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Dear Sir/Madam

**RE: Waterfront Square, Reading ("the Proposed Development")
Daylight and Sunlight Amenity**

Further to the submission of the full daylight and sunlight report dated 17/07/2024 ("the DLSL Report"), subsequent correspondence with the Building Research Establishment between 07/11/2024 and 02/12/2024 ("the BRE Feedback") and feedback from the Design Review Panel ("the DPR"), GIA and the wider design team have sought to improve the sunlight provision provided throughout the Proposed Development.

As always, our technical analysis is based upon the methodologies set out in the Building Research Establishment's publication: 'site layout and planning for daylight and sunlight; a guide to good practice; third edition; 2022' ("the BRE Guidelines").

In addition to these measures, GIA have also undertaken a research study, in order to contextualise the reported figures in comparison to other developments within the purview of Reading Borough Council ("RBC"). This follows the advice of the National Planning Policy Framework ("NPPF") and the National Planning Practice Guidance ("NPPG"), which opine that the acceptability of proposals in terms of daylight and sunlight should not be based upon a rigid application of the BRE Guidelines – they are exactly that: 'guidelines'. The BRE Guidelines recognises this within its introduction, that the numerical advice should be 'interpreted flexibly' and should 'not be seen as an instrument of planning policy' (paragraph 1.6, BRE Guidelines).

The NPPG suggests such matters should be measured "...in relation to the context and local character." (paragraph 71 NPPG) and the NPPF refers to "...as long as the resulting scheme acceptable living standards." (paragraph 130(c), NPPF). Compounded by the intended flexibility of the BRE Guidelines, it is wholly appropriate to draw the conclusion upon acceptability based on contextual and established data, and, ultimately, what is presently enjoyed living conditions in RBC.

For the purposes of this review, to provide a broad spectrum of results, the following schemes have been considered alongside the Proposed Development:

- Broad Street Mall
- The Oracle
- Carters
- John Lewis
- SSE
- Aviva
- Station Hill
- Weldale Street

Consideration 01: The levels of daylight & sunlight within the proposed habitable rooms

In undertaking this exercise, it is recognised that the recommended methodology within the BRE Guidelines changed in 2022, where the previous (for daylight) Average Daylight Factor ("ADF") and (for sunlight) Annual Probable Sunlight Hours ("APSH") were replaced with (for daylight) Median Daylight Illuminance ("MDI") and (for sunlight) Sunlight Exposure ("SE").

It should be noted that the guideline compliance criteria for the MDI and SE tests are generally more stringent compared to the ADF and APSH tests; applying the old methodology tests would only yield better results.

The overall compliance with BRE Guideline targets of each scheme has been captured in the graph below:

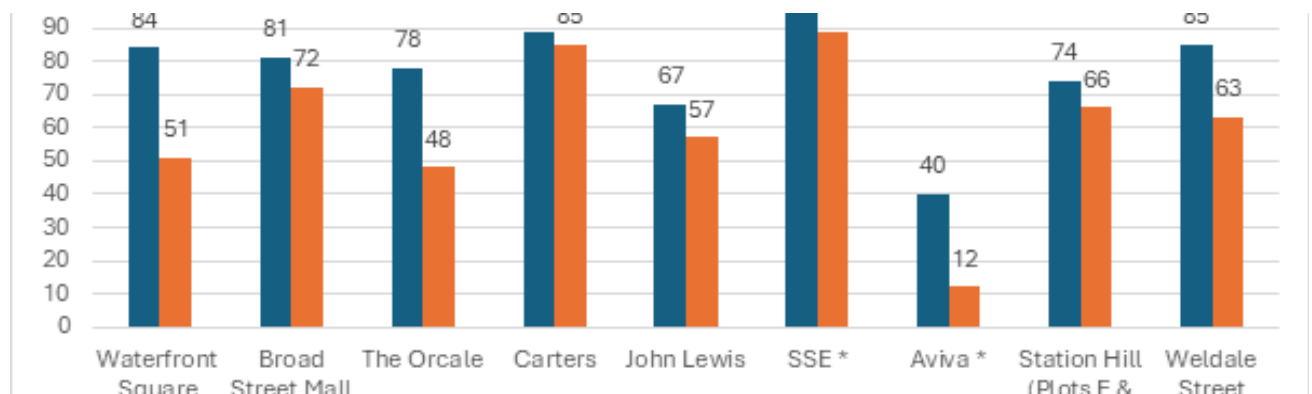


Figure 01: Internal Daylight and Sunlight Compliance

The results of the comparison exercise show that, on average, the overall compliance (not including Waterfront Square) is:

