



Daylight + Solar Design

Overshadowing Assessments Central Square

Station Hill

Project No: 5847

07 December 2015



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5847 - Station Hill
Overshadowing Assessments - Central Sq.

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Client	Stanhope
Architect	Allies and Morrison
Project Title	Station Hill
Project Number	5847
Report Title	Overshadowing Assessments - Central Sq.
Dated	07 December 2015

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1. BRE GUIDELINES

The Building Research Establishment (BRE) have set out in their handbook *Site Layout Planning for Daylight and Sunlight a Guide to Good Practice (2011)*, guidelines and methodology for the measurement and assessment of daylight and sunlight within proposed buildings. This document states that it is also intended to be used in conjunction with the interior daylight recommendations found within the *British Standard BS8206-2:2008* and *The Applications Manual on Window Design* of the Chartered Institution of Building Services Engineers (CIBSE).

The guide also provides advice on site layout planning to determine the quality of daylight and sunlight within open spaces between buildings.

It is important to note, however, that this document is a guide whose stated aim “is to help rather than constrain the designer”.

The document provides advice, but also clearly states that it “is not mandatory and this document should not be seen as an instrument of planning policy.” The report acknowledges also in its introduction that “in special circumstances the developer or planning authority may wish to use different target values. For example, in a historic City centre a higher degree of obstruction may be unavoidable if new developments are to match the height and proportions of existing buildings.”

It is an inevitable consequence of the built up urban environment that daylight and sunlight will be more limited in these areas. It is well acknowledged that in such situations there may be many other conflicting and potentially more important planning and urban design matters to consider other than just the provision of ideal levels of daylight and sunlight.

1.1. OVERSHADOWING

The BRE guidance in respect of overshadowing of amenity spaces is set out in section 3.3 of the handbook. Here it states as follows:

“Sunlight in the spaces between buildings has an important impact on the overall appearance and ambiance of a development. It is valuable for a number of reasons:

- To provide attractive sunlit views (all year)
- To make outdoor activities, like sitting out and children’s play more pleasant (mainly during the warmer months)
- To encourage plant growth (mainly in spring and summer)
- To dry out the ground, reducing moss and slime (mainly during the colder months)
- To melt frost, ice and snow (in winter)
- To dry clothes (all year)”

Again, it must be acknowledged that in urban areas the availability of sunlight on the ground is a factor which is significantly controlled by the existing urban fabric around the site in question and so may have very little to do with the form of the development itself. Likewise there may be many other urban design, planning and site constraints which determine and run contrary to the best form, siting and location of a proposed development in terms of availability of sun on the ground.

The summary of section 3.3 of the guide states as follows:

“3. 3 .17 It is recommended that for it to appear adequately sunlit throughout the year, at least half of a garden or amenity area should receive at least two hours of sunlight on 21 March. If as a result of new development an existing garden or amenity area does not meet the above, and the area which can receive two hours of sun on 21 March is less than 0.8 times its former value, then the loss of sunlight is likely to be noticeable. If a detailed calculation cannot be carried out, it is recommended that the centre of the area should receive at least two hours of sunlight on 21 March.”

2. METHODOLOGY

In order to undertake the daylight and sunlight assessments set out above, we have prepared a three dimensional computer model and used specialist lighting simulation software.

The three dimensional representation of the proposed development has been modelled using the scheme drawings provided to us by Allies and Morrison. This has been placed in the context of its surrounding buildings which have been modelled from survey information, photogrammetry, OS and site photographs. This allows for a precise model, which in turn ensures that analysis accurately represents the amount of daylight and sunlight available to the building facades, internal and external spaces, considering all of the surrounding obstructions and orientation.

