# ST CLARE BUSINESS PARK

## LONDON BOROUGH OF RICHMOND UPON THAMES

#### INTERNAL DAYLIGHT AND SUNLIGHT REPORT

APPLICANT: NOTTING HILL HOME OWNERSHIP LTD DATE: APRIL 2023 VERSION: V2 R1 PROJECT: P1697

Point 2 Surveyors Limited, 17 Slingsby Place, London, WC2E 9AB

0207 836 5828 point2.co.uk



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## 1 Introduction

- 1.1 This report considers the internal daylight amenity of the proposed redevelopment of St Clare Business Park, London. Through the planning process the local authority will wish to be reassured that the construction of the new scheme will benefit from acceptable levels of internal daylight amenity within BRE and British Standard Guidance.
- 1.2 The local authority will be informed in this by the BRE document entitled *'Site Layout planning for Daylight and Sunlight: A Guide to Good Practice'*, 2022 ("the BRE guidelines"). This document is the principle guidance in this area and sets out the methodology for measuring light.
- 1.3 The BRE guidelines are not mandatory, though local planning authorities and planning inspectors will consider the suitability of a proposed scheme for a site within the context of BRE guidance. Consideration will be given to the urban context within which a scheme is located and the internal daylight and sunlight amenity will be one of several planning considerations which the local authority will weigh.

## 2 Sources of Information

2.1 In compiling this report, we have used the following information:

#### ZMapping Ltd

3D Model (received 10/03/2023) Harrow HA1 3JQ\_100323\_Solids XY@NE.dwg

#### **AHR Architects**

2D and 3D Info (received 09/03/23)



## 3 Assessment Methodology and Application of Guidance

#### **Daylight within Proposed Developments**

3.1 In the new 2022 revision of the BRE guidelines, a Climate Based Daylight Modelling (CBDM) methodology replaces the old Average Daylight Factor (ADF) methodology. The new methodology is more complex, is arguably a more accurate simulation of actual daylight levels but has targets that are generally more difficult to achieve in an urban context.

#### **Climate Based Daylight Modelling (CBDM)**

- 3.2 The new CBDM methodology is based on the British Standard 'Daylight in Buildings' (BS EN17037). This contains advice and guidance on interior daylighting for all buildings across Europe but also has a UK National Annex which provides suggested targets for dwellings in the UK.
- 3.3 BS EN17037 supersedes BS 8206 Part 2 which was based on Average Daylight Factor ("ADF") and is no longer recommended.
- 3.4 The CBDM methodology is based on target illuminances from daylight. This is the Daylight Illuminance (DI) to be achieved over half the area of the room (measured on a reference plane at tabletop level) for at least half of the daylight hours in a typical year. The calculations are based on weather data files which cover different regions of the UK. The calculations are done for each hour of the day for every day of the year. There are 8760 hours in the year, of which 4380 are daylight hours, and therefore the targets should be achieved for 2190 hours in the year. The methodology uses a more accurate sky model which simulates the movement of the sun throughout the day and accounts for the weather conditions at the time. As a result, CBDM accounts for the presence of sunlight and therefore the orientation of the rooms/windows is accounted for. A south facing room is likely to have access to higher levels of natural light than a north facing room and as a result, a north facing room would typically need larger windows to comply.
- 3.5 The UK National Annex provides illuminance recommendations of:
  - 100 Lux in bedrooms;
  - 150 Lux in living rooms; and
  - 200 Lux in kitchens.
- 3.6 These are median illuminances to be achieved over 50% of the assessment grid for at least half of the daylight hours.
- 3.7 Where a room has a shared use, the highest target should apply. However, it also says that Local Authorities could use discretion here and that a living room target of 150 Lux could be used for combined living/kitchen/dining rooms if the kitchens are not treated as habitable spaces, as it may avoid small separate kitchens in the design.

3.8 There is a further simplistic methodology based on daylight factors (not the same as the old ADF methodology), which does not use climate-based data but uses a simple fixed sky model. However, since this alternative simplistic methodology does not account for the effect of sunlight, or the orientation of the room, it has not been used in our assessment.

