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77-79 CHARLOTTE STREET

LONDON W1

DAYLIGHT & SUNLIGHT STUDY

Ref: SG/sg/13491
Date: February 2015

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INTRODUCTION

Delva Patman Redler LLP have been instructed by Charlotte Street Property Ltd to prepare a daylight and sunlight study to assess the likely impact of the proposed redevelopment of the 77-79 Charlotte Street site on neighbouring residential amenity in and around the site.

This study has been carried out in accordance with the recommendations of the Building Research Establishment Report "Site Layout Planning for Daylight & Sunlight 2011" (BRE209).

The template drawings, which are attached, illustrate the results for the daylight and sunlight assessments and identify the drawings used in these studies.

THE PROPOSAL

The development proposals include the remodelling of the main Charlotte Street building with the addition of a roof top extension and the addition of three stories to the mews site fronting Tottenham Mews.

POLICY / GUIDELINES

This study has been carried out in accordance with the recommendations of the Building Research Establishment report "Site Layout Planning for Daylight & Sunlight 2011". This is the standard referred to in the London Borough of Camden Planning Policy by which daylight and sunlight should be assessed.

The BRE 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 certain circumstances the developer or planning authority may wish to use alternative target values.

Whilst technical analysis can be carried out in accordance with numerical guidelines and reported factually by comparison with those guidelines, the final assessment as to whether affected dwellings are left with acceptable amounts of daylight and sunlight in an inner city context where the findings are to be interpreted in a flexible manner is a matter of subjective opinion.

METHODOLOGY

The Daylight and Sunlight assessments have been undertaken in accordance with the Building Research Establishment (BRE) guidelines "Site Layout Planning for Daylight & Sunlight. A Guide to Good Practice".

The BRE Report advises that daylight levels should be assessed for the main habitable rooms of neighbouring residential properties. Habitable rooms in residential properties are defined as kitchens, living rooms and dining rooms. Bedrooms are less important as they are mainly occupied at night time. The report also makes reference to other property types, which may be regarded as 'sensitive receptors' such as schools, hospitals, hotels and hostels, small workshops and most offices.

Daylight

The BRE Guide states that:

> *"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^{o}, then a more detailed check is needed to find the loss of skylight to the existing buildings."*

The BRE guidelines propose several methods for calculating daylight.

The two main methods predominantly used are those involving the measurement of the total amount of skylight available (the vertical sky component (VSC)) and its distribution within the building (the No-Sky line or daylight distribution).

The VSC calculation is a general test of potential for daylight to a building, measuring the light available on the outside plane of windows.

The "No-Sky" Line divides those areas of the working plane which can receive direct skylight, from those which cannot. It provides an indication of how good the daylight distribution is within a room.

The third recognised method of assessment for daylight is the Average Daylight Factor (ADF) calculation which assesses the quality and distribution of light within a room served by a window and takes into account the VSC value, the size and number of the windows and room and the use to which the room is put. ADF assesses actual light distribution within a defined room area whereas the VSC considers potential light. British Standard 8206, Code of Practice for Daylighting recommends ADF values of 1% in bedrooms, 1.5% in living rooms and 2% in kitchens. For other uses, where it is expected that supplementary electric lighting will be used throughout the daytime, such as in offices, the ADF value should be 2%. There is no general requirement within the BRE guidelines to assess ADF values, other than for neighbouring residential buildings.

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

Sunlight

The BRE have produced sunlight templates for London, Manchester and Edinburgh indicating the Annual Probable Sunlight Hours (APSH) for these regions. The London template has been selected for this study as the London indicator template is the closest of the three available from BRE in terms of latitude.

Sunlight analysis is undertaken by measuring annual probable sunlight hours (APSH) for the main windows of rooms which face within 90^{o} of due south. The maximum number of annual probable sunlight hours for the London orientation is 1,486 hours. The BRE guidelines propose that the appropriate date for undertaking a sunlight assessment is on 21st March, being the spring equinox. Calculations of both summer and winter availability are made with the winter analysis covering the period from the 21st September to 21st March. For residential accommodation, the main requirement for sunlight is in living rooms and it is regarded as less important in bedrooms and kitchens.

Due to orientation and room use not all windows assessed for daylight strictly qualify for sunlight assessment in accordance with BRE Guidance.

SOURCE DATA

The studies have been undertaken by calculating the daylight & sunlight based on the template drawings provided within the BRE guidelines. The study was undertaken with plan drawings derived from:

- Existing and Surrounding buildings:
  73-75 Charlotte Street Planning Drawings: Dwg No's: 205_P20.11=17, P30.01-04, P40.01-02 & Section AA-BB;
- ZMapping 3D Model
- Proposed Scheme: Cove Burgess Architects: Dwg No's: 3D Model received on 23rd January 2015 – 150106_Charlotte St.

The layouts adopted have been taken from planning archive drawings. Access has not been obtained into any of the neighbouring properties to verify the internal layouts.

SIGNIFICANCE CRITERIA

The guidance given by BRE has been used as a basis for the criteria to assess the Development's potential effects.

In describing the significance criteria as set out below, it should be noted that they have been developed to protect residential properties, which are the most sensitive receptors.

TABLE 1: BRE DAYLIGHT GUIDANCE USED IN THE ASSESSMENT

Issue	Criteria
Neighbouring Daylight	A window may be affected if the vertical sky component **(VSC)** measured at the centre of the window is less than 27% and less than 0.8 times its former value.
	A room may be affected if the area of the working plane in a room which can receive direct skylight (No Sky Line) is reduced to less than 0.8 times its former value
	A room may be adversely affected if the average daylight factor **(ADF)** is less than 1% for a bedroom, 1.5% for a living room or 2% for a kitchen.
Neighbouring Sunlight	A window may be adversely affected if a point at the centre of the window receives in the year less than 25% of the annual probable sunlight hours including at least 5% of the annual probable sunlight hours (APSH) during the winter months (21 September to 21 March) and less than 0.8 times its former sunlight hours during either period.

