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Cairn Homes Properties Ltd.  
45 Mespil Road  
Dublin 4  
D04 W2F1

22nd March 2023

Dear Sirs,

**Project: 20181 Clonburris Phase Tile 3 – Daylight, Sunlight & Overshadowing (DSOR)**

I hereby write to you in response to request for further information with regards to the following project, 20181 Clonburris Phase Tile 3 – SDZ22A/0017. Specifically, to Item no. 5 (b):

***“The applicant is requested to set out how the proposed bridge has been taken into consideration in the sunlight and daylight assessment. A ‘worst case’ scenario should be utilized to ensure the impacts on future development are fully assessed.”***

The following summarises the analyses undertaken to quantify the Daylight and Sunlight performance of the proposed Clonburris Phase Tile 3 located in Co. Dublin, Ireland in order to address Item no. 5 (b) above. To achieve this the following assessments were carried out:

- Internal daylight assessment of the first two lower floors of the apartment block to the West.
- Sunlight assessment to all living room windows to the West side of the apartment block.
- Sunlight assessment of the amenity space between the apartment block and the road/bridge.

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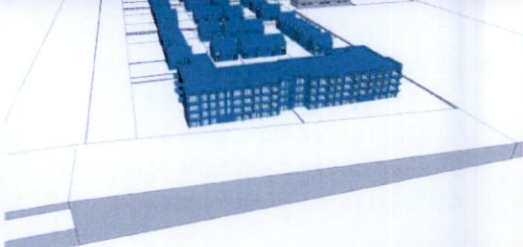
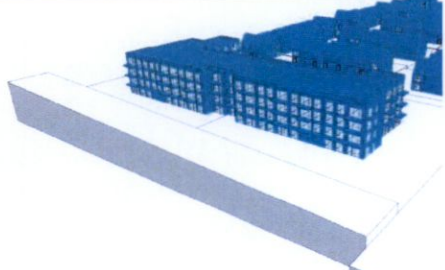
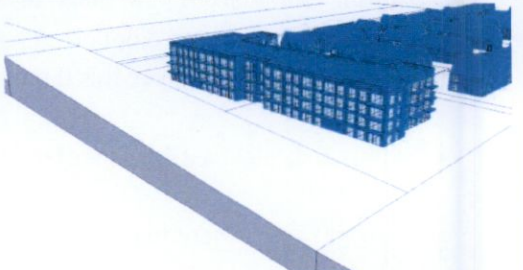
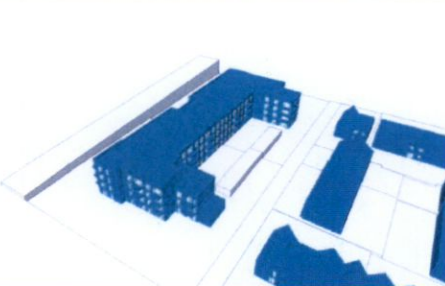
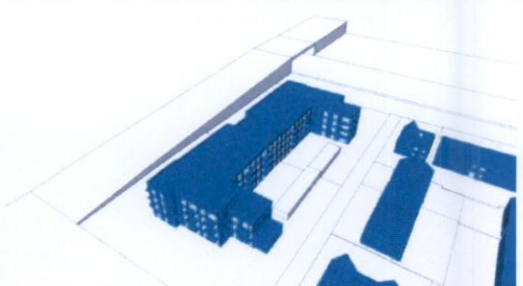


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## 1. Model Geometry

It should be noted that the original model used for analysis which results were produced from to form the report for Clonburris T3 submitted on the 22/11/2022 did allow for a representative massing of the bridge. Although this is true, the bridge had been remodeled and the analysis rerun to assess the latest bridge design and any potential impacts it may have with regards to daylight and sunlight.

The images in the following table compare the previous report model and updated massing of the new bridge.

