17 Charterhouse Street
London EC1N 6RA

Daylight & Sunlight Study

August 2017

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17320/SPT/800

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1.0 INTRODUCTION

Delva Patman Redler LLP have been instructed by Anglo American (UK) Services Limited to prepare a daylight and sunlight study to assess the likely impact of the proposed redevelopment at Charterhouse Street by MCM Architects Ltd on the neighbouring amenity adjacent to 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.

2.0 THE PROPOSAL

The development proposals include the refurbishment of the existing building to rationalise the accommodation and the extension to the rear to include for 2 additional stories and an additional storey to the main building and associated roof top plant enclosure.

3.0 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 recognised standard against 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.

4.0 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 refers 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 considers 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 qualify for sunlight assessment in accordance with BRE Guidance.

5.0 ASSUMPTIONS MADE

- Access has not been sought into any of the neighbouring properties to identify configurations or uses. None of the neighbouring properties have been identified as in residential use from planning records and online searches.

- The two neighbouring properties considered are each Listed properties and so have been identified as sensitive receptors in amenity terms.

- St Andrews House is held within the same ownership as the development site and is primarily be used for staff accommodation and for short term accommodation lets where staff are travelling from abroad similar to hotel use in terms of accommodation. The use here is therefore highly transient and is therefore regarded as of less significance in daylight and sunlight terms and has been discounted for the purposes of this application.

- All layouts adopted are therefore subject to confirmation following access.
- Floor levels for the neighbouring property has been assumed from reasonable assumptions made.
- For ADF assessment purposes standard double glazing transmittance of 68% has been adopted and a standard internal reflectance value of 0.5 has been adopted assuming fairly light-coloured walls, floors and ceilings.

6.0 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
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 adversely affected if a significant area of the room is beyond the **No-Sky Line** and is 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. For offices a minimum figure of 2% is required.
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.

7.0 BASELINE CONDITIONS

An analysis of the impact of the existing building (the baseline conditions) against which to compare any potential impact arising from the development has been undertaken based on Drawing 17320/SPT/800 in Appendix A.

The site is in a dense urban location on Charterhouse Street with three to six storey properties along Ely Place, Bleeding Heart Yard and Safron Hill bounding the site to the west, north and east.

The findings from the technical assessments can be seen from the 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 to provide a baseline against which the impacts arising from the proposed development can be assessed.

8.0 RESULTS – COMPLETED DEVELOPMENT

None of the neighbouring properties have been identified to be in residential use but 25 and 30 Ely Place to the west have been identified as sensitive receptors due to their Listed status and have been considered for analysis.

For both daylight and where relevant sunlight as illustrated on site plan dwg no': 17320/LOC/DS/800/A and the window location drawings dwg no': 17320/LOC/801.

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 Impacts beyond BRE Guidance
25 Ely Place	4	4	0
30 Ely Place	5	5	0
Total	**9**	**9**	**0**

Table 2 shows that 3all neighbouring rooms considered within 25 & 30 Ely Place will fully and comfortably comply with the BRE Guidelines in Vertical Sky Component 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 Impacts beyond BRE Guidance
25 Ely Place	4	4	0
30 Ely Place	5	5	0
Total	**9**	**9**	**0**

Table 3 shows that all neighbouring rooms considered within 25 and 30 Ely Place will fully comply with the BRE Guidelines in Daylight Distribution 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 Impacts beyond BRE Guidance
25 Ely Place	4	4	0
30 Ely Place	5	5	0
Total	**9**	**9**	**0**

Table 4 shows that all neighbouring rooms considered within 25 and 30 Ely Place will fully and comfortably comply with the BRE Guidelines in ADF terms.

Overall therefore the daylight analysis illustrates that the scheme proposals will remain fully compliant in daylight terms when considering neighbouring amenity adjacent to the site.

NEIGHBOURING SUNLIGHT – APSH

Due to the orientation of the neighbouring building elevation in relation to the development site the face of the neighbouring building faces north of the east west line and therefore there is no requirement to consider the sunlight criteria in accordance with the BRE Guidelines.

9.0 CONCLUSIONS

The site is in a dense urban location on Charterhouse Street with three to six storey properties along Ely Place, Bleeding Heart Yard and Safron Hill bounding the site to the west, north and east.

To assess the potential impact of the Development on daylight and sunlight 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.

Overall the neighbouring daylight analysis illustrates that the scheme proposals will remain fully compliant in daylight terms when considering neighbouring amenity adjacent to the site.