- For daylight: 76%
- For sunlight: 61%

In terms of daylight, the results for Waterfront Square shows a compliance of 84%, being higher than the majority of other schemes, and compared to the 76% average.

In terms of sunlight, Waterfront Square has a compliance of 51% compared to an average of 61%. However, due to site constraints and townscape, it inevitably means a larger number of units facing within 90-degrees of due north – although this is not an unusual situation in urban design. Moreover, the modern MDI calculation actually uses climatic data, which account not just for skylight access, but also the effect that the sun has within the space.

Overall, it can be concluded that the Proposed Development demonstrates a reasonable level of compliance with BRE Guidelines targets. And, by comparison to other schemes in Reading, the Proposed Development is certainly one of the better performers.

Consideration 02: The levels of sunlight reaching open/amenity space

Unlike daylight and sunlight to habitable rooms, the tests for overshadowing have not changed since the BRE Guidelines was updated in 2022; accordingly the sun-hour-on-ground ("SHOG") test has been used and reviewed amongst other schemes.

Similar to the approach above, we have captured the results of Waterfront Square, together with the other schemes, in the graph below:

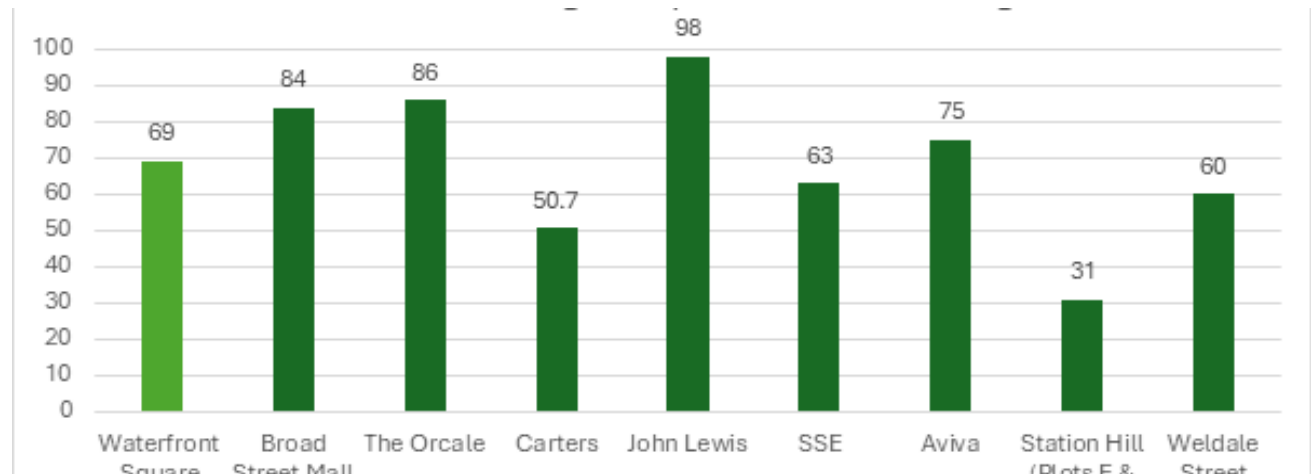


Figure 02: Overshadowing Compliance

It should be borne in mind with this test, that anything above 50% would technically comply with default BRE criteria, insofar that at least 2hrs direct sun can be received on the Spring Equinox (21st March).

Based on this dataset, the average of the areas meeting the BRE's 2hrs of direct sun on 21st March (not including the Proposed Development) is 68%. Proposed Development achieves 69% across its amenity spaces.

