77-79 CHARLOTTE STREET, LONDON, W1.

DAYLIGHT & SUNLIGHT STUDY

MAY 2019

CONTENTS

APPENDICES

DELVA PATMAN REDLER
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1.0 INTRODUCTION

Delva Patman Redler LLP have been instructed by Charlotte Street Property Ltd to assess the potential effects of the proposed development at 77-79 Charlotte Street on daylight and sunlight to neighbouring residential properties.

This study has been carried out in accordance with the recommendations of the Building Research Establishment (BRE) Report 209, *Site Layout Planning for Daylight and Sunlight: A guide to good practice (second edition, 2011)* ("the BRE guide").

The location drawing, 13491/LOC/DS/801, is of the site and surrounding properties that have been assessed and is attached within Appendix A. Our analysis results are attached in the remaining appendices.

2.0 PROPOSED DEVELOPMENT

The proposed development is comprised of the refurbishment of the existing building as detailed within the approved planning application 2018/1716/P and being the erection of a four-storey rear extension and fifth floor roof extension.

3.0 PLANNING POLICY & GUIDELINES

3.1 National Planning Policy and Guidance

BRE Report 209, Site Layout Planning for Daylight and Sunlight: A guide to good practice

The BRE guide gives advice on site layout planning of development to retain good daylighting and sunlighting in existing surrounding buildings and to achieve it in new buildings. The guide states:

> *"(Its) main aim is … to help to ensure good conditions in the local environment, considered broadly, with enough sunlight and daylight on or between buildings for good interior and exterior conditions."*

> *"The guide is intended for building designers and their clients, consultants and planning officials. The advice given is not mandatory and the report should not be seen as a part 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 the 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, or in an area with modern high rise buildings, a higher degree of obstruction may be unavoidable if new developments are to match the height and proportions of existing buildings… The calculation methods … are entirely flexible in this respect."*

This study has been carried out in accordance with the recommendations of the abovementioned BRE guide. This is the recognised guidance against which daylight and sunlight effects should be assessed.

3.2 Local planning policy

The development site is located within the London Borough of Camden. It is understood that the Council's local planning policy seeks to reasonably safeguard daylight and sunlight amenity to existing surrounding properties

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4.0   ASSESSMENT METHODOLOGY

The technical assessments that underpin this daylight and sunlight study have been carried out in accordance with the assessment methodology recommended in the abovementioned BRE guide. These measure and quantify the available daylight and sunlight in both the existing and proposed conditions, so that the effect of the proposed development, in terms of the loss or gain in light, can be quantified. The numerical results are tabulated in the appendices and the loss or gain in light is presented, both on an absolute scale and a comparative scale, measuring the factor of former value for the light that will be retained.

In theory, the guidelines may be applied to non-domestic buildings where occupants have a reasonable expectation of daylight (including schools, hospitals, hotels and hostels, small workshops and some offices) and any with a specific requirement for sunlight. However, it is common practice for studies for planning applications to assess residential properties only, unless the neighbouring buildings are sensitive receptors such as residential care homes, schools or patient wards in hospitals.

For neighbouring residential properties, the BRE guide advises that rooms/windows should be assessed where daylight and sunlight is required. It regards bedrooms as less important for daylight and both kitchens and bedrooms as less important for sunlight. Bathrooms, toilets, storerooms, circulation areas and garages need not be analysed.

4.1   Daylight to buildings

The BRE guide states:

"In designing a new development or extension to a building, it is important to safeguard the daylight to nearby buildings.

The guidelines given here are intended for use for rooms in adjoining dwellings where daylight is required, including living rooms, kitchens and bedrooms.

Note that numerical values given here are purely advisory. Different criteria may be used based on the requirements for daylighting in an area viewed against other site layout constraints."

To determine which buildings may need to be assessed, it states:

"If, for any part of the new development, the angle from the centre of the lowest affected window to the head of the new development is more than 25°, then a more detailed check is needed to find the loss of skylight to the existing buildings."

To quantify the available daylight to existing neighbouring buildings, the BRE guide proposes two principal methods of measurement, neither of which carries more importance than the other, The tests involve:

i)   calculating the vertical sky component (VSC) at the centre of each main window on the outside plane of the window wall, which measures the total amount of skylight available to that window; and

ii) plotting the no-sky line (NSL) on the working plane inside a room and measuring the area that can receive direct skylight, which assesses the distribution of daylight around the room.