As the face of the neighbouring building faces north of the east west line there is no requirement to consider the sunlight criteria in accordance with the BRE Guidelines.

Overall therefore, the scheme proposals by MCM Architects Limited will fully recognise and observe the intentions of Planning Policy and BRE Guidance 209 and will be fully acceptable in daylight and sunlight terms when considering neighbouring amenity.

Delva Patman Redler LLP

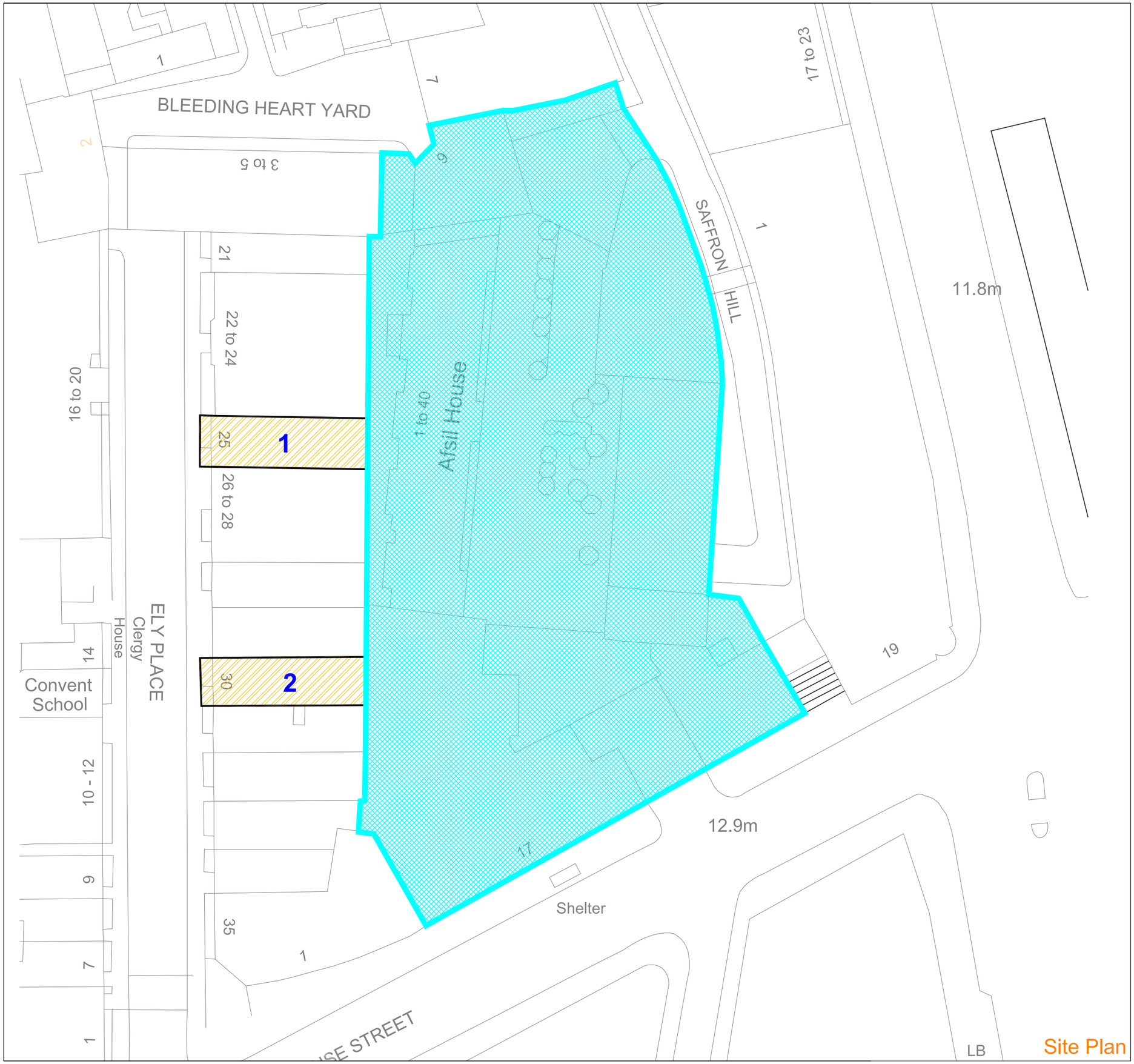
APPENDIX A

LOCATION DRAWINGS

17320/LOC/DS/800/A

17320/SPT/800

17320/LOC/801



1: 25 Ely Place
See Dwg No: LOC_801

2: 30 Ely Place
See Dwg No: LOC_801

NO DIMENSIONS TO BE SCALED FROM THIS DRAWING:

Site Boundary

Neighbouring Buildings Considered for Assessment

SOURCE DATA

Drawings Used:
OS Plan

NOTES

All relevant neighbouring properties considered for analysis.

