gia

Daylight and Sunlight

New City Court & Southwark Cathedral

Prepared by: Kevin Francis

Reference: 8684

Date: 01/03/2019

DATE / REF

01/03/2019
KF/8684

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By Email
Sarah.Considine@dp9.co.uk

Sarah Considine
DP9 Ltd
100 Pall Mall
London
SW1Y 5NQ

Dear Sarah.

Re: The Proposed redevelopment of New City Court and the Southwark Cathedral – Daylight, Sunlight and Overshadowing Summary

GIA have undertaken detailed Daylight, Sunlight and Overshadowing Assessments to the windows, rooms and courtyard of the Southwark Cathedral. The assessments have been undertaken in accordance with the BRE Guidelines *'Site layout planning for daylight and sunlight: a guide to good practice (BR 209)*. Whilst not planning policy nor a mandatory set of rules, the BRE document advises on planning developments for good access to daylight and sunlight and is widely used by local authorities to understand the effect a new development may have on the amenity of neighbouring properties.

Daylight and Sunlight

The BRE guidelines provide two main methods of calculation for daylight. The first is known as the Vertical Sky Component ("VSC") method which considers the potential for daylight by calculating the angle of vertical sky at the centre of each of the windows serving the buildings which look towards the site. This is a more simplistic approach and it could be considered as a "rule of thumb" to highlight whether there are any potential concerns to the amenity serving a particular property.

The second method is the No Sky Line ("NSL") method, sometimes referred to as Daylight Distribution. This simply assesses the change in where the sky can be seen and not seen from within a room, between the existing and proposed situations. This methodology does take into account the number and size of windows to a room.

In relation to sunlight, the criteria given calculates the Annual Probable Sunlight Hours ("APSH") which considers the amount of sun available in both the summer and winter for each given window/ room which faces within 90° of due south of the development site. Summer is considered to be the six months between March 21st and September 21st and winter the remaining months.

The high-level summary of our findings of the '*Existing v Proposed*' analysis is that **102/102 (100%)** of windows will meet the BRE criteria for VSC, **19/19 (100%)** of rooms will meet the BRE criteria for NSL and **3/3 (100%)** of south facing rooms will meet the BRE criteria for APSH. The full tabulated results have been appended to this document (appendix 01).

GIA conclude that any impact on Daylight and Sunlight to the receptors on the Southwark Cathedral would be negligible and not noticeable.

Overshadowing

A 'Sun Hours on Ground' ("SHOG") overshadowing assessment has been undertaken upon all relevant amenity spaces neighbouring the site and has been included as part of the Environmental Impact Assessment ("EIA"). Paragraph 3.3.17 within the BRE Guidelines states:

"It is recommended that for it to appear adequately sunlit throughout the year, at least half of a garden or amenity area should receive at least two hours of sunlight on the 21st March. If, as a result of new development, an existing garden or amenity area does not meet the above and the area which can receive two hours of sun on the 21st March is less than 0.8 times its former value, then the loss of sunlight is likely to be noticeable".

For the purpose of this note, we have extracted the relevant part of the study which relates to the Southwark Cathedrals publicly accessible courtyard (see appendix 02). In the existing scenario, GIAs SHOG analysis indicates that 85% of the courtyard will experience 2+ hours of direct sunlight. In the proposed scenario, our analysis indicates that 85% of the area will continue to enjoy 2+ hours of direct sunlight, which is well in excess of BRE recommendations and indeed no material change from what is currently enjoyed.

This analysis would suggest that any additional shadow that does traverse the courtyard as a result of the proposed development will be brief and transitory and not have a lasting effect on the quality of sunlight within the courtyard as a whole.

I trust the above summary is clear, however should you have any queries, please feel free to contact me.

Yours sincerely
For and on behalf of GIA

Kevin Francis
Partner
kevin.francis@gia.uk.com

Encl. Appendix 01 – Daylight and Sunlight Results
Appendix 02 – Overshadowing Analysis
Appendix 03 – Window Maps

Appendix 01

Daylight and Sunlight Results

Vertical Sky Component (VSC)
No Sky Line (NSL)
Annual Probable Sunlight Hours (APSH)