BASELINE CONDITIONS

An analysis of the impact of the existing buildings (the baseline conditions) against which to compare any potential impact arising from the development has been undertaken based on Drawing 14456/SPT/800 in Appendix A.

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

The windows which have been tested are shown on Drawing 13491/LOC/801 - 802 in Appendix A. This can be seen from the technical results, both in graphical and tabular form in the Technical Appendices A - B.

An analysis of the existing daylight and sunlight levels enjoyed by the neighbouring residential amenity has been undertaken in order to provide a baseline against which the impacts arising from the proposed development can be assessed.

RESULTS – COMPLETED DEVELOPMENT

NEIGHBOURING DAYLIGHT – VSC

The full results of the daylight analysis are presented in Appendix B in tabular form. A summary of the results of the Vertical Sky Component (VSC) analysis on the relevant overlooking windows are presented in the Table 2 below. This identifies where habitable rooms are left with adequate light.

TABLE 2: NUMBER OF ROOMS EXPERIENCING DAYLIGHT IMPACTS AS A RESULT OF THE DEVELOPMENT (VSC METHOD)

Address	Total Number of Rooms Tested	Number of Rooms Meeting BRE Guidelines for VSC	Number of Rooms Experiencing Adverse Impacts
81 Charlotte Street	**8**	**8**	**0**
73-75 Charlotte Street	**7**	**7**	**0**
Total	**15**	**15**	**0**

Table 2 shows that all 15 neighbouring rooms assessed will fully comply with BRE Guidance for daylight in VSC terms.

NEIGHBOURING DAYLIGHT – NO SKY LINE (NSL)

The full results of the daylight analysis are presented in Appendix B in tabular form. A summary of the results of the No Sky Line (NSL) analysis on the relevant overlooking windows are presented in the Table 3 below. This identifies where habitable rooms/windows are left with adequate light.

TABLE 3: NUMBER OF ROOMS EXPERIENCING DAYLIGHT IMPACTS AS A RESULT OF THE DEVELOPMENT (NSL METHOD)

Address	Total Number of Rooms Tested	Number of Rooms Meeting BRE Guidelines for NSL	Number of Rooms Experiencing Adverse Impacts
81 Charlotte Street	**8**	**8**	**0**
73-75 Charlotte Street	**7**	**7**	**0**
Total	**15**	**15**	**0**

Table 3 shows that all 15 neighbouring rooms assessed will fully comply with BRE Guidance for daylight in No Sky Line terms.

NEIGHBOURING DAYLIGHT – AVERAGE DAYLIGHT FACTOR (ADF)

The full results of the daylight analysis are presented in Appendix B in tabular form. A summary of the results of the Average Daylight Factor (ADF) analysis on the relevant overlooking windows are presented in the Table 4 below. This identifies where habitable rooms/windows are left with adequate light.

TABLE 4: NUMBER OF ROOMS EXPERIENCING DAYLIGHT IMPACTS AS A RESULT OF THE DEVELOPMENT (ADF METHOD)

Address	Total Number of Rooms Tested	Number of Rooms Meeting BRE Guidelines for ADF	Number of Rooms Experiencing Adverse Impacts
81 Charlotte Street	**8**	**8**	**0**
73-75 Charlotte Street	**7**	**7**	**0**
Total	**15**	**15**	**0**

Table 4 shows that all 15 neighbouring rooms assessed will fully comply with BRE Guidance for daylight in ADF terms.

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

SUNLIGHT – APSH

The full results of the sunlight analysis are presented in Appendix **C** in tabular form. A summary of the results of the Annual Probable Sunlight Hours (APSH) analysis on the relevant overlooking windows are presented in the Table 5 below. This identifies where habitable rooms are left with adequate light.

TABLE 5: NUMBER OF WINDOWS EXPERIENCING SUNLIGHT IMPACTS AS A RESULT OF THE DEVELOPMENT (APSH METHOD)

Address	Total Number of Windows Tested	Windows Meeting BRE Guidelines for APSH	Number of Windows Experiencing Minor Adverse Impacts
81 Charlotte Street	**2**	**2**	**0**
73-75 Charlotte Street	**1**	**1**	**0**
Total	**3**	**3**	**0**

Table 5 shows that all 3 neighbouring rooms assessed will fully comply with BRE Guidance for sunlight in APSH terms.

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

CONCLUSIONS

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

To assess the potential impact of the Development on daylight on neighbouring properties a baseline assessment was undertaken. The methods of assessment used were the Vertical Sky Component (VSC), No Sky Line (NSL) and Average Daylight Factor (ADF) for daylight and Annual Probable Sunlight Hours (APSH) for sunlight.

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

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

The scheme proposals therefore fully recognise and observe the intentions BRE Guidance 209 and will also therefore fully address the requirements of the London Borough of Camden Planning Policy in daylight and sunlight terms.