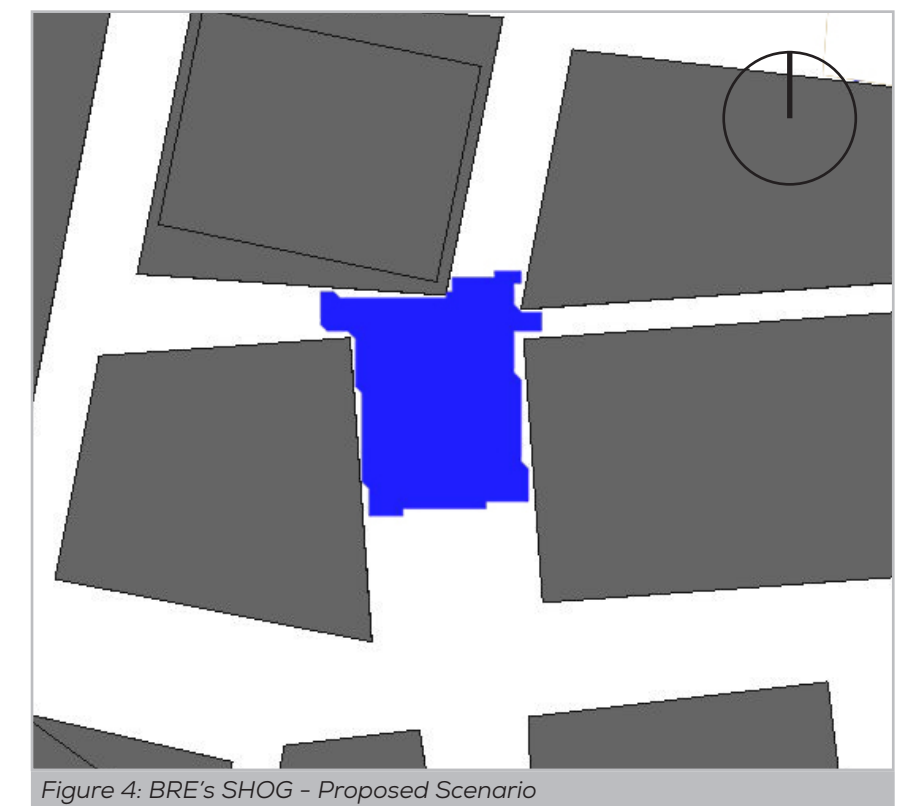
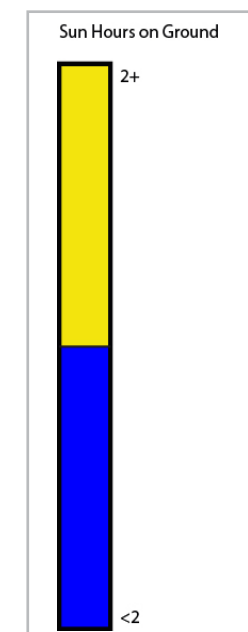
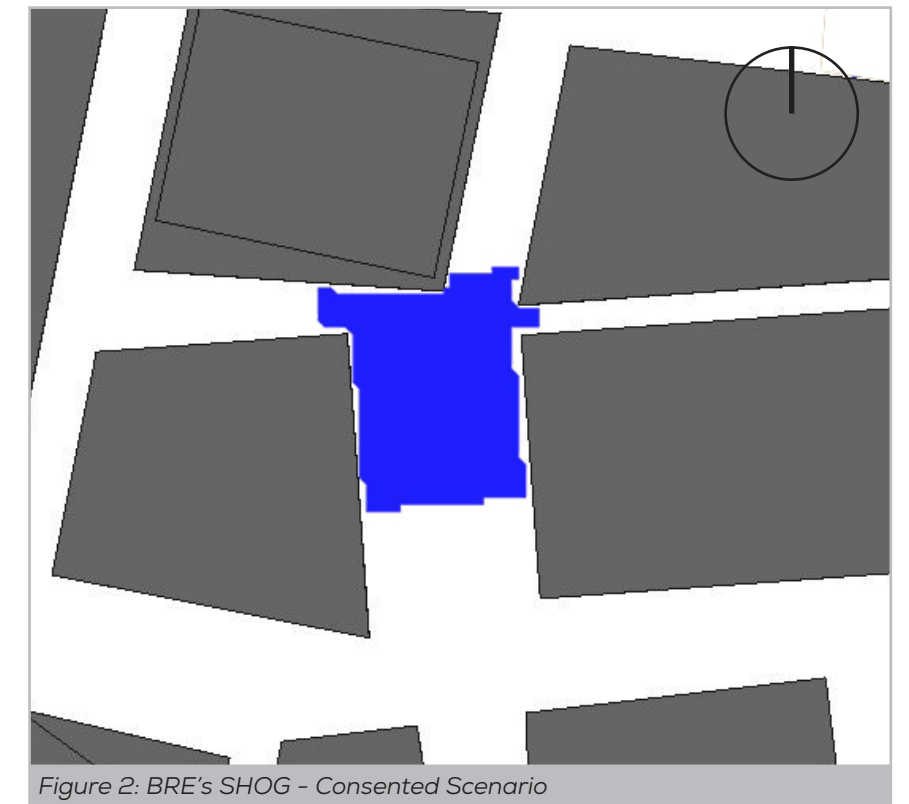
3. CONCLUSIONS

The overshadowing analyses for the Central Square (figs. 2 to 4) indicate identical results for both maximum parameter scenarios, namely Consented and Proposed scenarios, with regards to BRE’s Sun Hours On Ground assessment.