					VSC (WINDOW)				VSC (ROOM)				NSL				APSH (ROOM)					
FLOOR	ROOM	PROPERTY TYPE	WINDOW	WINDOW NOTES	EX. %	PR. %	LOSS	LOSS %	EX. %	PR. %	LOSS	LOSS %	EX. %	PR. %	LOSS SQM	LOSS %	EX.		PR.		LOSS %	
																	ANNUAL	WINTER	ANNUAL	WINTER	ANNUAL	WINTER
SOUTHWARK CATHEDRAL																						
F00	R1	RELIGIOUS	W1/F00		29.7	28.1	1.6	5.4%	26.9	26	0.9	3.3%	97.1	97.1	0.1	0.0%	98	29	98	29	0.0%	0.0%
			W2/F00		29.3	27.5	1.8	6.1%														
			W3/F00		30.7	28.8	1.9	6.2%														
			W4/F00		30.2	28.3	1.9	6.3%														
			W5/F00		25.8	25.8	0	0.0%														
			W6/F00		32.8	31.2	1.6	4.9%														
			W7/F00		34.1	32.3	1.8	5.3%														
			W8/F00		34.2	32.4	1.8	5.3%														
			W9/F00		34	32	2	5.9%														
			W10/F00		33	31.5	1.5	4.5%														
			W11/F00		30.9	30.1	0.8	2.6%														
			W12/F00		26.1	26.1	0	0.0%														
			W13/F00		23.4	23.4	0	0.0%														
			W18/F00		24.9	22.7	2.2	8.8%														
			W19/F00		17.9	15.8	2.1	11.7%														
			W20/F00		16.3	14	2.3	14.1%														
			W21/F00		26.2	23.8	2.4	9.2%														
			W22/F00		24.2	21.6	2.6	10.7%														
			W23/F00		23.2	22.2	1	4.3%														
			W24/F00		18.1	16.4	1.7	9.4%														
			W25/F00		20.8	18.2	2.6	12.5%														
			W26/F00		27.3	25.1	2.2	8.1%														
			W27/F00		25.9	25.2	0.7	2.7%														
			W28/F00		22.8	20.3	2.5	11.0%														
			W29/F00		28.9	26	2.9	10.0%														
			W30/F00		30.9	28.2	2.7	8.7%														
			W31/F00		32.3	29.1	3.2	9.9%														
			W32/F00		33.3	29.9	3.4	10.2%														
			W33/F00		22.9	22	0.9	3.9%														
			W34/F00		23.1	21.8	1.3	5.6%														
			W35/F00		22.1	21.4	0.7	3.2%														
SOUTHWARK CATHEDRAL (CONTINUED)																						
			W36/F00		20.7	19.7	1	4.8%														

(1) KITCHEN SMALLER THAN 13m2

(2) INC\HZ = SKY COMPONENT (INCLINED\HORIZONTAL WINDOWS)

(3) SINGLE ASPECT ROOM DEEPER THAN 5m

					VSC (WINDOW)				VSC (ROOM)				NSL				APSH (ROOM)					
FLOOR	ROOM	PROPERTY TYPE	WINDOW	WINDOW NOTES	EX. %	PR. %	LOSS	LOSS %	EX. %	PR. %	LOSS	LOSS %	EX. %	PR. %	LOSS SQM	LOSS %	EX.		PR.		LOSS %	
																	ANNUAL	WINTER	ANNUAL	WINTER	ANNUAL	WINTER
			W37/F00		26.5	24.9	1.6	6.0%														
			W38/F00		26.3	24.7	1.6	6.1%														
			W39/F00		25.7	24.1	1.6	6.2%														
			W40/F00		24	22.5	1.5	6.2%														
			W41/F00		28.6	26.7	1.9	6.6%														
			W42/F00		28.7	26.8	1.9	6.6%														
			W43/F00		28.3	26.4	1.9	6.7%														
			W44/F00		13.8	13.8	0	0.0%														
			W45/F00		16.3	16.3	0	0.0%														
			W46/F00		16.9	16.9	0	0.0%														
			W47/F00		13.9	13.9	0	0.0%														
			W48/F00		16	16	0	0.0%														
			W49/F00		13.3	13.3	0	0.0%														
			W50/F00		29.2	29.2	0	0.0%														
			W51/F00		29.7	29.7	0	0.0%														
			W52/F00		29.2	29.2	0	0.0%														
			W53/F00		28.3	28.3	0	0.0%														
			W54/F00		25	25	0	0.0%														
			W55/F00		15.7	15.7	0	0.0%														
			W56/F00		21.3	21.3	0	0.0%														
			W57/F00		24	24	0	0.0%														
			W58/F00		25.3	24.8	0.5	2.0%														
			W59/F00		32.4	32.4	0	0.0%														
			W65/F00		21.5	21.5	0	0.0%														
			W66/F00		16.6	16.6	0	0.0%														
			W67/F00		23.7	23.7	0	0.0%														
			W68/F00		26.3	26.3	0	0.0%														
			W69/F00		26.3	26.3	0	0.0%														
			W70/F00		26.2	26.2	0	0.0%														
			W71/F00		25.3	25.3	0	0.0%														
SOUTHWARK CATHEDRAL (CONTINUED)																						
			W72/F00		22.7	22.7	0	0.0%														
			W73/F00		24.4	24.4	0	0.0%														
			W74/F00		29.5	29.5	0	0.0%														
			W75/F00		30.7	30.7	0	0.0%														