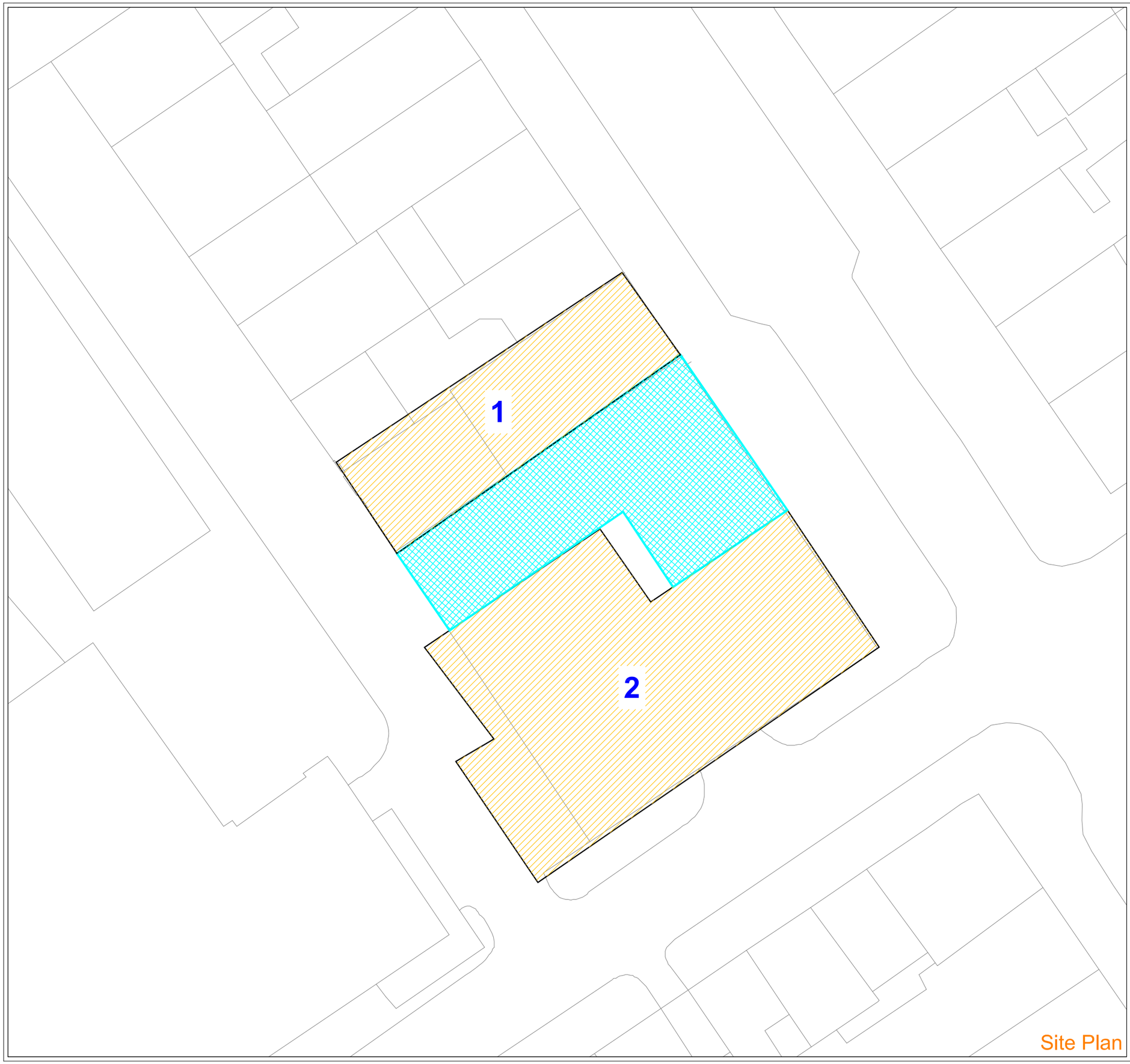
Delva Patman Redler LLP

APPENDIX A

LOCATION DRAWINGS

13491/LOC/800 - 802

13491/SPT/800



1: 81 Charlotte Street
See Dwg No's: LOC/801

2: 73-75 Charlotte Street
See Dwg No's: LOC/802

N
Indicative

NO DIMENSIONS TO BE SCALED FROM THIS DRAWING:

Site Boundary

Buildings Highlighted

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

- Z map Model

Proposed Scheme:
Cove Burgess Architects:
Model: - 150106_CharlotteSt (Received23.01.2015)

NOTES

Neighbouring properties considered for analysis.

Site Plan

REV	Description	Drawn	Ch'kd	Date

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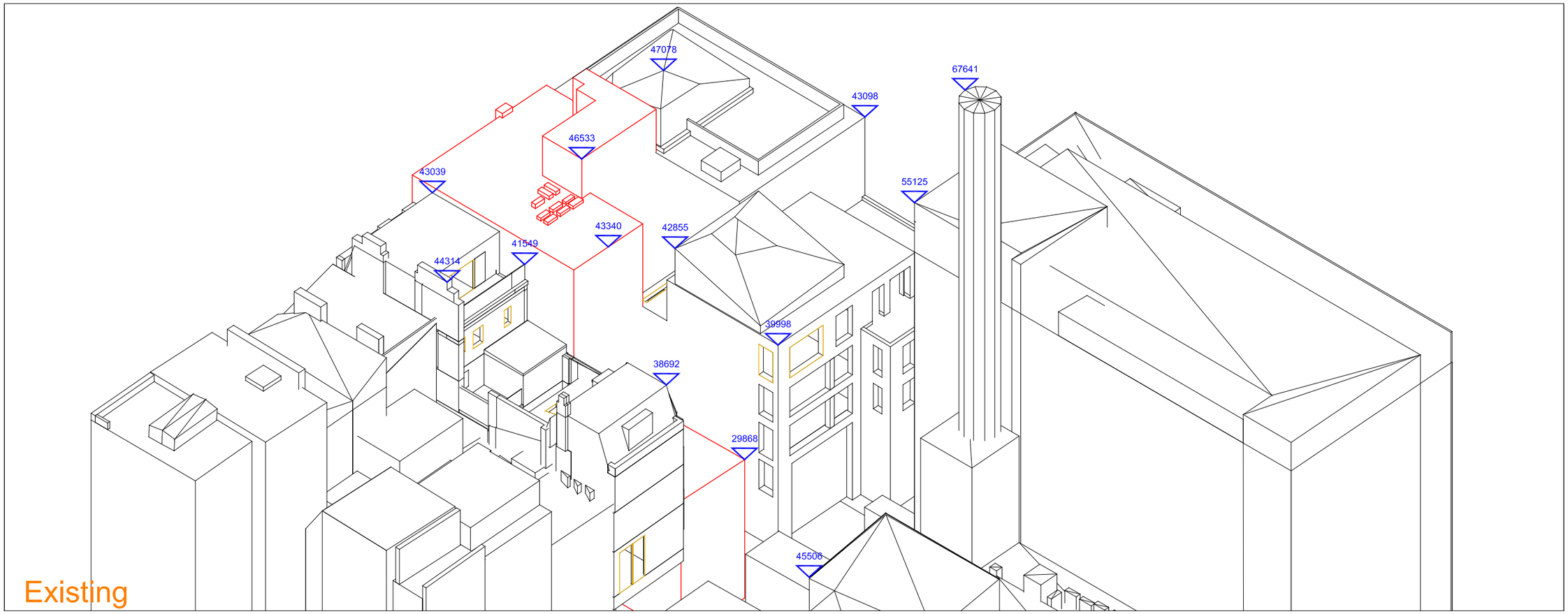
TITLE:
77-79 CHARLOTTE STREET
LONDON, W1.
-
-
DAYLIGHT / SUNLIGHT ANALYSIS