#### **Sunlight within Proposed Developments**

- 3.9 For new buildings, the BRE guidelines refer to BS EN 17037 which says that a space should receive a minimum of 1.5 hours of sunlight on a selected date between 1<sup>st</sup> February and 21<sup>st</sup> March with cloudless conditions. The BRE guidelines suggests 21<sup>st</sup> March be used. For dwellings, at least one habitable room, preferably a main living room, should achieve at least this minimum criterion and that at least one main window faces within 90° of south. Whilst BS EN 17037 applies to all orientations, the BRE guidelines say that if the room faces significantly north of due east or west, the criterion is unlikely to be met.
- 3.10 Where dwellings have a requirement for private amenity space and these are in the form of balconies, it must be acknowledged that this can have a limiting effect on the sunlight availability to rooms located beneath those balconies where the underside of the balcony structure blocks a portion of the sky dome when viewed from the centre of the window. This is particularly the case within urban locations, where there is a likelihood that there will be a greater requirement for private amenity provision in the form of balconies and terraces where buildings generally tend to be taller and in closer proximity to one another.

## 4 Daylight and Sunlight Amenity

#### **Internal Daylight Amenity**

- 4.1 Drawings P1697/CBDM/01-08 enclosed in Appendix 2, show the internal arrangements within the proposal, together with daylight illuminance (Lux level) contours achieved for 50% of daylight hours. The drawings also show the median daylight illuminance figure for each room.
- 4.2 With regard to the combined Living/Kitchen/Dining Rooms (LKDs), strictly the presence of a kitchen means that the target value is 200 lux. However, as is common in modern residential developments, the kitchen areas are located to the rear of these spaces, furthest from the windows. As such they will receive lower levels of daylight and the target of 150 lux for a living room, which is the principal use, is appropriate for these combined spaces.
- 4.3 A total of 298 habitable rooms have been assessed, comprising 177 bedrooms, 93 LKDs, seven kitchens, seven living dining/rooms, two studies and 12 living rooms.
- 4.4 The results show that occupants of the Proposed Development will benefit from good levels of daylight amenity, with an overall compliance level of 79.2%. The majority of rooms far exceed their respective targets.



4.5 For reference, the extract below identifies the proposed buildings:

4.6 Block 2 is proposed commercial uses and therefore has not been considered in this assessment, which looks only at the potential for daylight and sunlight amenity within proposed habitable room uses.

- 4.7 With regards to Block 1, the ground floor has not been assessed as this is proposed commercial space and therefore not relevant for testing. All proposed habitable accommodation has been considered, including bedrooms and living spaces located between then first and fourth floor levels.
- 4.8 The results show that rooms which fall short of the recommended target values for their respective room uses, are located either within the inner proposed courtyard of Block 1 and/or underneath overhanging balconies.
- 4.9 Windows and rooms located underneath overhanging balconies naturally experience a restriction to the skylight received due to the balcony overhang blocking out the top part of the sky dome. However, the provision of private amenity space for future residents is regarded as important amenity for the overall quality of accommodation and therefore the daylight levels to rooms underneath overhanging balconies should be viewed on balance. Residents of these units will benefit from well sunlit space on the balcony.
- 4.10 Further, many windows looking into the inner courtyard of Block 1 are oriented north which will naturally lower skylight availability. This is unavoidable in design for a site of this size where feasible development which optimises the site, necessitates rooms oriented north.
- 4.11 Whilst it is somewhat inevitable that rooms located within a courtyard location will experience lower levels of skylight due to their more obstructed location than rooms on the perimeter of the block, the glazing and room layouts have been carefully considered. This allows for the best possible penetration and distribution of accessible daylight whilst also balancing other constraints such as private amenity space, overheating, ventilation and space standards. To that end, material daylight pools in front of the window within each combined LKD/living space facing into the courtyard, which is the principal use of the space and therefore where occupants will be expected to spend most of their time.
- 4.12 Conversely, the layouts have been designed so that kitchens are located to the rear of combined LKDs, which are considered functional spaces for which supplementary electric lighting would likely be used to assist food preparation. This design is typical of modern, open-plan living arrangements.
- 4.13 With regards to the seven proposed dwellings in the northern terrace, all rooms far exceed the daylight target for their respective room uses, except for the small kitchens located at ground floor level, separate to the main living spaces. These rooms have been included in the assessment for completeness, although they are not considered habitable rooms.
- 4.14 The Housing Supplementary Planning Guidance document of March 2016 ("the SPG"), does not recognise small kitchens separate to the main living space, as habitable rooms. It highlights that there is no statutory definition for kitchens to be counted as a habitable room, nor is there any size threshold. In particular, kitchens under 13 square meters are not generally considered habitbale rooms (para. 1.3.19, SPG). It states that a kitchen with a small table and chairs in one corner, or a kitchen 'bar', would not be counted as a habitable room. On this basis, the proposed kitchens within the northern terrace will be functional food preparation spaces only and residents will enjoy good levels of daylight in their main living spaces.
- 4.15 All rooms in the southern terrace and 'wide frontage' houses, comfortably exceed the recommended target values for their respective room uses.

