

Daylight and Sunlight Report

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Pembroke College, Mill Lane, Cambridge

Pembroke College
2nd November 2018

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For and on behalf of GVA Grimley Limited

1. Introduction

- 1.1 GVA has been instructed by Pembroke College to assess the effects of a proposed development located on land to the south of Mill Lane bound by the University Centre to the west, Little St Mary's Lane to the south and Trumpington Street to the north ("Old Press Mill Lane South") in respect daylight and sunlight.
- 1.2 Drawings labelled BRE/21 and 23 within Appendix 1 and Figures 1 and 2 below illustrate GVA's 3D model of the existing condition at Old Press Mill Lane South and the location of neighbouring properties which form part of this assessment.
- 1.3 Drawings labelled BRE/22 and 24 within Appendix 1 and Figures 3 and 4 below illustrate GVA's 3D model and the proposed development (the "Development").



Figures 1 and 2: Existing condition at Old Press Mill Lane South and the location of neighbouring properties

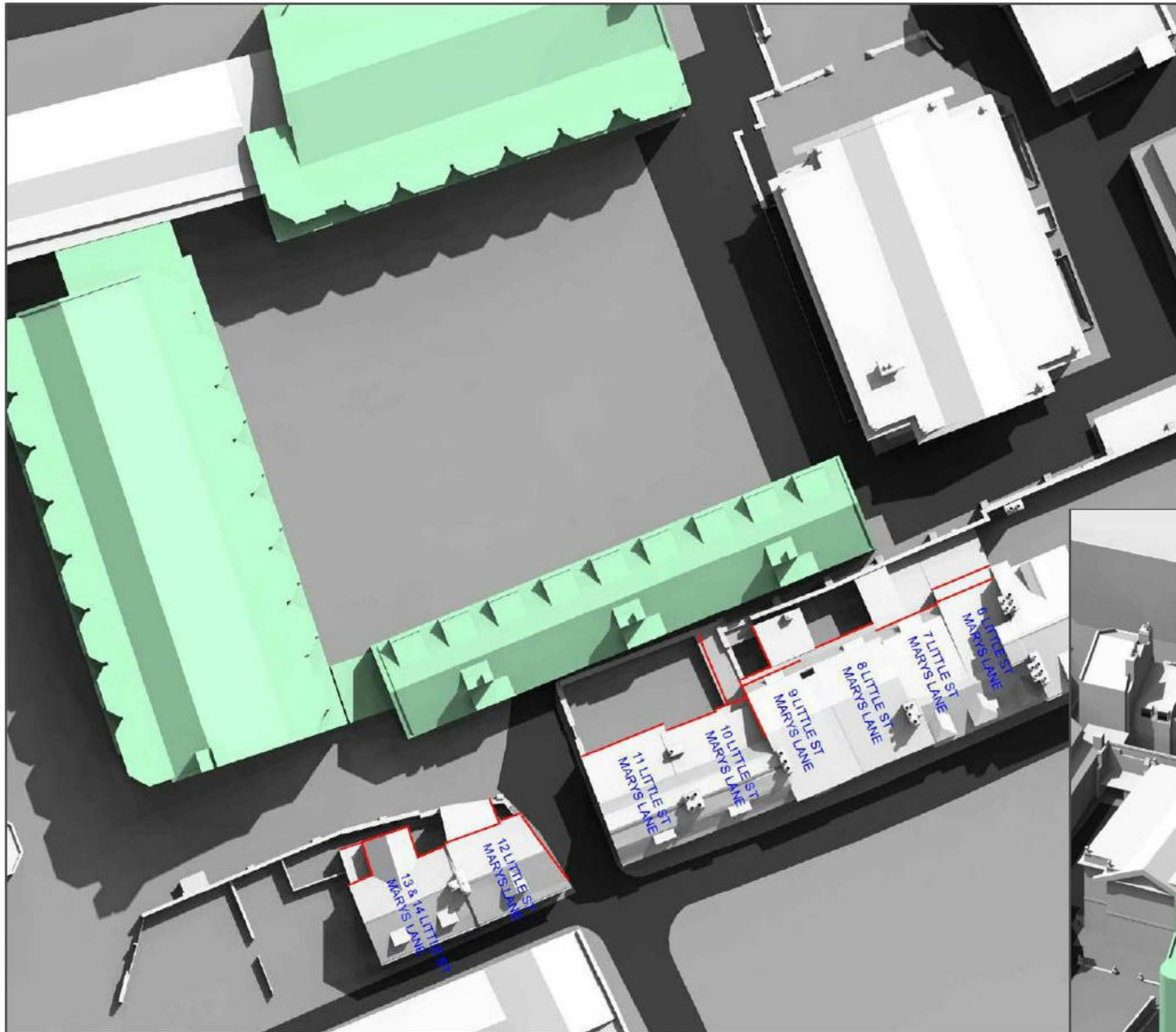


Figure 3 and 4: Proposed Development

2. Assumptions and Information Relied Upon

- 2.1 The information used to generate the 3D model and analyses described in this report is listed on the drawings in Appendix 1.
- 2.2 GVA has made reasonable endeavours to include and assess all relevant neighbouring windows based on the information available.
- 2.3 GVA have not accessed any of the neighbouring properties and where room layouts and dimensions are not known reasonable assumptions have been made.
- 2.1 Best estimates have been made as to the uses of the neighbouring properties. Room types, such as habitable or non-habitable, have been estimated from external observation and where possible from online research.
- 2.2 Boundaries between neighbouring properties have been estimated from external observation.

3. Results of the Daylight and Sunlight Assessment

- 3.1 Only habitable rooms within neighbouring properties are relevant for daylight and sunlight assessment. Non-habitable rooms within residential properties and commercial and educational neighbouring properties have been scoped out of the assessment.
- 3.2 The neighbouring properties relevant for assessment are 6 to 14 Little St Mary's Lane, as shown in Figure 1 and on drawing no. BRE/23 in Appendix 1.
- 3.3 In accordance with the BRE guidelines document '*Site Layout Planning for Daylight and Sunlight – A guide to good practice*' (2011) ("BRE Guidelines"), the daylight and sunlight assessments include; the Vertical Sky Component ("VSC"); No Sky Line ("NSL"); and Annual Probable Sunlight Hours ("APSH"). Further information on the BRE Guidelines and how these should be applied, in GVA's view, can be found in Appendix 2, Daylight and Sunlight Principles.
- 3.4 The technical VSC, NSL and APSH spreadsheets, pre and post Development, are in Appendix 3. The NSL contour drawings are located in Appendix 4. These show the assumed neighbouring room layouts and the likely sky visibility contours in each room tested, pre and post Development,
 - 3.4.1 In relation to sunlight, the vast majority of neighbouring windows do not face within 90 degrees of due south. Therefore, these windows have been scoped out of the assessment, which is in accordance with the BRE Guidelines.
- 3.5 A detailed critique of the likely daylight and sunlight effects for each of the neighbouring properties follows.

6 Little St Mary's Lane



Figure 5: 6 Little St Mary's Lane (centre of photo)

- 3.6 The daylight analysis demonstrates compliance with the BRE Guidelines, insofar as the windows and rooms retain at least 0.8 times the former VSC and NSL, or retained levels which are BRE compliant. Moreover, almost all windows experience gains in daylight, as a result of the Development.
- 3.7 A sunlight assessment is not necessary as the windows do not face within 90 degrees of due south.
- 3.8 In summary, GVA considers the effects to be acceptable.

7 Little St Mary's Lane



Figure 6: 7 Little St Mary's Lane (centre of photo)

- 3.9 The daylight analysis demonstrates compliance with the BRE Guidelines, insofar as the windows and rooms retain at least 0.8 times the former VSC and NSL. Moreover, half of the windows experience gains in daylight, as a result of the Development.
- 3.10 A sunlight assessment is not necessary as the windows do not face within 90 degrees of due south.
- 3.11 In summary, GVA considers the effects to be acceptable.

8 Little St Mary's Lane



Figure 7: 8 Little St Mary's Lane (centre of photo)

- 3.12 All windows are in compliance with the BRE Guidelines VSC methodology, insofar as all retain at least 0.8 times the former value. Moreover, two of the windows experience gains in VSC, as a result of the Development.
- 3.13 One of the three rooms (believed to be a living room) is in compliance with the 0.8 times former value criteria in terms of NSL and experiences a gain sky visibility, as a result of the Development. For the two rooms falling short, the existing NSL will be reduced by 47.5% and 34.5%. These two rooms are believed to be bedrooms, which are considered less important in daylight terms.
- 3.14 A sunlight assessment is not necessary as the windows do not face within 90 degrees of due south.
- 3.15 In summary, GVA considers the effects to be acceptable given the type of rooms affected and the flexible nature of the BRE Guidelines in an urban context.