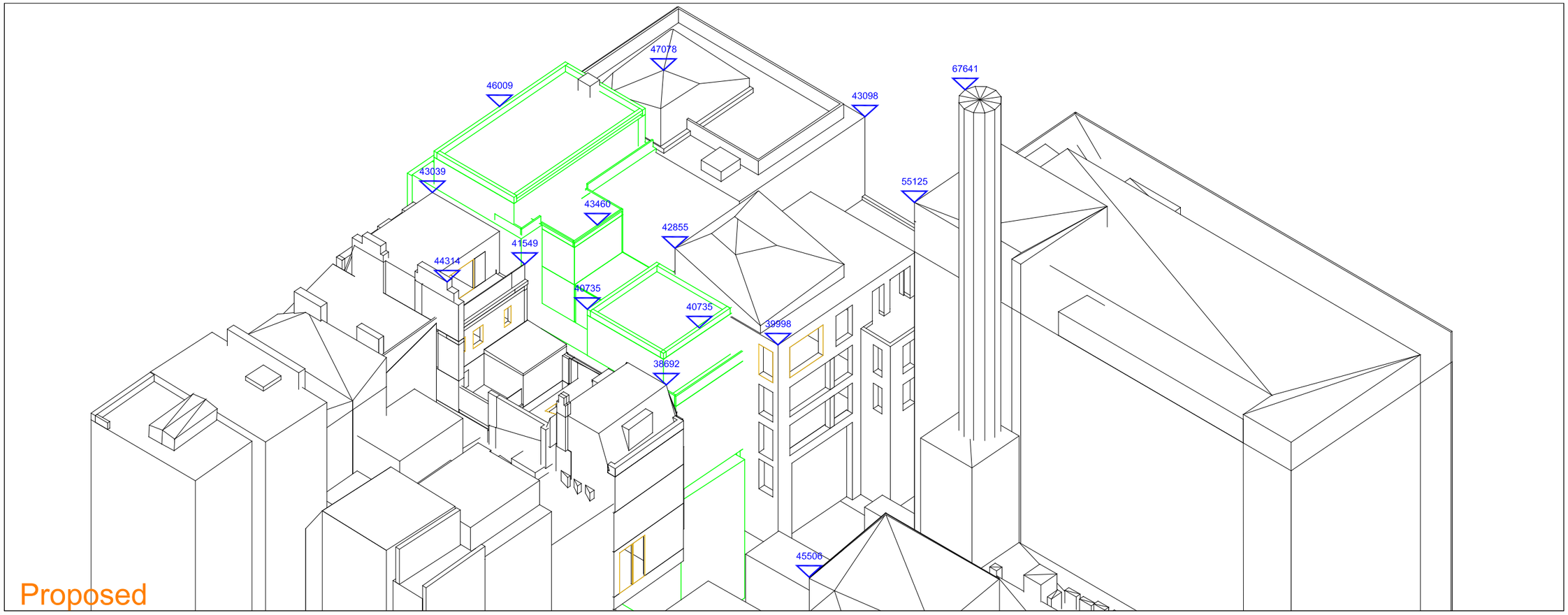
DRAWING:
77-79 Charlotte Street
Daylight / Sunlight Analysis
Existing & Proposed Schemes
-
-
-
-

DRAWN: VK	JOB NO: 13491
SCALE: 1:250@A3	
DATE: 02/02/2015	

DWG NO:	REV:
LOC/800	-



Existing



Proposed

NO DIMENSIONS TO BE SCALED FROM THIS DRAWING:

Existing
Surrounding
Proposed
Buildings Highlighted

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

- Z map Model

Proposed Scheme:
Cove Burgess Architects:
Model: - 150106_CharlotteSt (Received23.01.2015)

NOTES

All heights are measured in mm AOD.

Site Plan

REV	Description	Drawn	Ch'kd	Date

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TITLE:
77-79 CHARLOTTE STREET
LONDON, W1.
-
-
DAYLIGHT / SUNLIGHT ANALYSIS

