Daylight and Sunlight Report
for the Proposed Extension at
25 Old Gloucester Street, London, WC1N 4AF

Prepared for: Buchanan Hartley Architects Ltd
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1. Executive Summary

1.1 Scope of Service

1.1.1 We have been instructed by Buchanan Hartley Architects Ltd to consider the potential impact upon the amenity of the surrounding properties, which may arise from the proposed extension at 25 Gloucester Street, London, WC1N 3AF. We have also been instructed to determine the daylighting potential of the proposed accommodation.

1.2 BRE Assessment Criteria

1.2.1 To ensure that this assessment has been appropriately considered, daylight and sunlight assessments have been undertaken in accordance with the Building Research Establishment Report 'Site Layout Planning for Daylight and Sunlight – A Guide to Good Practice' 2011 (the "BRE guide") and also on British Standard 8206 – 2: 2008 – 'Lighting for Buildings – Part 2: Code of Practice for Daylighting', to which the BRE report refers.

1.2.2 The standards and tests applied within this assessment are briefly described in Appendix A.

1.3 Daylight and Sunlight

1.3.1 For daylight, the buildings assessed meet the BRE guidelines for daylight. For sunlight, the proposed development meets the BRE guidelines for sunlight over the course of the year. One window to Saint Georges falls below during the winter months. However, the building is non-domestic and located very close to the common boundary. Under these circumstances the transgression is, on balance, considered acceptable.

1.3.2 Overall, it is considered that the impact upon the surrounding buildings arising from the proposed extension is acceptable.

1.3.3 The principal open plan living areas of the proposed accommodation a will be adequately lit, attaining the minimum Average Daylight Factor criteria, being the principal assessment for determining daylight availability, as set out in BS8206, part 2.

1.4 Generally

1.4.1 When considering the numerical results, it is important to approach and interpret the BRE guidelines flexibly along with the following material mitigating factors:

*The BRE guidelines recognises that buildings located uncommonly close to the site boundary, as is the case here, may be considered as "bad" neighbours, taking more than their fair share of light. Accordingly, a greater reduction in daylight or sunlight may be unavoidable.
*Where buildings match the height and proportions of existing surrounding buildings some transgressions will be inevitable.
*Kitchens and bedrooms are given less weighting than that of a living room. By their specific omission studies and utility room are by implication given even less weighting than kitchen and bedrooms.

2. Introduction

2.1 Scope of Service

2.1.1 We have been instructed by Buchanan Hartley Architects Ltd to consider the potential impact upon the amenity of the surrounding properties, which may arise from the proposed extension at 25 Gloucester Street, London, WC1N 3AF. We have also been instructed to determine the daylighting potential of the proposed accommodation.

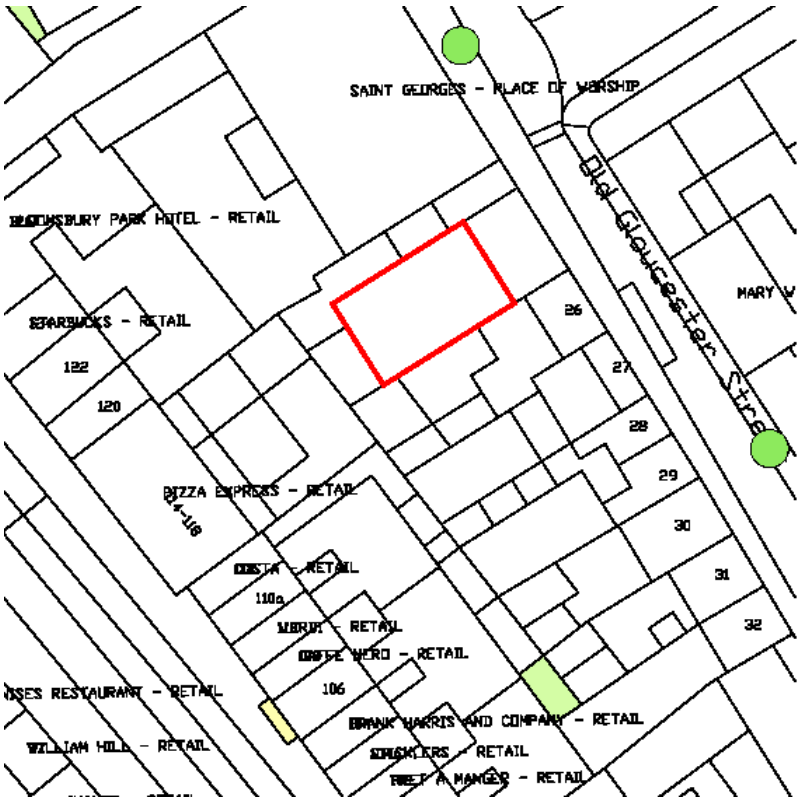
2.2 Assessment

2.2.1 To ensure that this assessment has been appropriately considered, daylight and sunlight assessments have been undertaken in accordance with the Building Research Establishment Report 'Site Layout Planning for Daylight and Sunlight – A Guide to Good Practice' 2011 (the "BRE guide") and with the British Standard 8206 – 2: 2008 – 'Lighting for Buildings – Part 2: Code of Practice for Daylighting', to which the BRE report refers.

2.2.2 The standards and tests applied within this assessment are briefly described in Appendix A.

2.2.3 The existing buildings adjacent to the site are shown on the Site Location Plan below.

Site Location Plan



2.2.4 The existing buildings adjacent to the site considered for this report are listed in the following table. Some of these buildings may not require a comprehensive assessment with the reasons for these findings given later in this report under section 3: Results and Consideration.

Adjacent Building Summary Table		
Name/Address of Building	**Assumed Use of Building**	**Position in Relation to the Proposed Development**
Bloomsbury Park Hotel	Commercial	West
Bloomsbury Thistle Hotel	Commercial	Northwest
Saint Georges	Community	North
26 Old Gloucester Street (including the rear building)	Commercial /Residential	South
Rear of 27 Old Gloucester Street	Commercial	South
Ormande Mansions	Commercial /Residential	South West
Russel Square Mansions	Residential	South West

2.3 Limitations

2.3.1 Our assessment is based on the proposed development drawings by Buchanan Hartley Architects Ltd.

2.3.2 A site inspection was undertaken to record the location of windows of the surrounding properties. Our site inspection included an external inspection of the existing site and surrounding buildings.