Consideration of the Isolated Podium – By Comparison

We understand RBC raised some concerns in terms of the isolated compliance of the Podium (courtyard) amenity space. In addressing that, it is also worth highlighting that, with specific reference to Station Hill and Weldale Street, that these were similar developments of multiple blocks, and multiple areas of external amenity space, with varying degrees of performance. These schemes are exemplified below:

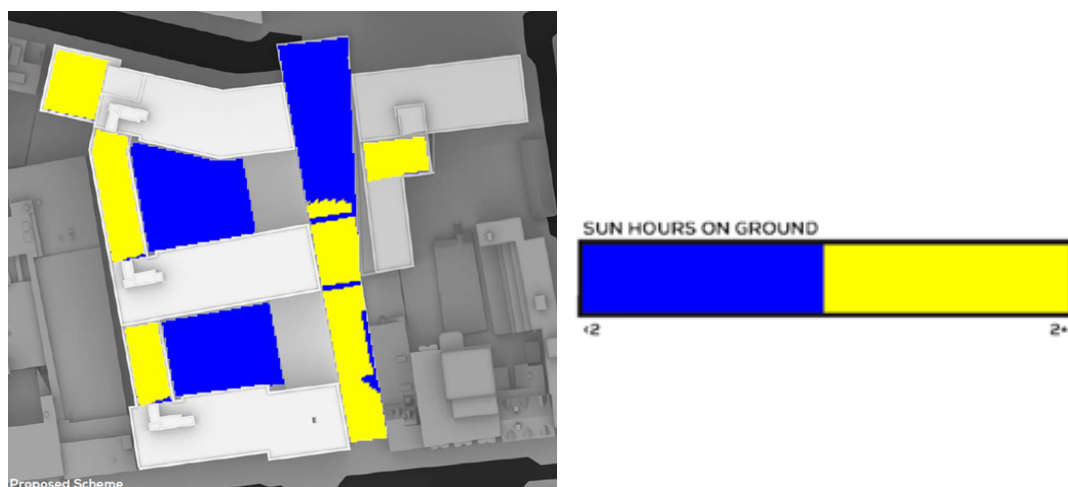


Figure 03: Extract from Station Hill Daylight & Sunlight Report – SHOG

The results in this case show the ground level amenity spaces between Blocks H & F were both unable to achieve a minimum of 2hrs direct sunlight on 21st March. Alas, the position was mitigated by providing alternative areas of amenity space that received excellent levels of direct sunlight/minimal overshadowing.

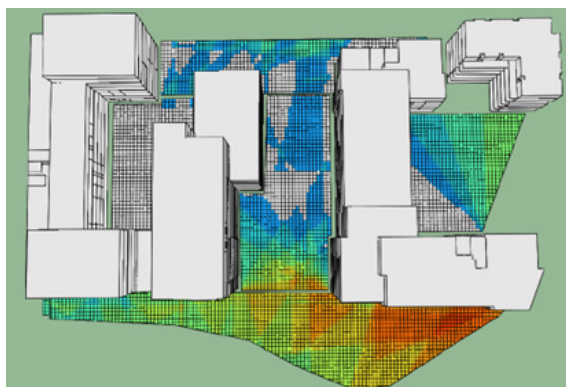


Figure 04: Extract from Weldale Street Daylight & Sunlight Report – SHOG

The results of this assessment showed that the courtyard in Block A was unable to achieve the BRE's default criteria on the Spring Equinox. However, alike Station Hill and the Proposed Development, wider areas of amenity space were able to achieve good levels of direct sunlight, providing residents areas that would be substantially sunlit throughout the day, and the year, together with shadier alternatives.