The VSC is defined as:

"The amount of skylight falling on a vertical wall or window ... This is the ratio of the direct sky illuminance falling on the vertical wall at a reference point (usually the centre of the window), to the simultaneous horizontal illuminance under an unobstructed sky. The standard CIE … overcast sky is used, and the ratio is usually expressed as a percentage. The maximum value is almost 40% for a completely unobstructed vertical wall.

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The VSC therefore measures the daylight available at the window, but as it does not take account of the size or number of windows serving it, it does not measure light inside the room. The guide states:

> "Any reduction in the total amount of skylight can be calculated by finding the VSC at the centre of each main window … For a bay window, the centre window facing directly outwards can be taken as the main window. If a room has two or more windows of equal size, the mean of their VSCs may be taken. The reference point is in the external plane of the window wall. Windows to bathrooms, toilets, storerooms, circulation areas and garages need not be analysed."

The NSL test is described thus:

> "Where room layouts are known, the impact on the daylighting distribution in the existing building can be found by plotting the 'no sky line' in each of the main rooms. For houses this would include living rooms, dining rooms and kitchens; bedrooms should also be analysed although they are less important. In non-domestic buildings each main room where daylight is expected should be investigated. The no sky line divides points on the working plane which can and cannot see the sky."

A third daylight test referred to in the BRE guide is the average daylight factor (ADF), which assesses the average level of daylight inside a room. It is a detailed calculation that takes account of the amount of sky visible at each of the windows serving the room, the glazed area of each window, the diffuse light transmittance of the glazing, the total surface area of the room and the reflectance of those surfaces. The recommended minimum ADF values for dwellings are 1% in bedrooms, 1.5% in living rooms and 2% in kitchens. For other uses where supplementary electric lighting is provided, such as in offices, an ADF value of 2% is recommended.

The ADF test is primarily intended for assessing daylight within new development, including neighbouring consented buildings that are not yet built but may be affected by other proposed development. However, it can be a useful supplementary test to run for existing neighbouring buildings, particularly those where the VSC or NSL recommendations would not be met, as understanding whether the retained ADF values would satisfy the guidelines for new dwellings may aid a more rounded and balanced judgement on the acceptability of the effects on VSC and NSL.

For the purposes of this report all three methods of daylight assessment have been considered.

4.2   Sunlight to buildings

The BRE guide states:

> "In designing a new development or extension to a building, care should be taken to safeguard the access to sunlight both for existing dwellings, and for any nearby non-domestic buildings where there is a particular requirement for sunlight.
>
> Obstruction to sunlight may become an issue if:
>
> • some part of a new development is situated within 90˚ of due south of a main window wall of an existing building, and
>
> • in the section drawn perpendicular to this existing window wall, the new development subtends an angle greater than 25˚ to the horizontal measured from the centre of the lowest window to a main living room.
>
> To assess loss of sunlight to an existing building, it is suggested that all main living rooms of dwellings, and conservatories, should be checked if they have a window facing within 90˚ of due south. Kitchens and bedrooms are less important, although care should be taken not to block too much sun.
>
> A point at the centre of the window on the outside face of the window wall may be taken [as the calculation point]."

To quantify the available sunlight, the BRE guide advises measuring the percentage of annual probable sunlight hours (APSH), which is defined as follows:

"'probable sunlight hours' means the total number of hours in the year that the sun is expected to shine on unobstructed ground, allowing for average levels of cloudiness for the location in question".

Probable sunlight hours is the long-term average of the total number of hours during a year in which direct sunlight reaches the unobstructed ground when clouds are taken into account.

The BRE publishes APSH indicators for three latitudes in the UK: London (51.5°N, 1486 unobstructed hours), Manchester (53.5°N, 1392 unobstructed hours) and Edinburgh (56°N, 1267 unobstructed hours). The assessment uses whichever indicator is nearest to the latitude of the proposed development.

The assessment calculates the percentage of APSH over the whole year (annual sunlight) and between 21 September and 21 March (winter sunlight).

4.3   Scope of assessment

We have scoped our assessment having regard to the recommendations in the BRE guide, including the above-mentioned preliminary 25° angle test and 90° orientation tests, and using professional judgement. As the main emphasis of the BRE guidelines and planning policy generally is on safeguarding daylight and sunlight amenity to dwellings, we have scoped our assessment accordingly and assessed the potential effect on neighbouring residential properties in accordance with common practice.

We have used 3D computer modelling and specialist software to run the assessments recommended in the BRE guide.