Note that 25 and 30 Ely Place are Listed Buildings rather than in residential use.

Enter Hyperlink

REV	Description	Drawn	Ch'kd	Date
A	Site Boundary	VK	SG	08/08/2017

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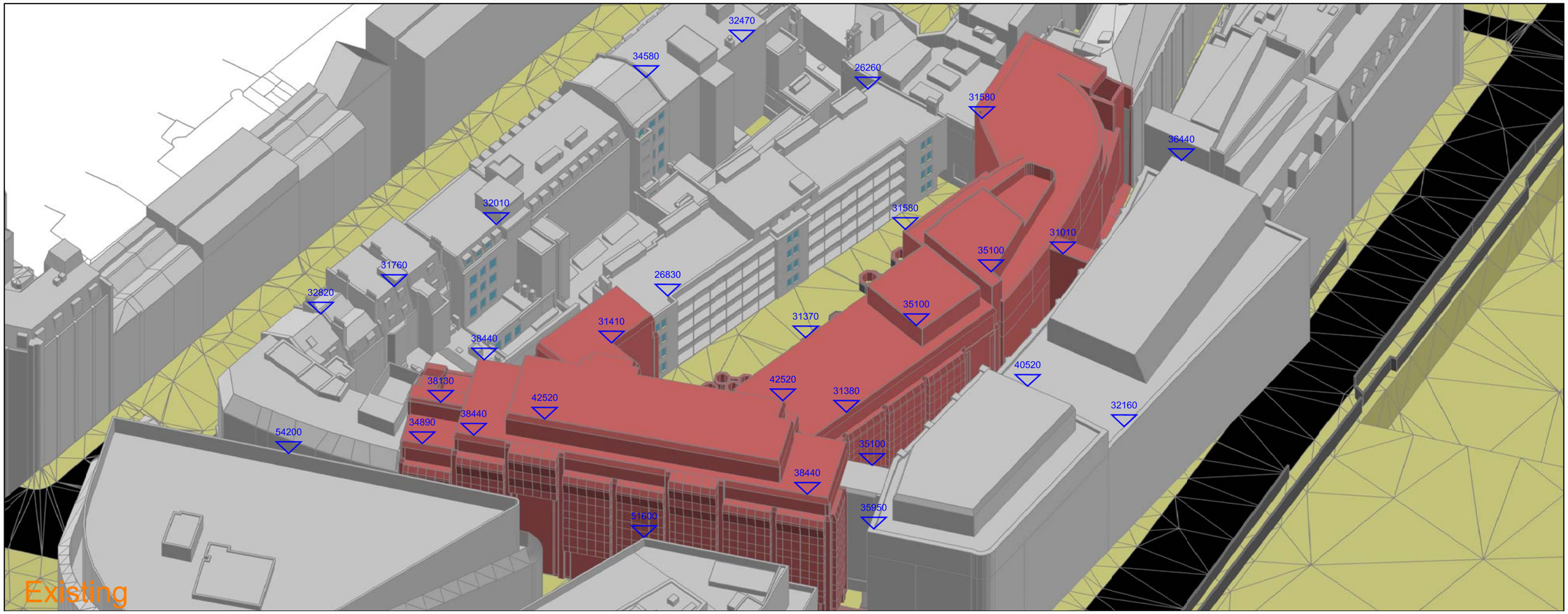
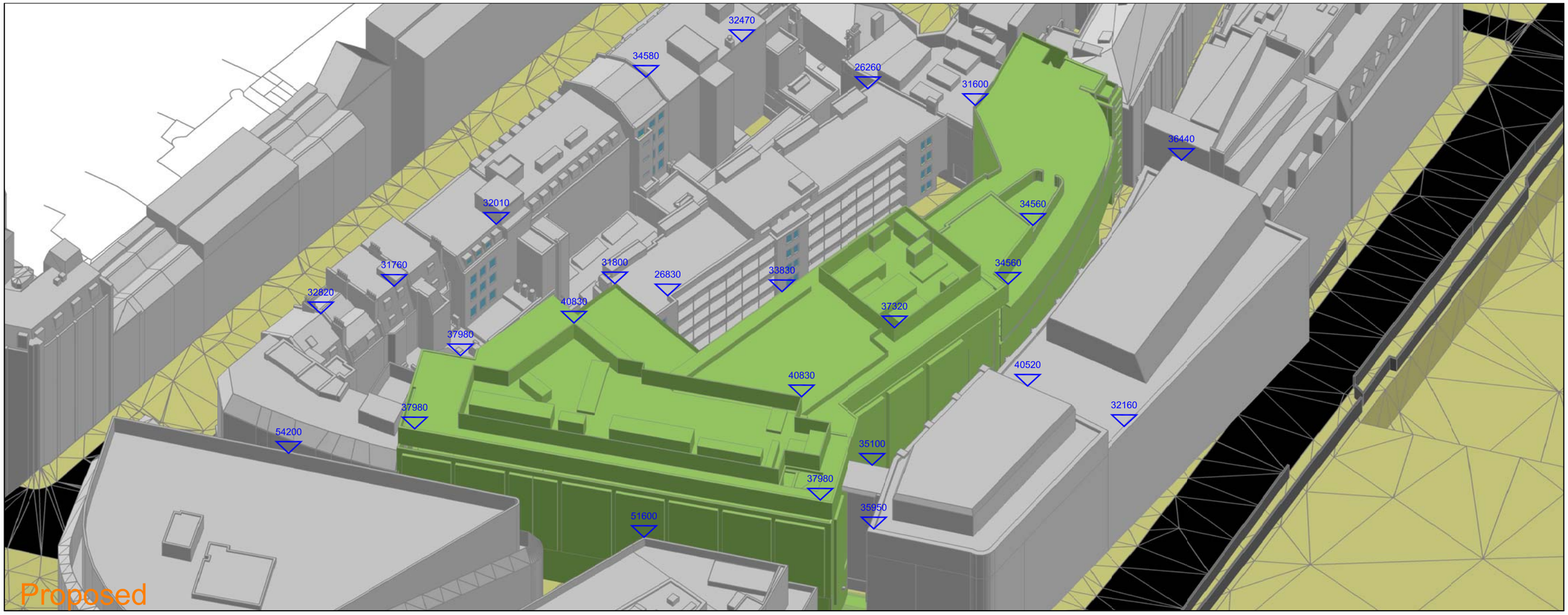
TITLE:
17 CHARTERHOUSE STREET,
LONDON, EC1N 6RA.
-
-
AUGUST 2017 ANALYSIS