2.3.3 Limited topographical survey information was provided with relation to the existing buildings on site and ground levels across the site. Where buildings were not surveyed, the locations and heights were derived from photographs taken during the site inspection and oblique aerial photography.

2.3.4 We refer you to the drawings which accompany this report for a list of the third party information relied upon which our 3D computer model and resultant analyses are based.

2.3.5 Evergreen trees, hedges and shrubs have been represented in our 3D model where appropriate, but deciduous trees have not.

3. Results and Consideration

3.1 Daylight

3.1.1 The table below shows a summary of the results for the buildings tested for daylight availability in accordance with the BRE recommendations. Detailed test results are shown in Appendix C.

Daylight Assessment Summary Table						
Building Reference	Vertical Sky Component Assessment			Daylight Distribution Assessment		
	No. of windows assessed	No. that meet the BRE Guidelines	No. that do not meet the BRE Guidelines	No. of rooms assessed	No. that meet the BRE Guidelines	No. that do not meet the BRE Guidelines
Bloomsbury Park Hotel	6	6	0	4	4	0
Bloomsbury Thistle Hotel	4	4	0	2	2	0
Saint Georges	1	0	1	-	-	-
26 Old Gloucester Street	20	20	0	11	11	0
Rear of 27 Old Gloucester Street	2	2	0	2	2	0
Ormande Mansions	4	4	0	2	2	0
Russel Square Mansions	14	14	0	10	10	0
Total	51	50	1	9	9	0

Existing Baseline Condition

3.1.2 The existing baseline condition is at present a dilapidated 5-storey period building fronting Old Gloucester Street, with a smaller 3-storey rear projection to the rear, see accompanying drawing no. 1432/DSO/01 and 03.

The Proposed Scheme

3.1.3 The proposed extension will comprise an additional storey to the rear projection of the building, some 2.4m higher than the existing parapet wall, see accompanying drawings 1432/DSO/02 and 03.

3.1.4 We have considered and/or assessed the habitable windows and rooms of the adjacent buildings at that are most likely to be affected by the proposed development.

Bloomsbury Park Hotel

3.1.5 This hotel is located west of the Site, see accompanying drawing 1432/DSO/03. This building comprises single rooms/suites arranged over several stories. Some windows (W1 to W3) to the rear

elevations face over the Site.

3.1.6 Turning now to the assessment results, the windows and habitable rooms were assessed for Vertical Sky Component (VSC), Daylight Distribution (DD) respectively.

3.1.7 Regarding VSC, all windows assessed meet the BRE criteria.

3.1.8 Regarding DD, all rooms meet the BRE guidelines.

3.1.9 It is considered that this building would not be adversely affected by the proposed development.

Bloomsbury Thistle Hotel

3.1.10 This hotel is located immediately north and northwest of the Site. This building comprises single rooms/suites arranged over several stories. Some windows to the rear elevations face over the Site.

3.1.11 With reference to accompanying drawing 1432/DSO/03, taking each window in turn, W1 and W2 serve a dual aspect bedroom. W3 serves a bathroom. The remaining windows serve a stairwell/fire exit.

3.1.12 In accordance with the BRE guidelines, circulation space, hallways, storerooms, toilets and bathrooms, need not be assessed.

3.1.13 Regarding VSC, all windows meet the BRE guidelines.

3.1.14 Regarding DD, all rooms assessed meet the BRE guidelines.

3.1.15 It is considered that this building would not be adversely affected by the proposed development.

Saint Georges

3.1.16 This building is a community (religious) building located immediately north of the Site.

3.1.17 There is one window located to the south elevation of this building, some 3.6m from the boundary, that faces directly over the Site. This window (W1, Ground), serves the rear potion of the nave/sanctuary, which is also served by several lofty windows to the east and west elevations, see the photograph below.

Photograph 1: East Elevation of Saint George's Church showing side windows

3.1.18 Regarding VSC, this window (W1) falls only fractionally below the criteria BRE criteria, nonetheless, the windows the aforementioned side windows will remain unaffected. Accordingly, the nave/sanctuary will remain largely unaffected in terms of BRE daylighting thresholds. It is also for this reason we did not undertake a DD assessment.

<u>26 Old Gloucester Street</u>

3.1.19 This building is a commercial/residential property located immediately south of the Site.

3.1.20 The windows to the rear elevation of the main portion of this building appear to serve circulation space and toilet areas. For the avoidance of doubt, we have included the windows (W5 and W6) and rooms, closest to the proposed extension located to the rear of this building, in our assessments.

3.1.21 Regarding VSC all windows assessed meet the BRE guidelines.

3.1.22 Regarding DD, all rooms assessed meet the BRE guidelines.

3.1.23 It is considered that this building would not be adversely affected by the proposed development.

<u>Rear of 26 Old Gloucester Street</u>

3.1.24 This building is a commercial property located immediately south west of the Site along the common boundary at the rear portion of 26 Gloucester Street. The windows (W1 to W3) we have assessed face east.

3.1.25 Regarding VSC, all windows assessed meet the BRE guidelines.

3.1.26 Regarding DD, all rooms assessed meet the BRE guidelines.

3.1.27 It may, therefore, be concluded that this building meets the BRE guidelines.

3.1.28 It is considered that this building would not be adversely affected by the proposed development.

Ormande Mansions and Russel Square Mansions

3.1.29 These buildings are located immediately west of the Site. Regarding VSC, all windows assessed meet the BRE guidelines.

3.1.30 Regarding DD, all rooms assessed meet the BRE guidelines.

3.1.31 It is considered that these buildings would not be adversely affected by the proposed development.

Mitigating Factors

3.1.32 As with all development sites, it would be helpful at this stage to outline material mitigating factors.

3.1.33 Mitigating factors are to be considered in conjunction with the numerical data, particularly with regards to specific surrounding circumstances, to arrive at a more balanced view.