	Report model	Updated model
View looking from North - West		
View looking from South - West		
View looking from South - East		

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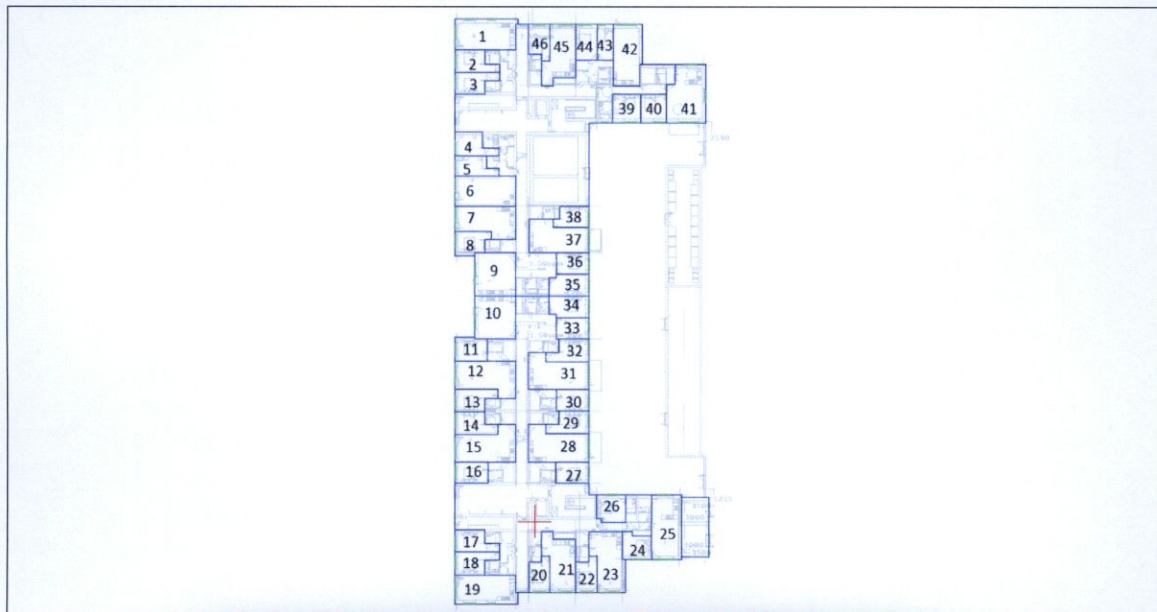
## 2. Daylight to Proposed Development

### 2.1. Standards

With regard to standards it should be noted at the time of writing the initial Daylight/Sunlight report there were a number of differing standards available. Average Daylight Factor calculation from BS 8206-2:2008 and either IS or BS EN 17037:2018 Climate Based Daylight Modeling (CBDM). As such, to allow a fair comparison between the two models Average Daylight Factor calculations from BS 8206-2:2008 have been utilised in the following assessment.

### 2.2. Daylight Provision Results

Apartment Block – Level 0



Ref.	Room Activity	BRE Guide 2 <sup>nd</sup> Edition BS 8206:2008		
		ADF (%) (Initial)	ADF (%) (Updated)	Comment
1	LKD	3.22	3.08	✓
2	Bedroom	2.46	2.41	✓
3	Bedroom	2.70	2.66	✓
4	Bedroom	1.93	1.90	✓

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Ref.	Room Activity	BRE Guide 2 <sup>nd</sup> Edition BS 8206:2008		
		ADF (%) (Initial)	ADF (%) (Updated)	Comment
5	Bedroom	1.75	1.95	✓
6	LKD	1.22	1.35	x
7	LKD	1.32	1.34	x
8	Bedroom	2.87	2.92	✓
9	LKD	1.27	1.30	x
10	LKD	1.77	1.44	x
11	Bedroom	2.85	2.92	✓
12	LKD	1.33	1.37	x
13	Bedroom	2.74	2.82	✓
14	Bedroom	2.77	2.85	✓
15	LKD	1.31	1.37	x
16	Bedroom	2.81	2.90	✓
17	Bedroom	3.07	3.17	✓
18	Bedroom	3.01	3.10	✓
19	LKD	3.64	3.68	✓