(1) KITCHEN SMALLER THAN 13m2

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(3) SINGLE ASPECT ROOM DEEPER THAN 5m

					VSC (WINDOW)				VSC (ROOM)				NSL				APSH (ROOM)					
FLOOR	ROOM	PROPERTY TYPE	WINDOW	WINDOW NOTES	EX. %	PR. %	LOSS	LOSS %	EX. %	PR. %	LOSS	LOSS %	EX. %	PR. %	LOSS SQM	LOSS %	EX.		PR.		LOSS %	
																	ANNUAL	WINTER	ANNUAL	WINTER	ANNUAL	WINTER
			W76/F00		31.9	31.9	0	0.0%														
			W77/F00		31.4	31.4	0	0.0%														
			W78/F00		31.7	31.7	0	0.0%														
			W79/F00		29.8	29.8	0	0.0%														
			W82/F00		14.5	14.5	0	0.0%														
			W83/F00		18.2	18.2	0	0.0%														
			W84/F00		28.1	28.1	0	0.0%														
			W85/F00		30.4	30.4	0	0.0%														
			W86/F00		28.5	28.5	0	0.0%														
			W64/F00		26.7	26.7	0	0.0%														
			W63/F00		28.9	28.9	0	0.0%														
			W14/F00		30.5	30.5	0	0.0%														
			W15/F00		32.6	32.6	0	0.0%														
			W16/F00		36.3	33.6	2.7	7.4%														
			W17/F00		27.1	24.8	2.3	8.5%														
	R2	RELIGIOUS	W80/F00		20.4	20.4	0	0.0%	18.4	18.4	0	0.0%	61.2	61.2	0.0	0.0%	N/A	N/A	N/A	N/A	N/A	N/A
			W81/F00		14.3	14.3	0	0.0%														
F01	R1	RELIGIOUS	W9/F01		19.1	19.1	0	0.0%	19.1	19.1	0	0.0%	30.4	30.4	0.0	0.0%	N/A	N/A	N/A	N/A	N/A	N/A
	R2	RELIGIOUS	W1/F01		37.9	35.5	2.4	6.3%	37.4	36.3	1.1	2.9%	100	100	0.0	0.0%	95	26	92	23	3.2%	11.5%
			W2/F01		37.8	35.3	2.5	6.6%														
			W3/F01		33.8	31.8	2	5.9%														
			W4/F01		33.8	31.9	1.9	5.6%														
			W5/F01		38.7	38.7	0	0.0%														
			W6/F01		38.7	38.7	0	0.0%														
			W7/F01		39.4	39.4	0	0.0%														
			W8/F01		39.4	39.4	0	0.0%														
F02	R1	RELIGIOUS	W3/F02		38.3	35.9	2.4	6.3%	38	36.9	1.1	2.9%	100	100	0.0	0.0%	95	26	92	23	3.2%	11.5%
SOUTHWARK CATHEDRAL (CONTINUED)																						
			W4/F02		38.2	35.8	2.4	6.3%														
			W5/F02		34.9	33	1.9	5.4%														
			W6/F02		34.9	33.1	1.8	5.2%														
			W7/F02		39.2	39.2	0	0.0%														
			W8/F02		39.2	39.2	0	0.0%														
			W9/F02		39.6	39.6	0	0.0%														
			W10/F02		39.6	39.6	0	0.0%														

(1) KITCHEN SMALLER THAN 13m2

(2) INC\HZ = SKY COMPONENT (INCLINED\HORIZONTAL WINDOWS)