#### Internal Sunlight Amenity

- 4.16 In relation to sunlight, we have calculated the Sunlight Exposure for each proposed habitable room. The updated BRE guidelines (2022) refer to BS EN 17037 and state that a 'space should receive a minimum of 1.5 hours of direct sunlight on a selected date between 1 February and 21 March with cloudless conditions.'
- 4.17 The potential amount of sunlight a window can receive depends on the direction it faces. A south facing window has the potential to receive the highest amount of sunlight as well as the highest expectation of sunlight. Conversely, a north facing window has the lowest potential and the occupants of a north facing room would therefore expect to receive very little sunlight. The situation varies between these two extremes.
- 4.18 For new developments, the BRE suggest that dwellings should be orientated so that at least one main window wall faces within 90 degrees of due south. In practice, for a block of units in an urban area it is usual for some units to have a northerly aspect as discussed at paragraph 4.10 above.
- 4.19 With reference to the attached table of sunlight results, 85 of the 100 proposed dwellings will meet or exceed the suggested target minimum level of sunlight and will therefore fully comply with the guidelines.
- 4.20 The remaining 15 dwellings are located within Block 1. The windows serving the main living spaces in these units are obstructed by overhanging balconies above them which restricts sunlight by cutting out the top part of the sky dome. Of these units, five are additionally north facing which naturally lowers the expectation and provision of sunlight.
- 4.21 The results show an excellent overall level of compliance to the sunlight criteria, giving consideration to the urban location and size and scale of development.

## 5 Summary and Conclusions

- 5.1 Section 4 above and the appended drawings to this report (P1697/CBDM/01-08) and sunlight exposure results show that the proposed scheme demonstrates excellent compliance with the BRE guidance in terms of internal daylight and sunlight.
- 5.2 The scheme has been well designed to allow for good levels of daylight to penetrate into the proposed units and distribute throughout the rooms efficiently, especially in consideration of the size of the site and being in an urban area. Where rooms do fall short of the target daylight and/or sunlight values, they are located underneath overhanging balconies and many of these are also oriented north, both of which restrict the availability of skylight.
- 5.3 We fully support this scheme in terms of internal daylight and sunlight amenity.



# Appendix 1: Proposed Scheme Drawings



Sources:	Point 2 Surveyors Point Cloud Survey & Site Photographs
	PCKO an AHR company Proposed 3D Model (received 28/02/23 ) stclare_20230224.skp Proposed Layouts in OS (received 09/03/23) 00f.dwg roof.dwg

Key: Existing Buildings Proposed Scheme		Project: St. Clare B Hampton I London	usiness Park Hill		Title: Site Plan Proposed Scheme 09/03/23 (Cumulative Scenario)
Scheme Confirmed:	Date:	Drawn By:	Scale:	Date:	Dwg No: <b>P1697/47</b>
-	-	AG	1:1000 @ A3	March 23	









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## **Appendix 2:** Internal Daylight and Sunlight Results



#### First Floor

Sources: Point 2 Surveyors Point Cloud Survey & Site Photographs Key: Daylight Illuminance Project: St. Clare Business Park Title: CBDM Assessment - Daylight illuminance Proposed Scheme 09/03/22 First Floor Hampton Hill (achieved for 50% of daylight hou PCKO an AHR company Proposed 3D Model (received 28/02/23) London <50 Lux stclare\_20230224.skp >50 Lux Proposed Layouts in OS (received 09/03/23) 00f.dwg >100 Lux ... roof.dwg >150 Lux >200 Lux Scheme Confirmed: Date: Drawn By: Scale: Date: Dwg No: P1697/CBDM/01 DK 1:300 @ A3 April 23

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Sources: Point 2 Surveyors Point Cloud Survey & Site Photographs Key: Daylight Illuminance Project: St. Clare Business Park Title: CBDM Assessment - Daylight illuminance Proposed Scheme 09/03/22 Hampton Hill (achieved for 50% of daylight hou PCKO an AHR company Proposed 3D Model (received 28/02/23) London Second Floor <50 Lux stclare\_20230224.skp >50 Lux Proposed Layouts in OS (received 09/03/23) >100 Lux 00f.dwg ... roof.dwg >150 Lux >200 Lux Scheme Confirmed: Date: Drawn By: Scale: Date: Dwg No: P1697/CBDM/02 DK 1:300 @ A3 April 23

