1	0.0%	0.0%						
			LKD		W14/F03 / - (2)	28.3	28.3	0	0.0%									31	8	31	8	0.0%	0.0%						
			LKD		W15/F03 / - (2)	21.8	21.8	0	0.0%									33	16	33	16	0.0%	0.0%						
	R4	RESIDENTIAL	LKD		W2/F03 / - (2)	3	3	0	0.0%	15	15	0	0.0%	98.3	98.3	0.0	0.0%	1	0	1	0	0.0%	0.0%	59	18	59	18	0.0%	0.0%
			LKD		W16/F03 / - (2)	21.6	21.6	0	0.0%									45	17	45	17	0.0%	0.0%						
			LKD		W17/F03 / - (2)	23	23	0	0.0%									53	17	53	17	0.0%	0.0%						
	R5	RESIDENTIAL	LKD		W1/F03 / - (2)	1.6	1.6	0	0.0%	17.5	17.5	0	0.0%	98	98	0.0	0.0%	1	0	1	0	0.0%	0.0%	45	17	45	17	0.0%	0.0%
			LKD		W18/F03 / - (2)	29.2	29.2	0	0.0%									36	9	36	9	0.0%	0.0%						
			LKD		W19/F03 / - (2)	22.8	22.8	0	0.0%									35	17	35	17	0.0%	0.0%						
F04	R1	RESIDENTIAL	BEDROOM		W4/F04 / - (2)	36.2	36.2	0	0.0%	24.1	24.1	0	0.0%	98.6	98.6	0.0	0.0%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
			BEDROOM		W5/F04 / - (2)	20.6	20.6	0	0.0%									N/A	N/A	N/A	N/A	N/A	N/A						
			BEDROOM		W6/F04 / - (2)	19.2	19.2	0	0.0%									N/A	N/A	N/A	N/A	N/A	N/A						
			BEDROOM		W7/F04 / - (2)	24.1	24.1	0	0.0%									N/A	N/A	N/A	N/A	N/A	N/A						
	R2	RESIDENTIAL	LKD		W8/F04 / - (2)	19.3	19.3	0	0.0%	26.4	26.4	0	0.0%	95.8	95.8	0.0	0.0%	10	2	10	2	0.0%	0.0%	60	18	60	18	0.0%	0.0%
			LKD		W9/F04 / - (2)	24.1	24.1	0	0.0%									14	2	14	2	0.0%	0.0%						
			LKD		W10/F04 / - (2)	20.4	20.4	0	0.0%									15	2	15	2	0.0%	0.0%						
			LKD		W11/F04 / - (2)	34.9	34.9	0	0.0%									58	17	58	17	0.0%	0.0%						
			LKD		W12/F04 / - (2)	33.6	33.6	0	0.0%									51	11	51	11	0.0%	0.0%						
	R3	RESIDENTIAL	LKD		W3/F04 / - (2)	4	4	0	0.0%	25.8	25.8	0	0.0%	99.8	99.8	0.0	0.0%	2	1	2	1	0.0%	0.0%	67	25	67	25	0.0%	0.0%
			LKD		W13/F04 / - (2)	29.3	29.3	0	0.0%									16	2	16	2	0.0%	0.0%						
			LKD		W14/F04 / - (2)	36.2	36.2	0	0.0%									64	23	64	23	0.0%	0.0%						
			LKD		W15/F04 / - (2)	36	36	0	0.0%									64	23	64	23	0.0%	0.0%						
	R4	RESIDENTIAL	LKD		W2/F04 / - (2)	3.1	3.1	0	0.0%	24.1	24.1	0	0.0%	98.8	98.8	0.0	0.0%	1	0	1	0	0.0%	0.0%	65	22	65	22	0.0%	0.0%
			LKD		W16/F04 / - (2)	36.3	36.3	0	0.0%									63	22	63	22	0.0%	0.0%						

(1) KITCHEN SMALLER THAN 13m2

(2) INC\HZ = SKY COMPONENT (INCLINED\HORIZONTAL WINDOWS)