(3) SINGLE ASPECT ROOM DEEPER THAN 5m

					VSC (WINDOW)				VSC (ROOM)				NSL				APSH (ROOM)					
FLOOR	ROOM	PROPERTY TYPE	WINDOW	WINDOW NOTES	EX. %	PR. %	LOSS %	LOSS %	EX. %	PR. %	LOSS %	LOSS %	EX. %	PR. %	LOSS SQM	LOSS %	EX.		PR.		LOSS %	
																	ANNUAL	WINTER	ANNUAL	WINTER	ANNUAL	WINTER
	R2	RELIGIOUS	W1/F02		29	29	0	0.0%	26.3	26.3	0	0.0%	50.7	50.7	0.0	0.0%	N/A	N/A	N/A	N/A	N/A	N/A
			W2/F02		24.1	24.1	0	0.0%														

(1) KITCHEN SMALLER THAN 13m2

(2) INC\HZ = SKY COMPONENT (INCLINED\HORIZONTAL WINDOWS)

(3) SINGLE ASPECT ROOM DEEPER THAN 5m

Appendix 02

Overshadowing Analysis

DAYLIGHT & SUNLIGHT

OVERSHADOWING IMPACT ASSESSMENT

New City Court

02 January 2019

GIA No: **8684**

PROJECT DATA:

Client	**Great Portland Estates**
Architect	**AHMM**
Project Title	**New City Court**
Project Number	**8684**

REPORT DATA:

Report Title	**Overshadowing Impact Assessment**
GIA Department	**Daylight & Sunlight**
Dated	**02 January 2019**

Prepared by	**GLE**
Checked by	
Type	**Planning**

Revisions	No:	Date:	Notes:	Signed:
Rev A	**1**	**02/01/2019**	**Shard Place Terrace Added to the Assessments**	**PCA**

SOURCES OF INFORMATION:

Information Received	**IR-29_38-8684**
Release Number	**Rel_04_8684_DSD**
Issue Number	**05**
Site Photos	**GIA**
3D models	**VERTEX**
OS Data	**FIND Maps**

CONTENTS

1 BRE GUIDELINES

The Building Research Establishment (BRE) have set out in their handbook 'Site Layout Planning for Daylight and Sunlight a Guide to Good Practice (2011)', guidelines and methodology for the measurement and assessment of daylight and sunlight within proposed buildings.

The guide also provides advice on site layout planning to determine the quality of daylight and sunlight within open spaces between buildings.

It is important to note, however, that this document is a guide and states that its aim *"is to help rather than constrain the designer"*.

The document provides advice, but also clearly states that it *"is not mandatory and this document should not be seen as an instrument of planning policy."* The report also acknowledges in its introduction that *"in special circumstances the developer or planning authority may wish to use different target values. For example, in a historic city centre a higher degree of obstruction may be unavoidable if new developments are to match the height and proportions of existing buildings."*

It is an inevitable consequence of the built up urban environment that daylight and sunlight will be more limited in these areas. It is well acknowledged that in such situations there may be many other conflicting and potentially more important planning and urban design matters to consider other than just the provision of ideal levels of daylight and sunlight.

1.1 OVERSHADOWING

The BRE guidance in respect of overshadowing of amenity spaces is set out in section 3.3 of the handbook. Here it states as follows:

"Sunlight in the spaces between buildings has an important impact on the overall appearance and ambiance of a development. It is valuable for a number of reasons, to:

- *provide attractive sunlit views (all year)*
- *make outdoor activities, like sitting out and children's play more pleasant (mainly warmer months)*
- *encourage plant growth (mainly spring and summer)*
- *dry out the ground, reducing moss and slime (mainly in colder months)*
- *melt frost, ice and snow (in winter)*
- *dry clothes (all year)"*

Again, it must be acknowledged that in urban areas the availability of sunlight on the ground is a factor which is significantly controlled by the existing urban fabric around the site in question and so may have very little to do with the form of the development itself. Likewise there may be many other urban design, planning and site constraints which determine and run contrary to the best form, siting and location of a proposed development in terms of availability of sun on the ground.

The summary of section 3.3 of the guide states as follows:

"3. 3 .17 It is recommended that for it to appear adequately sunlit throughout the year, at least half of a garden or amenity area should receive at least two hours of sunlight on 21 March. If as a result of new development an existing garden or amenity area does not meet the above, and the area which can receive two hours of sun on 21 March is less than 0.8 times its former value, then the loss of sunlight is likely to be noticeable. If a detailed calculation cannot be carried out, it is recommended that the centre of the area should receive at least two hours of sunlight on 21 March."