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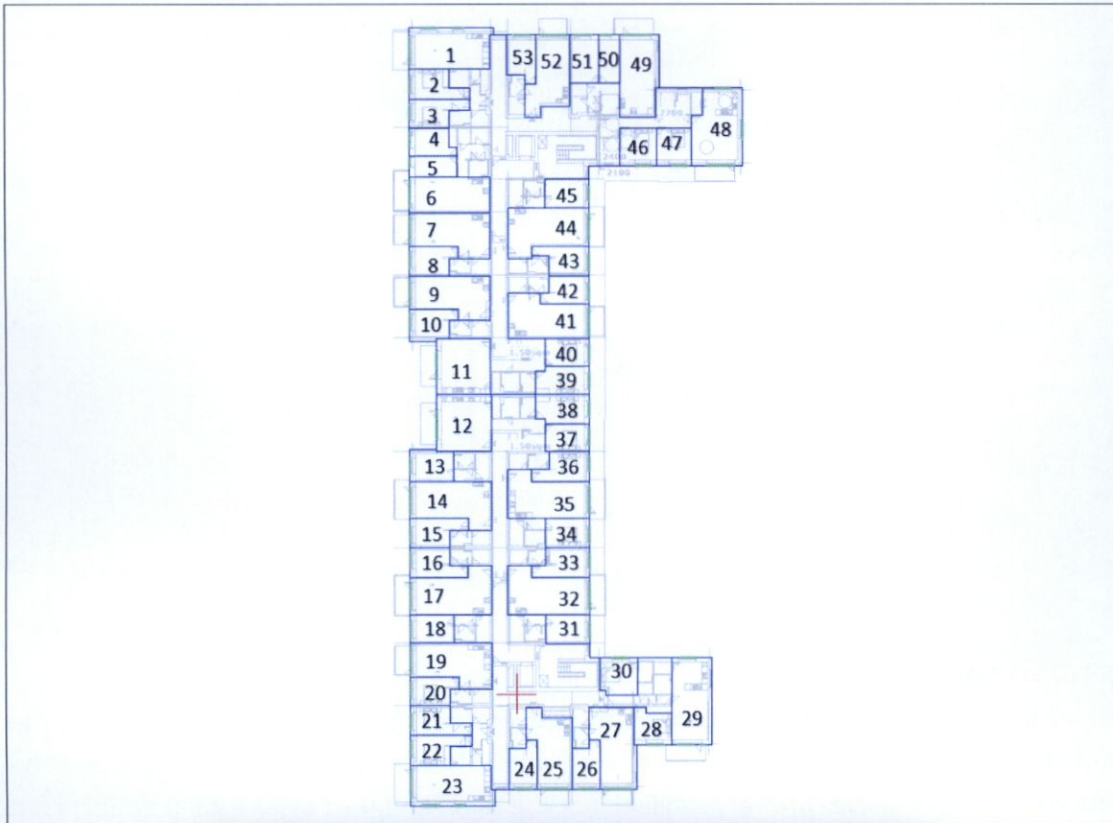
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#### Apartment Block – Level 1



Ref.	Room Activity	BRE Guide 2 <sup>nd</sup> Edition BS 8206:2008		
		ADF (%) (Initial)	ADF (%) (Updated)	Comment
1	LKD	4.34	4.21	✓
2	Bedroom	3.51	3.47	✓
3	Bedroom	3.83	3.79	✓
4	Bedroom	3.93	3.91	✓
5	Bedroom	2.45	2.44	✓
6	LKD	1.73	1.73	x
7	LKD	1.86	1.86	x
8	Bedroom	3.67	3.68	✓
9	LKD	2.00	2.01	✓
10	Bedroom	3.95	3.97	✓

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Ref.	Room Activity	BRE Guide 2 <sup>nd</sup> Edition BS 8206:2008		
		ADF (%) (Initial)	ADF (%) (Updated)	Comment
11	LKD	1.35	1.37	x
12	LKD	1.49	1.51	x
13	Bedroom	3.83	3.86	✓
14	LKD	1.83	1.85	x
15	Bedroom	3.64	3.67	✓
16	Bedroom	3.67	3.69	✓
17	LKD	1.83	1.86	x
18	Bedroom	3.71	3.75	✓
19	LKD	2.10	2.13	✓
20	Bedroom	4.10	4.14	✓
21	Bedroom	3.97	4.00	✓
22	Bedroom	3.86	3.91	✓
23	LKD	4.59	4.60	✓

### 2.3. Discussions

When comparing the initial massing modelled against the updated bridge design, the daylight results highlight that the compliance rate is the same for both scenarios and the actual results themselves are very similar if not the same in some cases. It can be concluded that the original report had accounted for the bridge massing sufficiently and there would be no material change to daylight performance of the adjacent proposed Clonburris T3 apartments as a result of the updated bridge design.