(3) SINGLE ASPECT ROOM DEEPER THAN 5m

						VSC (WINDOW)				VSC (ROOM)				NSL				APSH (WINDOW)						APSH (ROOM)					
FLOOR	ROOM	PROPERTY TYPE	ROOM USE	ROOM NOTES	WINDOW	EX. %	PR. %	LOSS	LOSS %	EX. %	PR. %	LOSS	LOSS %	EX. %	PR. %	LOSS SQM	LOSS %	EX.		PR.		LOSS %		EX.		PR.		LOSS %	
																		ANNUAL	WINTER	ANNUAL	WINTER	ANNUAL	WINTER	ANNUAL	WINTER	ANNUAL	WINTER	ANNUAL	WINTER
ARGENTA HOUSE (CONTINUED)																													
			LKD		W17/F04 / - (2)	36.5	36.5	0	0.0%									64	22	64	22	0.0%	0.0%						
	R5	RESIDENTIAL	LKD		W1/F04 / - (2)	1.7	1.7	0	0.0%	24.7	24.7	0	0.0%	98.4	98.4	0.0	0.0%	1	0	1	0	0.0%	0.0%	66	23	66	23	0.0%	0.0%
			LKD		W18/F04 / - (2)	36.6	36.6	0	0.0%									65	23	65	23	0.0%	0.0%						
			LKD		W19/F04 / - (2)	36.5	36.5	0	0.0%									65	23	65	23	0.0%	0.0%						
BELLE VUE BLOCK D																													
F00	R1	RESIDENTIAL	LKD		W1/F00 / - (2)	21.5	21.5	0	0.0%	12.4	12.4	0	0.0%	93.4	93.4	0.0	0.0%	41	10	41	10	0.0%	0.0%	47	14	47	14	0.0%	0.0%
			LKD		W2/F00 / - (2)	20.6	20.6	0	0.0%									39	10	39	10	0.0%	0.0%						
			LKD		W3/F00 / - (2)	7.6	7.6	0	0.0%									14	13	14	13	0.0%	0.0%						
	R2	RESIDENTIAL	BEDROOM		W4/F00 / - (2)	0	0	0	-	13.1	13.1	0	0.0%	98.2	98.2	0.0	0.0%	0	0	0	0	0.0%	0.0%	68	18	68	18	0.0%	0.0%
			BEDROOM		W5/F00 / - (2)	31.2	31.2	0	0.0%									68	18	68	18	0.0%	0.0%						
	R3	RESIDENTIAL	BEDROOM		W6/F00 / - (2)	31.8	31.7	0.1	0.3%	14.2	14	0.2	1.4%	95.7	95.7	0.0	0.0%	74	21	74	21	0.0%	0.0%	74	21	74	21	0.0%	0.0%
			BEDROOM		W7/F00 / - (2)	1.3	1.3	0	0.0%									4	0	4	0	0.0%	0.0%						
	R4	RESIDENTIAL	LKD		W8/F00 / - (2)	8.7	8.6	0.1	1.1%	14.3	14.1	0.2	1.4%	98.2	98.2	0.0	0.0%	14	11	14	11	0.0%	0.0%	73	22	72	21	1.4%	4.5%
			LKD		W9/F00 / - (2)	3.3	3.3	0	0.0%									10	8	10	8	0.0%	0.0%						
			LKD		W10/F00 / - (2)	32.2	31.8	0.4	1.2%									72	21	72	21	0.0%	0.0%						
			LKD		W11/F00 / - (2)	20.9	20.5	0.4	1.9%									28	5	27	4	3.6%	20.0%						
	R5	RESIDENTIAL	BEDROOM		W12/F00 / - (2)	19.5	19.2	0.3	1.5%	19.5	19.2	0.3	1.5%	85.7	85.7	0.0	0.0%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	R6	RESIDENTIAL	LKD		W13/F00 / - (2)	3.6	3.6	0	0.0%	3.6	3.6	0	0.0%	61	61	0.0	0.0%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	R7	RESIDENTIAL	BEDROOM		W14/F00 / - (2)	1.1	0.9	0.2	18.2%	7.3	7.1	0.2	2.7%	91.3	91.3	0.0	0.0%	1	1	0	0	100.0%	100.0%	25	4	24	3	4.0%	25.0%
			BEDROOM		W15/F00 / - (2)	15.9	15.8	0.1	0.6%									25	4	24	3	4.0%	25.0%						
F01	R1	RESIDENTIAL	LKD		W1/F01 / - (2)	25.7	25.7	0	0.0%	15.9	15.9	0	0.0%	99.1	99.1	0.0	0.0%	48	12	48	12	0.0%	0.0%	54	16	54	16	0.0%	0.0%
			LKD		W2/F01 / - (2)	24.9	24.9	0	0.0%									46	11	46	11	0.0%	0.0%						
			LKD		W3/F01 / - (2)	10.6	10.6	0	0.0%									15	14	15	14	0.0%	0.0%						
	R2	RESIDENTIAL	BEDROOM		W4/F01 / - (2)	0	0	0	-	14.8	14.7	0.1	0.7%	98.5	98.5	0.0	0.0%	0	0	0	0	0.0%	0.0%	73	20	73	20	0.0%	0.0%
			BEDROOM		W5/F01 / - (2)	35.1	35	0.1	0.3%									73	20	73	20	0.0%	0.0%						
	R3	RESIDENTIAL	BEDROOM		W6/F01 / - (2)	35.6	35.4	0.2	0.6%	15.8	15.7	0.1	0.6%	97.7	97.7	0.0	0.0%	74	20	74	20	0.0%	0.0%	74	20	74	20	0.0%	0.0%
			BEDROOM		W7/F01 / - (2)	1.5	1.5	0	0.0%									4	0	4	0	0.0%	0.0%						
	R4	RESIDENTIAL	LKD		W8/F01 / - (2)	10.5	10.5	0	0.0%	16.2	16.1	0.1	0.6%	98.8	98.8	0.0	0.0%	15	12	15	12	0.0%	0.0%	78	24	78	24	0.0%	0.0%
			LKD		W9/F01 / - (2)	3.8	3.8	0	0.0%									10	8	10	8	0.0%	0.0%						
			LKD		W10/F01 / - (2)	36.2	35.9	0.3	0.8%									77	23	77	23	0.0%	0.0%						