2 METHODOLOGY

In order to undertake the daylight and sunlight assessments set out in the previous pages, we have prepared a three dimensional computer model and used specialist lighting simulation software.

The three dimensional representation of the proposed development has been modelled using the scheme drawings provided to us by AHMM. This has been placed in the context of its surrounding buildings which have been modelled from survey information, photogrammetry, OS and site photographs. This allows for a precise model, which in turn ensures that analysis accurately represents the amount of daylight and sunlight available to the building facades, internal and external spaces, considering all of the surrounding obstructions and orientation.

3 OVERSHADOWING ASSESSMENTS

OVERSHADOWING ASSESSMENT - SOUTHWARK CATHEDRAL SOUTHERN GARDEN
SUN HOURS ON GROUND - BRE COMPLIANCE EXISTING SCENARIO

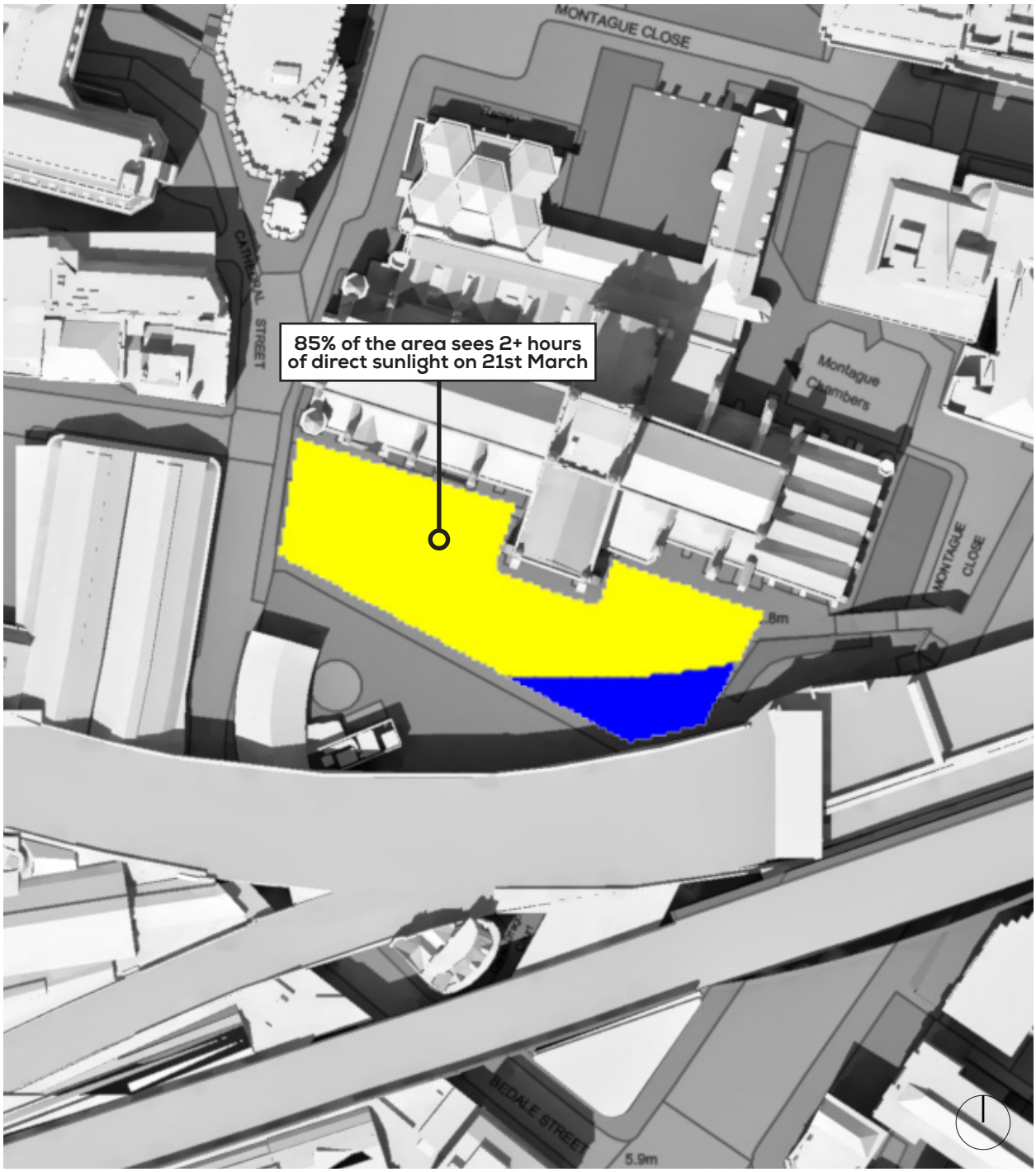
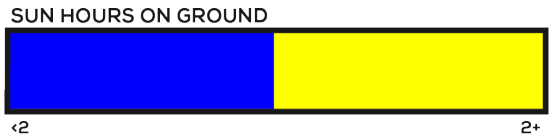