3.1.34 The BRE guidelines recognises that buildings located uncommonly close to the site boundary, as is the case here, may be considered as "bad" neighbours, taking more than their fair share of light. Accordingly, a greater reduction in daylight or sunlight may be unavoidable and so the local authority may wish to apply different target values.

3.1.35 Where buildings match the height and proportions of existing surrounding buildings, some transgressions will be inevitable.

3.1.36 Kitchens and bedrooms are generally given less weighting than that of a principle room such as a living room.

Daylight Summary

3.1.37 In summary, only a single fractional transgression is noted to the south window of Saint Georges Church, however, the nave/sanctuary is also served by several lofty windows to the east and west elevations. Accordingly, it is considered that the surrounding building will not be adversely affected by the proposed development.

3.2 Sunlight

3.2.1 In accordance with the BRE report, the buildings outlined below have been assessed for annual probable sunlight hours (APSH), where the windows face within 90 degrees of due south. Detailed test results are shown in Appendix D.

Sunlight (APSH) Assessment Summary Table						
Building Reference	Annual APSH			Winter APSH		
	No. of windows assessed	No. that meet the BRE Guidelines	No. that do not meet the BRE Guidelines	No. of windows assessed	No. that meet the BRE Guidelines	No. that do not meet the BRE Guidelines
Bloomsbury Park Hotel	2	2	0	2	2	0
Saint Georges	1	1	0	1	0	1
26 Old Gloucester Street	8	8	0	8	8	0
Bloomsbury Thistle Hotel	2	2	0	2	2	0
Total	13	13	0	13	12	1

Saint Georges

3.2.2 All windows meet the BRE guidelines for sunlight criteria over the course of the year. Only one window falls below the BRE criteria during the winter months.

3.2.3 This window to Saint Georges, however, is located very close to the common boundary and under these circumstances the transgression is, on balance, considered acceptable.

Technical points

3.2.4 It is also worth mentioning that the sunlight assessments are really intended for principal living rooms of a dwelling and although kitchens and bedroom should be considered, it should be with less weighting.

3.2.5 Where two windows (of an equal size) serve a living room, and where one meets the BRE criteria and the other one does not, then the room is considered to meet the BRE criteria. This is also true of the daylighting criteria.

3.2.6 Also, where sunlight to a living room is reduced by 4% APSH or less, then the room is considered to meet the BRE criteria.

3.3 Proposed Accommodation

3.3.1 The proposed dwelling comprises self-contained flats from first floor to third floor level. Buchanan Hartley Architects have carefully considered this site and have incorporated elements within the designs to maximise ambient daylighting potential. These include: -

- Floor to ceiling height windows
- Multiple windows
- Light coloured internal finishes

3.3.2 We have also obtained specifications of a higher end glazing unit called "Optiwhite". The performance specifications state at transmittance value of 0.91. The aforementioned BS 8206 part 2 recommends reducing this value by 10% for the purposes of ADF assessments. This is due to accounting for the transmission of light at oblique angles. Accordingly, we have used a value for transmission of 0.819 for the KLDs (Kitchen, Livingroom, Diner) of various units as listed below; the value for standard glazing units is 0.65 which has been used for the remaining units/rooms. (A KLD is also known as an Open Plan Living Area (OPLA) and are interchangeable terms).

3.3.3 The contributions made by each window are recorded in the accompanying ADF Results table in Appendix D along with correction factors for windows frames, dirt and glazed areas. To clarify, the KLDs have been assessed against the higher ADF threshold of 2% per BS8206, part 2.

3.3.4 Turning now to the assessment results: -

3.3.5 Regarding the Room Depth (RD) assessment, all rooms comfortably meet the BRE criteria.

3.3.6 Regarding ADF, being the principal daylighting assessment, all principle living rooms will meet the minimum ADF values as set out in BS8206: Part 2 2008.

3.3.7 Regarding Daylight Distribution (DD), a few of the habitable rooms to the lower levels will not meet the BRE criteria i.e. 80% sky visibility at table level. This is, however, indicative of the closed nature of the site.

3.3.8 In any event, as outlined above, the principal rooms meet the ADF criteria and it would be reasonable to expect future occupiers of the proposed accommodation to utilise the natural light and arrange their rooms accordingly.

4. Conclusion

4.1 Daylight and Sunlight

4.1.1 For daylight, the buildings assessed meet the BRE guidelines for daylight.

4.1.2 For sunlight, the proposed development meets the BRE guidelines for sunlight over the course of the year. One window to Saint Georges falls below during the winter months. However, the building is non-domestic and located very close to the common boundary. Under these circumstances the transgression is, on balance, considered acceptable.

4.1.3 Overall, it is considered that the impact upon the surrounding buildings arising from the proposed extension is acceptable.

4.1.4 The principal open plan living areas of the proposed accommodation a will be adequately lit, attaining the minimum Average Daylight Factor criteria, being the principal assessment for determining daylight availability, as set out in BS8206, part 2.

4.2 Generally

4.2.1 When considering the numerical results, it is important to approach and interpret the BRE guidelines flexibly along with the following material mitigating factors:

*The BRE guidelines recognises that buildings located uncommonly close to the site boundary, as is the case here, may be considered as "bad" neighbours, taking more than their fair share of light. Accordingly, a greater reduction in daylight or sunlight may be unavoidable.
*Where buildings match the height and proportions of existing surrounding buildings some transgressions will be inevitable.
*Kitchens and bedrooms are given less weighting than that of a living room. By their specific omission studies and utility room are by implication given even less weighting than kitchen and bedrooms.

Appendix A

BRE Assessments

BRE Assessments

Introduction

The Building Research Establishment Report "Site Layout Planning for Daylight and Sunlight – a guide to good practice 1991" ("the BRE Guidelines") provides advice to building designers on site layout planning in order to achieve good daylight and sunlight amenity, not only to the proposed development and the open spaces between the proposed blocks, but also to the existing surrounding properties.

As part of this advice, the Building Research Establishment (BRE) have developed a series of assessments along with numerical guidelines so that the potential for good daylight and sunlight amenity can be achieved.