We have included the following drawings at Appendix A to show the 3D computer model used in our assessment and the neighbouring properties that have been assessed:

- LOC/DS/801: Site location plan showing the neighbouring properties assessed
- SPT/807: Building spot-heights drawing showing a 3D view in the existing and proposed conditions
- LOC/805 & 806: Key window location drawings showing the neighbouring windows that have been assessed

5.0   RESEARCH UNDERTAKEN AND ASSUMPTIONS MADE

To aid accuracy of the assessment and interpretation of the results, we have carried out online searches to try to obtain floor plans for the neighbouring buildings, including from online planning application records and general estate agency websites. This is the approach recommended in the Professional Guidance Note, *'Daylighting and sunlighting'* (1st edition, 2012), published by the Royal Institution of Chartered Surveyors, which states:

"As a minimum, and subject to any limitations relating to a client instruction, surveyors should undertake searches of the local authority's planning portal to establish existing or proposed room layouts of neighbouring properties if they are available. This will ensure a robust approach and enable the surveyor to produce reliable information for daylight distribution analysis, or if average daylight factor (ADF) tests are appropriate … Surveyors should also use the internet to search for other relevant information, including estate agent details, which commonly include plans of properties that can also be useful in determining a room layout or use."

Access has not been sought into any of the neighbouring properties; however, we have carried out research to try to obtain floor plans wherever reasonably possible. Properties where we were able to find floor plans showing the internal layouts are listed in Table 1. The property reference numbers cross-refer to the location drawing at Appendix A.

Table 1 - Information sources for neighbouring buildings

Ref	Address	Information obtained
1	81 Charlotte Street	Plans
2	73-75 Charlotte Street	Plans

Where we have found drawings, we have based the room layouts and, where possible, the floor levels in our assessment model on the drawings. Where we were unable to obtain drawings, we have made reasonable assumptions as room layouts and uses and floor levels within the neighbouring properties. In the absence of suitable plans, estimation is a conventional approach.

For the ADF assessment, we used the parameters stated in Table 2.

Table 2 – Parameters used in ADF calculations

Parameter	Value – Neighbouring Properties
Maintenance factor (dirt on glass)	0.92 – urban residential
Diffuse light transmittance of glazing	0.68 – double glazing
Frame and glazing bar factor	0.8 – wood frame, large pane
Internal surface reflectance	0.5 – BRE default mean value where finishes are not known

6.0 SIGNIFICANCE CRITERIA

The BRE guide sets out numerical guidelines against which the potential effects of proposed development on daylight and sunlight may be assessed. The numerical guidelines are summarised in Table 3 below.

Table 3 - BRE assessment criteria for neighbouring properties

Issue	Criteria
Daylight to buildings	Daylight may be adversely affected if either: • the vertical sky component (VSC) measured at the centre of the window is reduced to less than 27% and less than 0.8 times its former value, or • the area of the working plane in a room which can receive direct skylight, i.e. is within no-sky line (NSL), is reduced to less than 0.8 times its former value.
Sunlight to buildings	Sunlight may be adversely affected if the centre of the window will: • receive less than 25% of annual probable sunlight hours (APSH) or less than 5% APSH during the winter months (21 September to 21 March) and • less than 0.8 times its former sunlight hours during either period and • the reduction in sunlight over the whole year will be greater than 4% APSH.

In short, the BRE guidelines work on the general principle that, except where certain minimum values are retained (i.e. 27% VSC, 25% APSH annually and 5% APSH in winter), a reduction in light to less than 0.8 times its former value (i.e. more than 20% reduction) will be noticeable to the occupiers.

As noted in section 1 of this report, the BRE guide states that these numerical guidelines are not mandatory and must be interpreted flexibly because natural lighting is only one of many factors in site layout design. In certain circumstance, such as city centre, or in an area with modern high-rise buildings, a higher degree of obstruction may be unavoidable if new developments are to match the height and proportions of existing buildings.

Therefore, the assessment results must be interpreted carefully, with due consideration given to the site context and whether acceptable amounts of daylight and sunlight will be retained for an urban context.

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7.0 BASELINE CONDITION

An analysis has been undertaken of the daylight and sunlight levels in the neighbouring buildings in the baseline condition with the existing site massing in place. The existing site massing is shown on the key building heights drawing, 13491/SPT/807 within Appendix A.