9 Little St Mary's Lane



Figure 8: 9 Little St Mary's Lane (centre of photo)

- 3.16 All windows are in compliance with the BRE Guidelines VSC 0.8 times former value criteria. Moreover, over half of the windows experience gains in VSC, as a result of the Development.
- 3.17 With the exception of one room, believed to be a bedroom, all are in compliance with the BRE Guidelines NSL 0.8 times former value criteria. For the one bedroom falling short, the existing NSL will be reduced by c. 30.5%.
- 3.18 The sunlight assessment demonstrates compliance with the BRE Guidelines 0.8 times former value criteria.
- 3.19 In summary, GVA considers the effects to be acceptable given the high degree of compliance and the flexible nature of the BRE Guidelines in an urban context.

10 Little St Mary's Lane



Figure 9: 10 Little St Mary's Lane (centre of photo)

- 3.20 All windows are in compliance with the BRE Guidelines VSC 0.8 times former value criteria. Moreover, half of the windows experience gains in daylight, as a result of the Development.
- 3.21 With the exception of one room, of which the use is unknown, all are in compliance with the BRE Guidelines NSL 0.8 times former value criteria. For the one room falling short, the existing NSL will be reduced by 32.5%. It should be noted that this room also falls short of the NSL criteria in the existing condition.
- 3.22 A sunlight assessment is not necessary as the windows do not face within 90 degrees of due south.
- 3.23 In summary, GVA considers the effects to be acceptable given the high degree of compliance and the flexible nature of the BRE Guidelines in an urban context.

11 Little St Mary's Lane



Figure 10: 11 Little St Mary's Lane (left of photo)

- 3.24 The daylight and sunlight analysis demonstrates compliance with the BRE Guidelines 0.8 times value criteria for both VSC and NSL.
- 3.25 In summary, GVA considers the effects to be acceptable.

12 Little St Mary's Lane



Figure 11: 12 Little St Mary's Lane (centre of photo)

- 3.26 The daylight analysis demonstrates compliance with the BRE Guidelines 0.8 times former value criteria for both VSC and NSL. Moreover, more than half of the windows experience gains in daylight, as a result of the Development.
- 3.27 The sunlight assessment demonstrates compliance with the BRE Guidelines 0.8 times former value criteria.
- 3.28 In summary, GVA considers the effects to be acceptable.

13 to 14 Little St Mary's Lane



Figure 12: 13 to 14 Little St Mary's Lane (centre of photo)

- 3.29 Two out of five windows are in compliance with the BRE Guidelines VSC 0.8 times former value criteria. Of these two windows, one complies with the BRE Guidelines NSL 0.8 times former value criteria, whilst the other experiences a c. 28% loss, which is marginally beyond the BRE Guidelines recommendations.
- 3.30 The three windows which fall short of the VSC 0.8 times former value criteria are as follows:
- Window reference W1/70 on the ground floor (possibly a small kitchen) experiences a 22.5% loss of existing VSC, which is marginally beyond the BRE Guidelines recommendations. The room to which the window serves will comply with the BRE Guidelines NSL 0.8 times former value criteria;
 - Window reference W3/70 on the ground floor (likely living room) experiences a 30% loss of existing VSC. The room to which the window serves likely includes an additional window (reference W2/70) which complies with the BRE Guidelines VSC 0.8 times

former value criteria. The room will continue to enjoy reasonable sky visibility across 60% of the room area; and

- Window reference W3/71 on the first floor (bedroom) experiences a 40% loss of existing VSC, nonetheless, the room to which the window serves will comply with the BRE Guidelines NSL 0.8 times former value criteria.

3.31 On balance, GVA considers the effects to be commensurate and acceptable given the relatively minor breaches to the ground floor, first floor bedroom use, and the flexible nature of the BRE Guidelines in an urban context.

4. Results of the Sun Hours on Ground Assessment

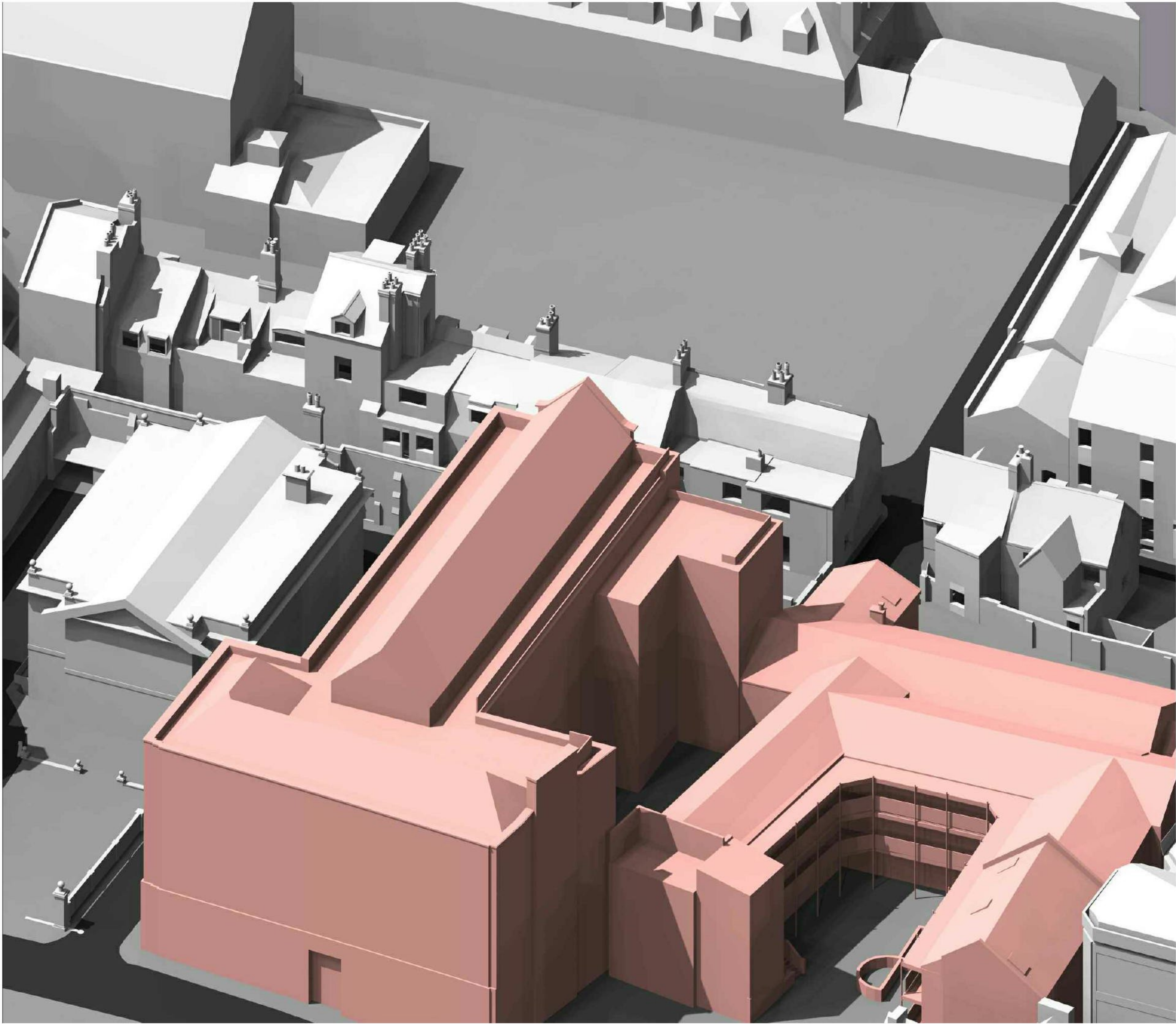
- 4.1 GVA has been instructed to carry out a BRE Guidelines Sun Hours on Ground ("SHOG") assessment for the proposed amenity areas within the Development.
- 4.2 A SHOG is deemed unnecessary for the rear gardens of the neighbouring properties at Little St Mary's Lane as the Development is sited to the north of these.
- 4.3 The BRE Guidelines recommend that proposed amenity areas should be sunlit for a minimum of two hours over 50% of the area on the test date of 21st March (mean height of the sun across the year).
- 4.4 The SHOG assessment shown on drawing no. BRE/33 in Appendix 5 demonstrates three of the four areas (Areas 1, 2 and 3) assessed comply with the BRE Guidelines. For the area falling short (Area 4), this is marginally below the recommendations at c. 40% of the area. This is a minor breach in overall terms. All areas will be well sunlit during the summer months.
- 4.5 In summary, the Proposed Development makes good use of the sunlight available to the Pembroke South Block.