In general, the application of the BRE Guidelines are more appropriate for low density suburban development sites where there is a greater flexibility for site layout planning. In dense urban areas, however, development sites are usually constrained to a greater degree, often by immediately adjacent buildings etc. Accordingly, when dealing with dense urban areas the guidelines should be applied flexibly. This point is expressly recognised by the BRE Guidelines, which states in the introduction at page 1:

> *'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 been 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… … 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… ..'*

Daylight

The criteria for assessing daylight to existing surrounding buildings are outlined at pages 4 to 8 of the BRE Guidelines. Generally, daylight assessments should be undertaken to habitable rooms within dwellings and to principal rooms in non-domestic buildings such as schools, hospitals and offices where the occupants have a reasonable expectation of daylight.

Whilst the BRE Guidelines contain a number of rules of thumb that inform site layout design some relate to specific situations, such as domestic extensions to the rear of a property, which although useful may not be considered appropriate for general site layout design.

The principal assessments used to assess daylight to existing surrounding buildings are outlined in more detail below along with a further daylight assessment, usually applied to proposed dwellings, which is admissible provided it is agreed with the local authority, or there are past precedents.

<u>25° section line assessment</u>

The first assessment is known as the [modified] 25° section line test. It is a simple rule of thumb that determines whether an existing building should still receive adequate daylight with the proposed development in place.

The BRE guide states at page 11:

> *"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 a lowest window, subtends an angle of more than 25°to the horizontal may be affected."*

This assessment is most appropriate for well spaced, low-density or low-rise, uniform proposed developments. It is not an appropriate assessment for dense urban environments, where the existing building on the development site already subtends at an angle greater than 25° to the horizontal from the subject window. It is for this reason this 25° assessment is generally dispensed with and the more detailed assessments outlined below are entered into at the outset.

The Vertical Sky Component ("VSC") Assessment

The Vertical Sky Component ("VSC") assessment represents the amount of available daylight received directly from the sky at a particular window. The reference point for this assessment is the centre of the window, on the plane of the outer window wall.

A VSC is expressed as a percentage, being a ratio of that part of illuminance on a vertical plane (a window) that is received from a Standard Overcast Sky (CIE Sky), to the illuminance received on a horizontal plane on an unobstructed hemisphere of Standard Overcast Sky. To put it another way it is simply the amount of direct sky visibility a window receives, howsoever obstructed, expressed as a percentage of the amount of direct sky a horizontal unobstructed roof-light would receive.

The maximum percentage of direct skylight a vertical window can receive from a Standard Overcast Sky is 39.62%, or 40% when rounded. The BRE have determined that where a VSC value of 27% is achieved, then enough skylight (direct daylight) should reach the window of an existing building. This value is roughly equivalent to a uniform obstruction of 25°, with reference to the above assessment. The Guidelines go on to state:

> *"If the vertical sky component, with the new development in place, is both less than 27% and less than 0.8 times its former value, (a 20% reduction), then the occupants of the existing building will notice the difference."*

Consequently, the daylight to an existing building, as a result of a proposed development, may be reduced by 20% before that loss becomes noticeable.

The Daylight Distribution ("DD") Assessment

The Daylight Distribution Assessment is undertaken at working plane level from within a subject room and represents the change in skyline when viewed through a subject window. The working plane level is set at 0.85m above floor level in dwellings and 0.70m in offices, however, in practice this distinction in height is not normally made, and so the working plane is generally set at 0.85m.

If significant areas beyond the no-sky line i.e. the point beyond the line where no sky can be seen at working plane level, the room will usually appear gloomy and supplementary electric lighting will be required. The BRE Guidance states:

> *"If, following construction of a new development, the no-sky line moves so that the area of the existing room which does not receive direct skylight is reduced to less than 0.8 times its former value, (a 20% reduction), then this will be noticeable to the occupants, and more of the room will be poorly lit."*

Consequently, the daylight to an existing building, as a result of a proposed development, may be reduced by 20% before that loss becomes noticeable.

The VSC and DD are the 2 principal assessments that are required to be undertaken in order to assess daylight to existing surrounding buildings.

The Average Daylight Factor ("ADF") Assessment

A further daylight assessment, which may be undertaken, provided it is accepted by the local authority, is known as the Average Daylight Factor (ADF). Strictly speaking ADF assessments are used to determine the daylight availability to units within a proposed development, however, in more recent times the ADF assessment has been accepted by local authorities as a valid assessment for existing surrounding buildings.

An ADF assessment takes into account the amount of direct sky visibility incident on a window serving a subject room, the transmittance of the light through the glass, and the reflectance of that resultant light from the entire surface area of the room, which is then expressed as a percentage.

The ADF values recommended in the British Standard BS8206 Part 2 to which the BRE refers are: 2% for kitchens or open plan living areas, 1.5% for living rooms and 1% for bedrooms, if supplementary electric lighting is provided.

Nb. The guidelines outlined in the latest edition of BS8206 Part 2: 2008 are now applied.

Sunlight

Sunlight is valued in both residential and commercial buildings. It is seen as providing warmth and cheerfulness to a room, whilst also giving the occupants a therapeutic effect and a sense of wellbeing.

In residential properties the main requirement for sunlight is in the living room or conservatories, which should be assessed if they have a main window facing within 90° of due south. Sunlight is considered less important in kitchens and bedroom, although care should be taken not to block out too much.

In commercial or non-domestic buildings, the requirement for sunlight varies according to the use of the building. The BRE recommends that for a commercial building any space that has a particular or special requirement for sunlight should be assessed.

Annual Probable Sunlight Hours (APSH) Assessment

The APSH assessment is undertaken to the main window of residential and commercial buildings, where the window faces within 90° of due south. "Probable Sunlight Hours" may be defined as the total number of hours in the year that the sun is expected to shine on unobstructed ground, allowing for average levels of cloudiness.