(1) KITCHEN SMALLER THAN 13m2

(2) INC\HZ = SKY COMPONENT (INCLINED\HORIZONTAL WINDOWS)

(3) SINGLE ASPECT ROOM DEEPER THAN 5m

						VSC (WINDOW)				VSC (ROOM)				NSL				APSH (WINDOW)						APSH (ROOM)					
FLOOR	ROOM	PROPERTY TYPE	ROOM USE	ROOM NOTES	WINDOW	EX. %	PR. %	LOSS %	LOSS %	EX. %	PR. %	LOSS %	LOSS %	EX. %	PR. %	LOSS SQM	LOSS %	EX.		PR.		LOSS %		EX.		PR.		LOSS %	
																		ANNUAL	WINTER	ANNUAL	WINTER	ANNUAL	WINTER	ANNUAL	WINTER	ANNUAL	WINTER	ANNUAL	WINTER
BELLE VUE BLOCK D (CONTINUED)																													
			LKD		W11/F01 / - (2)	26.4	26.2	0.2	0.8%									58	6	58	6	0.0%	0.0%						
	R5	RESIDENTIAL	BEDROOM		W12/F01 / - (2)	25.1	25	0.1	0.4%	25.1	25	0.1	0.4%	92.3	92.3	0.0	0.0%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	R6	RESIDENTIAL	LKD		W13/F01 / - (2)	6.3	6.3	0	0.0%	6.3	6.3	0	0.0%	89.4	89.4	0.0	0.0%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	R7	RESIDENTIAL	BEDROOM		W14/F01 / - (2)	1.2	1.2	0	0.0%	8.7	8.7	0	0.0%	90.6	90.6	0.0	0.0%	1	1	1	1	0.0%	0.0%	31	6	31	6	0.0%	0.0%
			BEDROOM		W15/F01 / - (2)	19.1	19.1	0	0.0%									31	6	31	6	0.0%	0.0%						
BELLE VUE BLOCK C																													
F00	R1	RESIDENTIAL	LKD		W1/F00 / - (2)	17.4	17.3	0.1	0.6%	8	8	0	0.0%	93.8	93.8	0.0	0.0%	30	6	30	6	0.0%	0.0%	31	7	31	7	0.0%	0.0%
			LKD		W2/F00 / - (2)	0	0	0	-									0	0	0	0	0.0%	0.0%						
			LKD		W3/F00 / - (2)	5.1	5.1	0	0.0%									9	7	9	7	0.0%	0.0%						
			LKD		W4/F00 / - (2)	17.1	17.1	0	0.0%									31	6	31	6	0.0%	0.0%						
F01	R1	RESIDENTIAL	BEDROOM		W1/F01 / - (2)	22.2	22.1	0.1	0.5%	9.1	9	0.1	1.1%	94.8	94.8	0.0	0.0%	39	9	39	9	0.0%	0.0%	39	9	39	9	0.0%	0.0%
			BEDROOM		W2/F01 / - (2)	0.7	0.7	0	0.0%									1	0	1	0	0.0%	0.0%						
	R2	RESIDENTIAL	LKD		W3/F01 / - (2)	8.2	8.2	0	0.0%	12.2	12.2	0	0.0%	99.3	99.3	0.0	0.0%	11	9	11	9	0.0%	0.0%	32	9	32	9	0.0%	0.0%
			LKD		W4/F01 / - (2)	21.7	21.7	0	0.0%									29	4	29	4	0.0%	0.0%						
CHRISTIE COURT																													
F00	R1	RESIDENTIAL	LKD		W1/F00 / - (2)	13.6	13.5	0.1	0.7%	16.3	16.1	0.2	1.2%	99.5	99.5	0.0	0.0%	13	4	13	4	0.0%	0.0%	24	4	24	4	0.0%	0.0%
			LKD		W2/F00 / - (2)	27.7	27.7	0	0.0%									0	0	0	0	0.0%	0.0%						
			LKD		W3/F00 / - (2)	9	9	0	0.0%									5	0	5	0	0.0%	0.0%						
F01	R1	RESIDENTIAL	LKD		W1/F01 / - (2)	19.1	19.1	0	0.0%	22	22	0	0.0%	99.9	99.9	0.0	0.0%	22	5	22	5	0.0%	0.0%	47	6	47	6	0.0%	0.0%
			LKD		W2/F01 / - (2)	29.6	29.6	0	0.0%									13	0	13	0	0.0%	0.0%						
			LKD		W3/F01 / - (2)	30.7	30.7	0	0.0%									12	1	12	1	0.0%	0.0%						
			LKD		W4/F01 / - (2)	11.5	11.5	0	0.0%									11	1	11	1	0.0%	0.0%						
F02	R1	RESIDENTIAL	LKD		W1/F02 / - (2)	28.8	28.8	0	0.0%	29	29	0	0.0%	100	100	0.0	0.0%	46	10	46	10	0.0%	0.0%	82	15	82	15	0.0%	0.0%
			LKD		W2/F02 / - (2)	30.9	30.9	0	0.0%									14	0	14	0	0.0%	0.0%						
			LKD		W3/F02 / - (2)	36.6	36.6	0	0.0%									12	2	12	2	0.0%	0.0%						
			LKD		W4/F02 / - (2)	23	23	0	0.0%									20	2	20	2	0.0%	0.0%						