5. Conclusion

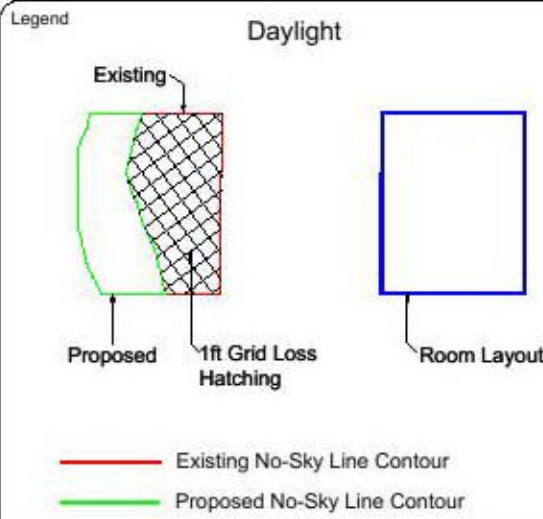
- 5.1.1 There is a good degree of daylight and sunlight compliance in relation to the BRE Guidelines.
- 5.1.2 In GVA's professional opinion, any breaches are proportionate in the context of an urban location such as this and the flexible nature of the BRE Guidelines.
- 5.2 In summary, GVA considers the Development to be acceptable in daylight and sunlight terms.

Appendix 1

Existing and Proposed
Drawings Nos. BRE/21,
22, 23 and 24



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Do not scale this drawing.
All dimensions to be checked on site. Drawing to be read in conjunction with any specifications, schedules and Consultants drawings and details.



Sources of Information

EXISTING BUILDING
INFO 10 OCT 2017 3D SURVEY MODEL
171006 Existing Site Model.dwg

SURROUNDING BUILDINGS
INFO 10 OCT 2017 3D SURVEY MODEL
Dolby Court Model 171006.dwg
171006 Gatehouse Model.dwg
171006 Existing Site Model.dwg

ZMAP
PHOTOS

GROUND FLOOR WINDOWS ESTIMATED
NOT SEEN BY SURVEY
ALL ROOMS ESTIMATED
ROOM USES ESTIMATED

PROPOSED BUILDING
INFO 02 OCT 2018
1609\20Pembroke\20Proposed\20Site\20Model\20181002\20v2.dwg
INFO 27 SEPT 2018
1609 Pembroke Proposed Site Model.dwg

GVA

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Project Name
MILL LANE
CAMBRIDGE

Client
MILLERS YARD PARTNERSHIP LTD

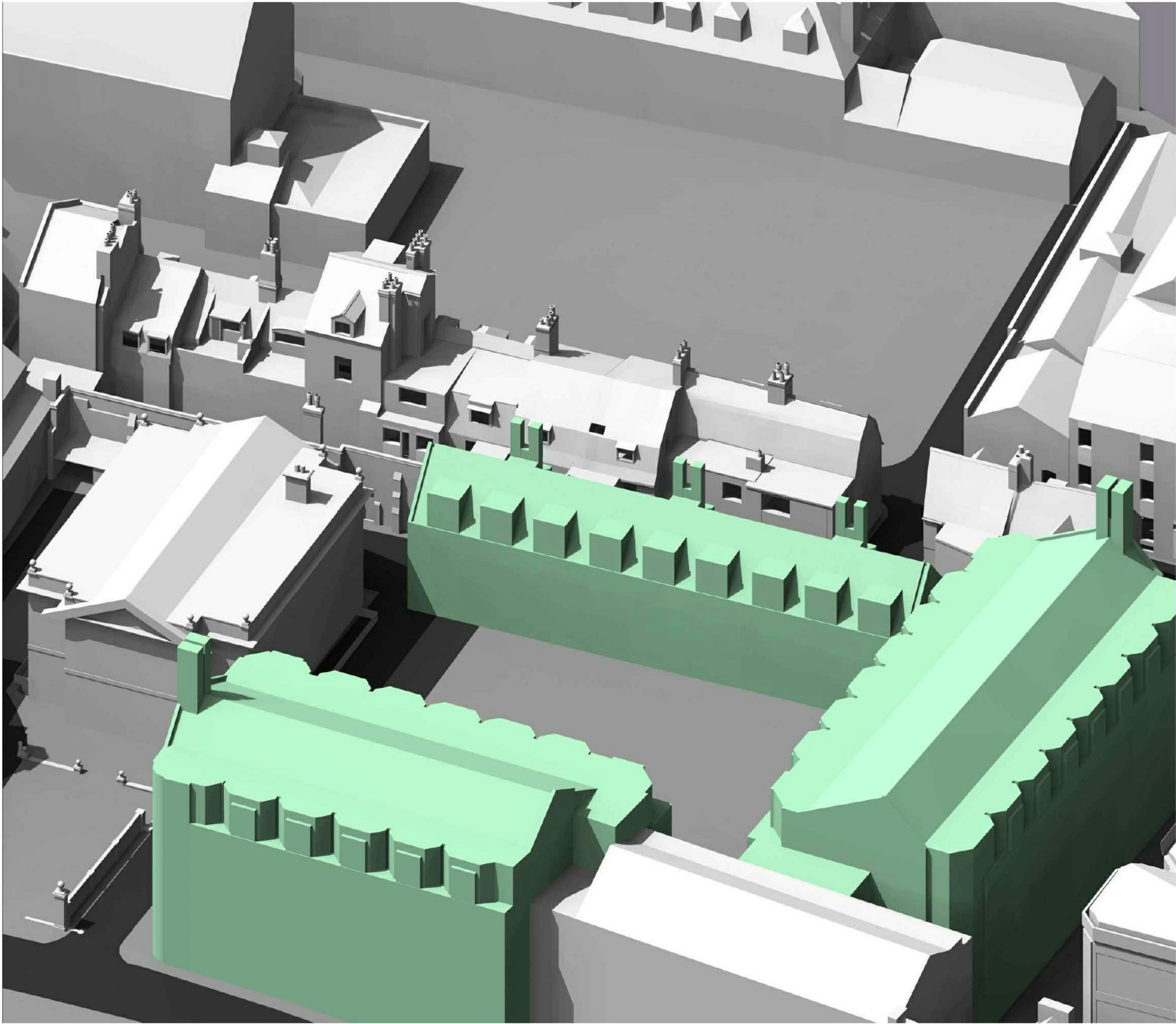
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3D VIEW FOR
EXISTING

Drawn By RT	Chk'd By -	Scale @ A3 N/A	Date 23 OCT 2018
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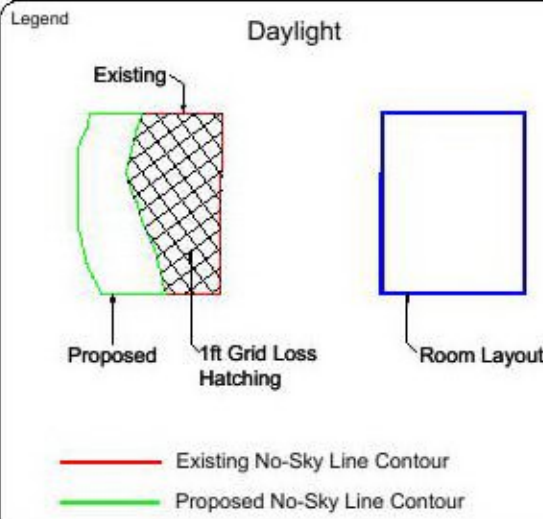
Project No. MI59/12	Drawing No. BRE/21	Revision -
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DAYLIGHT

A3



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PROPOSED BUILDING
INFO 02 OCT 2018
1609120Pembroke120Proposed20Site120Model1201810021202.dwg
INFO 27 SEPT 2018
1609 Pembroke Proposed Site Model.dwg