At page 17 of the BRE guidelines the criteria for the APSH assessment are as follows: -

'If a living room of an existing dwelling has a main window facing within 90º of due south, and any part of a new development subtends an angle of more than 25º to the horizontal measured from the centre of the window in a vertical section perpendicular to the window, then the sunlighting of the existing dwelling may be adversely effected. This will be the case if a point at the centre of the window, in the plane of the inner window wall, received in the year less than one quarter (25%) of annual probable sunlight hours including at least 5% of annual probable sunlight hours between 21 September and 21 March, and less than 0.8 times its former sunlight hours during either period.'

Consequently, the sunlight to an existing building, as a result of a proposed development, may be reduced by 20% in either the annual or winter periods before that loss becomes noticeable.

Overshadowing

The BRE guidance also offers advice on how to preserve sunlight to both existing and proposed open amenity spaces. Areas such as main back gardens of dwellings, parks, playing fields, playgrounds, waterways and public spaces such should be assessed. Small front gardens to dwellings and parking areas need not be assessed.

<u>The permanent overshadowing assessment</u>

The permanent overshadowing assessment is undertaken on 21 March, the spring equinox. This assessment shows areas of a subject amenity area where no sunlight will be available during the winter period, however, the subject area may still receive some sunlight during the summer.

The BRE states at page 20:

"for it to appear adequately sunlight throughout the year, at least half of a garden or amenity area should receive at least 2 hours of sunlight on 21 March. If, as a result of new development, an existing garden or amenity area does not meet these guidelines, and the area which can receive 2 hours of sun on 21 March is less than 0.8 times its former value (a 20% reduction), then the loss of sunlight is likely to be noticeable".

Consequently, if an open amenity area, is more than 50% in shade for more than 2 hours in either existing or proposed situations, and is reduced by more than 20% of its existing value as a result of new development, then that loss is likely to be noticeable.

<u>The transient overshadowing assessment</u>

A further overshadowing assessment, sometimes requested by the local authority for larger schemes, is the temporary, or transient overshadowing assessment. This assessment usually comprises hourly overshadowing images of the existing and proposed situations undertaken on key dates during the year such as 21 March, the spring equinox; 21 June, the summer solstice; and 21 December, the winter solstice.

The BRE guidance offers no express numerical values for this type of assessment, consequently it is purely subjective.

Appendix B

Context Drawings

Appendix C

Daylight and Sunlight Results

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Vertical Sky Component (VSC) Assessment/ Sunlight (APSH) Assessment

Floor Ref.	Room Ref.	Room Use.	Window Ref.	Scenario	VSC	Difference	Condtn	Available Sunlight Hours						
								Annual %	Diff %	Condtn	Winter %	Diff %	Condtn
Saint Georges														
Ground	R1	Pastoral	W1	Existing	8.42	0.76	NO	14	0.86	YES	3	0.33	NO
				Proposed	6.41			12			1		
Rear of 26 Old Gloucester Street and 26 Old Gloucester Street													
Ground	R1	Office	W1	Existing	6.86	0.97	YES		*North*			*North*	
				Proposed	6.63								
			W2	Existing	6.69	0.97	YES		*North*			*North*	
				Proposed	6.49								
			W3	Existing	5.88	1.00	YES		*North*			*North*	
				Proposed	5.89								
	R2	Unknown	W5	Existing	8.94	0.99	YES	14	1.00	YES	0	0.00	YES
				Proposed	8.88			14			0		
	R3	Unknown	W6	Existing	9.68	0.98	YES	11	1.00	YES	0	0.00	YES
				Proposed	9.45			11			0		
First	R1	Office	W1	Existing	10.39	0.96	YES		*North*			*North*	
				Proposed	9.97								
			W2	Existing	9.94	0.95	YES		*North*			*North*	
				Proposed	9.41								
			W3	Existing	8.60	0.97	YES		*North*			*North*	
				Proposed	8.34								
	R2	Unknown	W5	Existing	12.96	0.98	YES	19	1.00	YES	2	1.00	YES
				Proposed	12.76			19			2		
	R3	Unknown	W6	Existing	13.01	0.96	YES	13	0.92	YES	0	0.00	YES
				Proposed	12.43			12			0		
Second	R1	Office	W1	Existing	15.82	0.95	YES		*North*			*North*	
				Proposed	14.95								
			W2	Existing	15.34	0.94	YES		*North*			*North*	
				Proposed	14.40								
			W3	Existing	13.83	0.93	YES		*North*			*North*	
				Proposed	12.80								
	R2	Unknown	W5	Existing	18.04	0.94	YES	22	1.05	YES	3	1.00	YES
				Proposed	16.98			23			3		
	R3	Unknown	W6	Existing	16.55	0.98	YES	17	0.94	YES	2	1.00	YES
				Proposed	16.30			16			2		
Third	R2	Unknown	W5	Existing	24.60	0.99	YES	36	1.00	YES	7	1.00	YES
				Proposed	24.42			36			7		
	R3	Unknown	W6	Existing	22.07	1.00	YES	26	1.00	YES	3	1.00	YES
				Proposed	22.15			26			3		

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Daylight Distribution (DD) Assessment

Floor Ref.	Room Ref.	Room Use.		Room Area	Lit Area Existing	Lit Area Proposed	Difference %	Conditn
26 Old Gloucester Street								
Ground	R1	Office	Area m2	31.66	5.33	4.78		
			% of room		17%	15%	0.90	YES
	R2	Unknown	Area m2	12.35	6.29	6.15		
			% of room		51%	50%	0.98	YES
	R3	Unknown	Area m2	8.93	6.26	6.26		
			% of room		70%	70%	1.00	YES
First	R1	Office	Area m2	31.66	7.30	6.42		
			% of room		23%	20%	0.88	YES
	R2	Unknown	Area m2	12.35	10.15	10.12		
			% of room		82%	82%	1.00	YES
	R3	Unknown	Area m2	8.93	8.23	8.23		
			% of room		92%	92%	1.00	YES
Second	R1	Office	Area m2	28.85	7.88	6.68		
			% of room		27%	23%	0.85	YES
	R2	Unknown	Area m2	12.35	12.04	12.00		
			% of room		98%	97%	1.00	YES
	R3	Unknown	Area m2	8.93	8.52	8.52		
			% of room		95%	95%	1.00	YES
Third	R2	Unknown	Area m2	12.35	12.23	12.22		
			% of room		99%	99%	1.00	YES
	R3	Unknown	Area m2	8.93	8.84	8.84		
			% of room		99%	99%	1.00	YES
Bloomsbury Park Hotel								
First	R1	Bedroom	Area m2	16.55	5.47	4.86		
			% of room		33%	29%	0.89	YES
	R2	Bedroom	Area m2	20.04	7.83	6.94		
			% of room		39%	35%	0.89	YES
Second	R1	Bedroom	Area m2	16.55	10.29	10.29		
			% of room		62%	62%	1.00	YES
	R2	Bedroom	Area m2	20.04	13.27	13.30		
			% of room		66%	66%	1.00	YES