The existing buildings on the site comprise of a part-five/six storey L-shaped block fronting Charlotte Street to the north east along with a single-storey garage building to the rear fronting Tottenham Mews to the south west.

The daylight and sunlight levels in the baseline condition are shown in the results tables in Appendix B under the 'Existing' column headings.

It is against this baseline condition that the effects of the proposed development have been assessed.

8.0 EFFECTS OF PROPOSED DEVELOPMENT ON NEIGHBOURING PROPERTIES

8.1 Daylight – VSC and NSL

The results of the VSC and NSL analysis are tabulated in Appendix B and summarised in Table 4 and Table 5 below.

Table 4 - Number of rooms experiencing VSC effects as a result of the proposed development

Address	Total number of rooms tested	Number of rooms meeting VSC guidelines	Number of rooms with impacts beyond VSC guidelines
73-75 Charlotte Street	7	7	0
81 Charlotte Street	8	8	0
Total	15	15	0

Table 4 shows that all 15 (100%) of the rooms assessed will satisfy the BRE guidelines for VSC.

Table 5 - Number of rooms experiencing NSL effects as a result of the proposed development

Address	Total number of rooms tested	Number of rooms meeting NSL guidelines	Number of rooms with impacts beyond NSL guidelines
73-75 Charlotte Street	7	7	0
81 Charlotte Street	8	7	1
Total	**15**	**14**	**1**

Table 5 shows that 14 of a total 15 rooms assessed will satisfy the BRE guidelines for NSL (daylight distribution).

Overall the proposed scheme will have a negligible impact on daylight to the neighbouring residential properties. The single NSL minor-adverse impact is isolated to the second-floor bedroom within 81 Charlotte Street and the result remains within 25% of the existing baseline condition. This room retains levels of visible sky to more than 63.5% of the room area which can be termed as being very good and consistent for levels within an urban location. As detailed in the Assessment Methodology the BRE regard bedrooms as less important for daylight due to the nature of the room use mainly during the night therefore a proposed level of 63.5% distribution of daylight can be termed as being very well lit in all outcomes.

8.2 Daylight – ADF

The results of the ADF analysis are tabulated in Appendix B and summarised in Table 6 below.

Table 6 - Number of rooms experiencing ADF effects as a result of the proposed development

Address	Total number of rooms tested	Number of rooms meeting ADF guidelines	Number of rooms with impacts beyond ADF guidelines
73-75 Charlotte Street	7	7	0
81 Charlotte Street	8	9	0
Total	**15**	**15**	**0**

Table 6 shows that all 15 (100%) of the rooms assessed will fully comply with the BRE guidelines for ADF.

Overall therefore the daylight analysis illustrates that the quality, quantity and distribution of light, excluding the single negligible NSL transgression, will remain fully BRE compliant in daylight terms.

8.3   Sunlight – APSH

The results of the annual and winter sunlight analyses are tabulated in Appendix C and summarised Table 7 below.

Table 7 - Number of rooms experiencing APSH effects as a result of the proposed development

Address	Total number of windows tested	Number of windows meeting APSH guidelines	Number of windows with impacts beyond APSH guidelines
73-75 Charlotte Street	1	1	0
81 Charlotte Street	2	2	0
Total	**3**	**3**	**0**

Table 7 shows that all (100%) of the windows and rooms assessed will satisfy the BRE guidelines for APSH.

Overall therefore the sunlight analysis illustrates that the neighbouring residential accommodation will remain fully BRE compliant in sunlight terms.

9.0 CONCLUSION

The site is in an urban location and is in close proximity to its neighbours immediately adjacent to the north and south of the site.

The proposed development is comprised of the refurbishment of the existing building as detailed within the approved planning application 2018/1716/P and being the erection of a four-storey rear extension and fifth floor roof extension.

We have assessed the potential effects of the proposed development on daylight and sunlight to surrounding residential properties using the methodology recommended in the BRE guidelines, *Site Layout Planning for Daylight and Sunlight: A guide to good practice (second edition, 2011)*. The assessment has been run in the existing baseline and proposed development conditions and the potential effects of the proposed development have been quantified.

The neighbouring daylight analysis illustrates that the quality, quantity and distribution of light, excluding the single negligible NSL transgression, will remain fully BRE compliant in daylight terms.

The single NSL minor-adverse impact is isolated to the second-floor bedroom within 81 Charlotte Street and the result remains within 25% of the existing baseline condition. This is a change of less than 2% to this single bedroom when compared to the granted planning application which has been approved.