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Sources: Point 2 Surveyors Point Cloud Survey & Site Photographs PCKO an AHR company Proposed 3D Model (received 28/02/23 ) stclare_20230224.skp Proposed Layouts in OS (received 09/03/23) 00f.dwg roof.dwg	Key: Daylight Illuminance (achieved for 50% of daylight hours) <50 Lux >50 Lux >100 Lux >150 Lux >200 Lux		Project: St. Clare Bus Hampton Hi London	siness Park II		Title: CBDM Assessment - Daylight illum Proposed Scheme 09/03/22 Third Floor
	Scheme Confirmed:	Date:	Drawn By:	Scale:	Date:	Dwg No:
	-	-	DK	1:300 @ A3	April 23	P1697/CBDM/03

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Ground Floor



#### First Floor

DUICES: Point 2 Surveyors Point Cloud Survey & Site Photographs PCKO an AHR company Proposed 3D Model (received 28/02/23 ) stclare_20230224.skp Proposed Layouts in OS (received 09/03/23) 00f.dwg roof.dwg	Key: Daylight Illuminance (achieved for 50% of daylight h <50 Lux >50 Lux >100 Lux >150 Lux >200 Lux	ours)	Project: St. Clare E Hampton London	Business Park Hill		Title: CBDM Assessment - Daylight illumina Proposed Scheme 09/03/22 Ground and First Floor
	Scheme Confirmed: -	Date:	Drawn By: DK	Scale: 1:150 @ A3	Date: April 23	Dwg No: <b>P1697/CBDM/05</b>

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Sources: Point 2 Surveyors Point Cloud Survey & Site Photographs PCKO an AHR company Proposed 3D Model (received 28/02/23) stclare_20230224.skp Proposed Layouts in OS (received 09/03/23) 00f.dwg roof.dwg	Key: Daylight Illuminance (achieved for 50% of daylight hours) <50 Lux>50 Lux>100 Lux>100 Lux>200 Lux <p< th=""><th></th><th>Project: St. Clare Bus Hampton Hi London</th><th>siness Park II</th><th></th><th>Title: CBDM Assessment - Daylight illumi Proposed Scheme 09/03/22 Second Floor</th></p<>		Project: St. Clare Bus Hampton Hi London	siness Park II		Title: CBDM Assessment - Daylight illumi Proposed Scheme 09/03/22 Second Floor
	Scheme Confirmed:	Date:	Drawn By:	Scale:	Date:	Dwg No:
	-	-	DK	1:150 @ A3	April 23	P1697/CBDM/06

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#### Ground Floor





#### First Floor

OURCES: Point 2 Surveyors Point Cloud Survey & Site Photographs PCKO an AHR company Proposed 3D Model (received 28/02/23) stclare_20230224.skp Proposed Layouts in OS (received 09/03/23) 00f.dwg roof.dwg	Key: Daylight Illuminance (achieved for 50% of daylight hours) <pre>&lt;50 Lux</pre> >50 Lux>100 Lux>150 Lux>200 Lux		Project: St. Clare Bus Hampton Hi London	siness Park II		Title: CBDM Assessment - Daylight illumi Proposed Scheme 09/03/22 Ground and First Floor
	Scheme Confirmed:	Date:	Drawn By:	Scale:	Date:	Dwg No:
	-	-	DK	1:150 @ A3	April 23	P1697/CBDM/07

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Sources: Point 2 Surveyors Point Cloud Survey & Site Photographs PCKO an AHR company Proposed 3D Model (received 28/02/23) stclare_20230224.skp Proposed Layouts in OS (received 09/03/23) 00f.dwg roof.dwg	Key: Daylight Illuminance (achieved for 50% of daylight hours) <50 Lux >50 Lux >100 Lux >150 Lux >200 Lux	Key: Daylight Illuminance (achieved for 50% of daylight hours) <50 Lux>50 Lux>100 Lux>150 Lux>200 Lux		siness Park II		Title: CBDM Assessment - Daylight illumi Proposed Scheme 09/03/22 Second Floor
	Scheme Confirmed: -	Date: -	Drawn By: DK	Scale: 1:150 @ A3	Date: April 23	Dwg No: P1697/CBDM/08



