



RIGHT OF LIGHT
CONSULTING
Chartered Surveyors

Daylight and Sunlight Report

(Within Development)

22 November 2021

Watts Close,
London N15 5DW

Right of Light Consulting Ltd

Burley House
15-17 High Street
Rayleigh
Essex SS6 7EW

Tel: 0800 197 4836

www.right-of-light.co.uk

CONTENTS

1 EXECUTIVE SUMMARY	2
1.1 Overview	2
2 INFORMATION SOURCES	3
2.1 Documents Considered	3
3 METHODOLOGY OF THE STUDY	4
3.1 Local Planning Policy.....	4
3.2 National Planning Policy Framework.....	4
3.3 Interior Daylighting.....	5
3.4 Sunlight to Windows	7
3.5 Overshadowing to Gardens and Open Spaces	7
4 RESULTS OF THE STUDY	8
4.1 Window Reference Points and No Skyline Contours.....	8
4.2 Daylight & Sunlight Data.....	8
4.3 Interior Daylighting.....	8
4.4 Sunlight to Windows	8
4.5 Overshadowing to Gardens and Open Spaces	9
4.6 Conclusion.....	9
5 CLARIFICATIONS	11
5.1 General.....	11

APPENDICES

APPENDIX 1	WINDOW KEY & NO SKY LINE CONTOURS
APPENDIX 2	DAYLIGHT & SUNLIGHT DATA
APPENDIX 3	OVERSHADOWING TO GARDENS & OPEN SPACES

1 EXECUTIVE SUMMARY

1.1 Overview

- 1.1.1 Right of Light Consulting has been commissioned by The London Borough of Haringey to undertake a daylight and sunlight study in connection with the development at Watts Close, London N15 5DW. The aim of the study is to check whether the proposed accommodation will provide its future occupiers with adequate levels of natural light.
- 1.1.2 The study is based on the numerical tests laid down in the Building Research Establishment (BRE) guide 'Site Layout Planning for Daylight and Sunlight: a good practice guide, 2nd Edition' by P J Littlefair 2011.
- 1.1.3 Appendix 1 identifies the windows analysed in this study. The no skyline contours for the habitable rooms are also presented in Appendix 1. The numerical results of the BRE daylight and sunlight tests are provided in Appendix 2. Overshadowing to gardens and opens spaces contour drawings are provided in Appendix 3.
- 1.1.4 The numerical results demonstrate that the proposed development design achieves a very high level of compliance with the BRE recommendations. Whilst a small number of rooms do not meet the daylight recommendations (rooms served by windows 3 to 4, 5, 6, 7, 8 & 9 to 10) and a small number of outdoor amenity areas (gardens 8 to 10) do not meet the sunlight recommendations, the results are not unusual in the context of an urban location.
- 1.1.5 In our professional opinion, the proposed design will provide the development's future occupiers with adequate levels of natural light. We consider the proposed development to be consistent with the NPPF, which requires developments to provide acceptable living standards whilst making efficient use of land.

2 INFORMATION SOURCES

2.1 Documents Considered

2.1.1 This report is based on the following drawings:

Newground Architects

	Architect 3D Model	Rev -
001	GA Elevations - Sheet 1	Rev -
001	GA Floor Plan - Ground Floor Plan	Rev -
002	GA Floor Plan - First Floor Plan	Rev -
002	GA Elevations - Sheet 2	Rev -
003	GA Floor Plan - Second Floor Plan	Rev -
003	Proposed Site Plan	Rev -
004	GA Floor Plan - Roof Plan	Rev -
101	GA Sections - Sheet 1	Rev -
102	GA Sections - Sheet 1	Rev -

3 METHODOLOGY OF THE STUDY

3.1 Local Planning Policy

3.1.1 We understand that the Local Authority takes the conventional approach of considering daylight and sunlight amenity with reference to the various numerical tests laid down in the Building Research Establishment (BRE) guide 'Site Layout Planning for Daylight and Sunlight: a guide to good practice, 2nd Edition' by P J Littlefair 2011. A new European standard BS EN 17037 'Daylight in Buildings' was published in May 2019. An update to the BRE guide to take into account the European standard is expected sometime in 2021. It is not yet clear how, and to what extent, the European recommendations will be adopted by the BRE and Local Authorities.

3.1.2 The standards set out in the BRE guide are intended to be used flexibly. The BRE guide states:

"The guide is intended for building designers and their clients, consultants and planning officials. The advice given here is not mandatory and the guide should not be seen as an instrument of planning policy; its aim is to help rather than constrain the designer. Although it gives numerical guidelines, these should be interpreted flexibly, since natural lighting is only one of many factors in site layout design."