(1) KITCHEN SMALLER THAN 13m2

(2) INC\HZ = SKY COMPONENT (INCLINED\HORIZONTAL WINDOWS)

(3) SINGLE ASPECT ROOM DEEPER THAN 5m

Assessment 02 (No Balconies)

Vertical Sky Component (VSC)
No Skyline (NSL)
Annual Probable Sunlight Hours (APSH)

						VSC (WINDOW)				VSC (ROOM)				NSL				APSH (WINDOW)						APSH (ROOM)					
FLOOR	ROOM	PROPERTY TYPE	ROOM USE	ROOM NOTES	WINDOW	EX. %	PR. %	LOSS	LOSS %	EX. %	PR. %	LOSS	LOSS %	EX. %	PR. %	LOSS SQM	LOSS %	EX.		PR.		LOSS %		EX.		PR.		LOSS %	
																		ANNUAL	WINTER	ANNUAL	WINTER	ANNUAL	WINTER	ANNUAL	WINTER	ANNUAL	WINTER	ANNUAL	WINTER
ARGENTA HOUSE																													
F00	R1	RESIDENTIAL	LKD		W3/F00 / - (2)	2.5	2.4	0.1	4.0%	14.5	14.3	0.2	1.4%																
			LKD		W4/F00 / - (2)	17	17	0	0.0%																				
			LKD		W5/F00 / - (2)	23.4	23.4	0	0.0%																				
			LKD		W6/F00 / - (2)	17.3	17.3	0	0.0%																				
	R2	RESIDENTIAL	LKD		W2/F00 / - (2)	0	0	0	-	10.8	10.8	0	0.0%																
			LKD		W7/F00 / - (2)	16.7	16.7	0	0.0%																				
			LKD		W8/F00 / - (2)	18	18	0	0.0%																				
	R3	RESIDENTIAL	LKD		W1/F00 / - (2)	0	0	0	-	13.1	13.1	0	0.0%																
			LKD		W9/F00 / - (2)	23.3	23.3	0	0.0%																				
			LKD		W10/F00 / - (2)	17.6	17.6	0	0.0%																				
	R4	RESIDENTIAL	LIVING ROOM		W11/F00 / - (2)	16.1	16.1	0	0.0%	19.1	18.8	0.3	1.6%																
			LIVING ROOM		W12/F00 / - (2)	15.6	15.6	0	0.0%																				
			LIVING ROOM		W13/F00 / - (2)	28.6	28.3	0.3	1.0%																				
			LIVING ROOM		W14/F00 / - (2)	29.2	28.8	0.4	1.4%																				
			LIVING ROOM		W15/F00 / - (2)	29.3	28.9	0.4	1.4%																				
			LIVING ROOM		W16/F00 / - (2)	26	26	0	0.0%																				
			LIVING ROOM		W17/F00 / - (2)	13.4	12.8	0.6	4.5%																				
			LIVING ROOM		W18/F00 / - (2)	11.7	11.4	0.3	2.6%																				
			LIVING ROOM		W19/F00 / - (2)	10.4	10.3	0.1	1.0%																				
F01	R1	RESIDENTIAL	BEDROOM		W4/F01 / - (2)	33.5	26.5	7	20.9%	28.5	24.5	4	14.0%																
			BEDROOM		W5/F01 / - (2)	27	23.5	3.5	13.0%																				
			BEDROOM		W6/F01 / - (2)	27	24.8	2.2	8.1%																				
			BEDROOM		W7/F01 / - (2)	26.7	23.5	3.2	12.0%																				
	R2	RESIDENTIAL	LKD		W8/F01 / - (2)	27	25.9	1.1	4.1%	27.4	26.7	0.7	2.6%																
			LKD		W9/F01 / - (2)	26.7	24.9	1.8	6.7%																				
			LKD		W10/F01 / - (2)	26.9	26.2	0.7	2.6%																				
			LKD		W11/F01 / - (2)	29.2	29.2	0	0.0%																				
			LKD		W12/F01 / - (2)	27.1	27.1	0	0.0%																				
	R3	RESIDENTIAL	LKD		W3/F01 / - (2)	2.8	2.6	0.2	7.1%	15.8	15.6	0.2	1.3%																
			LKD		W13/F01 / - (2)	18.4	18.4	0	0.0%																				
			LKD		W14/F01 / - (2)	25.1	25.1	0	0.0%																				