	Unit	Room	Room Use	Window	Orientation	Date	Sunlight Exposure (Hours)
St.	Clare B	usiness Park					
	PLOT-1	.01					
		R1/601	LKD			21-Mar	2.6
				W2/601	Northerly	21-Mar	0.0
				W1/601	Westerly	21-Mar	2.6
	PLOT-1	.02					
		R55/601	LKD			21-Mar	1.3
				W74/601	Westerly	21-Mar	1.3
	PLOT-1	.03					
		R9/601	LKD			06-Mar	0.5
				W13/601	Easterly	06-Mar	0.5
	PLOT-1	.04					
		R7/601	LKD			02-Mar	2.7
				W10/601	Southerly	02-Mar	2.6
				W9/601	Easterly	02-Mar	1.4
				W8/601	Easterly	02-Mar	0.3
	PLOT-1	.05					
		R2/601	LKD			21-Mar	0.5
				W3/601	Northerly	21-Mar	0.5
	PLOT-1	.06					
		R54/601	LKD			21-Mar	3.2
				W73/601	Westerly	21-Mar	3.2
	PLOT-1	.07					
		R51/601	LKD			21-Mar	1.3
				W70/601	Westerly	21-Mar	1.3
	PLOT-1	.08					
		R50/601	LKD			21-Mar	3.1
				W69/601	Westerly	21-Mar	3.1
	PLOT-1	.09					
		R48/601	LKD			15-Mar	8.3

Unit	Room	Room Use	Window	Orientation	Date	Sunlight Exposure (Hours)
			W67/601	Westerly	15-Mar	1.3
			W66/601 W65/601	Southerly Southerly	15-Mar 15-Mar	4.7 6.1
PLOT-1	10					5.0
	R45/601	LKD	NIC1 / CO1		02-Feb	5.0
			W61/601	Southerly	02-Feb	5.0
			VV62/601	Southerry	UZ-FED	2.2
PLOT-1	<b>11</b>				JE Fob	
	VT0/001	LND	W20/601	Northerly	25-Feb	4.4
			W60/601	Southerly	25-Feb	4.4
				ooutherty	20100	
PLOT-1	12				21	0.4
	R13/601	LKD	M17/C01	Factorly	21-Mar	0.4
			VV17/001	Lasterry	Z I-IVIdI	0.4
PLOT-1	13					
	R10/601	LKD			04-Mar	2.3
			W14/601	Easterly	04-Mar	2.3
PLOT-1	14					
	R17/601	LKD			21-Mar	3.9
			W21/601	Northerly	21-Mar	0.0
			W59/601	Southerly	21-Mar	3.9
PLOT-1	15					
	R44/601	LKD			12-Feb	7.6
			W57/601	Southerly	12-Feb	4.8
			W58/601	Southerly	12-Feb	6.6
PLOT-1	16					
	R41/601	LKD			21-Mar	10.3
			W52/601	Easterly	21-Mar	5.7
			W53/601	Southerly	21-Mar	1.0
			W54/601	Southerly	21-Mar	4.2

PLOT-117

Unit	Room	Room Use	Window	Orientation	Date	Sunlight Exposure (Hours)
	R39/601	IKD			01-Mar	5 /
	1007001		W50/601	Easterly	04-Mar	5.4
PLOT-1	18					
	R38/601	LKD			15-Feb	3.1
			W49/601	Easterly	15-Feb	3.1
PLOT-1	19					
	R35/601	LKD			04-Mar	5.1
			W46/601	Easterly	04-Mar	5.1
PLOT-1	20					
	R22/601	LKD	MDC/C01		21-Mar	0.0
			W26/601	westeriy	21-Mar	0.0
PLOT-1	21				21	0.0
	K20/601	LKD	M24/601	Mastarly	21-IVIar	0.0
			VV24/001	westerry	ZI-IVIdI	0.0
PLOT-1	<b>22</b>				21 Mar	0.2
	N27/001	LKD	W33/601	Northerly	21-Ividi 21-Mar	0.3
			W34/601	Northerly	21-Mar	0.0
			W32/601	Westerly	21-Mar	0.0
PLOT-1	23					
	R26/601	LKD			21-Mar	1.0
			W31/601	Westerly	21-Mar	1.0
PLOT-1	24					
	R23/601	LKD			21-Mar	0.0
			W27/601	Westerly	21-Mar	0.0
PLOT-1	25					
	R34/601	LKD			21-Mar	2.9
			W45/601	Easterly	21-Mar	2.9
PLOT-1	26					
	R32/601	LKD			03-Feb	5.0