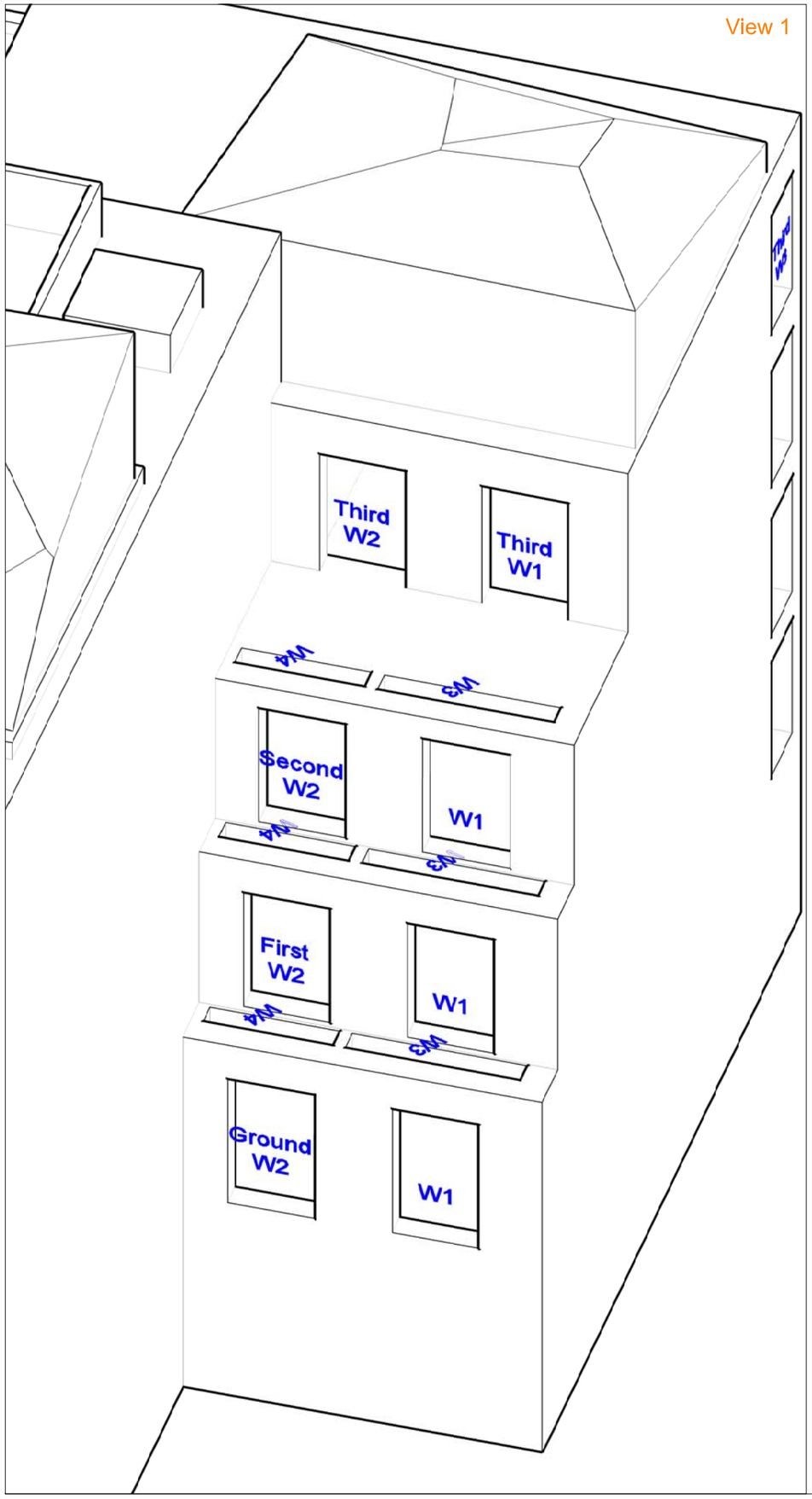
DRAWING:
77-79 Charlotte Street
Daylight / Sunlight Analysis
Key Building Heights
Existing & Proposed Schemes
-
-
-

DRAWN: VK	JOB NO: 13491
SCALE: NTS	
DATE: 02/02/2015	

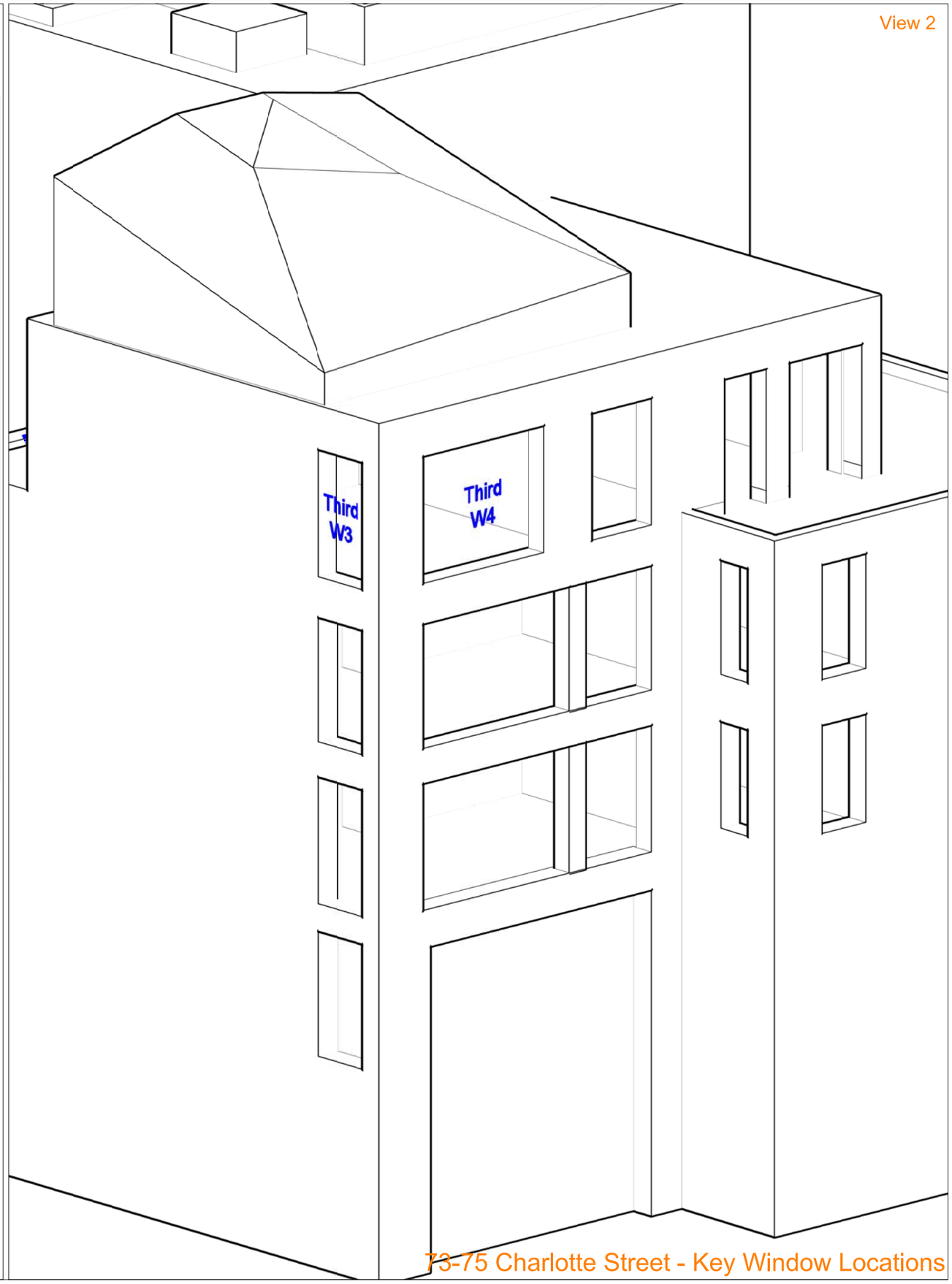
DWG NO: SPT/800

REV: -

View 1



View 2



73-75 Charlotte Street - Key Window Locations

NO DIMENSIONS TO BE SCALED FROM THIS DRAWING:

Indicative

Existing
Proposed
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

- Z map Model

Proposed Scheme:
Cove Burgess Architects:
Model: - 150106_CharlotteSt (Received23.01.2015)

NOTES

Site Plan

REV	Description	Drawn	Ch'kd	Date

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TITLE:
77-79 CHARLOTTE STREET
LONDON, W1.
-
-
DAYLIGHT / SUNLIGHT ANALYSIS

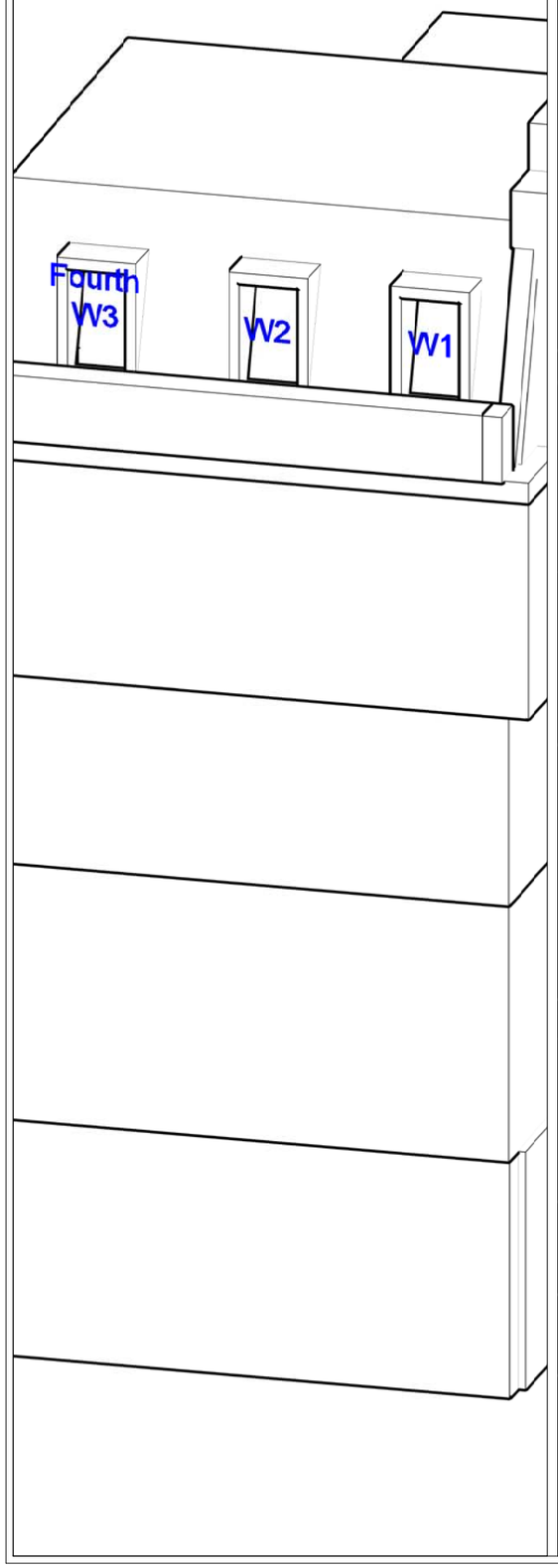
DRAWING:
73-75 Charlotte Street
Daylight / Sunlight Analysis
Key Window Locations
-
-
-
-