(1) KITCHEN SMALLER THAN 13m2

(2) INC\HZ = SKY COMPONENT (INCLINED\HORIZONTAL WINDOWS)

(3) SINGLE ASPECT ROOM DEEPER THAN 5m

						VSC (WINDOW)				VSC (ROOM)				NSL				APSH (WINDOW)						APSH (ROOM)					
FLOOR	ROOM	PROPERTY TYPE	ROOM USE	ROOM NOTES	WINDOW	EX. %	PR. %	LOSS	LOSS %	EX. %	PR. %	LOSS	LOSS %	EX. %	PR. %	LOSS SQM	LOSS %	EX.		PR.		LOSS %		EX.		PR.		LOSS %	
																		ANNUAL	WINTER	ANNUAL	WINTER	ANNUAL	WINTER	ANNUAL	WINTER	ANNUAL	WINTER	ANNUAL	WINTER
ARGENTA HOUSE (CONTINUED)																													
			LKD		W15/F01 / - (2)	19.1	19.1	0	0.0%																				
	R4	RESIDENTIAL	LKD		W2/F01 / - (2)	0.3	0.3	0	0.0%	11.9	11.9	0	0.0%																
			LKD		W16/F01 / - (2)	18.3	18.3	0	0.0%																				
			LKD		W17/F01 / - (2)	19.6	19.6	0	0.0%																				
	R5	RESIDENTIAL	LKD		W1/F01 / - (2)	0	0	0	-	14.4	14.4	0	0.0%																
			LKD		W18/F01 / - (2)	25	25	0	0.0%																				
			LKD		W19/F01 / - (2)	19.3	19.3	0	0.0%																				
	R6	RESIDENTIAL	BEDROOM		W20/F01 / - (2)	30.4	30.3	0.1	0.3%	30.4	30.3	0.1	0.3%																
	R7	RESIDENTIAL	BEDROOM		W21/F01 / - (2)	30.9	30.7	0.2	0.6%	30.9	30.7	0.2	0.6%																
F02	R1	RESIDENTIAL	BEDROOM		W4/F02 / - (2)	34.7	33.8	0.9	2.6%	29.4	29.4	0	0.0%																
			BEDROOM		W5/F02 / - (2)	27.9	27.8	0.1	0.4%																				
			BEDROOM		W6/F02 / - (2)	27.9	27.9	0	0.0%																				
			BEDROOM		W7/F02 / - (2)	27.7	27.5	0.2	0.7%																				
	R2	RESIDENTIAL	LKD		W8/F02 / - (2)	27.9	27.9	0	0.0%	28.6	28.6	0	0.0%																
			LKD		W9/F02 / - (2)	27.8	27.6	0.2	0.7%																				
			LKD		W10/F02 / - (2)	27.9	27.9	0	0.0%																				
			LKD		W11/F02 / - (2)	30.8	30.8	0	0.0%																				
			LKD		W12/F02 / - (2)	28.6	28.6	0	0.0%																				
	R3	RESIDENTIAL	LKD		W3/F02 / - (2)	3.4	3.4	0	0.0%	16.9	16.9	0	0.0%																
			LKD		W13/F02 / - (2)	20	20	0	0.0%																				
			LKD		W14/F02 / - (2)	26.6	26.6	0	0.0%																				
			LKD		W15/F02 / - (2)	20.5	20.5	0	0.0%																				
	R4	RESIDENTIAL	LKD		W2/F02 / - (2)	2.1	2.1	0	0.0%	13.6	13.6	0	0.0%																
			LKD		W16/F02 / - (2)	20	20	0	0.0%																				
			LKD		W17/F02 / - (2)	21.3	21.3	0	0.0%																				
	R5	RESIDENTIAL	LKD		W1/F02 / - (2)	1.1	1.1	0	0.0%	15.9	15.9	0	0.0%																
			LKD		W18/F02 / - (2)	26.8	26.8	0	0.0%																				
			LKD		W19/F02 / - (2)	21.1	21.1	0	0.0%																				
F03	R1	RESIDENTIAL	BEDROOM		W4/F03 / - (2)	35.7	35.7	0	0.0%	30.2	30.2	0	0.0%																
			BEDROOM		W5/F03 / - (2)	28.3	28.3	0	0.0%																				
			BEDROOM		W6/F03 / - (2)	28	28	0	0.0%																				