This room retains levels of visible sky to more than 63.5% of the room area which can be termed as being very good and consistent for levels within an urban location. As detailed in the Assessment Methodology the BRE regard bedrooms as less important for daylight due to the nature of the room use mainly during the night therefore a proposed level of 63.5% distribution of daylight can be termed as being very well lit in all outcomes.

The neighbouring sunlight analysis illustrates that the neighbouring residential accommodation will remain fully BRE compliant in sunlight terms.

In conclusion, it is submitted that the layout of the proposed development recognises and observes the intentions of the London Borough of Camden council's local planning policy and the BRE guidelines in daylight and sunlight terms.

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APPENDIX A

LOCATION DRAWINGS

13491/LOC/DS/801

13491/LOC/805 – 806

13491/SPT/807

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EXISTING

PROPOSED

Existing
Proposed
Surrounding

SOURCE DATA

Drawings Used:
Existing and surrounding buildings:

- 73-75 Charlotte Street: Planning info,
Dwg's:
205_P20.11 - 17
205_P30.01 - 04
205_P40.01 - 02
Section AA - BB

- 81 Charlotte Street
Dwg's:(Archer Architects LLP)
5092_GAD_16 - 26

- Z map Model

Proposed Scheme:
CHMRP :(Received 16.05.2019)
3D model file name:
- 3170_77-79 Charlotte Street 3D
model-20190510

NOTES

All heights are measured in mm AOD.

SITE PLAN

REV | Description | Drawn | ChKd | Date

77 CHARLOTTE STREET,
LONDON, W1.

DRAWING:
EXISTING & PROPOSED SCENARIOS
3D View

Key Building Heights

DRAWN: VK | JOB NO:
SCALE: NTS | 13491
DATE: 17/05/2019
DWG NO: SPT/807 | REV: -

1: 81 Charlotte Street
See Dwg No's: LOC/805

2: 73-75 Charlotte Street
See Dwg No's: LOC/806

NO DIMENSIONS TO BE SCALED
FROM THIS DRAWING:

Site Boundary
Buildings Highlighted
Existing
Surrounding

SOURCE DATA

Drawings Used:
Existing and surrounding buildings:

- OS Tile

NOTES

Neighbouring properties considered for analysis.

TITLE:
77 CHARLOTTE STREET,
LONDON, W1.

DRAWING:
PROPERTY LOCATION PLAN
Plan View

Daylight & Sunlight Analysis

DRAWN: VK	JOB NO:
SCALE: 1:250@A3	13491
DATE: 17/05/2019	
DWG NO: LOC/DS/801	REV: -

SITE PLAN

View 1

View 2

View 3

View 4

Fourth W3 Fourth W2 Fourth W1

Second W2

Second W1

First W3

Ground W1

Fourth W4

Third W1   Third W2   Third W3

First W2   First W1

Ground W3 Ground W2

81 Charlotte Street - Key Window Locations

View 1

View 2

NO DIMENSIONS TO BE SCALED FROM THIS DRAWING:

| | Existing |
| | Surrounding |

W1/08 Window Tested Daylight only

W1/08 Window Tested Daylight & Sunlight

SOURCE DATA

Drawings Used:
Existing and surrounding buildings:

- 73-75 Charlotte Street: Planning info,
  Dwg's:
  205_P20.11 – 17
  205_P30.01 – 04
  205_P40.01 – 02
  Section AA - BB