DRAWING:
17 Charterhouse Street - Property Location Plan
Daylight & Sunlight Analysis
-
-
-
-
-

DRAWN: VK	JOB NO: 17320
SCALE: 1:500@A3	
DATE: 07/08/2017	
DWG NO: LOC/DS/800	REV: A





NO DIMENSIONS TO BE SCALED FROM THIS DRAWING:

Indicative

Existing
Proposed
Surrounding

SOURCE DATA

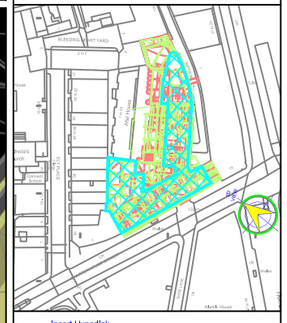
Drawings Used:
Existing and surrounding buildings:
Malcolm Hollis Surveyors:
Model No's:
- 59674-M-17 Charterhouse

Proposed Scheme:
MCM Architecture Ltd:
Dwg No's:(Received 01.08.2017)
- P17-059
Model No's:(Received 03.08.2017)
- P17-059-MCM-XX-ZZ-M3-Project2020 3D DWG

NOTES

All heights are measured in mm AOD.

Site Plan



Insert Hyperlink

REV	Description	Drawn	Ch'kd	Date

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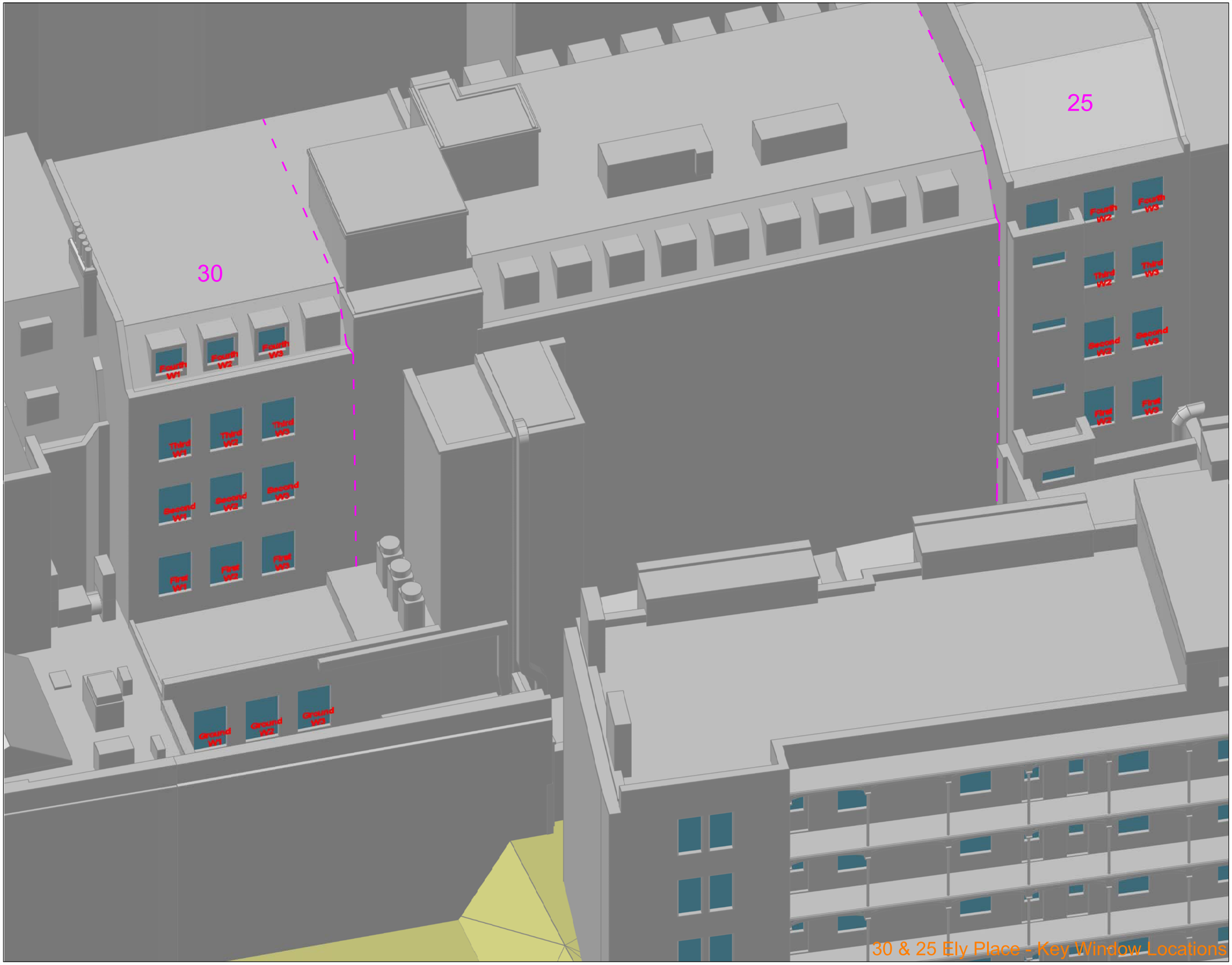
TITLE:
17 CHARTERHOUSE STREET,
LONDON, EC1N 6RA.

-
AUGUST 2017 ANALYSIS

DRAWING:
17 Charterhouse Street
Existing & Proposed Schemes
Key Building Heights
-
-
-
-

DRAWN: VK	JOB NO: 17320
SCALE: NTS	
DATE: 07/08/2017	

DWG NO:	REV:
SPT/800	-



30 & 25 Ely Place - Key Window Locations

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:
Malcolm Hollis Surveyors:
Model No's:
- 59674-M-17 Charterhouse

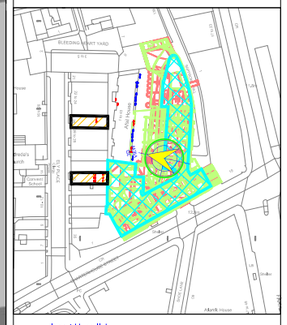
Proposed Scheme:
MCM Architecture Ltd:
Dwg No's:(Received 01.08.2017)
- P17-059
Model No's:(Received 03.08.2017)
- P17-059-MCM-XX-ZZ-M3-Project2020 3D DWG