Daylight & Sunlight (UK) LTD

Daylight Distribution (DD) Assessment

Floor Ref.	Room Ref.	Room Use.		Room Area	Lit Area Existing	Lit Area Proposed	Difference %	Conditn
Russel Square Mansions								
First	R1	Bedroom	Area m2	10.74	10.49	10.49		
			% of room		98%	98%	1.00	YES
	R2	Bedroom	Area m2	49.62	27.18	25.56		
			% of room		55%	52%	0.94	YES
	R4	Bedroom	Area m2	30.80	18.87	15.20		
			% of room		61%	49%	0.81	YES
	R5	Bedroom	Area m2	14.57	12.85	10.44		
			% of room		88%	72%	0.81	YES
Second	R1	Bedroom	Area m2	10.74	10.60	10.60		
			% of room		99%	99%	1.00	YES
	R2	Office	Area m2	6.36	6.36	6.36		
			% of room		100%	100%	1.00	YES
	R3	Bedroom	Area m2	10.15	10.14	10.14		
			% of room		100%	100%	1.00	YES
	R4	Bedroom	Area m2	30.80	22.69	22.17		
			% of room		74%	72%	0.98	YES
	R5	Bedroom	Area m2	14.57	13.71	13.54		
			% of room		94%	93%	0.99	YES
Ormande Mansions								
First	R1	Bedroom	Area m2	13.95	7.55	7.28		
			% of room		54%	52%	0.97	YES
	R2	Bedroom	Area m2	13.95	8.04	7.99		
			% of room		58%	57%	0.99	YES
Rear of 27 Old Gloucester Street								
First	R2	Unknown	Area m2	11.42	2.75	2.44		
			% of room		24%	21%	0.89	YES
	R3	Unknown	Area m2	7.30	7.01	5.85		
			% of room		96%	80%	0.83	YES
Bloomsbury Thistle Hotel								
First	R1	Bedroom	Area m2	14.13	12.56	12.56		
			% of room		89%	89%	1.00	YES
	R2	Bathroom	Area m2	3.55	3.15	3.15		
			% of room		89%	89%	1.00	YES
Second	R1	Bedroom	Area m2	14.13	13.50	13.50		
			% of room		96%	96%	1.00	YES
	R2	Bathroom	Area m2	3.55	3.43	3.43		
			% of room		97%	97%	1.00	YES

Daylight & Sunlight (UK) LTD

Vertical Sky Component (VSC) Assessment/ Sunlight (APSH) Assessment

Floor Ref.	Room Ref.	Room Use.	Window Ref.	Scenario	VSC	Difference	Condtn	Available Sunlight Hours					
								Annual %	Diff %	Condtn	Winter %	Diff %	Condtn
Bloomsbury Park Hotel													
First	R1	Bedroom	W1	Existing	10.70	0.95	YES	*North*			*North*		
				Proposed	10.20								
	R2	Bedroom	W2	Existing	8.68	0.98	YES	*North*			*North*		
				Proposed	8.48								
			W3	Existing	7.28	0.99	YES	*North*			*North*		
				Proposed	7.23								
Second	R1	Bedroom	W1	Existing	15.90	0.98	YES	*North*			*North*		
				Proposed	15.63								
	R2	Bedroom	W2	Existing	12.98	0.99	YES	*North*			*North*		
				Proposed	12.82								
			W3	Existing	10.56	1.00	YES	*North*			*North*		
				Proposed	10.53								
Russel Square Mansions													
First	R1	Office	W1	Existing	14.29	0.99	YES	*North*			*North*		
				Proposed	14.08								
	R2	Office	W2	Existing	20.41	0.95	YES	*North*			*North*		
				Proposed	19.43								
	R4	Bedroom	W4	Existing	16.74	0.97	YES	*North*			*North*		
				Proposed	16.21								
			W5	Existing	16.65	0.97	YES	*North*			*North*		
				Proposed	16.11								
			W6	Existing	15.90	0.97	YES	*North*			*North*		
				Proposed	15.35								
	R5	Bedroom	W7	Existing	13.95	0.97	YES	*North*			*North*		
				Proposed	13.48								
Second	R1	Office	W1	Existing	18.67	0.99	YES	*North*			*North*		
				Proposed	18.47								
	R2	Office	W2	Existing	21.91	0.99	YES	*North*			*North*		
				Proposed	21.65								
	R3	Bedroom	W3	Existing	23.57	0.98	YES	*North*			*North*		
				Proposed	23.17								