- 81 Charlotte Street
  Dwg's:(Archer Architects LLP)
  5092_GAD_16 - 26

- Z map Model

NOTES

SITE PLAN

Third W2

Third W1

Second W4

Second W3

Second W2

First W4

Second W1

First W3

First W2

Ground W4

First W1

Ground W3

Ground W2

Ground W1

Fourth W3

Fourth W2

Third W3

Third W4
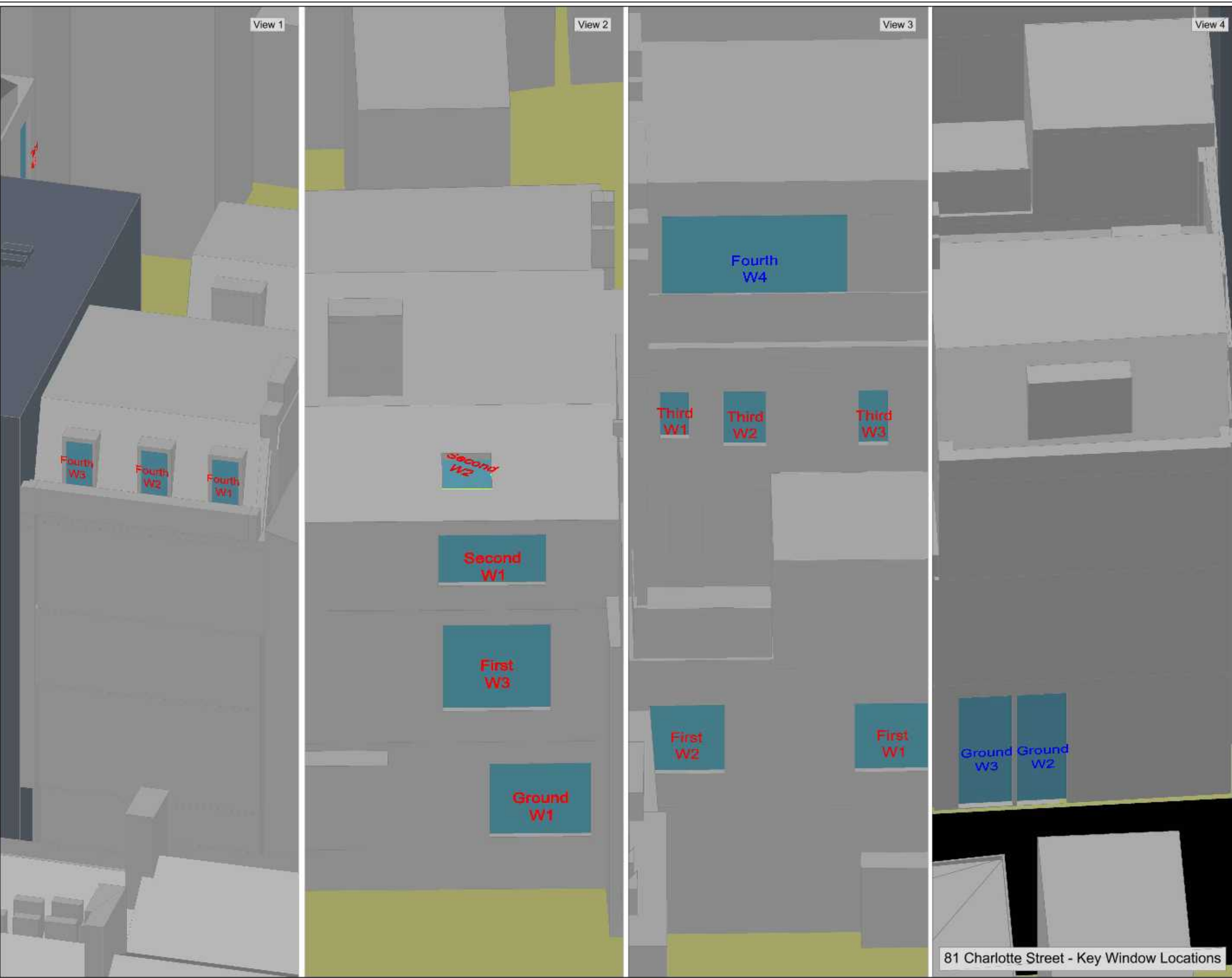
TITLE:
77 CHARLOTTE STREET,
LONDON, W1.