NOTES

30 Ely Place: Building room uses and layouts assumed

25 Ely Place: Room uses and layouts obtained from planning archives.
Dwg No's: 33_Rev_A, 32_Rev_B, 31_Rev_B, 30_Rev_D

Site Plan



Insert Hyperlink

REV	Description	Drawn	Ch'kd	Date

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TITLE:
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-
AUGUST 2017 ANALYSIS

DRAWING:
30 & 25 Ely Place
Daylight & Sunlight Analysis
Key Window Locations
-
-
-
-

DRAWN: VK	JOB NO: 17320
SCALE: NTS	
DATE: 07/08/2017	

DWG NO: LOC/801

REV: -

APPENDIX B

NEIGHBOURING DAYLIGHT & SUNLIGHT ANALYSIS

				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
30 Ely Place	Ground	Commercial/R1	W1	11.19	9.06	-19.03%	-17.41%	52.49%	51.92%	-1.09%	2.12%	1.89%	-10.51%	N/A	N/A	N/A	N/A	N/A	N/A
			W2	11.75	9.70	-17.50%								N/A	N/A	N/A	N/A	N/A	N/A
			W3	11.64	9.81	-15.71%								N/A	N/A	N/A	N/A	N/A	N/A
	First	Commercial/R1	W1	19.97	17.35	-13.10%	-11.92%	81.37%	71.19%	-12.50%	2.14%	1.98%	-7.63%	N/A	N/A	N/A	N/A	N/A	N/A
			W2	19.66	17.35	-11.76%								N/A	N/A	N/A	N/A	N/A	N/A
			W3	18.58	16.55	-10.89%								N/A	N/A	N/A	N/A	N/A	N/A
	Second	Commercial/R1	W1	24.99	22.44	-10.24%	-9.23%	91.22%	85.02%	-6.80%	2.31%	2.17%	-6.38%	N/A	N/A	N/A	N/A	N/A	N/A
			W2	24.93	22.68	-9.03%								N/A	N/A	N/A	N/A	N/A	N/A
			W3	24.04	22.02	-8.42%								N/A	N/A	N/A	N/A	N/A	N/A
	Third	Commercial/R1	W1	29.07	27.31	-6.08%	-5.28%	99.60%	99.54%	-0.06%	2.49%	2.39%	-3.87%	N/A	N/A	N/A	N/A	N/A	N/A
			W2	29.46	27.92	-5.20%								N/A	N/A	N/A	N/A	N/A	N/A
			W3	29.61	28.26	-4.55%								N/A	N/A	N/A	N/A	N/A	N/A
	Fourth	Commercial/R1	W1	31.86	31.12	-2.31%	-1.82%	98.42%	98.52%	0.10%	1.51%	1.49%	-1.49%	N/A	N/A	N/A	N/A	N/A	N/A
			W2	32.15	31.58	-1.77%								N/A	N/A	N/A	N/A	N/A	N/A
			W3	32.30	31.85	-1.37%								N/A	N/A	N/A	N/A	N/A	N/A
25 Ely Place	First	Office/R1	W2	18.03	18.03	0.00%	-0.04%	25.41%	25.38%	-0.14%	0.73%	0.73%	-0.02%	N/A	N/A	N/A	N/A	N/A	N/A
			W3	21.01	20.99	-0.08%								N/A	N/A	N/A	N/A	N/A	N/A
	Second	Office/R2	W2	24.22	24.03	-0.76%	-0.58%	39.41%	35.12%	-10.89%	0.87%	0.87%	-0.44%	N/A	N/A	N/A	N/A	N/A	N/A
			W3	27.35	27.25	-0.39%								N/A	N/A	N/A	N/A	N/A	N/A
	Third	Office/R2	W2	28.45	27.90	-1.94%	-1.66%	55.97%	49.11%	-12.25%	0.84%	0.83%	-1.32%	N/A	N/A	N/A	N/A	N/A	N/A
			W3	32.13	31.68	-1.38%								N/A	N/A	N/A	N/A	N/A	N/A
	Fourth	Office/R14	W3	35.02	34.65	-1.06%	-1.06%	96.12%	96.12%	0.00%	2.21%	2.19%	-0.99%	N/A	N/A	N/A	N/A	N/A	N/A

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

See Dwg No: LOC_801