Unit	Room	Room Use	Window	Orientation	Date	Sunlight Exposure (Hours)
			W/41/601	Fasterly	03-Feb	27
			W42/601	Southerly	03-Feb	2.3
PLOT-1	27					
	R30/601	LKD			21-Mar	4.7
			W39/601	Easterly	21-Mar	4.7
			W38/601	Northerly	21-Mar	0.0
			W37/601	Northerly	21-Mar	0.0
PLOT-2	01					
	R1/602	LKD			21-Mar	2.8
			W2/602	Northerly	21-Mar	0.0
			W1/602	Westerly	21-Mar	2.8
PLOT-2	02					
	R68/602	LKD			21-Mar	1.3
			W77/602	Westerly	21-Mar	1.3
PLOT-2	03					
	R11/602	LKD			21-Mar	1.4
			W13/602	Easterly	21-Mar	1.4
PLOT-2	04					
	R7/602	LKD			04-Feb	4.0
			W9/602	Southerly	04-Feb	3.6
			W8/602	Easterly	04-Feb	0.4
PLOT-2	05					
	R2/602	LKD			21-Mar	0.8
			W3/602	Northerly	21-Mar	0.8
PLOT-2	06					
	R67/602	LKD			21-Mar	3.3
			W76/602	Westerly	21-Mar	3.3
PLOT-2	07					
	R64/602	LKD			21-Mar	1.3
			W73/602	Westerly	21-Mar	1.3

Unit	Room	Room Use	Window	Orientation	Date	Sunlight Exposure (Hours)
	00					
PLUT-Z	R63/602	IKD			21-Mar	3 3
	11007 002		W72/602	Westerly	21-Mar	3.3
PLOT-2	09					
	R61/602	LKD			12-Feb	7.6
			W70/602	Westerly	12-Feb	0.0
			W69/602	Southerly	12-Feb	7.6
PLOT-2	10					
	R56/602	LKD			02-Feb	6.4
			W64/602	Southerly	02-Feb	6.4
PLOT-2	11					
	R55/602	LKD			05-Feb	4.0
			W63/602	Southerly	05-Feb	4.0
			W21/602	Northerly	05-Feb	0.0
PLOT-2	12					
	R15/602	LKD			21-Mar	1.4
			W17/602	Easterly	21-Mar	1.4
PLOT-2	13					
	R12/602	LKD			04-Mar	4.0
			W14/602	Easterly	04-Mar	4.0
PLOT-2	14					
	R54/602	LKD			07-Mar	3.8
			W62/602	Southerly	07-Mar	3.8
			W22/602	Northerly	07-Mar	0.0
PLOT-2	15					
	R53/602	LKD			04-Feb	7.3
			W61/602	Southerly	04-Feb	7.3
PLOT-2	16					
	R48/602	LKD			21-Mar	11.8
			W55/602	Easterly	21-Mar	5.9
			W56/602	Southerly	21-Mar	8.8

Unit	Room	Room Use	Window	Orientation	Date	Sunlight Exposure (Hours)			
PLOT-217									
	R46/602	LKD			20-Mar	6.3			
			W53/602	Easterly	20-Mar	6.3			
PLOT-2	18								
	R45/602	LKD			20-Mar	6.6			
			W52/602	Easterly	20-Mar	6.6			
PLOT-2	19								
	R42/602	LKD			20-Mar	6.3			
			W49/602	Easterly	20-Mar	6.3			
PLOT-2	20								
12012	R24/602	LKD			21-Mar	0.6			
			W28/602	Westerly	21-Mar	0.6			
	21								
FLOT-2	R22/602	LKD			21-Mar	0.0			
			W26/602	Westerly	21-Mar	0.0			
	22								
PLUT-2	ZZ R31/602	LKD			21-Mar	0.6			
	,		W35/602	Westerly	21-Mar	0.1			
			W36/602	Northerly	21-Mar	0.5			
PLOT-2	23								
12012	R30/602	LKD			21-Mar	1.3			
			W34/602	Westerly	21-Mar	1.3			
	24								
FLUI-Z	<b>∠</b> <del>1</del> R25/602	LKD			21-Mar	0.0			
	-		W29/602	Westerly	21-Mar	0.0			
	25								
PLUT-2	<b>25</b> R41/602	LKD			21-Mar	6.6			
	,		W48/602	Easterly	21-Mar	6.6			