Chart 1 shows the percentage of the space that achieves a certain number of minutes in the sun on the 21st March. It can be seen that both areas perform very similarly, which is also confirmed by the sunlight distribution (figs. 6 and 7). The only difference can be found on the west and east corners (orange arrows in fig. 6). The slightly higher values in those corners in the Consented Scenario are due to the recessed ground floor in the model (orange arrows in figs. 1 and 3). The latest landscape plan also shows that these corners are currently not considered as part of the main square (red boundary in fig. 5).

It can also be observed that Block E has a different profile on the west corner in both scenarios (black arrow in figs. 1 and 3), but this has no impact whatsoever on the sunlight received within the Central Square.

We can therefore conclude that Plot E bears no material additional impacts upon the sun exposure of the Central Square in its proposed form when compared to the Consented Application.



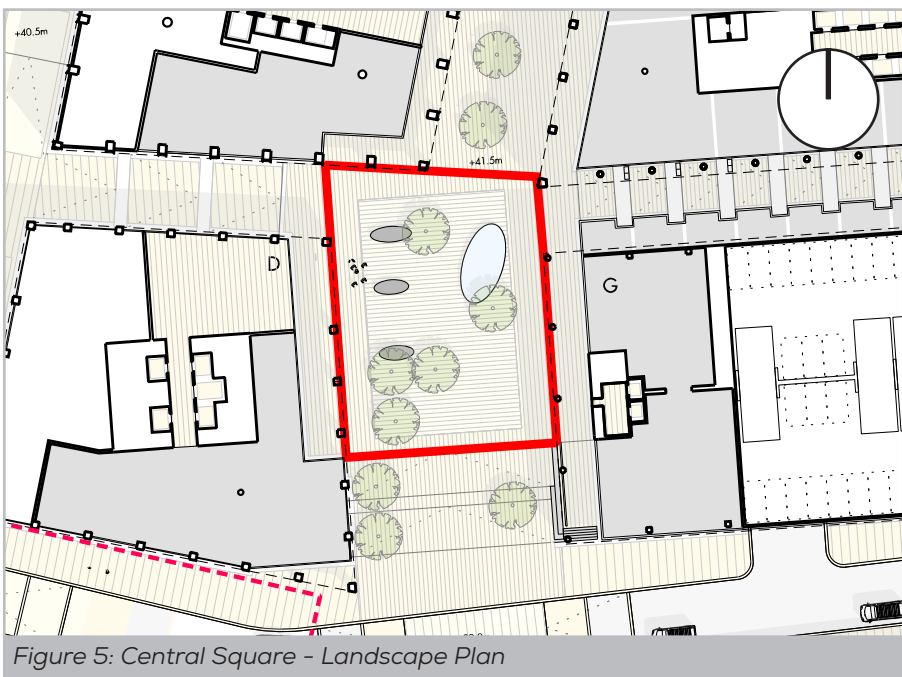


Figure 5: Central Square - Landscape Plan

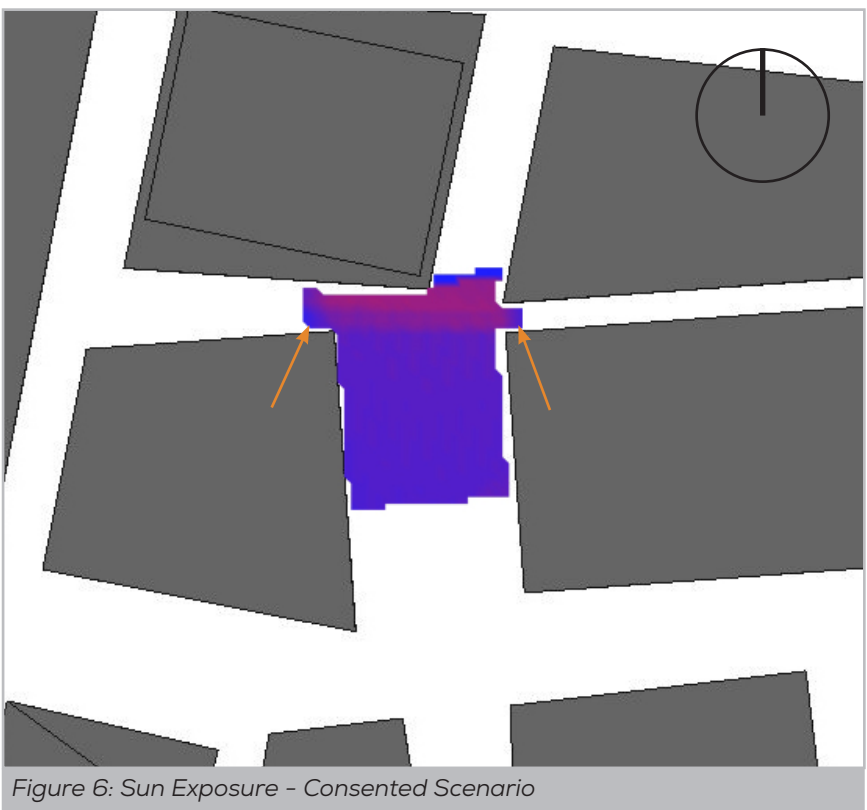
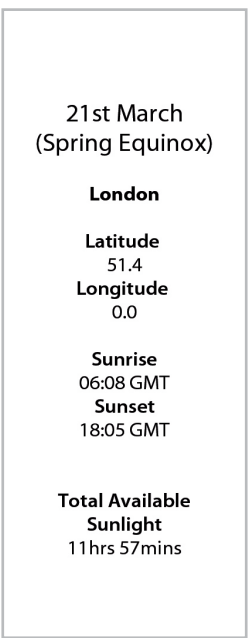
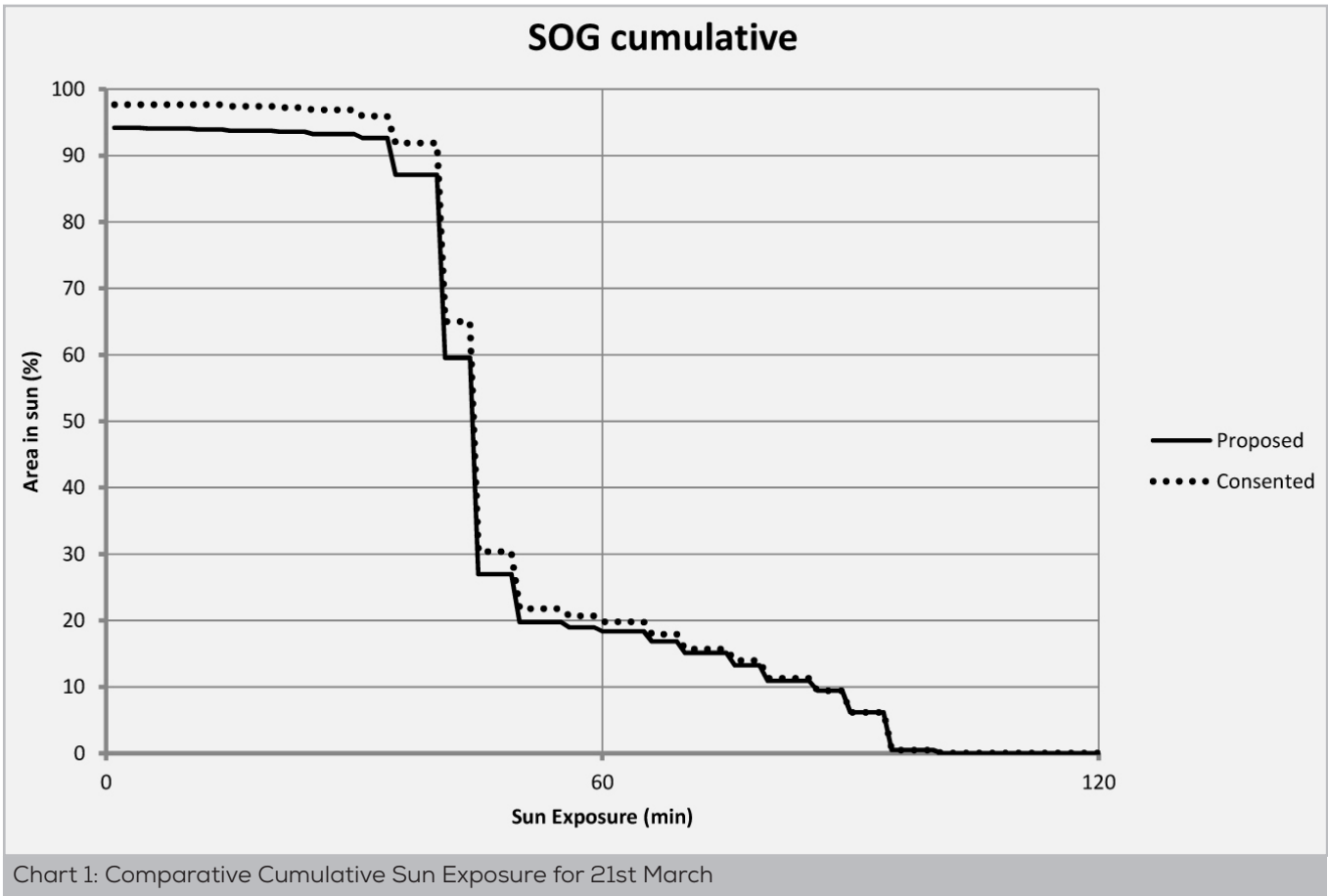