Daylight & Sunlight (UK) LTD

Vertical Sky Component (VSC) Assessment/ Sunlight (APSH) Assessment

Floor Ref.	Room Ref.	Room Use.	Window Ref.	Scenario	VSC	Difference	Condtn	Available Sunlight Hours					
								Annual %	Diff %	Condtn	Winter %	Diff %	Condtn
	R4	Bedroom	W4	Existing	19.78	0.99	YES		*North*			*North*	
				Proposed	19.51								
			W5	Existing	19.53	0.99	YES		*North*			*North*	
				Proposed	19.26								
			W6	Existing	18.55	0.99	YES		*North*			*North*	
				Proposed	18.30								
	R5	Bedroom	W7	Existing	16.01	0.99	YES		*North*			*North*	
				Proposed	15.80								
Ormande Mansions													
First	R1	Bedroom	W1	Existing	2.50	0.96	YES		*North*			*North*	
				Proposed	2.39								
			W2	Existing	1.78	1.01	YES		*North*			*North*	
				Proposed	1.79								
	R2	Bedroom	W1	Existing	3.83	0.99	YES		*North*			*North*	
				Proposed	3.78								
			W2	Existing	3.17	1.01	YES		*North*			*North*	
				Proposed	3.20								
Rear of 27 Old Gloucester Street													
First	R2	Bedroom	W13	Existing	11.92	0.92	YES		*North*			*North*	
				Proposed	11.02								
	R3	Bedroom	W14	Existing	10.30	0.92	YES		*North*			*North*	
				Proposed	9.46								
Bloomsbury Thistle Hotel													
First	R1	Bedroom	W1	Existing	22.80	0.98	YES	48	0.98	YES	14	1.00	YES
				Proposed	22.23			47			14		
			W2	Existing	10.80	0.82	YES		*North*			*North*	
				Proposed	8.84								
Second	R1	Bedroom	W1	Existing	29.93	0.96	YES	61	0.95	YES	21	1.00	YES
				Proposed	28.76			58			21		
			W2	Existing	20.76	0.91	YES		*North*			*North*	
				Proposed	18.89								

Appendix D

Proposed Accommodation Results

Daylight&Sunlight (UK) LTD

Average Daylight Factor Assessment (ADF)

Floor Ref.	Room Ref.	Room Use.	Window Ref.	Glass Transmittance	Glazed Area	Clear Sky Angle Proposed	Room Surface Area	Average Surface Reflectance	Below Working Plane factor	ADF Proposed	Req'd Value	Meet Target Criteria?
Proposed Accommodation												
First	R1	Bedroom	W2-L	0.68	0.09	54.39	55.39	0.72	0.40	0.05		
			W2-U	0.68	1.24	56.78	55.39	0.72	1.00	1.80		
			W3-L	0.68	0.09	57.13	55.39	0.72	0.40	0.05		
			W3-U	0.68	1.23	59.29	55.39	0.72	1.00	1.87		
										3.77	1.00	YES
First	R2	LKD	W4-L	0.68	0.09	59.34	107.93	0.71	0.40	0.03		
			W4-U	0.68	1.23	61.34	107.93	0.71	1.00	0.95		
			W5-L	0.68	0.11	64.94	107.93	0.71	0.40	0.04		
			W5-U	0.68	1.52	66.62	107.93	0.71	1.00	1.27		
			W6-L	0.68	0.57	32.16	107.93	0.71	0.40	0.09		
			W6-U	0.68	0.44	34.66	107.93	0.71	1.00	0.19		
			W7-L	0.68	0.69	5.10	107.93	0.71	0.40	0.02		
			W7-U	0.68	1.01	0.00	107.93	0.71	1.00	0.00		
										2.59	2.00	YES
First	R3	Bedroom	W8-L	0.82	0.69	0.00	57.05	0.72	0.40	0.00		
			W8-U	0.82	1.47	0.00	57.05	0.72	1.00	0.00		
										0.00	1.00	NO
First	R4	LKD	W9-L	0.82	0.81	24.01	115.47	0.70	0.40	0.11		
			W9-U	0.82	1.54	27.80	115.47	0.70	1.00	0.59		
			W10-L	0.82	0.58	45.12	115.47	0.70	0.40	0.15		
			W10-U	0.82	1.10	48.76	115.47	0.70	1.00	0.74		
			W11-L	0.82	0.58	23.56	115.47	0.70	0.40	0.08		
			W11-U	0.82	1.10	27.92	115.47	0.70	1.00	0.43		
										2.09	2.00	YES
First	R5	Bedroom	W12-L	0.82	0.59	23.11	60.57	0.72	0.40	0.15		
			W12-U	0.82	1.11	27.32	60.57	0.72	1.00	0.86		
										1.02	1.00	YES
First	R6	Bedroom	W13	0.68	1.06	56.06	62.35	0.72	1.00	1.36		
										1.36	1.00	YES
First	R7	Bedroom	W14-L	0.68	0.42	8.73	55.61	0.72	0.40	0.04		
			W14-U	0.68	0.80	10.22	55.61	0.72	1.00	0.21		
										0.25	1.00	NO
Second	R1	Bedroom	W1-L	0.68	0.10	62.51	63.39	0.72	0.40	0.06		
			W1-U	0.68	1.07	65.64	63.39	0.72	1.00	1.59		
			W2-L	0.68	0.10	63.34	63.39	0.72	0.40	0.06		
			W2-U	0.68	1.07	66.37	63.39	0.72	1.00	1.61		
										3.32	1.00	YES
Second	R2	LKD	W3-L	0.68	0.10	65.34	134.53	0.71	0.40	0.03		
			W3-U	0.68	1.07	68.14	134.53	0.71	1.00	0.75		
			W4-L	0.68	0.10	66.99	134.53	0.71	0.40	0.03		
			W4-U	0.68	1.07	69.61	134.53	0.71	1.00	0.77		
			W5-L	0.68	0.10	71.31	134.53	0.71	0.40	0.03		
			W5-U	0.68	1.07	73.48	134.53	0.71	1.00	0.81		
			W6-L	0.68	0.00	59.60	134.53	0.71	0.40	0.00		
			W6-U	0.68	1.20	66.53	134.53	0.71	1.00	0.82		
			W7-L	0.68	0.00	51.02	134.53	0.71	0.40	0.00		
			W7-U	0.68	1.20	59.99	134.53	0.71	1.00	0.74		
			W8-L	0.68	0.69	16.57	134.53	0.71	0.40	0.05		
			W8-U	0.68	1.01	12.36	134.53	0.71	1.00	0.13		
										4.16	2.00	YES
Second	R3	Bedroom	W9-L	0.82	0.64	24.95	55.28	0.72	0.40	0.20		
			W9-U	0.82	1.52	14.42	55.28	0.72	1.00	0.68		
										0.87	1.00	NO
Second	R4	Bedroom	W10-L	0.68	0.58	47.85	45.13	0.73	0.40	0.36		
			W10-U	0.68	1.10	56.53	45.13	0.73	1.00	2.01		
										2.36	1.00	YES
Second	R5	Bedroom	W12-L	0.68	0.59	37.57	58.98	0.72	0.40	0.21		
			W12-U	0.68	1.11	48.63	58.98	0.72	1.00	1.29		
			W13-L	0.68	0.64	58.08	58.98	0.72	0.40	0.36		
			W13-U	0.68	0.96	61.00	58.98	0.72	1.00	1.39		
										3.24	1.00	YES
Second	R6	Bedroom	W14-L	0.68	0.86	60.51	54.04	0.72	0.40	0.54		
			W14-U	0.68	1.28	63.42	54.04	0.72	1.00	2.11		
										2.65	1.00	YES
Second	R7	Bedroom	W15-L	0.82	0.42	13.77	41.85	0.73	0.40	0.10		
			W15-U	0.82	0.80	17.58	41.85	0.73	1.00	0.59		
										0.69	1.00	NO
Third	R1	Bedroom	W1-L	0.68	0.17	75.05	63.39	0.72	0.40	0.11		
			W1-U	0.68	0.85	79.21	63.39	0.72	1.00	1.52		
			W2-L	0.68	0.17	75.44	63.39	0.72	0.40	0.11		
			W2-U	0.68	0.85	79.50	63.39	0.72	1.00	1.52		