In this case, the case officer's report opined that:

*"A detailed study (in terms of sunlight access to the Block A courtyard) has shown **it would not be possible to improve the situation significantly without removing significant massing** [emphasis added]."*

*"Although the other open spaces would provide adequate access to sunlight (as confirmed by BRE), the overall lack of adequately sunlit on-site amenity space for future occupiers is considered to be a shortcoming of the proposed development. However, **when considering all the various quality of accommodation matters** within this section of the appraisal, in the event of an officer recommendation for approval **this shortfall is not considered to significantly harm the overall quality of accommodation provided**, as evidenced elsewhere in this appraisal [emphasis added]."*

*"...with day/sunlight and overlooking matters in particular being **thoroughly assessed and improved during the lifetime of the application. Although there are some shortfalls, such as the lack of sunlight to the courtyard areas, in overall terms** (subject to the conclusion of microclimate considerations) following the submission of more information and a range of revisions, **the proposals are considered, on balance, to be appropriate in overall terms in this regard** [emphasis added]."*

The Isolated Podium, the Overall Performance and the Process

GIA's Daylight/Sunlight and Wind Microclimate team and Assael have worked closely to carefully understand and optimise the overall performance of the scheme, having regard to sunlight access, minimising wind microclimate impact and ensuring the scheme remains viable in planning/development terms.

Performance enhancement vs Viability & Wind Microclimate

The design team have taken measures to add additional areas of amenity space within the scheme, that allow for high levels of direct sunlight, to counterbalance any shortfalls to the podium area; although it is still maintained that the podium space is not, by default, intended to be an area receiving direct sunlight throughout the year, but rather a space that will be reasonably sunlit during summer, whereas the wider amenity spaces provide more prolonged year-long sunlight access.

Stage 01: Performance Enhancement

Over the past few months, GIA and Assael have sought to expand existing and introduce more external amenity offerings within the scheme, to ensure there are adequate areas of external amenity space that provide high levels of direct sunlight across the year.

In doing so, a new additional amenity area has been provided atop a new terrace on the East Block. Unsurprisingly, this space achieves 6+ hours direct sunlight on 21st March (in reality the whole day, and subsequently the whole year).

In addition to some small changes to the southern element of the podium space, over 69% of the combined spaces now achieve the minimum BRE 2hrs on 21st March, with the majority of the spaces receiving well-in excess of 3, 4, 5, even 6+hours direct sun (we will go into more detail on that in the next section).

Stage 02: Detailed Sunlighting Studies

The BRE Guidelines default '2hr on 21st March' test is binary, and can often (such is this case here) not wholly represent the overall sunlight performance of a scheme.

As such, GIA have undertaken what's known as a 'Time in Sun' ("TIS") analysis of the various amenity spaces. This assessment allows us to delve into the detail of how many hours, below or beyond the default BRE 2hrs, a space can achieve direct sunlight. Our analysis is presented between 0hrs to 6+hrs. The sliding scale/key is shown in Figure 04 below:

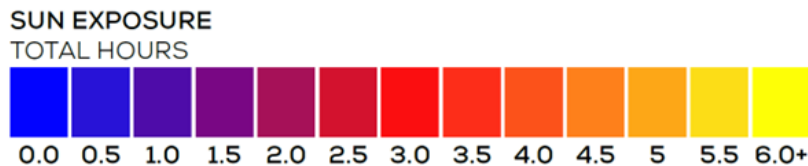


Figure 05: TIS Key

The below images capture the Figure 05 key to the amenity spaces, across all amenity spaces:



Figure 06: TIS: 21st March



Figure 07: TIS Key: 21st April



Figure 08: TIS: 21st June

The results of this assessment show that, on 21st March, nearly 50% of the area of the Podium receives between 1-1.5hrs on 21 March. One month later on 21 April, around 25% of the space achieves at least 2hrs (a proportion achieving 2.5hrs-3hrs), with an additional c.40% achieving between 1.5hrs-<2hrs, and another 20/25% between 1hr-<1.5hs.

By the summer, over 80% of the space achieves at least 2hrs, with a large proportion achieving up to 4.5hrs direct sun.