(1) KITCHEN SMALLER THAN 13m2

(2) INC\HZ = SKY COMPONENT (INCLINED\HORIZONTAL WINDOWS)

(3) SINGLE ASPECT ROOM DEEPER THAN 5m

						VSC (WINDOW)				VSC (ROOM)				NSL				APSH (WINDOW)						APSH (ROOM)					
FLOOR	ROOM	PROPERTY TYPE	ROOM USE	ROOM NOTES	WINDOW	EX. %	PR. %	LOSS	LOSS %	EX. %	PR. %	LOSS	LOSS %	EX. %	PR. %	LOSS SQM	LOSS %	EX.		PR.		LOSS %		EX.		PR.		LOSS %	
																		ANNUAL	WINTER	ANNUAL	WINTER	ANNUAL	WINTER	ANNUAL	WINTER	ANNUAL	WINTER	ANNUAL	WINTER
ARGENTA HOUSE (CONTINUED)																													
			BEDROOM		W7/F03 / - (2)	28.2	28.2	0	0.0%																				
	R2	RESIDENTIAL	LKD		W8/F03 / - (2)	28	28	0	0.0%	29.6	29.6	0	0.0%																
			LKD		W9/F03 / - (2)	28.2	28.2	0	0.0%																				
			LKD		W10/F03 / - (2)	28.2	28.2	0	0.0%																				
			LKD		W11/F03 / - (2)	32.7	32.7	0	0.0%																				
			LKD		W12/F03 / - (2)	30.6	30.6	0	0.0%																				
	R3	RESIDENTIAL	LKD		W3/F03 / - (2)	3.8	3.8	0	0.0%	18.2	18.2	0	0.0%																
			LKD		W13/F03 / - (2)	23	23	0	0.0%																				
			LKD		W14/F03 / - (2)	28.3	28.3	0	0.0%																				
			LKD		W15/F03 / - (2)	21.8	21.8	0	0.0%																				
	R4	RESIDENTIAL	LKD		W2/F03 / - (2)	3	3	0	0.0%	15	15	0	0.0%																
			LKD		W16/F03 / - (2)	21.6	21.6	0	0.0%																				
			LKD		W17/F03 / - (2)	23	23	0	0.0%																				
	R5	RESIDENTIAL	LKD		W1/F03 / - (2)	1.6	1.6	0	0.0%	17.5	17.5	0	0.0%																
			LKD		W18/F03 / - (2)	29.2	29.2	0	0.0%																				
			LKD		W19/F03 / - (2)	22.8	22.8	0	0.0%																				
F04	R1	RESIDENTIAL	BEDROOM		W4/F04 / - (2)	36.2	36.2	0	0.0%	24.1	24.1	0	0.0%																
			BEDROOM		W5/F04 / - (2)	20.6	20.6	0	0.0%																				
			BEDROOM		W6/F04 / - (2)	19.2	19.2	0	0.0%																				
			BEDROOM		W7/F04 / - (2)	24.1	24.1	0	0.0%																				
	R2	RESIDENTIAL	LKD		W8/F04 / - (2)	19.3	19.3	0	0.0%	26.4	26.4	0	0.0%																
			LKD		W9/F04 / - (2)	24.1	24.1	0	0.0%																				
			LKD		W10/F04 / - (2)	20.4	20.4	0	0.0%																				
			LKD		W11/F04 / - (2)	34.9	34.9	0	0.0%																				
			LKD		W12/F04 / - (2)	33.6	33.6	0	0.0%																				
	R3	RESIDENTIAL	LKD		W3/F04 / - (2)	4	4	0	0.0%	25.8	25.8	0	0.0%																
			LKD		W13/F04 / - (2)	29.3	29.3	0	0.0%																				
			LKD		W14/F04 / - (2)	36.2	36.2	0	0.0%																				
			LKD		W15/F04 / - (2)	36	36	0	0.0%																				
	R4	RESIDENTIAL	LKD		W2/F04 / - (2)	3.1	3.1	0	0.0%	24.1	24.1	0	0.0%																
			LKD		W16/F04 / - (2)	36.3	36.3	0	0.0%																				