3.2 National Planning Policy Framework

3.2.1 The BRE numerical guidelines should be considered in the context of the National Planning Policy Framework (NPPF), which stipulates that local planning authorities should take a flexible approach to daylight and sunlight to ensure the efficient use of land. The NPPF states:

"Local planning authorities should refuse applications which they consider fail to make efficient use of land, taking into account the policies in this Framework. In this context, when considering applications for housing, authorities should take a flexible approach in applying policies or guidance relating to daylight and sunlight, where they would otherwise inhibit making efficient use of a site (as long as the resulting scheme would provide acceptable living standards)."

3.3 Interior Daylighting

- 3.3.1 The interior daylighting recommendations set out in the BRE guide are based on British Standard BS 8206 Part 2 and the Chartered Institute of Building Services Engineers Applications Manual on window design. Collectively, the guides set out three main criteria for interior daylighting. These are summarised as follows:

Test 1 - Average Daylight Factor

- 3.3.2 The Average Daylight Factor (ADF) can be calculated using the following formula:

$$df = \frac{T A_w \theta}{A (1-R^2)} \%$$

where

T is the diffuse visible transmittance of the glazing
A_w is the net glazed area of the window (m²)
A is the total area of the room surfaces (m²)
R is their average reflectance
θ is the angle of visible sky in degrees

- 3.3.3 The ADF test is applied to habitable rooms within domestic properties. A kitchen is generally deemed to be a habitable room if it is large enough to accommodate a dining area. If the kitchen is small, or if the property has a separate dining area, then the accepted practice is to treat the kitchen as a non-habitable room.
- 3.3.4 For the purpose of this study, we have assumed BRE internal reflectance coefficients pertaining to medium wooden floors (0.4), light painted walls (0.8) and matt white painted ceilings (0.85).
- 3.3.5 We have assumed that each window is double-glazed and has a glazed area that equates to 85% of the structural opening size. A glazing transmittance value, inclusive of a maintenance to allow for the effect of dirt and grime on the glazing, of 0.51 has been used.
- 3.3.6 To achieve a predominately daylit appearance, the guide recommends an ADF of 5% or more if there is no supplementary electric lighting, or 2% or more if supplementary lighting is provided. The guide also gives minimum recommendations for dwellings of 2% for kitchens, 1.5% for living rooms and 1% for bedrooms. The minimum targets have been adopted for the purpose of this study.

-
- 3.3.7 The BRE guide does not give guidance on how to apply the ADF test to spaces which contain a mix of room uses e.g. open plan living, dining and kitchen areas. For this assessment we have set a target of 2% with the aim of reaching the predominately daylight benchmark.
- 3.3.8 A special procedure is required for floor to ceiling windows such as patio doors. If part of a window is below the height of the working plane (a horizontal plane 0.85m above the floor in housing), this portion should be treated as a separate window. The ADF for this window has an extra factor applied to it, to take account of the reduced effectiveness of low level glazing in lighting the room. A value equal to the floor reflectance may be taken for this factor. The ADF for the portion of the window above the working plane is calculated in the normal way without this additional factor, and the ADFs for the two portions are added together.
- 3.3.9 Reflected light can be factored into the ADF calculation. For example, where a window has a large obstruction in front of it, the angle of visible sky can be increased by around 6°, assuming the obstruction is painted a light colour.

Test 2 - Room Depth

- 3.3.10 If a daylight room is lit by windows in one wall only, the depth of the room L should not exceed the limiting value given by:

$$\frac{L}{W} + \frac{L}{H} \leq \frac{2}{1-R_b}$$

where

W is the room width

H is the window-head height above floor level

R_b is the average reflectance of the surfaces in the rear half of the room

Test 3 - Position of the no skyline (Daylight Distribution)

- 3.3.11 If a significant area of the working plane lies beyond the no skyline (i.e. it receives no direct skylight), then the distribution of daylight in the room will look poor and supplementary electric lighting will be required.

3.3.12 The no skyline assessment is not applicable where a room derives its daylight solely from a light well or atrium. In these situations, the room relies on borrowed light instead of direct skylight.

3.4 Sunlight to Windows

3.4.1 The BRE guide states that, in general, a dwelling or non-domestic building which has a particular requirement for sunlight, will appear reasonably sunlit if:

- at least one main window wall faces within 90 degrees of due south, and
- the centre of at least one window to a main living room can receive 25% of annual probable sunlight hours, including at least 5% of the annual probable sunlight hours during the winter months between 21st September and 21st March.

3.4.2 The guide states that, where groups of dwellings are planned, site layout design should aim to maximise the number of dwellings with a main living room that meets the above recommendations.