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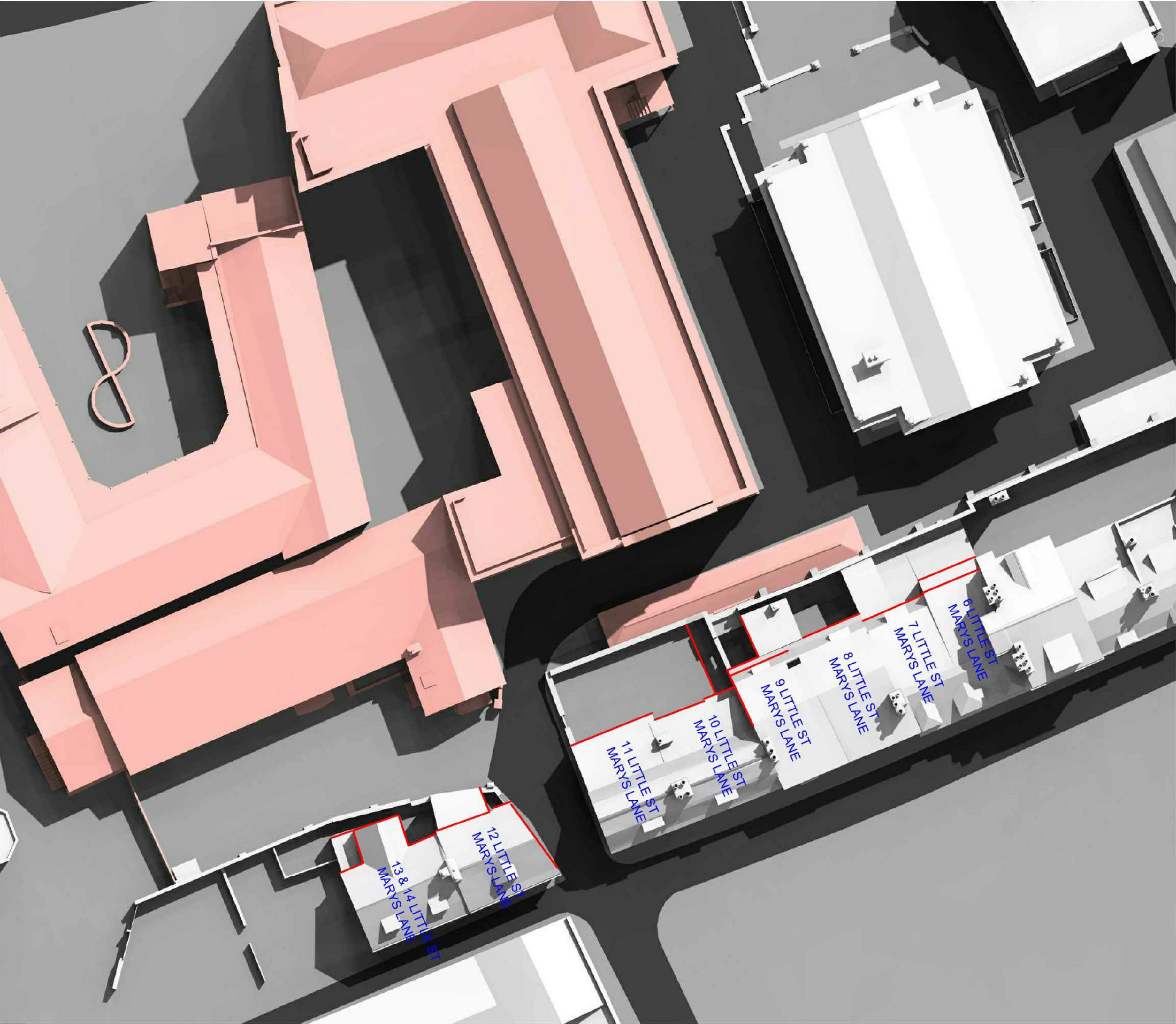
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3D VIEW FOR
PROPOSED

Drawn By RT	Chk'd By -	Scale @ A3 N/A	Date 23 OCT 2018
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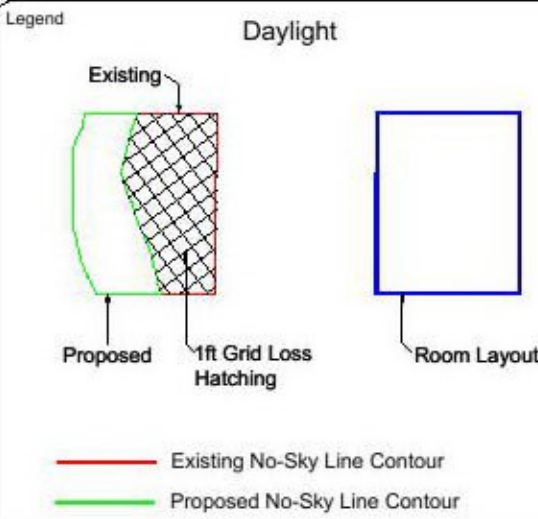
Project No. MI59/12	Drawing No. BRE/22	Revision -
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DAYLIGHT

A3



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SURROUNDING BUILDINGS

INFO 10 OCT 2017 3D SURVEY MODEL

Dolby Court Model 171006.dwg

171006 Gatehouse Model.dwg

171006 Existing Site Model.dwg

ZMAP

PHOTOS

GROUND FLOOR WINDOWS ESTIMATED

NOT SEEN BY SURVEY

ALL ROOMS ESTIMATED

ROOM USES ESTIMATED

PROPOSED BUILDING

INFO 02 OCT 2018

1609120Pembroke\20Proposed\20Site\20Model\20181002\20v2.dwg

INFO 27 SEPT 2018

1609 Pembroke Proposed Site Model.dwg

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Project Name

MILL LANE

CAMBRIDGE

Client

MILLERS YARD PARTNERSHIP LTD

Drawing Title

PLAN VIEW FOR

EXISTING

Drawn By

RT

Chk'd By

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Scale @ A3

N/A

Date

23 OCT 2018

Project No.

MI59/12

Drawing No.

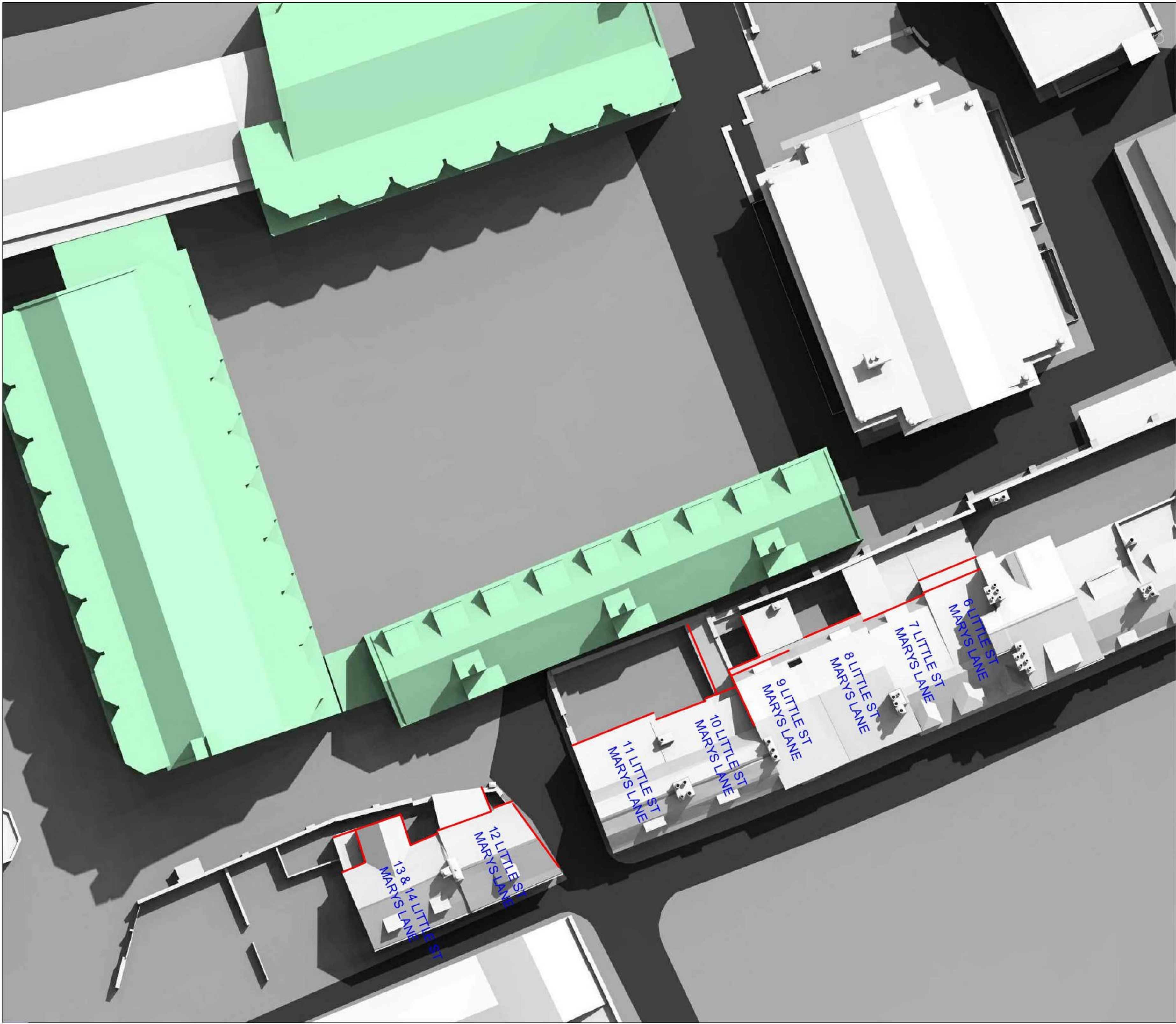
BRE/23

Revision

-

DAYLIGHT

A3



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Legend

Daylight

Existing

Proposed

1ft Grid Loss Hatching

Room Layout

Existing No-Sky Line Contour

Proposed No-Sky Line Contour

Sources of Information

EXISTING BUILDING
INFO 10 OCT 2017 3D SURVEY MODEL
171006 Existing Site Model.dwg

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Project Name
MILL LANE
CAMBRIDGE

Client
MILLERS YARD PARTNERSHIP LTD

Drawing Title
PLAN VIEW FOR
PROPOSED

Drawn By RT	Chk'd By -	Scale @ A3 N/A	Date 23 OCT 2018
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Project No. MI59/12	Drawing No. BRE/24	Revision -
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Appendix 2

Daylight and Sunlight
Principles

Daylight & Sunlight Principles

The BRE Guidelines – Site Layout Planning for Daylight and Sunlight: A Guide to Good Practice are well established and are adopted by most Local Authorities as the appropriate scientific and empirical methods of measuring daylight and sunlight in order to provide objective data upon which to apply their planning policies. The Guidelines are not fixed standards but should be applied flexibly to take account of the specific circumstances of each case.