DRAWING:
KEY WINDOW LOCATIONS
3D View

73-75 Charlotte Street

Daylight & Sunlight Analysis

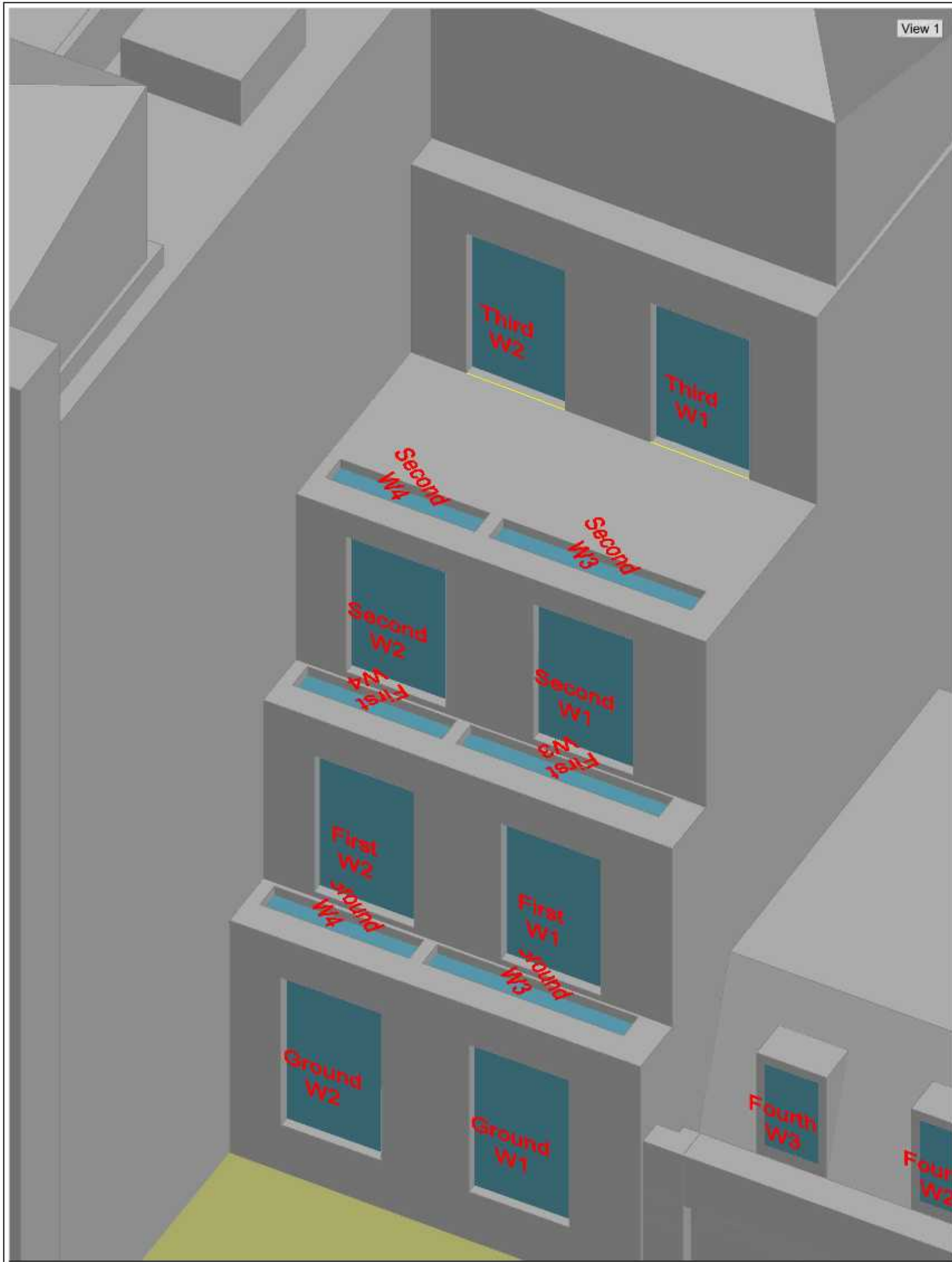| REV: | Description | Drawn | Chkd | Date |

DRAWN:	VK	JOB NO:	13491
SCALE:	NTS		
DATE:	17/05/2019		

73-75 Charlotte Street - Key Window Locations

| DWG NO: | LOC/806 | REV: - |

Job No: 13491
Existing V's Proposed Summary Analysis

Daylight Sunlight Summary Report: 77 Charlotte Street, London, W1.
Testing: 73-75 Charlotte Street and 81 Charlotte Street.