3.4.3 The guide states that sunlight is viewed as less important in kitchens and bedrooms.

3.5 Overshadowing to Gardens and Open Spaces

3.5.1 The availability of sunlight should be checked for all open spaces where sunlight is required. This would normally include:

- Gardens, usually the main back garden of a house
- Parks and playing fields
- Children's playgrounds
- Outdoor swimming pools and paddling pools
- Sitting out areas, such as those between non-domestic buildings and in public squares
- Focal points for views such as a group of monuments or fountains.

3.5.2 The BRE guide recommends that, for an open space to appear adequately lit throughout the year, at least 50% of its area should receive two hours of sunlight on 21st March.

4 RESULTS OF THE STUDY

4.1 Window Reference Points and No Skyline Contours

4.1.1 Appendix 1 identifies the positions of the windows analysed in this study. The no skyline contours for the habitable rooms are also presented in Appendix 1.

4.2 Daylight & Sunlight Data

4.2.1 The numerical results of the BRE daylight and sunlight tests are provided in Appendix 2. Overshadowing to gardens and opens spaces contour drawings are provided in Appendix 3.

4.3 Interior Daylighting

4.3.1 Around 91% of all rooms achieve or surpass their Average Daylight Factor (ADF) targets ie only 6 out of the 64 rooms fall short of the targets. However, these are all open plan living/kitchen/dining or dining/kitchen rooms as explained in paragraphs 3.3.6 and 3.3.7 of this report, whilst the BRE guide gives minimum targets for living rooms, bedrooms and kitchens, no equivalent target is given for open plan rooms comprising two or more uses. Therefore, we have adopted the more onerous 2% target for these rooms. The rooms that do not achieve an ADF of 2%, achieve an ADF of 1.6% or above. The rooms therefore achieve the minimum recommended target applicable to living rooms. In overall terms, the ADF scores represent a relatively high level of compliance with the BRE recommendations.

4.3.2 All rooms, where applicable, pass the room depth test.

4.3.3 The BRE guide does not give fixed numerical pass/fail criteria for the No Skyline test when applied to new dwellings. However, for completeness, we have illustrated the no skyline contours in Appendix 1.

4.4 Sunlight to Windows

4.4.1 The BRE guide acknowledges that, in some cases, it may not be possible for every dwelling to achieve ideal levels of sunlight. The guide explains that, where groups of dwellings are planned, the aim should be to maximise the number of dwellings that:

- have at least one main window that faces within 90 degrees of due south, and

-
- have at least one window to a main living room that meets the BRE numerical targets.

4.4.2 In the case of the proposed development, 14 of the 18 units have a living room window which faces within 90 degrees of due south and of these 10 units have a living room window which meets the BRE numerical targets.

4.4.3 In our opinion, the proposed development represents good site layout design. Since the design maximises sunlight availability, as far as practically possible given the constraints of the site, the BRE direct sunlight to windows recommendations for groups of dwellings have been met.

4.5 Overshadowing to Gardens and Open Spaces

4.5.1 For Gardens 1 to 7 & 12 to 14 the results show that 65% or more of the area of each amenity space will receive at least two hours of sunlight on 21 March. This is significantly better than the BRE recommendation which states that at least 50% of any garden or amenity area should receive at least two hours of sunlight on 21 March. Whilst gardens 8 to 11 do not meet the BRE recommendation, there are mitigating factors to consider:

4.5.2 Firstly, they are all north facing, the results show that they do not meet the BRE recommendation of achieving 2 hours of sunlight on 21st March to 50% of its area. However, the BRE guide acknowledges that it is not always possible for all dwellings to have an ideal southerly aspect. Despite the shortfall, we still consider that all of these gardens will provide useable amenity areas for future occupants.

4.5.3 Secondly, all apartments have access to the proposed communal recreational areas (labelled gardens 7 & 12 in Appendix 2). These areas surpass the target set out in the BRE guide. The proposed development therefore achieves a satisfactory amount of sunlight to gardens and open spaces.

4.6 Conclusion

4.6.1 The numerical results demonstrate that the proposed development design achieves a very high level of compliance with the BRE recommendations. Whilst a small number of rooms do not meet the daylight recommendations (rooms served by windows 3 to 4, 5, 6, 7, 8 & 9 to 10) and a small number of outdoor amenity areas (gardens 8 to 10)

do not meet the sunlight recommendations, the results are not unusual in the context of an urban location.

- 4.6.2 In our professional opinion, the proposed design will provide the development's future occupiers with adequate levels of natural light. We consider the proposed development to be consistent with the NPPF, which requires developments to provide acceptable living standards whilst making efficient use of land.