PLOT-226

Unit	Room	Room Use	Window	Orientation	Date	Sunlight Exposure (Hours)
	R38/602	LKD			21-Mar	9.6
			W45/602 W44/602	Easterly	21-Mar 21-Mar	6.3 5.3
PLOT-2	27					5.0
	R36/602	LKD	M42/C02	Factorly	21-Mar	5.3
			W42/602	Easteriy	21-IVIar 21 Mar	5.3
			VV41/002	Northerry	ZI-IVIAI	0.0
PLOT_3	8 <b>01</b> R1/603	LKD			20-Mar	2.2
			W1/603	Northerly	20-Mar	0.0
			W2/603	Westerly	20-Mar	2.2
PLOT_3	802				24.14	1.2
	R7/603	LKD	Malcoa	) // octorly/	21-Mar	1.3
			W8/603	westeriy	21-IVIar	1.3
PLOT_3	303					
	R8/603	LKD	Mo Icoa	Etl	21-Mar	2.8
			W9/603	Easterly	21-IVIar	2.8
PLOT_3	8 <b>04</b> 812/603	IKD			08-Eeb	63
	112/005		W13/603	Southerly	08-Feb	5.3
			W14/603	Easterly	08-Feb	2.9
PLOT 3	805					
_	R17/603	LKD			21-Mar	1.0
			W19/603	Northerly	21-Mar	1.0
PLOT_3	306					
	R18/603	LKD			21-Mar	3.3
			W20/603	Westerly	21-Mar	3.3
PLOT_3	807					
	K21/603	LKD	M122/CO2	Mostarly	21-Mar	1.3
			VVZ3/6U3	westerly	∠1-iviar	1.3

Unit	Room	Room Use	Window	Orientation	Date	Sunlight Exposure (Hours)
	00					
PLOT_5	DO R22/602				21 Mar	2.2
	1122/003	LKD	W24/603	Westerly	21-Mar	3.3
PLOT_3	09					7.0
	R24/603	LKD			12-Feb	7.6
			W26/603	westerly	12-Feb	0.0
			W27/603	Southerly	12-Feb	7.6
PLOT_3	10					
	R29/603	LKD			01-Feb	8.3
			W32/603	Southerly	01-Feb	8.3
	11					
FLOT_5	R30/603	LKD			01-Feb	4.3
			W33/603	Southerly	01-Feb	4.3
			W34/603	Northerly	01-Feb	0.0
PLOT_3	12 P24/602				21 Mar	2.4
	N34/003	LND	W38/603	Fasterly	21-Mar	2.4
			,	200001.9		
PLOT_3	13					
	R37/603	LKD			04-Mar	5.1
			W41/603	Easterly	04-Mar	5.1
PLOT 3	14					
_	R38/603	LKD			01-Mar	4.6
			W42/603	Northerly	01-Mar	0.0
			W43/603	Southerly	01-Mar	4.6
	15					
101_5	R41/603	LKD			21-Mar	8.3
	-		W46/603	Southerly	21-Mar	8.3
	10					
PLUI_3	R76/603	IKD			21-Mar	63
	1110/000		W51/603	Easterly	21-Mar	6.3

Unit	Room	Room Use	Window	Orientation	Date	Sunlight Exposure (Hours)
DI OT	47					
PLOT_3	817 R49/603	IKD			20-Mar	6.2
	1149/003		W54/603	Easterly	20-Mar	6.2
PLOT_3	818				20 14	6.2
	K5U/6U3	LKD	W56/603	Northerly	20-Mar	6.2
			W55/603	Easterly	20-Mar	6.2
				,		
PLOT_4	100					
	R1/604	LKD	W10/604	Northarly	21-Mar	0.5
			VV19/004	Northeny	21-IVIdI	0.5
PLOT_4	101					
	R4/604	LKD			21-Mar	3.3
			W4/604	Westerly	21-Mar	3.3
	102					
1201_1	R8/604	LKD			21-Mar	2.0
			W8/604	Westerly	21-Mar	2.0
	100					
PLOT_4	103 R9/604	IKD			21-Mar	6.6
	10/004	LIND	W9/604	Easterly	21-Mar	6.6
PLOT_4	104 D42 (50.4				24.14	0.7
	R13/604	LKD	W13/601	Southerly	21-Mar 21 Mar	9.7
			W13/604 W14/604	Easterly	21-Mar	5.3
			,	,		
PLOT_4	105					
	R15/604	LKD	M17/COA	N	21-Mar	5.3
			W16/604	Northerly Fasterly	21-Mar 21-Mar	1.3 5.3
			** 10/ 004	Lasterry	∠ τ_ιλιαι	0.0
PLOT_4	106					
	R17/604	LKD			21-Mar	3.3
			W20/604	Westerly	21-Mar	3.3