Fig. 01: Top view



OVERSHADOWING ASSESSMENT - SOUTHWARK CATHEDRAL SOUTHERN GARDEN
SUN HOURS ON GROUND - BRE COMPLIANCE PROPOSED SCENARIO

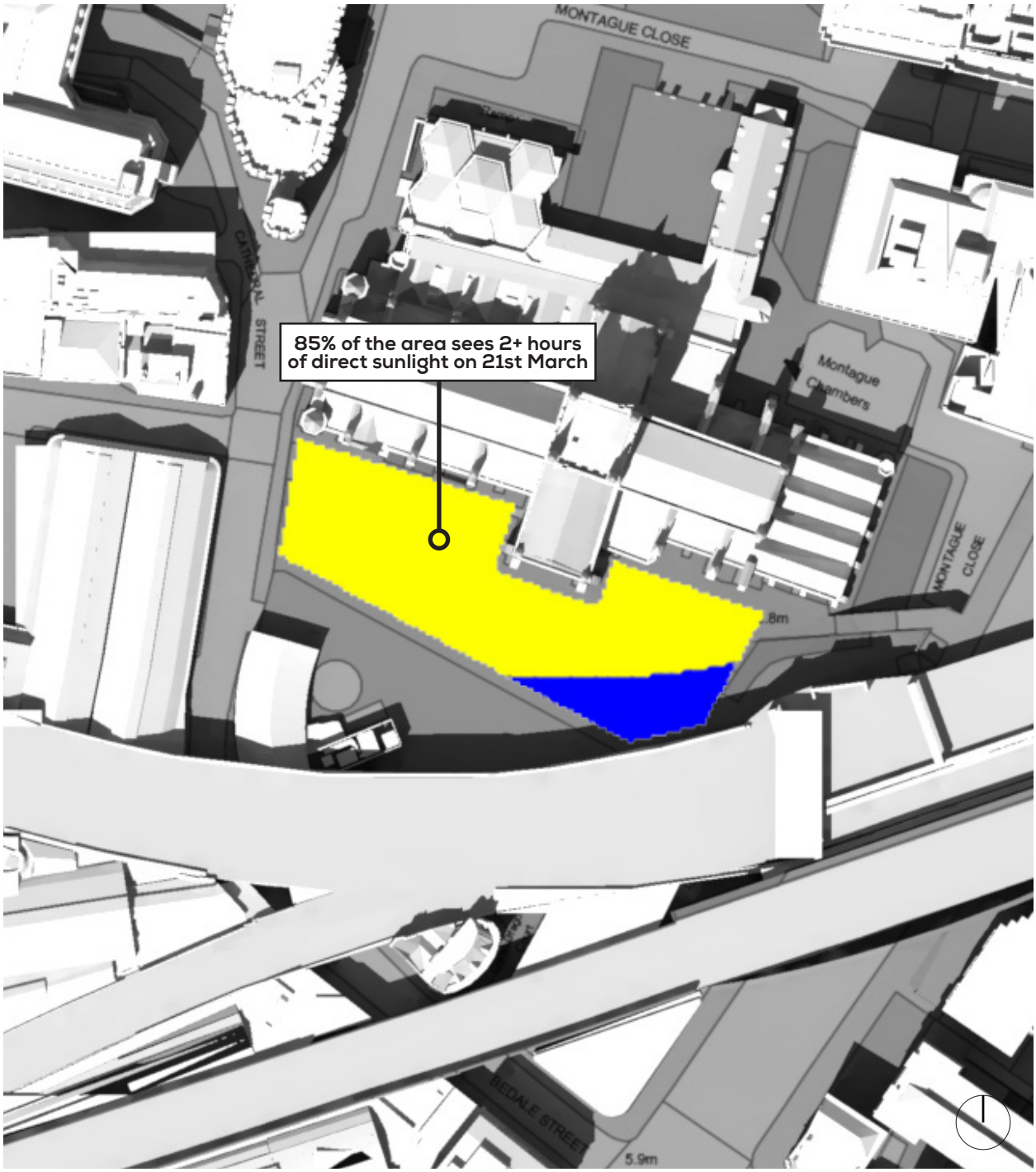
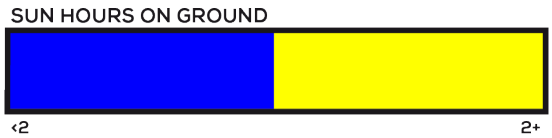