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### 3. Sunlight to Proposed Development

Based on the criteria for both the BRE Guide 2<sup>nd</sup> Edition/BS8206-2:2008 and BRE Guide 3<sup>rd</sup> Edition/IS EN 17037:2018, all main living room windows within the Apartment Block to the West side facing the roadway/bridge have been assessed.

Please note, the "Comment" symbol in each of the tables represents the following:

#### BRE Guide 3<sup>rd</sup> Edition / BS 8206-2:2008

- ✓/✓ For these locations, both the annual and winter APSH results are greater than 25% and 5% respectively.
- x/✓ For these locations, the annual APSH results are less than the recommended values, however, the winter APSH results are greater than 5%.
- ✓/x For these locations, the winter APSH results are less than the recommended values, however, the annual APSH results are greater than 25%.
- x/x For these locations, both the annual and winter APSH results are less than the recommended values.

#### BRE Guide 3<sup>rd</sup> Edition / IS EN 17037:2018

- ✓ These rooms achieve the minimum 1.5 hours of recommended sunlight exposure on March 21<sup>st</sup>.
- x These rooms do not achieve the minimum 1.5 hours of recommended sunlight exposure on March 21<sup>st</sup>.

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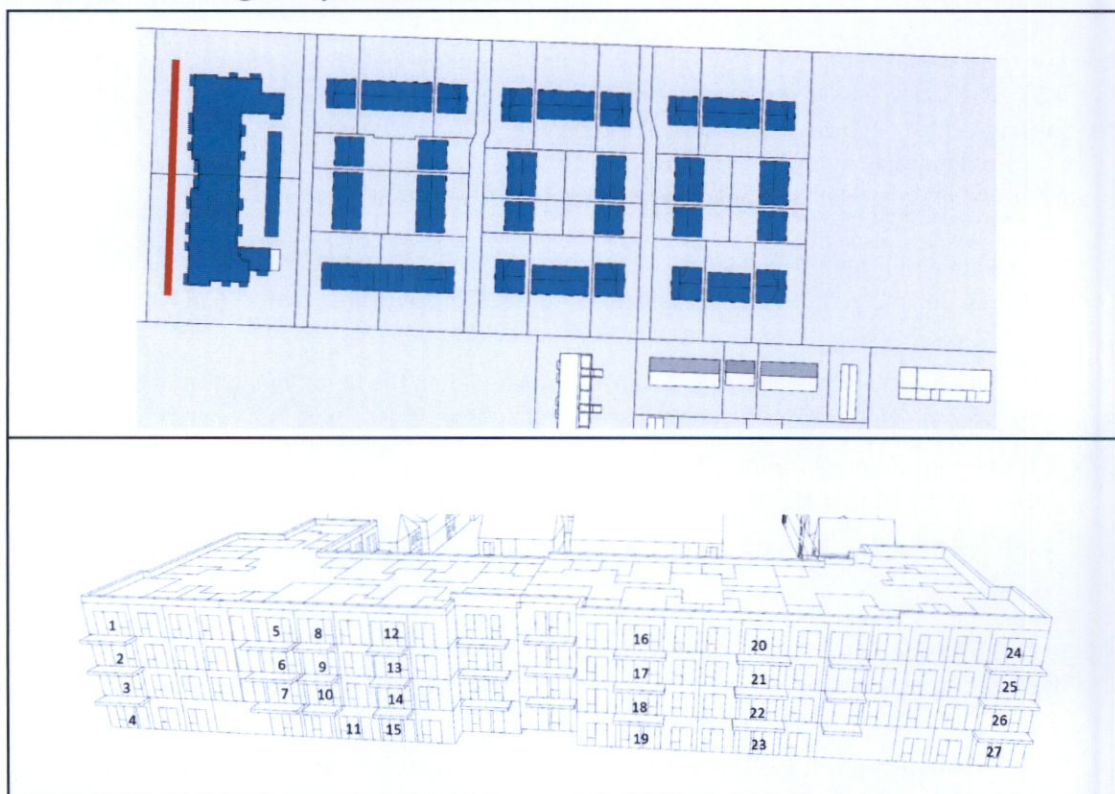
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### 3.1. APSH & Sunlight Exposure Results