Figure 6: Sun Exposure - Consented Scenario

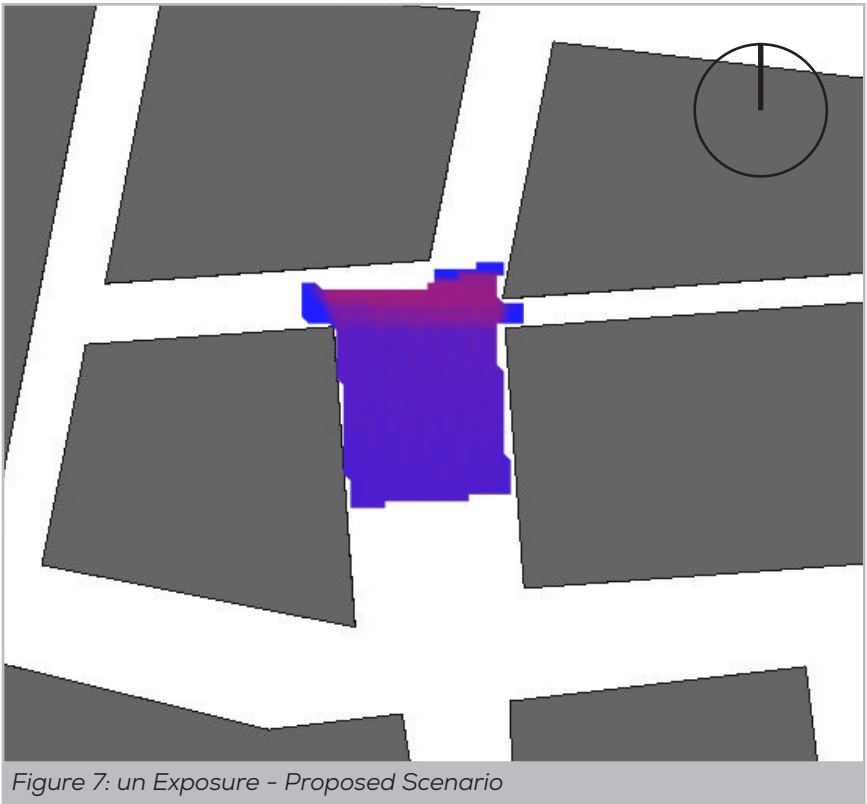
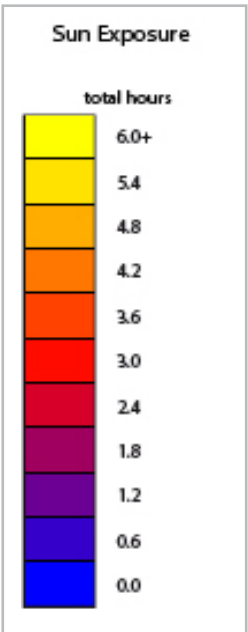


Figure 7: Sun Exposure - Proposed Scenario