(1) KITCHEN SMALLER THAN 13m2

(2) INC\HZ = SKY COMPONENT (INCLINED\HORIZONTAL WINDOWS)

(3) SINGLE ASPECT ROOM DEEPER THAN 5m

						VSC (WINDOW)				VSC (ROOM)				NSL				APSH (WINDOW)						APSH (ROOM)					
FLOOR	ROOM	PROPERTY TYPE	ROOM USE	ROOM NOTES	WINDOW	EX. %	PR. %	LOSS	LOSS %	EX. %	PR. %	LOSS	LOSS %	EX. %	PR. %	LOSS SQM	LOSS %	EX.		PR.		LOSS %		EX.		PR.		LOSS %	
																		ANNUAL	WINTER	ANNUAL	WINTER	ANNUAL	WINTER	ANNUAL	WINTER	ANNUAL	WINTER	ANNUAL	WINTER
ARGENTA HOUSE (CONTINUED)																													
			LKD		W17/F04 / - (2)	36.5	36.5	0	0.0%																				
	R5	RESIDENTIAL	LKD		W1/F04 / - (2)	1.7	1.7	0	0.0%	24.7	24.7	0	0.0%																
			LKD		W18/F04 / - (2)	36.6	36.6	0	0.0%																				
			LKD		W19/F04 / - (2)	36.5	36.5	0	0.0%																				
BELLE VUE BLOCK D																													
F00	R1	RESIDENTIAL	LKD		W1/F00 / - (2)	21.5	21.5	0	0.0%	12.4	12.4	0	0.0%																
			LKD		W2/F00 / - (2)	20.6	20.6	0	0.0%																				
			LKD		W3/F00 / - (2)	7.6	7.6	0	0.0%																				
	R2	RESIDENTIAL	BEDROOM		W4/F00 / - (2)	0	0	0	-	13.1	13.1	0	0.0%																
			BEDROOM		W5/F00 / - (2)	31.2	31.2	0	0.0%																				
	R3	RESIDENTIAL	BEDROOM		W6/F00 / - (2)	31.8	31.7	0.1	0.3%	14.2	14	0.2	1.4%																
			BEDROOM		W7/F00 / - (2)	1.3	1.3	0	0.0%																				
	R4	RESIDENTIAL	LKD		W8/F00 / - (2)	8.7	8.6	0.1	1.1%	14.3	14.1	0.2	1.4%																
			LKD		W9/F00 / - (2)	3.3	3.3	0	0.0%																				
			LKD		W10/F00 / - (2)	32.2	31.8	0.4	1.2%																				
			LKD		W11/F00 / - (2)	20.9	20.5	0.4	1.9%																				
	R5	RESIDENTIAL	BEDROOM		W12/F00 / - (2)	19.5	19.2	0.3	1.5%	19.5	19.2	0.3	1.5%																
	R6	RESIDENTIAL	LKD		W13/F00 / - (2)	3.6	3.6	0	0.0%	3.6	3.6	0	0.0%																
	R7	RESIDENTIAL	BEDROOM		W14/F00 / - (2)	1.1	0.9	0.2	18.2%	7.3	7.1	0.2	2.7%																
			BEDROOM		W15/F00 / - (2)	15.9	15.8	0.1	0.6%																				
F01	R1	RESIDENTIAL	LKD		W1/F01 / - (2)	25.7	25.7	0	0.0%	15.9	15.9	0	0.0%																
			LKD		W2/F01 / - (2)	24.9	24.9	0	0.0%																				
			LKD		W3/F01 / - (2)	10.6	10.6	0	0.0%																				
	R2	RESIDENTIAL	BEDROOM		W4/F01 / - (2)	0	0	0	-	14.8	14.7	0.1	0.7%																
			BEDROOM		W5/F01 / - (2)	35.1	35	0.1	0.3%																				
	R3	RESIDENTIAL	BEDROOM		W6/F01 / - (2)	35.6	35.4	0.2	0.6%	15.8	15.7	0.1	0.6%																
			BEDROOM		W7/F01 / - (2)	1.5	1.5	0	0.0%																				
	R4	RESIDENTIAL	LKD		W8/F01 / - (2)	10.5	10.5	0	0.0%	16.2	16.1	0.1	0.6%																
			LKD		W9/F01 / - (2)	3.8	3.8	0	0.0%																				
			LKD		W10/F01 / - (2)	36.2	35.9	0.3	0.8%																				