The Introduction of the Guidelines states:

"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 be seen as an instrument of planning policy. Its aim is to help rather than constrain the developer. Although it gives numerical guidelines, these should be interpreted flexibly because natural lighting is only one of the many factors in site layout design."

The 'flexibility' recommended in the Guidelines should reflect the specific characteristics of each case being considered. For example, as the numerical targets within the Guidelines have been derived on the basis of a low density suburban housing model, it is entirely appropriate to apply a more flexible approach when dealing with higher rise developments in a denser urban environment where the general scale of development is greater. In addition, where existing and proposed buildings have specific design features such as projecting balconies, deep recesses, bay windows etc., it is also equally valid to apply a degree of flexibility to take account of the effect of these particular design features. This does not mean that the recommendations and targets within the Guidelines can be disregarded but, instead, the 'flexibility' that should be applied should be founded on sound scientific principles that can be supported and justified. This requires a certain level of professional value judgement and experience.

Daylighting

In respect of daylighting, the BRE Guidelines adopt different methods of measurement depending on whether the assessment is for the impact on existing neighbouring premises or for measuring the adequacy of proposed new dwellings. For safeguarding the daylight received by existing neighbouring residential buildings around a proposed development, the relevant recommendations are set out in Section 2.2 of the Guidelines.

The adequacy of daylight received by existing neighbouring dwellings is measured using two methods of measurement. First, it is necessary to measure the Vertical Sky Component (VSC) followed by the measurement of internal Daylight Distribution by plotting the position of the 'existing' and 'proposed' no sky line contour.

VSC is measured at the mid-point on the external face of the window serving a habitable room. For the purpose of the Guidelines, a "habitable" room is defined as a Kitchen, Living Room or Bedroom. Bathrooms, hallways and circulation space are excluded from this definition. In addition, many Local Authorities make a further distinction in respect of small kitchens. Where the internal area of a small kitchen limits the use to food preparation and is not of sufficient size to accommodate some other form of "habitable" use such as dining, the kitchen need not be classed as a "habitable" room in its own right.

VSC is a 'spot' measurement taken on the face of the window and is a measure of the availability of light from the sky from over the "existing" and "proposed" obstruction caused by buildings or structures in front of the window. As it is measured on the outside face of the window, one of the inevitable shortcomings is that it does not take account of the size of the window or the size or use of the room served by the window. For this reason, the BRE Guidelines require internal Daylight Distribution to be measured in addition to VSC.

The 'No Sky Line' contour plotted for the purpose of measuring internal Daylight Distribution identifies those areas within the room usually measured on a horizontal working plane set at table top level, where there is direct sky visibility. This therefore represents those parts within the room where the sky can be seen through the window. This second measure therefore takes account of the size of the window and the size of the room but is only more reliable than VSC when the actual room uses, layouts and dimensions are known. When interpreted in conjunction with the VSC value, the likely internal lighting conditions, and hence the quality of lighting within the room, can be assessed.

For VSC, the Guidelines states that:

"If this Vertical Sky Component is greater than 27% then enough skylight should still be reaching the window of the existing building. Any reduction below this level should be kept to a minimum. 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, then the occupants of the existing building will notice the reduction in the amount of skylight."

To put this in context, the maximum VSC value that can be received for a totally unobstructed vertical window is 40%. There are however circumstances where the VSC value is already below 27%. In such circumstances, it is permissible to reduce the existing VSC value by a factor of 0.2 (i.e. 20%) so that the value on the 'proposed' conditions remains more than 0.8 times its former value. The scientific reasoning for this permissible margin of reduction is that existing daylight (and sunlight) levels can be reduced by a factor of 20% before the loss becomes materially noticeable. This factor of reduction applies to VSC, daylight distribution, sunlight and overshadowing.

By contrast, the adequacy of daylight for proposed 'New-Build' dwellings is measured using the standards in the British Standard Code of Practice for Daylighting, BS8206 Part 2.

The British Standard relies upon the use of Average Daylight Factors (ADF) rather than VSC and Daylight Distribution. The use of ADF is referred to in the BRE Guidelines (Appendix C) but its use is usually limited as a supplementary 'check' of internal lighting conditions once the VSC and Daylight Distribution tests have been completed.

ADF is sometimes seen as a more accurate and representative measure of internal lighting conditions as it comprises a greater number of design factors and input variables/coefficients. That is, the value of ADF is derived from:

- The actual amount of daylight received by the window(s) serving the room expressed as the "angle of visible sky" which is derived from the VSC value and therefore represents the amount of light striking the face of the window.
- The loss of transmittance through the glazing.
- The size of the window (net area of glazing).
- The size of the room served by the window(s) (net internal surface area of the room).
- The internal reflectance values of the internal finishes within the room.
- The specific use of the room.

One of the main reasons why ADF is more appropriate for New-Build dwellings is that any of the above input variables can be changed during the course of the design process in order to achieve the required internal lighting values. The ability to make such changes is not usually available when dealing with existing neighbouring buildings.

Unlike the application of VSC and daylight distribution, the British Standard differentiates between different room uses. It places the highest ADF standard on Family Kitchens where the minimum target value is 2% df. Living Rooms should achieve 1.5% df, and Bedrooms 1.0% df.

Sunlighting

The requirements for protecting sunlight to existing residential buildings are set out in section 3.2 of the BRE Guidelines.

The availability of sunlight varies throughout the year with the maximum amount of sunlight being available on the summer solstice and the minimum on the winter solstice. In view of this, the internationally accepted test date for measuring sunlight is the spring equinox (21 March), on which day the United Kingdom has equal periods of daylight and darkness and sunlight is available from approximately 08:30hrs to 17:30hrs. In addition, on that date, sunlight received perpendicular to the face of a window would only be received where that window faces within 90° of due south. The BRE Guidelines therefore limit the extent of testing for sunlight where a window faces within 90° of due south.

The sunlight standards are normally applied to the principal Living Room within each dwelling rather than to kitchens and bedrooms.

The recommendation for sunlight is:

"If this window reference point can receive more than one quarter of annual probable sunlight hours, including at least 5% of annual probable sunlight hours during the winter months of 21 September and 21 March, then the room should still receive enough sunlight .

Any reduction in sunlight access below this level should be kept to a minimum. If the availability of sunlight hours are both less than the amounts given and less than 0.8 times their former value, either over the whole year or just during the winter months, then the occupants of the existing building will notice the loss of sunlight."

A good level of sunlight will therefore be achieved where a window achieves more than 25% APSH, of which 5% should be in the winter months. Where sunlight levels fall below this suggested recommendation, a comparison with the existing condition should be undertaken and if the reduction ratio is less than 0.2, i.e. the window continues to receive more than 0.8 times its existing sunlight levels, the impact on sunlight will be acceptable.