Ref.	BRE Guide 2 <sup>nd</sup> Edition / BS 8206:2008 APSH Assessment			BRE Guide 3 <sup>rd</sup> Edition IS EN 17037:2018 Sunlight Exposure > 1.5 hrs	BRE Guide 2 <sup>nd</sup> Edition / BS 8206:2008 APSH Assessment			BRE Guide 3 <sup>rd</sup> Edition IS EN 17037:2018 Sunlight Exposure > 1.5 hrs
	APSH Annual (%)	APSH Winter (%)	Comment	Comment	APSH Annual (%)	APSH Winter (%)	Comment	Comment
1	49.65	18.88	✓/✓	✓	49.65	18.88	✓/✓	✓
2	35.76	17.06	✓/✓	✓	35.57	17.06	✓/✓	✓
3	27.90	13.20	✓/✓	✓	27.43	13.18	✓/✓	✓
4	20.44	9.24	x/✓	✓	20.23	9.34	x/✓	✓
5	49.65	18.88	✓/✓	✓	49.65	18.88	✓/✓	✓

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Ref.	BRE Guide 2 <sup>nd</sup> Edition / BS 8206:2008 APSH Assessment			BRE Guide 3 <sup>rd</sup> Edition IS EN 17037:2018 Sunlight Exposure > 1.5 hrs	BRE Guide 2 <sup>nd</sup> Edition / BS 8206:2008 APSH Assessment			BRE Guide 3 <sup>rd</sup> Edition IS EN 17037:2018 Sunlight Exposure > 1.5 hrs
	APSH Annual (%)	APSH Winter (%)	Comment	Comment	APSH Annual (%)	APSH Winter (%)	Comment	Comment
6	31.08	12.85	✓/✓	✓	31.08	12.85	✓/✓	✓
7	25.52	10.66	✓/✓	✓	25.71	10.95	✓/✓	✓
8	49.66	18.88	✓/✓	✓	49.65	18.88	✓/✓	✓
9	37.05	16.28	✓/✓	✓	37.05	16.28	✓/✓	✓
10	31.00	13.81	✓/✓	✓	31.42	14.21	✓/✓	✓
11	27.80	9.50	✓/✓	✓	28.57	10.11	✓/✓	✓
12	49.65	18.88	✓/✓	✓	49.65	18.88	✓/✓	✓
13	38.39	17.85	✓/✓	✓	38.39	17.85	✓/✓	✓
14	34.15	15.97	✓/✓	✓	34.89	16.52	✓/✓	✓
15	26.36	12.09	✓/✓	✓	27.37	12.81	✓/✓	✓
16	49.65	18.88	✓/✓	✓	49.65	18.88	✓/✓	✓
17	34.88	16.21	✓/✓	✓	34.88	16.21	✓/✓	✓
18	33.51	15.23	✓/✓	✓	33.72	15.23	✓/✓	✓
19	26.39	11.76	✓/✓	✓	27.69	12.39	✓/✓	✓
20	49.65	18.88	✓/✓	✓	49.65	18.88	✓/✓	✓
21	34.08	15.51	✓/✓	✓	34.07	15.50	✓/✓	✓
22	32.95	15.00	✓/✓	✓	33.10	15.00	✓/✓	✓
23	30.25	12.33	✓/✓	✓	32.38	13.37	✓/✓	✓
24	49.65	18.88	✓/✓	✓	49.65	18.88	✓/✓	✓
25	35.50	16.93	✓/✓	✓	35.50	16.93	✓/✓	✓
26	35.50	16.93	✓/✓	✓	35.50	16.93	✓/✓	✓
27	37.27	16.21	✓/✓	✓	40.88	18.09	✓/✓	✓

### 3.2. Discussions

When comparing the initial massing modelled against the updated bridge design, the sunlight results highlight again that the compliance rate is the same for both scenarios and the actual results themselves are very similar if not the same. It can be concluded that the original report had accounted for the bridge massing sufficiently and there would be no material change to sunlight performance of the adjacent proposed Clonburris T3 apartments as a result of the updated bridge design.