Daylight & Sunlight (UK) LTD

Average Daylight Factor Assessment (ADF)

Floor Ref.	Room Ref.	Room Use.	Window Ref.	Glass Transmittance	Glazed Area	Clear Sky Angle Proposed	Room Surface Area	Average Surface Reflectance	Below Working Plane factor	ADF Proposed	Req'd Value	Meet Target Criteria?
										3.26	1.00	YES
Third	R2	LKD	W3-L	0.68	0.21	76.60	136.38	0.71	0.40	0.07		
			W3-U	0.68	1.08	80.36	136.38	0.71	1.00	0.88		
			W4-L	0.68	0.21	77.53	136.38	0.71	0.40	0.07		
			W4-U	0.68	1.08	81.04	136.38	0.71	1.00	0.88		
			W5-L	0.68	0.17	79.52	136.38	0.71	0.40	0.05		
			W5-U	0.68	0.85	82.50	136.38	0.71	1.00	0.71		
			W6-L	0.68	0.17	80.59	136.38	0.71	0.40	0.05		
			W6-U	0.68	0.85	83.27	136.38	0.71	1.00	0.71		
			W7-L	0.68	0.14	77.38	136.38	0.71	0.40	0.05		
			W7-U	0.68	0.98	80.83	136.38	0.71	1.00	0.80		
			W8-L	0.68	0.69	44.45	136.38	0.71	0.40	0.12		
			W8-U	0.68	1.01	49.74	136.38	0.71	1.00	0.51		
										4.90	2.00	YES
Third	R3	Bedroom	W9-L	0.68	0.61	49.94	55.28	0.72	0.40	0.31		
			W9-U	0.68	1.25	53.94	55.28	0.72	1.00	1.73		
										2.04	1.00	YES
Third	R4	LKD	W10	0.68	1.30	63.10	129.93	0.69	1.00	0.82		
			W11-L	0.68	3.29	54.34	129.93	0.69	0.40	0.72		
			W11-U	0.68	7.64	65.30	129.93	0.69	1.00	5.01		
										6.55	2.00	YES
Third	R5	LKD	W12-L	0.68	3.30	59.90	129.96	0.69	0.40	0.79		
			W12-U	0.68	7.64	72.24	129.96	0.69	1.00	5.54		
			W13-L	0.68	0.42	26.69	129.96	0.69	0.40	0.05		
			W13-U	0.68	0.80	37.91	129.96	0.69	1.00	0.30		
										6.69	2.00	YES

Daylight & Sunlight (UK) LTD

Daylight Distribution (DD) Assessment

Floor Ref.	Room Ref.	Room Use.		Room Area	Lit Area Existing	Lit Area Proposed	Difference %	Conditn
Proposed Accommodation								
First	R1	Bedroom	Area m2	10.81	8.84	8.84		
			% of room		82%	82%	1.00	YES
	R2	LKD	Area m2	24.96	17.83	17.83		
			% of room		71%	71%	1.00	NO
	R3	Bedroom	Area m2	11.44	0.00	0.00		
			% of room		0%	0%	0.00	NO
	R4	LKD	Area m2	29.01	15.57	15.57		
			% of room		54%	54%	1.00	NO
	R5	Bedroom	Area m2	11.56	2.55	2.55		
			% of room		22%	22%	1.00	NO
	R6	Bedroom	Area m2	11.71	7.83	7.83		
			% of room		67%	67%	1.00	NO
	R7	Bedroom	Area m2	11.04	0.21	0.21		
			% of room		2%	2%	1.00	NO
Second	R1	Bedroom	Area m2	11.97	9.13	9.13		
			% of room		76%	76%	1.00	NO
	R2	LKD	Area m2	29.18	26.11	26.11		
			% of room		89%	89%	1.00	YES
	R3	Bedroom	Area m2	10.91	5.57	5.57		
			% of room		51%	51%	1.00	NO
	R4	Bedroom	Area m2	7.86	6.16	6.16		
			% of room		78%	78%	1.00	NO
	R5	Bedroom	Area m2	12.17	12.11	12.11		
			% of room		100%	100%	1.00	YES
	R6	Bedroom	Area m2	10.98	10.34	10.34		
			% of room		94%	94%	1.00	YES
	R7	Bedroom	Area m2	7.19	0.65	0.65		
			% of room		9%	9%	1.00	NO
Third	R1	Bedroom	Area m2	11.97	11.73	11.73		
			% of room		98%	98%	1.00	YES
	R2	LKD	Area m2	29.78	29.48	29.48		
			% of room		99%	99%	1.00	YES
	R3	Bedroom	Area m2	10.91	6.16	6.16		
			% of room		56%	56%	1.00	NO
	R4	LKD	Area m2	35.07	35.07	35.07		
			% of room		100%	100%	1.00	YES
	R5	LKD	Area m2	35.08	35.08	35.08		
			% of room		100%	100%	1.00	YES