Appendix 3

Daylight and Sunlight
Technical Results
Spreadsheets

PEMBROKE COLLEGE, MILL LANE, CAMBRIDGE
23-Oct-18
JOB 12 - DAYLIGHT RESULTS

Room/Floor	Room Use	Window	%VSC			% Daylight Factor			Proposed No Sky	
			Exist	Prop	% Loss	Exist	Prop	% Loss	% of Room Area	% Loss of Existing
13 & 14 Little St Marys Lane MI59/ 12/ BRE/ 25										
Gnd Floor										
R1/70	UNKNOWN	W1/70	10.18	7.88	22.59%	0.48	0.41	13.75%	48.86%	14.74%
R2/70	LIVINGROOM	W2/70	6.34	5.62	11.36%	1.03	0.76	26.84%	60.53%	28.35%
		W3/70	15.05	10.52	30.10%					
1st Floor										
R2/71	BEDROOM	W2/71	18.01	17.84	0.94%	0.49	0.50	-2.66%	92.16%	0.00%
R3/71	BEDROOM	W3/71	23.11	13.69	40.76%	1.32	0.88	33.11%	76.79%	17.97%
12 Little St Marys Lane MI59/ 12/ BRE/ 25										
Base Floor										
R1/49	UNKNOWN	W1/49	11.60	11.90	-2.59%	0.22	0.24	-11.42%	36.94%	0.00%
Gnd Floor										
R1/50	KITCHEN	W1/50	15.69	16.50	-5.16%	0.57	0.63	-9.98%	40.05%	-9.83%
1st Floor										
R1/51	BEDROOM	W1/51	21.44	22.85	-6.58%	0.80	0.86	-6.97%	75.91%	0.93%
R2/51	BEDROOM	W2/51	16.70	15.66	6.23%	0.35	0.33	7.06%	45.36%	14.45%
R1/61	UNKNOWN	W1/61	20.50	21.22	-3.51%	0.55	0.56	-1.64%	85.92%	0.00%
2nd Floor										
R1/52	BEDROOM	W1/52	30.91	32.69	>27	0.61	0.62	-1.64%	71.13%	-4.71%
		W2/52	28.05	28.05	>27					
11 Little St Mary's Lane MI59/ 12/ BRE/ 26										
Gnd Floor										
R1/40	LIVINGROOM	W1/40	16.67	13.81	17.16%	1.96	1.75	10.90%	84.14%	12.04%
		W2/40	18.99	16.04	15.53%					
1st Floor										
R1/41	BEDROOM	W1/41	21.89	21.77	0.55%	1.67	1.62	2.82%	97.21%	0.44%
		W2/41	29.07	26.05	10.39%					
10 Little St Mary's Lane MI59/ 12/ BRE/ 26										
Gnd Floor										
R3/80	LIVINGROOM	W4/80	15.63	14.30	8.51%	0.78	0.76	2.70%	39.73%	3.69%
R1/90	UNKNOWN	W1/90	4.63	4.41	4.75%	0.21	0.16	22.64%	20.48%	32.51%
1st Floor										
R1/81	UNKNOWN	W1/81	14.39	17.96	-24.81%	0.33	0.51	-57.06%	90.61%	-72.63%
R2/81	BEDROOM	W2/81	20.16	21.52	-6.75%	0.85	0.94	-10.65%	57.48%	-16.83%

Room/Floor	Room Use	Window	%VSC			% Daylight Factor			Proposed No Sky	
			Exist	Prop	% Loss	Exist	Prop	% Loss	% of Room Area	% Loss of Existing
9 Little St Mary's Lane MI59/ 12/ BRE/ 26										
Gnd Floor										
R1/20	KITCHEN	W1/20	8.94	8.49	5.03%	0.48	0.44	7.79%	39.20%	0.00%
R2/30	LIVINGROOM	W2/30	4.65	6.04	-29.89%	0.06	0.14	-122.58%	6.27%	-13.04%
1st Floor										
R1/21	BEDROOM	W1/21	22.68	20.76	8.47%	0.51	0.47	8.64%	76.90%	0.81%
R2/31	BEDROOM	W2/31	8.83	11.38	-28.88%	0.23	0.31	-34.96%	51.78%	30.45%
		W3/31	15.28	13.70	10.34%					
2nd Floor										
R2/32	BEDROOM	W2/32	73.73	77.87	>27	1.33	1.39	-4.05%	98.92%	0.00%
		W3/32	21.67	24.70	-13.98%					
		W4/32	27.04	26.47	2.11%					
8 Little St Mary's Lane MI59/ 12/ BRE/ 26										
Gnd Floor										
R1/30	LIVINGROOM	W1/30	5.15	5.16	-0.19%	0.32	0.32	-1.26%	7.03%	-4.72%
1st Floor										
R1/31	BEDROOM	W1/31	18.26	15.89	12.98%	0.45	0.41	8.87%	24.40%	47.48%
2nd Floor										
R1/32	BEDROOM	W1/32	26.16	26.45	-1.11%	0.55	0.55	-0.55%	50.44%	34.59%
7 Little St Mary's Lane MI59/ 12/ BRE/ 26										
1st Floor										
R1/11	LIVINGROOM	W1/11	17.12	16.00	6.54%	0.72	0.69	4.04%	84.56%	0.92%
2nd Floor										
R1/12	BEDROOM	W1/12	22.11	23.80	-7.64%	0.77	0.81	-5.45%	92.71%	-12.03%
6 Little St Mary's Lane MI59/ 12/ BRE/ 26										
1st Floor										
R1/101	KITCHEN	W1/101	22.34	23.93	-7.12%	1.43	1.50	-4.91%	96.82%	-8.03%
		W2/101	21.41	22.16	-3.50%					
		W3/101	23.06	23.98	-3.99%					
2nd Floor										
R1/102	BEDROOM	W1/102	29.61	31.91	>27	1.27	1.36	-6.36%	98.34%	-0.14%

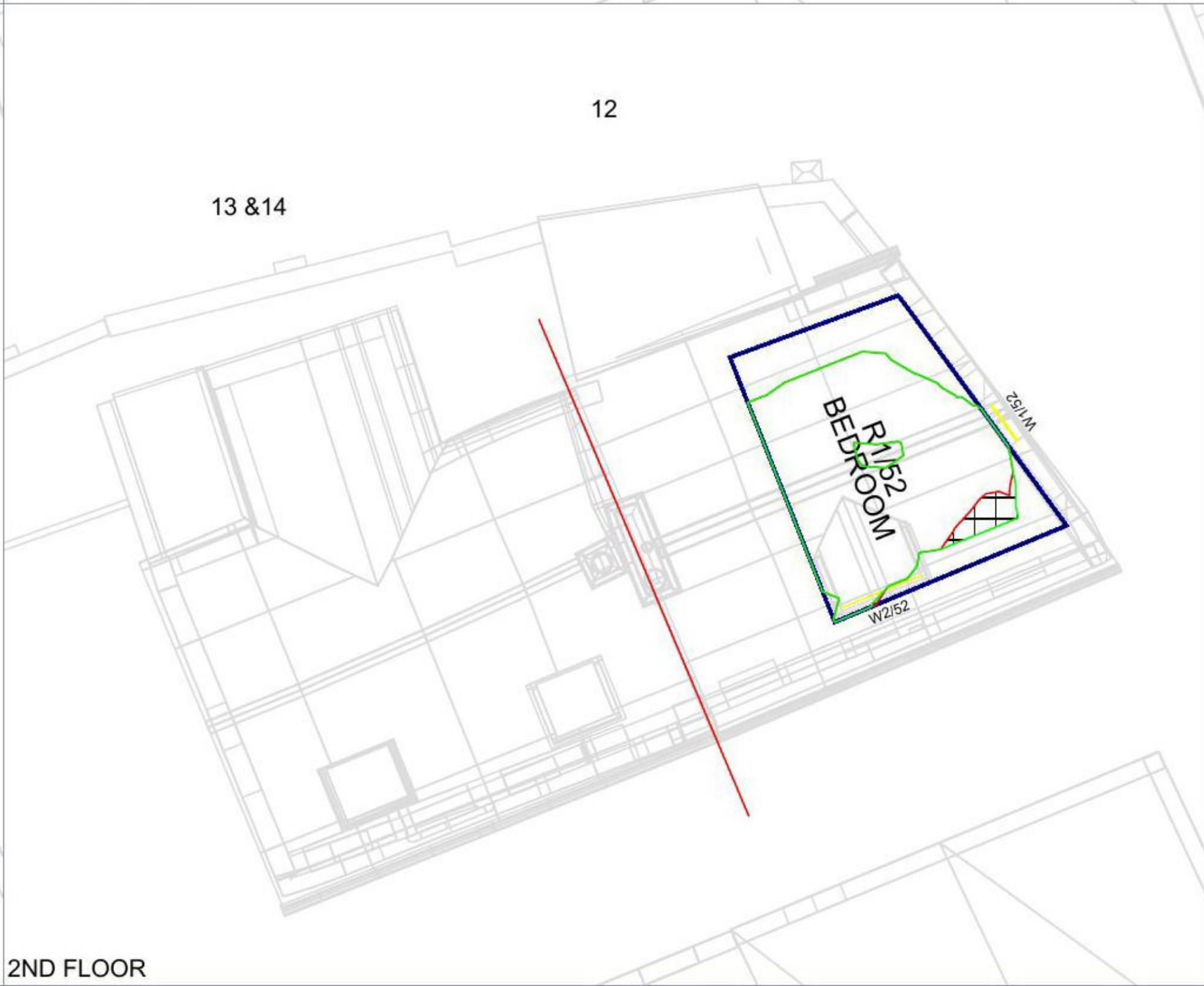
PEMBROKE COLLEGE, MILL LANE, CAMBRIDGE
23-Oct-18
JOB 12 - SUNLIGHT RESULTS

Available sunlight as a percentage of
annual unobstructed total (1486.0 Hrs)