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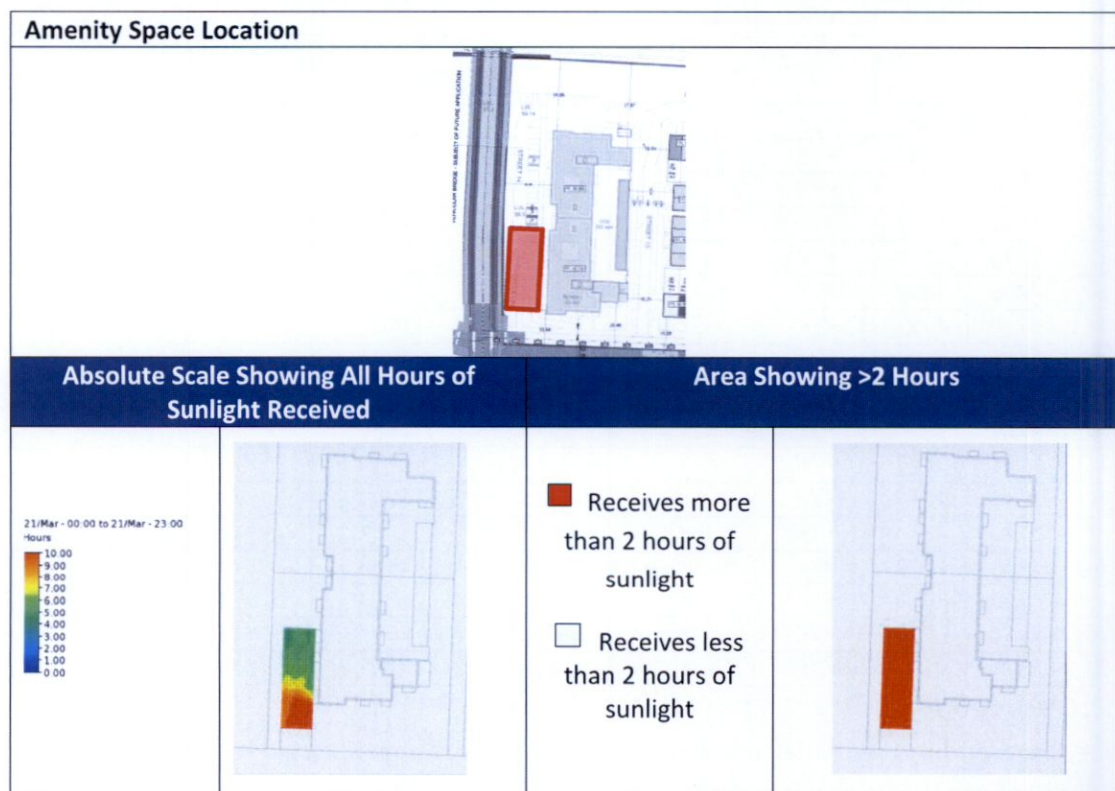
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#### 4. Sunlight to Proposed Amenity Spaces

The BRE Guide states that for a space to appear adequately sunlit throughout the year, at least half of a garden or amenity space should receive at least 2 hours of sunlight on March 21<sup>st</sup>.

An assessment was carried out on the amenity space to the west of the site between the apartment block and the road/bridge with the updated bridge design in place.

##### 4.1. Sunlight to Proposed Amenity Spaces Results



##### 4.2. Discussions

On March 21<sup>st</sup>, 100% of the amenity space situated between the proposed apartment block and the road/bridge to the west will receive at least 2 hours of sunlight over its total area, thus complying with the BRE recommendations to a very high standard with the new bridge design in place.

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I trust the foregoing addresses the further information request. If we can be of any further assistance please do not hesitate to contact me.

Your Sincerely  
Douglas Bell

Consultancy Manager  
Lighting and BIM

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