Fig. 02: Top view



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Appendix 03

Window Maps

SOUTH ELEVATION

SOURCES OF INFORMATION

SITE PHOTOGRAPHY
IR15-8684 - PLOWMAN CRAVEN

FIND MAP
IR14-8684 - 090916

SURVEY
IR16-8684 - 130916 - PLOWMAN CRAVEN

PROPOSED SCHEME
IR29-8684 - 29.08.2018
IR30-8684 - 04.09.2018

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NOTES:
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N.B. DO NOT SCALE OFF THIS DRAWING

PROJECT:
NEW CITY COURT
LONDON

DRAWING NAME:
WINDOW MAPS

SOUTHWARK CATHEDRAL

DWN BY	SCALE	CHK BY	DATE	REV No.
CRC	NTS@A3		06.09.18	A
PROJ No.	REL No.	ADDR No.	IS No.	DWG No.
8684	03	-	03	001

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EAST ELEVATION

SOURCES OF INFORMATION

SITE PHOTOGRAPHY
IR15-8684 - PLOWMAN CRAVEN

FIND MAP
IR14-8684 - 090916

SURVEY
IR16-8684 - 130916 - PLOWMAN CRAVEN

PROPOSED SCHEME
IR29-8684 - 29.08.2018
IR30-8684 - 04.09.2018

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NOTES:
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N.B. DO NOT SCALE OFF THIS DRAWING

PROJECT:
NEW CITY COURT
LONDON

DRAWING NAME:
WINDOW MAPS

SOUTHWARK CATHEDRAL

DWN BY	SCALE	CHK BY	DATE	REV No.
CRC	NTS@A3		06.09.18	A
PROJ No.	REL No.	ADDR No.	IS No.	DWG No.
8684	03	-	03	002

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www.gia.uk.com
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NORTH ELEVATION

SOURCES OF INFORMATION

SITE PHOTOGRAPHY
IR15-8684 - PLOWMAN CRAVEN

FIND MAP
IR14-8684 - 090916

SURVEY
IR16-8684 - 130916 - PLOWMAN CRAVEN

PROPOSED SCHEME
IR29-8684 - 29.08.2018
IR30-8684 - 04.09.2018

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NOTES:
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N.B. DO NOT SCALE OFF THIS DRAWING

PROJECT:
NEW CITY COURT
LONDON

DRAWING NAME:
WINDOW MAPS

SOUTHWARK CATHEDRAL

DWN BY	SCALE	CHK BY	DATE	REV No.
CRC	NTS@A3		06.09.18	A
PROJ No.	REL No.	ADDR No.	IS No.	DWG No.
8684	03	-	03	003

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WEST ELEVATION

SOURCES OF INFORMATION

SITE PHOTOGRAPHY
IR15-8684 - PLOWMAN CRAVEN

FIND MAP
IR14-8684 - 090916

SURVEY
IR16-8684 - 130916 - PLOWMAN CRAVEN

PROPOSED SCHEME
IR29-8684 - 29.08.2018
IR30-8684 - 04.09.2018

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NOTES:
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N.B. DO NOT SCALE OFF THIS DRAWING

PROJECT:
NEW CITY COURT
LONDON

DRAWING NAME:
WINDOW MAPS

SOUTHWARK CATHEDRAL

DWN BY	SCALE	CHK BY	DATE	REV No.
CRC	NTS@A3		06.09.18	A
PROJ No.	REL No.	ADDR No.	IS No.	DWG No.
8684	03	-	03	004

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