(1) KITCHEN SMALLER THAN 13m2

(2) INC\HZ = SKY COMPONENT (INCLINED\HORIZONTAL WINDOWS)

(3) SINGLE ASPECT ROOM DEEPER THAN 5m

						VSC (WINDOW)				VSC (ROOM)				NSL				APSH (WINDOW)						APSH (ROOM)					
FLOOR	ROOM	PROPERTY TYPE	ROOM USE	ROOM NOTES	WINDOW	EX. %	PR. %	LOSS	LOSS %	EX. %	PR. %	LOSS	LOSS %	EX. %	PR. %	LOSS SQM	LOSS %	EX.		PR.		LOSS %		EX.		PR.		LOSS %	
																		ANNUAL	WINTER	ANNUAL	WINTER	ANNUAL	WINTER	ANNUAL	WINTER	ANNUAL	WINTER	ANNUAL	WINTER
BELLE VUE BLOCK D (CONTINUED)																													
			LKD		W11/F01 / - (2)	26.4	26.2	0.2	0.8%																				
	R5	RESIDENTIAL	BEDROOM		W12/F01 / - (2)	25.1	25	0.1	0.4%	25.1	25	0.1	0.4%																
	R6	RESIDENTIAL	LKD		W13/F01 / - (2)	6.3	6.3	0	0.0%	6.3	6.3	0	0.0%																
	R7	RESIDENTIAL	BEDROOM		W14/F01 / - (2)	1.2	1.2	0	0.0%	8.7	8.7	0	0.0%																
			BEDROOM		W15/F01 / - (2)	19.1	19.1	0	0.0%																				
BELLE VUE BLOCK C																													
F00	R1	RESIDENTIAL	LKD		W1/F00 / - (2)	17.4	17.3	0.1	0.6%	8	8	0	0.0%																
			LKD		W2/F00 / - (2)	0	0	0	-																				
			LKD		W3/F00 / - (2)	5.1	5.1	0	0.0%																				
			LKD		W4/F00 / - (2)	17.1	17.1	0	0.0%																				
F01	R1	RESIDENTIAL	BEDROOM		W1/F01 / - (2)	22.2	22.1	0.1	0.5%	9.1	9	0.1	1.1%																
			BEDROOM		W2/F01 / - (2)	0.7	0.7	0	0.0%																				
	R2	RESIDENTIAL	LKD		W3/F01 / - (2)	8.2	8.2	0	0.0%	12.2	12.2	0	0.0%																
			LKD		W4/F01 / - (2)	21.7	21.7	0	0.0%																				
CHRISTIE COURT																													
F00	R1	RESIDENTIAL	LKD		W1/F00 / - (2)	13.6	13.5	0.1	0.7%	16.3	16.1	0.2	1.2%																
			LKD		W2/F00 / - (2)	27.7	27.7	0	0.0%																				
			LKD		W3/F00 / - (2)	9	9	0	0.0%																				
F01	R1	RESIDENTIAL	LKD		W1/F01 / - (2)	19.1	19.1	0	0.0%	22	22	0	0.0%																
			LKD		W2/F01 / - (2)	29.6	29.6	0	0.0%																				
			LKD		W3/F01 / - (2)	30.7	30.7	0	0.0%																				
			LKD		W4/F01 / - (2)	11.5	11.5	0	0.0%																				
F02	R1	RESIDENTIAL	LKD		W1/F02 / - (2)	28.8	28.8	0	0.0%	29	29	0	0.0%																
			LKD		W2/F02 / - (2)	30.9	30.9	0	0.0%																				
			LKD		W3/F02 / - (2)	36.6	36.6	0	0.0%																				
			LKD		W4/F02 / - (2)	23	23	0	0.0%																				

(1) KITCHEN SMALLER THAN 13m2

(2) INC\HZ = SKY COMPONENT (INCLINED\HORIZONTAL WINDOWS)

(3) SINGLE ASPECT ROOM DEEPER THAN 5m

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