		Existing %			Proposed %					
Room use	Window Ref	Summer	Winter	Total	Summer	Winter	Total	% Loss of Summer	% Loss of Winter	% Loss of Total
12 Little St Marys Lane MI59/ BRE/ 25										
2nd Floor										
BEDROOM	W2/52	48.00	14.00	62.00	48.00	14.00	62.00	0.00%	0.00%	0.00%
11 Little St Mary's Lane MI59/ BRE/ 26										
Gnd Floor										
LIVINGROOM	W2/40	16.00	1.00	17.00	13.00	1.00	14.00	18.75%	0.00%	17.65%
1st Floor										
BEDROOM	W2/41	27.00	6.00	33.00	23.00	6.00	29.00	14.81%	0.00%	12.12%
9 Little St Mary's Lane MI59/ BRE/ 26										
Gnd Floor										
KITCHEN	W1/20	6.00	0.00	6.00	6.00	0.00	6.00	0.00%	0.00%	0.00%
1st Floor										
BEDROOM	W1/21	24.00	3.00	27.00	21.00	3.00	24.00	12.50%	0.00%	11.11%
BEDROOM	W3/31	9.00	0.00	9.00	9.00	0.00	9.00	0.00%	0.00%	0.00%
2nd Floor										
BEDROOM	W4/32	23.00	3.00	26.00	22.00	3.00	25.00	4.35%	0.00%	3.85%

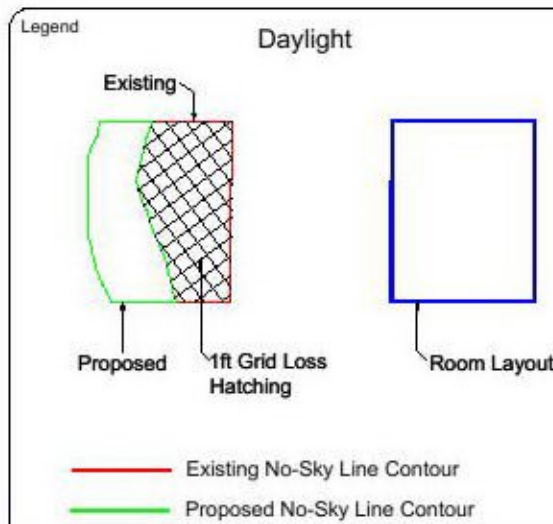
Appendix 4

No Sky Line Contour
Drawings Nos. BRE/25
and 26



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Do not scale this drawing.
All dimensions to be checked on site. Drawing to be read in conjunction with any specifications, schedules and Consultants drawings and details.



Sources of Information

EXISTING BUILDING

INFO 10 OCT 2017 3D SURVEY MODEL

171006 Existing Site Model.dwg

SURROUNDING BUILDINGS

INFO 10 OCT 2017 3D SURVEY MODEL

Dolby Court Model 171006.dwg

171006 Gatehouse Model.dwg

171006 Existing Site Model.dwg

ZMAP

PHOTOS

GROUND FLOOR WINDOWS ESTIMATED

NOT SEEN BY SURVEY

ALL ROOMS ESTIMATED

ROOM USES ESTIMATED

PROPOSED BUILDING

INFO 02 OCT 2018

1609\20Pembroke\20Proposed\20Site\20Model\20181002\20v2.dwg

INFO 27 SEPT 2018

1609 Pembroke Proposed Site Model.dwg

GVA

08449 02 03 04

GVA Schatunowski Brooks

65 Gresham Street, London, EC2V 7NQ

www.gva.co.uk

Project Name

MILL LANE

CAMBRIDGE

Client

MILLERS YARD PARTNERSHIP LTD

Drawing Title

NO SKYLINE CONTOUR FOR

12-14 LITTLE ST MARYS LANE

Drawn By

RT

Chk'd By

-

Scale @ A3

1/100

Date

23 OCT 2018

Project No.

MI59/12

Drawing No.

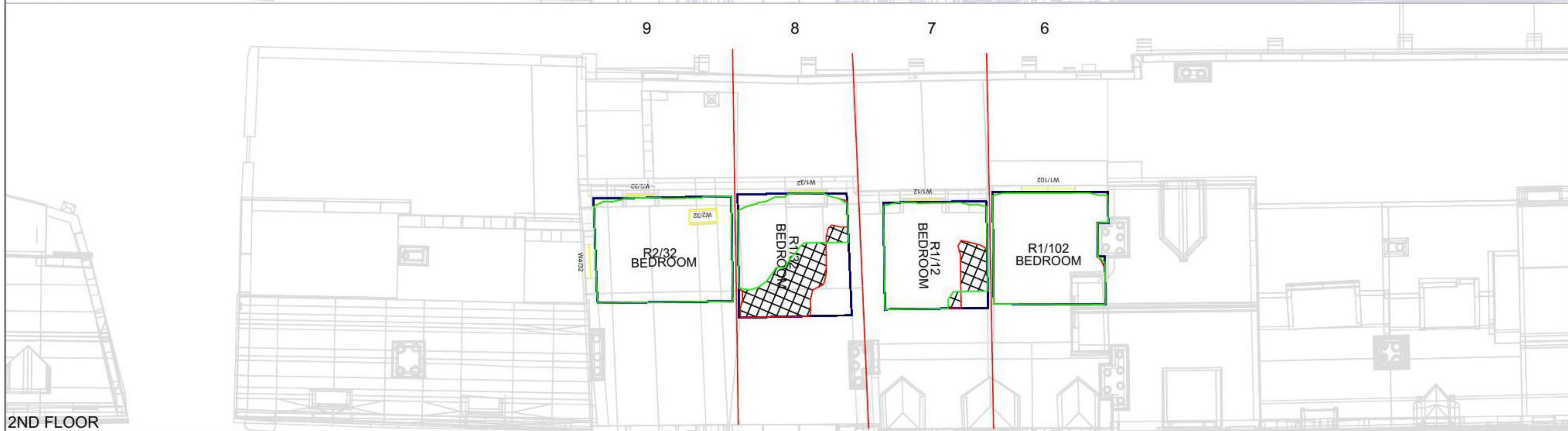
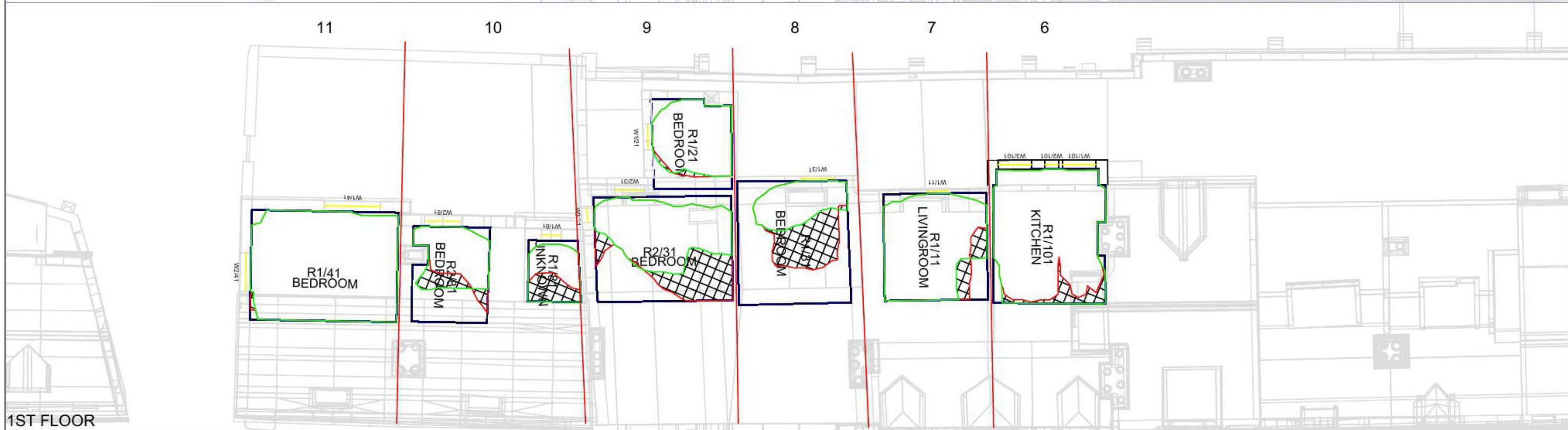
BRE/25

Revision

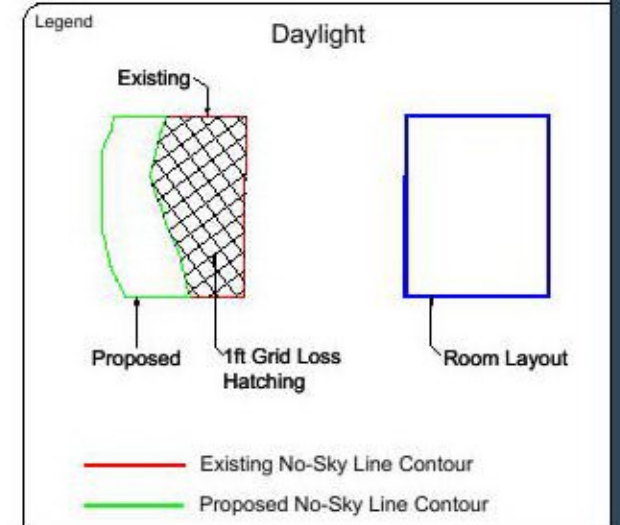
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DAYLIGHT