16/05/2019

Address	Floor Level	Room Name	Window ID	VSC Existing	VSC Proposed	Window %age Diff	Mean Window %age Diff	Room %age Diff	DD Existing	DD Proposed	DD %age Diff	ADF Existing	ADF Proposed	ADF %age Diff	APSH Existing	APSH Proposed	%age Diff	Winter Existing	Winter Proposed	&age Diff
73_75 Charlotte Street	Ground	Bedroom/R1	W1	0.16	0.16	-1.49%	-4.63%	-3.11%	0.00%	0.00%	0.00%	0.27%	0.26%	-1.36%	N/A	N/A	N/A	N/A	N/A	N/A
			W3	4.48	4.27	-4.74%														
		Bedroom/R2	W2	0.16	0.15	-5.75%	-9.80%	-7.85%	0.00%	0.00%	0.00%	0.19%	0.19%	-2.85%	N/A	N/A	N/A	N/A	N/A	N/A
			W4	4.44	4.00	-9.95%														
	First	Bedroom/R1	W1	0.41	0.39	-5.14%	-5.00%	-5.06%	0.00%	0.00%	0.00%	0.25%	0.25%	-2.05%	N/A	N/A	N/A	N/A	N/A	N/A
			W3	8.17	7.76	-4.99%														
		Bedroom/R2	W2	0.41	0.37	-10.60%	-10.25%	-10.42%	0.00%	0.00%	0.00%	0.25%	0.24%	-4.78%	N/A	N/A	N/A	N/A	N/A	N/A
			W4	7.97	7.16	-10.23%														
	Second	Bedroom/R1	W1	1.29	1.19	-7.34%	-24.64%	-15.99%	23.85%	23.84%	-0.04%	0.80%	0.67%	-16.44%	N/A	N/A	N/A	N/A	N/A	N/A
			W3	35.54	26.78	-24.64%														
		Bedroom/R2	W2	1.29	1.11	-13.81%	-12.39%	-13.07%	30.27%	29.62%	-2.17%	0.74%	0.66%	-10.59%	N/A	N/A	N/A	N/A	N/A	N/A
			W4	27.88	24.44	-12.33%														
	Third	Living room/R1	W1	8.00	6.72	-16.05%	-10.95%	-11.22%	84.46%	82.54%	-2.28%	2.61%	2.49%	-4.62%	N/A	N/A	N/A	N/A	N/A	N/A
			W2	7.20	6.25	-13.17%									N/A	N/A	N/A	N/A	N/A	N/A
			W3	30.99	26.14	-15.66%									N/A	N/A	N/A	N/A	N/A	N/A
			W4	18.54	18.54	0.00%									31	31	0.00%	9	9	0.00%
81 Charlotte Street	Ground	Living room/R1	W1	0.31	0.30	-4.52%	-0.04%	-1.51%	54.65%	54.65%	0.00%	1.43%	1.43%	0.00%	N/A	N/A	N/A	N/A	N/A	N/A
			W2	16.20	16.20	0.00%									23	23	0.00%	2	2	0.00%
			W3	16.57	16.57	0.00%									23	23	0.00%	2	2	0.00%
	First	Bedroom/R1	W2	3.41	2.86	-16.14%	-16.14%	-16.14%	19.34%	19.33%	-0.02%	0.63%	0.56%	-11.07%	N/A	N/A	N/A	N/A	N/A	N/A
		Bedroom/R2	W1	3.89	3.27	-11.41%	-11.41%	-11.41%	25.56%	23.04%	-9.86%	0.77%	0.71%	-7.73%	N/A	N/A	N/A	N/A	N/A	N/A
		Bedroom/R3	W3	1.29	1.23	-4.47%	-4.47%	-4.47%	9.96%	9.96%	-0.02%	0.39%	0.37%	-3.89%	N/A	N/A	N/A	N/A	N/A	N/A
	Second	Bedroom/R1	W1	5.59	5.32	-4.77%	-10.60%	-7.94%	84.80%	63.57%	-25.03%	1.50%	1.39%	-7.50%	N/A	N/A	N/A	N/A	N/A	N/A
			W2	63.96	56.86	-11.11%														
	Third	Bedroom/R1	W1	23.76	23.28	-2.02%	-2.05%	-2.05%	96.94%	96.75%	-0.20%	1.27%	1.26%	-0.91%	N/A	N/A	N/A	N/A	N/A	N/A
			W2	26.84	26.28	-2.07%														
		Bedroom/R2	W3	23.06	22.59	-2.01%	-2.01%	-2.01%	85.29%	84.87%	-0.49%	0.73%	0.72%	-1.20%	N/A	N/A	N/A	N/A	N/A	N/A
	Fourth	Living room/R1	W1	34.64	34.63	-0.05%	-1.98%	-2.50%	94.74%	94.74%	0.00%	3.33%	3.19%	-4.12%	N/A	N/A	N/A	N/A	N/A	N/A
			W2	34.63	34.60	-0.10%									N/A	N/A	N/A	N/A	N/A	N/A
			W3	32.96	32.90	-0.18%									N/A	N/A	N/A	N/A	N/A	N/A
			W4	24.83	22.43	-9.65%									49	39	-20.41%	12	5	-58.33%

Red Text Cells do not meet the BRE recommendations
Positive %age figures indicate an improvement
in the natural lighting conditions

See Dwg No: LOC_805-806