Considering this in conjunction with other amenity areas:

- All the rooftop amenity space can achieve 6hrs+ direct sun on 21 March (most of the day during the spring and autumn), and will receive direct sun more or less all day throughout late-spring/early autumn and summer.
- The Mews Street, Vastern Road and the Waterfront amenity spaces have the majority of the areas achieving more than 3hrs on 21 March, jumping to more than 6hrs+ a day by the summer.

Overall, when considered in the round of the additional amenity spaces which all achieve very good levels of direct sun throughout the year, residents will benefit from a multitude of really well-sunlit spaces, particularly the Waterfront, which sits by the Thames, where one would expect would be the favoured area to sit out. The overall position provides a fantastic function of providing sunny areas and shadier alternatives based on residents needs and desires.

Amendments Required to the Proposed Development to Achieve Compliance

This final section illustrates what would be required to amend the Proposed Development to achieve the default BRE Guidelines targets. For reference, the areas in red below would have to be removed from the Proposed Development:

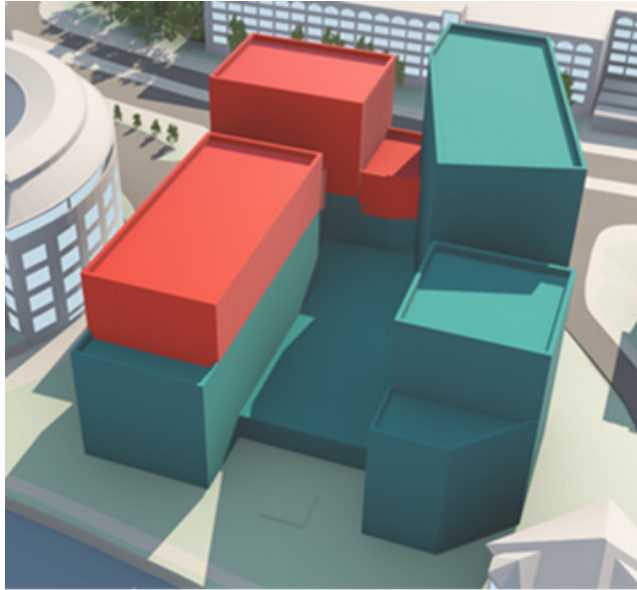


Figure 09: Default BRE Parameter Overshadowing Cutback

Needless to say, the removal of this massing would inevitably impact wider design and townscape issues. The reality is further massing would need to be removed off of other blocks to address those wider factors. GIA had also considered whether splitting the blocks could be an option, however this would inevitably result a potential wind microclimate issue, that would require rigorous mitigation measures. All in all, any such amendments to the Proposed Development would render it unviable.

Conclusions

- The overall performance of the Proposed Development in terms of internal daylight and sunlight provision to the proposed habitable rooms is of a high standard, particularly when compared to other schemes/existing buildings.
- In terms of overshadowing:
 - o The overall Proposed Development performs very well against default BRE targets;
 - o The overall Proposed Development performs very well when compared to other consented developments/ existing buildings, in particular:

The multitude of external amenity space provision across the Proposed Development provides excellent sunlight access all year round available to residents;

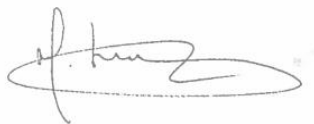
The podium space, despite its shortfalls on 21 March, actually does manage to achieve reasonable sunlight during the day during the late-spring, summer, and early autumn.

The Proposed Development would need significant cutback/amendment to achieve default BRE Guidance, which is unviable.

We trust this letter provides a clear overview.

We fully support the Proposed Development in terms of daylight and sunlight amenity.

Yours sincerely

A handwritten signature in black ink, appearing to read 'M. Hensey', enclosed within a large, loopy oval shape.

Director

Matt.Hensey@gia.uk.com

For and on behalf of GIA

DISCLAIMER:

N.B This report has been prepared for Packaged Living by GIA as their appointed Daylight and Sunlight Consultants. This report is intended solely for Packaged Living and may contain confidential information.. No part or whole of its contents may be disclosed to or relied upon by any Third Parties without the express written consent of GIA. This report is accurate as at the date of publication but does not take into account anything that has happened since the date of this report.