Unit	Room	Room Use	Window	Orientation	Date	Sunlight Exposure (Hours)			
PLOT_4	R20/604	IKD			21-Mar	2 0			
	11207004		W23/604	Westerly	21-Mar	2.0			
	00								
PLOT_4	R21/604	IKD			21-Mar	3 3			
	1121/004		W24/604	Westerly	21-Mar	3.3			
PLOT_4	09				24.14	0.0			
	R23/604	LKD	Macleon	Mastarly	21-Mar	8.3			
			W26/604	Southorly	21-IVIar	1.8 0.2			
			VVZ7/004	Southeny	ZI-IVIdI	0.5			
PLOT_4	10								
	R28/604	LKD			20-Mar	9.2			
			W32/604	Southerly	20-Mar	9.2			
	11								
PLOT_4	R29/604	IKD			03-Feb	63			
	11237 001		W33/604	Southerly	03-Feb	6.3			
			W34/604	Northerly	03-Feb	0.0			
PLOT_4	12 P22/604				21 Mar	6.2			
	N33/004	LND	W38/604	Fasterly	21-iviai 21-Mar	63			
			1130/001	Lusterry		0.5			
PLOT_4	13								
	R36/604	LKD			21-Mar	6.3			
			W41/604	Easterly	21-Mar	6.3			
F1/701									
	R1/701	LIVINGROOM			21-Mar	1.6			
			W2/701	Northerly	21-Mar	0.0			
			W1/701	Westerly	21-Mar	1.6			
			W3/701	Northerly	21-Mar	0.0			
F2/701									
12//01	R3/701	IIVINGROOM			21-Mar	0.0			
	,,,,,,,		W8/701	Northerly	21-Mar	0.0			

Unit	Room	Room Use	Window	Orientation	Date	Sunlight Exposure (Hours)
			W7/701	Northerly	21-Mar	0.0
F1/711						
,	R1/711	LIVINGROOM			21-Mar	0.0
			W1/711	Northerly	21-Mar	0.0
			W2/711	Northerly	21-Mar	0.0
F2/711						
	R3/711	LIVINGROOM			21-Mar	0.0
			W6/711	Northerly	21-Mar	0.0
			W5/711	Northerly	21-Mar	0.0
F3/711						
	R5/711	LIVINGROOM			21-Mar	0.0
			W10/711	Northerly	21-Mar	0.0
			W9/711	Northerly	21-Mar	0.0
F1/721						
	R1/721	LIVINGROOM			21-Mar	0.0
			W2/721	Northerly	21-Mar	0.0
			W1/721	Northerly	21-Mar	0.0
F2/721						
	R3/721	LIVINGROOM			21-Mar	1.5
			W6/721	Northerly	21-Mar	0.0
			W5/721	Northerly	21-Mar	0.0
			W7/721	Easterly	21-Mar	1.5
F1/730						
	R1/730	LKD			21-Mar	8.1
			W3/730	Southerly	21-Mar	3.8
			W2/730	Southerly	21-Mar	7.7
			W1/730	Easterly	21-Mar	1.9
F2/730						
	R2/730	LKD			21-Mar	8.3
			W5/730	Southerly	21-Mar	5.3
			W4/730	Southerly	21-Mar	8.3

Unit	Room	Room Use	Window	Orientation	Date	Sunlight Exposure (Hours)
F1 /740						
F1/740	R1/740	IKD			21-Mar	7.7
			W2/740	Southerly	21-Mar	7.7
			W1/740	Easterly	21-Mar	1.3
F2/740						
FZ/740	R2/740	LKD			21-Mar	7.7
			W3/740	Southerly	21-Mar	7.7
50 /7 40						
F3/740	R3/740	IKD			21-Mar	77
			W4/740	Southerly	21-Mar	7.7
F1/741	R2/7/1				21_Mar	10 1
	112/741		W6/741	Southerly	21-Mar	6.1
			, W5/741	, Southerly	21-Mar	6.2
			W4/741	Easterly	21-Mar	4.3
E2/7/1						
FZ//41	R4/741	LIVINGROOM			13-Mar	6.6
	,		W10/741	Southerly	13-Mar	6.3
			W9/741	Southerly	13-Mar	6.4
E2/7/1						
F3/741	R6/741	LIVINGROOM			13-Mar	6.6
			W14/741	Southerly	13-Mar	6.3
			W13/741	Southerly	13-Mar	6.4
F4/750						
14/750	R4/750	LKD			21-Mar	7.7
			W5/750	Southerly	21-Mar	7.7
E5 /750						
FJ/JU	R5/750	LKD			21-Mar	7.7
			W6/750	Southerly	21-Mar	7.7
<b>.</b>						
F4/751	R8/751	IWINGROOM			13-Mar	6.6
		2			TO 14101	0.0

Unit	Room	Room Use	Window	Orientation	Date	Sunlight Exposure (Hours)
			W18/751	Southerly	13-Mar	6.3
			W17/751	Southerly	13-Mar	6.4
F5/751						
	R10/751	LIVINGROOM			21-Mar	7.3
			W23/751	Southerly	21-Mar	6.1
			W22/751	Southerly	21-Mar	6.2
			W21/751	Westerly	21-Mar	1.8