DRAWN: VK	JOB NO: 13491
SCALE: NTS	
DATE: 02/02/2015	

DWG NO: LOC/802

REV: -

View 1



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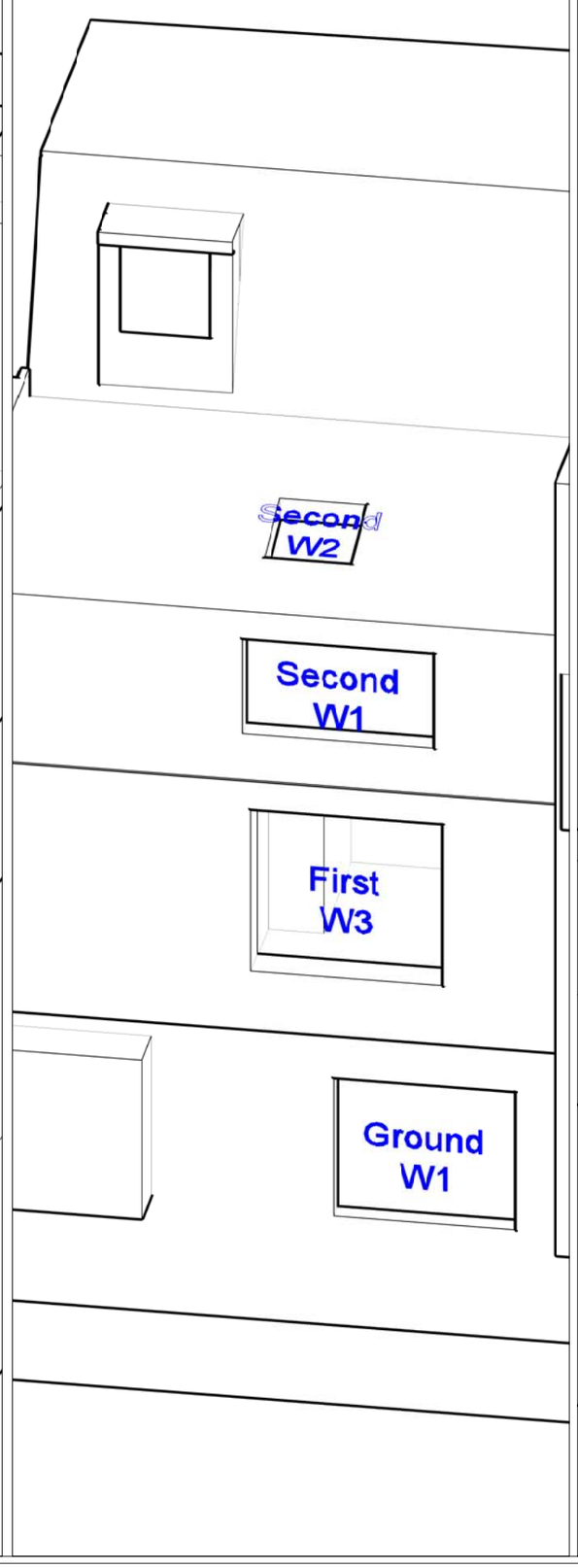
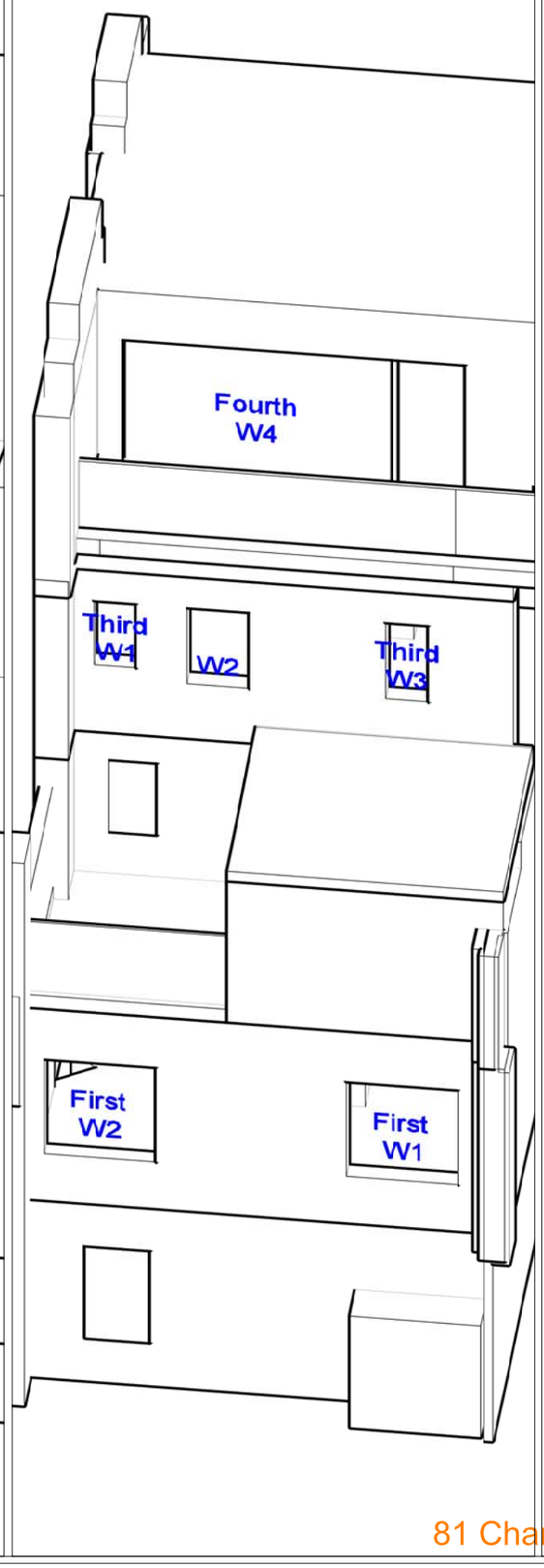


View 3



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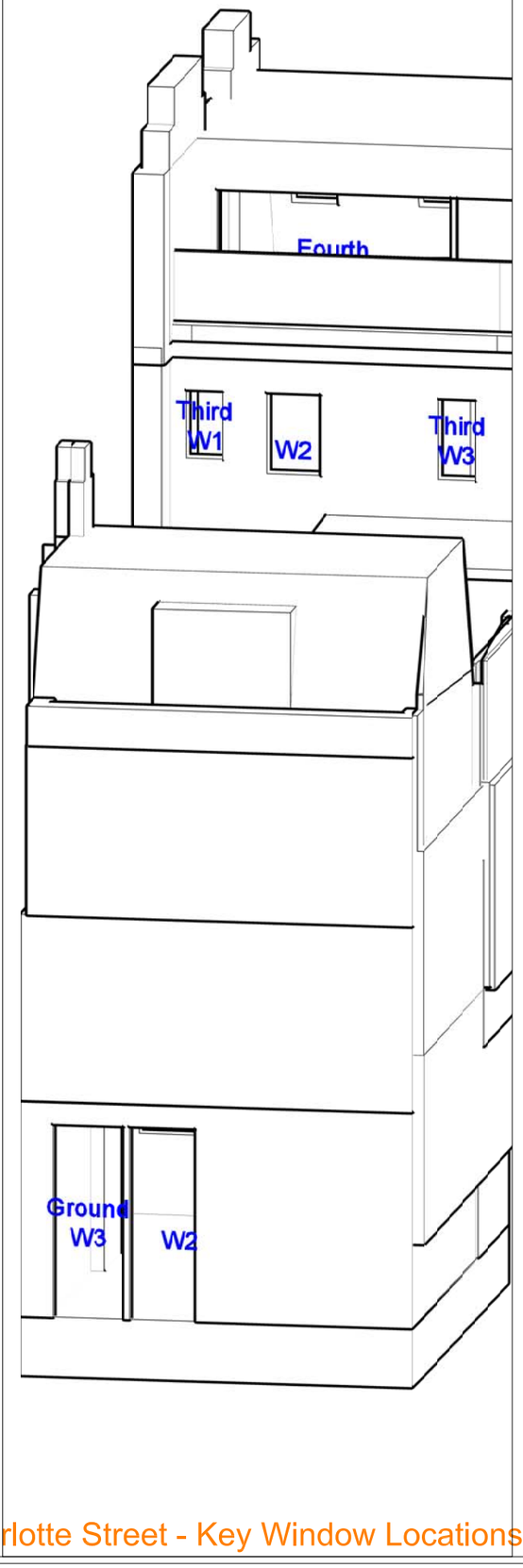