A3



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Sources of Information

EXISTING BUILDING
INFO 10 OCT 2017 3D SURVEY MODEL
171006 Existing Site Model.dwg

SURROUNDING BUILDINGS
INFO 10 OCT 2017 3D SURVEY MODEL
Dolby Court Model 171006.dwg
171006 Gatehouse Model.dwg
171006 Existing Site Model.dwg

ZMAP
PHOTOS

GROUND FLOOR WINDOWS ESTIMATED
NOT SEEN BY SURVEY
ALL ROOMS ESTIMATED
ROOM USES ESTIMATED

PROPOSED BUILDING
INFO 02 OCT 2018
1609120Pembroke120Proposed20Site20Model2018100220v2.dwg
INFO 27 SEPT 2018
1609 Pembroke Proposed Site Model.dwg

GVA

08449 02 03 04
GVA Schatunowski Brooks
65 Gresham Street, London, EC2V 7NQ
www.gva.co.uk

Project Name
MILL LANE
CAMBRIDGE

Client
MILLERS YARD PARTNERSHIP LTD

Drawing Title
NO SKYLINE CONTOUR FOR
6-11 LITTLE ST MARYS LANE

Drawn By RT **Chk'd By** - **Scale @ A3** 1/150 **Date** 23 OCT 2018

Project No. MI59/12 **Drawing No.** BRE/26 **Revision** -

DAYLIGHT

A3

Appendix 5

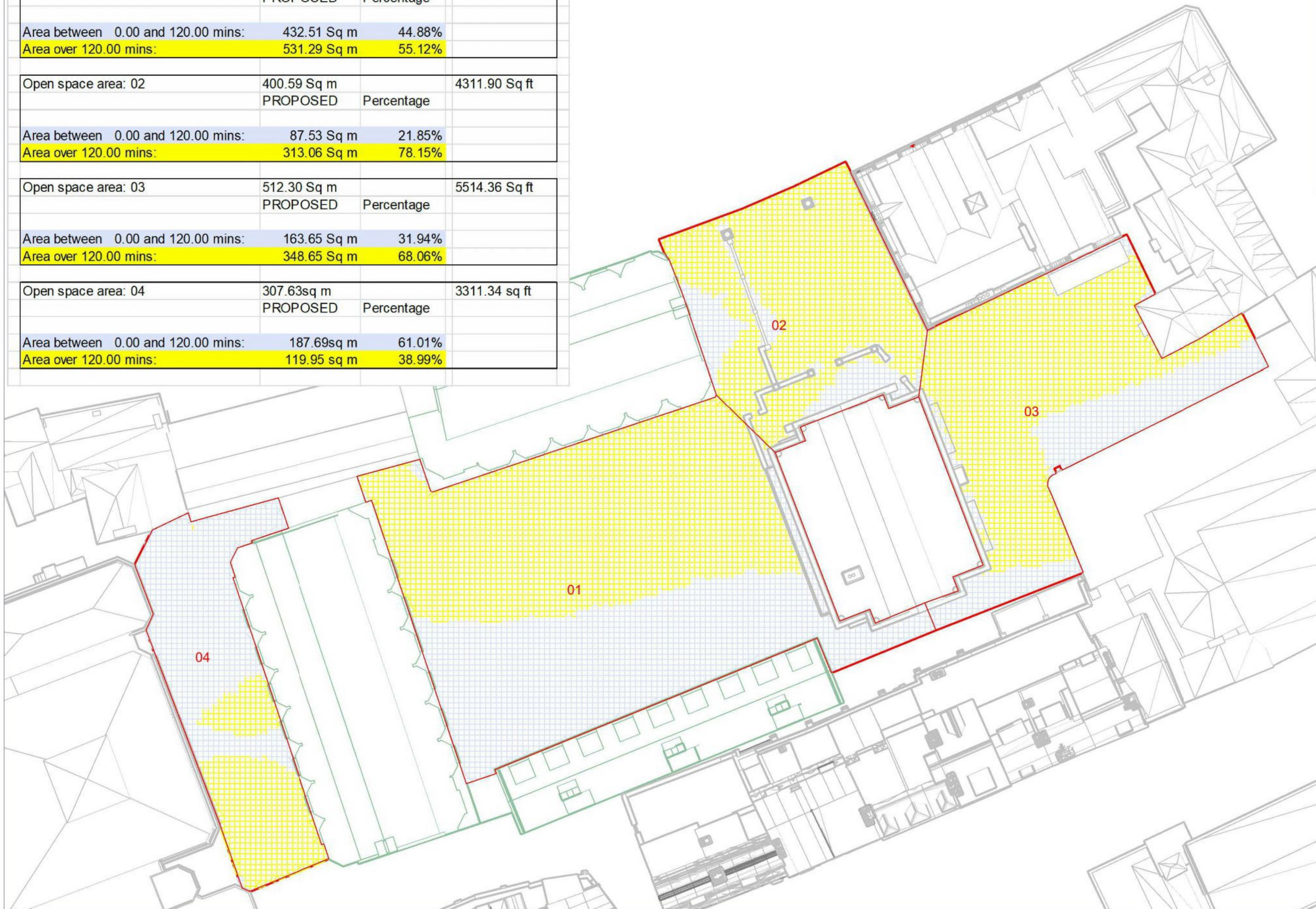
Sun Hours on Ground
Drawing
No. BRE/33

TIME IN SUN ANALYSIS

Start Time: Mar 21 6:00 am, End Time: Mar 21 20:00 pm, Solar Sample Interval: 5 min
Solar Angle Cutoff: 10.0 deg, Working Plane: 5.0 mm
Sunlight Sample: 5 min, Grid Size: 500.0 mm

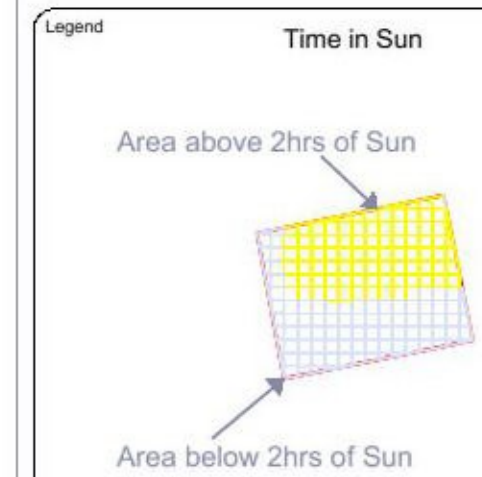
PEMBROKE COLLEGE, MILL LANE, CAMBRIDGE

Open space area: 01	963.80 Sq m		10374.25Sq ft
	PROPOSED	Percentage	
Area between 0.00 and 120.00 mins:	432.51 Sq m	44.88%	
Area over 120.00 mins:	531.29 Sq m	55.12%	
Open space area: 02	400.59 Sq m		4311.90 Sq ft
	PROPOSED	Percentage	
Area between 0.00 and 120.00 mins:	87.53 Sq m	21.85%	
Area over 120.00 mins:	313.06 Sq m	78.15%	
Open space area: 03	512.30 Sq m		5514.36 Sq ft
	PROPOSED	Percentage	
Area between 0.00 and 120.00 mins:	163.65 Sq m	31.94%	
Area over 120.00 mins:	348.65 Sq m	68.06%	
Open space area: 04	307.63sq m		3311.34 sq ft
	PROPOSED	Percentage	
Area between 0.00 and 120.00 mins:	187.69sq m	61.01%	
Area over 120.00 mins:	119.95 sq m	38.99%	



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171006 Existing Site Model.dwg

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ZMAP
PHOTOS

GROUND FLOOR WINDOWS ESTIMATED
NOT SEEN BY SURVEY
ALL ROOMS ESTIMATED
ROOM USES ESTIMATED

PROPOSED BUILDING
INFO 02 OCT 2018
1609\20Pembroke\20Proposed\20Site\20Model\20181002\20v2.dwg
INFO 27 SEPT 2018
1609 Pembroke Proposed Site Model.dwg

GVA

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GVA Schatunowski Brooks
65 Gresham Street, London, EC2V 7NQ
www.gva.co.uk

Project Name
MILL LANE
CAMBRIDGE

Client
MILLERS YARD PARTNERSHIP LTD

Drawing Title
TIME IN SUN FOR
PROPOSED SITE

Drawn By: RT, Chk'd By: -, Scale @ A3: N.A, Date: 23 OCT 2018

Project No.: MI59/14, Drawing No.: BRE_33, Revision: -

TIME IN SUN

A3