N
Indicative

NO DIMENSIONS TO BE SCALED FROM THIS DRAWING:

Existing
Proposed
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

- Z map Model

Proposed Scheme:
Cove Burgess Architects:
Model: - 150106_CharlotteSt (Received23.01.2015)

NOTES

Site Plan

REV	Description	Drawn	Ch'kd	Date

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TITLE:
77-79 CHARLOTTE STREET
LONDON, W1.
-
-
DAYLIGHT / SUNLIGHT ANALYSIS

DRAWING:
81 Charlotte Street
Daylight / Sunlight Analysis
Key Window Locations
-
-
-
-

DRAWN:	VK	JOB NO:	13491
SCALE:	NTS		
DATE:	02/02/2015		
DWG NO:	LOC/801	REV:	-

81 Charlotte Street - Key Window Locations

APPENDIX B

DAYLIGHT & SUNLIGHT TABLES

Daylight and Sunlight Summary Report: 77-79 Charlotte Street
Testing: 73-75 Charlotte Street and 81 Charlotte Street

				VSC				Daylight Distribution			ADF			APSH					
Address	Floor Level	Room Name	Window ID	Existing	Proposed	Window %age Diff	Room %age Diff	Existing	Proposed	%age Diff	Existing	Proposed	%age Diff	APSH Existing	APSH Proposed	%age Diff	Winter Existing	Winter Proposed	&age Diff
73_75 Charlotte Street	Ground	Bedroom/R1	W1	0.07	0.13	79.47%	54.04%	0.00%	0.00%	N/A	0.09%	0.13%	46.90%	NA	NA	NA	NA	NA	NA
			W3	0.40	0.52	28.61%													
		Bedroom/R2	W2	0.07	0.12	77.62%	66.79%	0.00%	0.00%	N/A	0.04%	0.07%	86.83%	NA	NA	NA	NA	NA	NA
			W4	0.10	0.16	55.95%													
	First	Bedroom/R1	W1	0.37	0.54	47.31%	42.96%	0.00%	0.98%	N/A	0.21%	0.29%	38.05%	NA	NA	NA	NA	NA	NA
			W3	1.13	1.57	38.61%													
		Bedroom/R2	W2	0.36	0.55	50.40%	59.16%	0.00%	0.23%	N/A	0.16%	0.25%	52.56%	NA	NA	NA	NA	NA	NA
			W4	0.38	0.64	67.91%													
	Second	Bedroom/R1	W1	1.21	1.86	54.22%	40.99%	25.33%	30.83%	21.69%	0.62%	0.80%	29.25%	NA	NA	NA	NA	NA	NA
			W3	3.39	4.33	27.76%													
		Bedroom/R2	W2	1.21	1.90	57.54%	54.76%	31.82%	34.80%	9.35%	0.56%	0.81%	42.83%	NA	NA	NA	NA	NA	NA
			W4	1.24	1.88	51.98%													
	Third	Living room/R1	W1	7.75	9.12	17.63%	7.83%	86.52%	87.64%	1.30%	4.48%	4.51%	0.71%	0	0	N/A	0	0	N/A
			W2	6.95	8.68	24.82%								0	0	N/A	0	0	N/A
			W3	32.51	28.89	-11.13%								5	5	0.00%	0	0	N/A
			W4	18.74	18.74	0.00%								25	25	0.00%	7	7	0.00%
81 Charlotte Street	Ground	Living room/R1	W1	0.32	0.38	19.03%	6.34%	65.89%	65.89%	0.00%	2.49%	2.50%	0.58%	0	0	N/A	0	0	N/A
			W2	16.51	16.51	0.00%								17	17	0.00%	1	1	0.00%
			W3	16.86	16.86	0.00%								17	17	0.00%	0	0	N/A
	First	Bedroom/R1	W2	3.38	2.99	-11.54%	-11.54%	23.23%	23.21%	-0.08%	1.02%	0.94%	-7.55%	NA	NA	NA	NA	NA	NA
		Bedroom/R2	W1	3.66	3.36	-8.37%	-8.37%	26.88%	24.29%	-9.61%	1.25%	1.18%	-5.27%	NA	NA	NA	NA	NA	NA
		Bedroom/R3	W3	1.26	1.44	13.93%	13.93%	12.30%	12.30%	0.00%	0.72%	0.80%	11.59%	NA	NA	NA	NA	NA	NA
	Second	Bedroom/R1	W1	5.53	6.01	8.76%	6.60%	86.55%	75.41%	-12.87%	1.52%	1.58%	3.71%	NA	NA	NA	NA	NA	NA
			W2	12.15	12.69	4.44%													
	Third	Bedroom/R1	W1	24.25	25.14	3.65%	4.85%	97.64%	97.64%	0.00%	2.22%	2.31%	3.74%	NA	NA	NA	NA	NA	NA
			W2	27.29	28.94	6.05%													
		Bedroom/R2	W3	23.66	28.17	19.05%	19.05%	87.98%	93.23%	5.97%	1.30%	1.47%	12.94%	NA	NA	NA	NA	NA	NA
	Fourth	Living room/R1	W1	39.53	39.45	-0.20%	-0.46%	95.09%	95.09%	0.00%	6.04%	6.04%	0.10%	13	13	0.00%	0	0	N/A
			W2	39.31	39.06	-0.63%								13	13	0.00%	0	0	N/A
			W3	36.94	35.79	-3.11%								11	9	-18.18%	0	0	N/A
			W4	24.77	25.29	2.11%								43	44	2.33%	12	13	8.33%

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

See Dwg No: LOC 800 - 802