5 CLARIFICATIONS

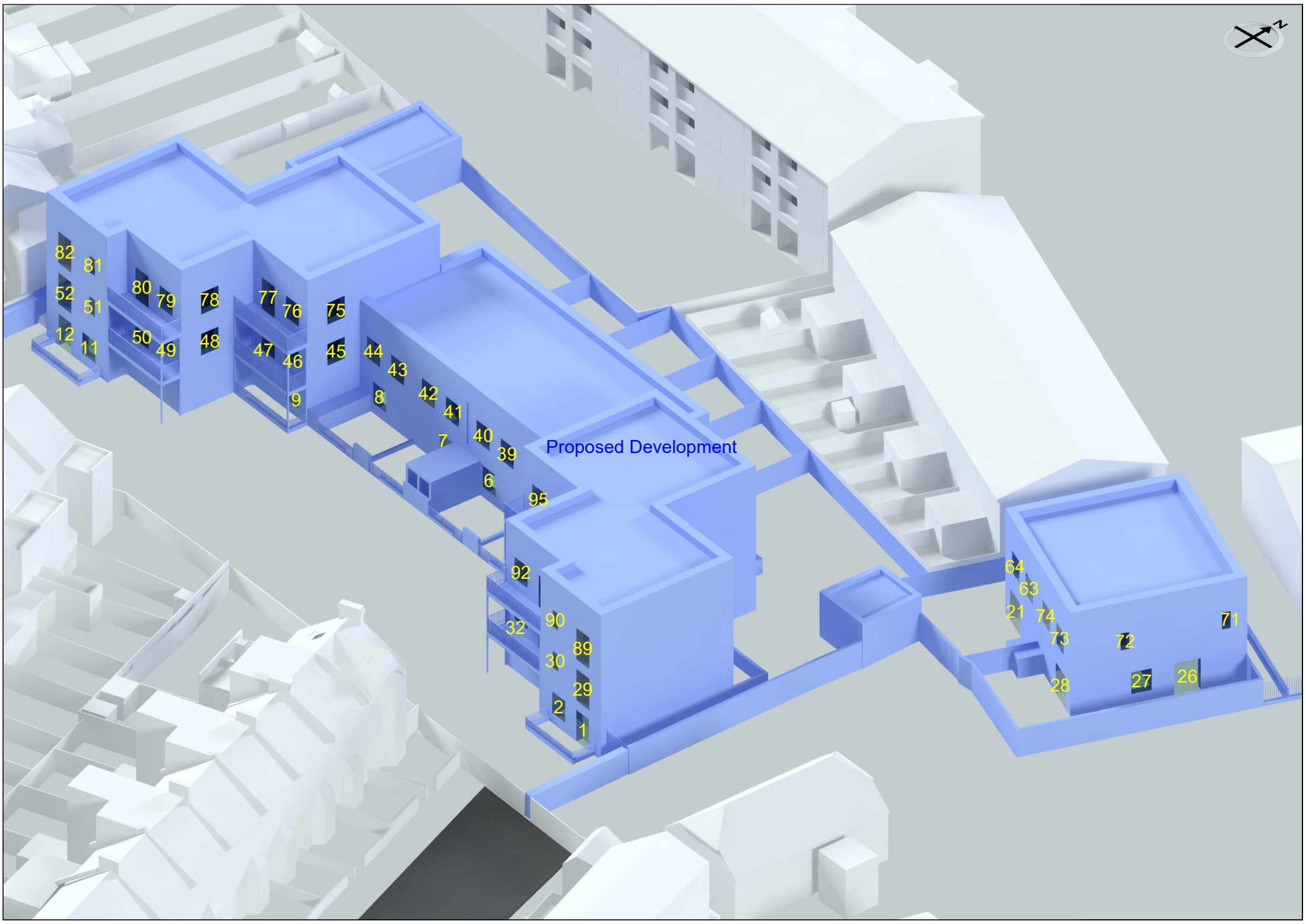
5.1 General

- 5.1.1 The report provided is solely for the use of the client and no liability to anyone else is accepted.
- 5.1.2 The study is limited to assessing daylight, sunlight and overshadowing of the proposed development as set out in section 2.1, (and) 3.1 and 3.3 of the BRE Guide.
- 5.1.3 The study is based on the information listed in section 2 of this report and a site visit undertaken on 23 December 2020.
- 5.1.4 We have undertaken the survey following the guidelines of the RICS publication "Surveying Safely". Where limited access is available, assumptions will have been made.
- 5.1.5 This report is based upon and subject to the scope of work set out in Right of Light Consulting's quotation and standard terms and conditions.

APPENDICES

APPENDIX 1

WINDOW KEY & NO SKYLINE CONTOURS



Proposed Development

82
52
12

81
51
11

80
50

79
49

78
48

77
47

76
46

75
45

44

43

42

41

40

39

38

37

36

35

34

33

32

31

30

29

28

27

26

25

24

23

22

21

20

19

18

17

16

15

14

13

12

11

10

9

8

7

6

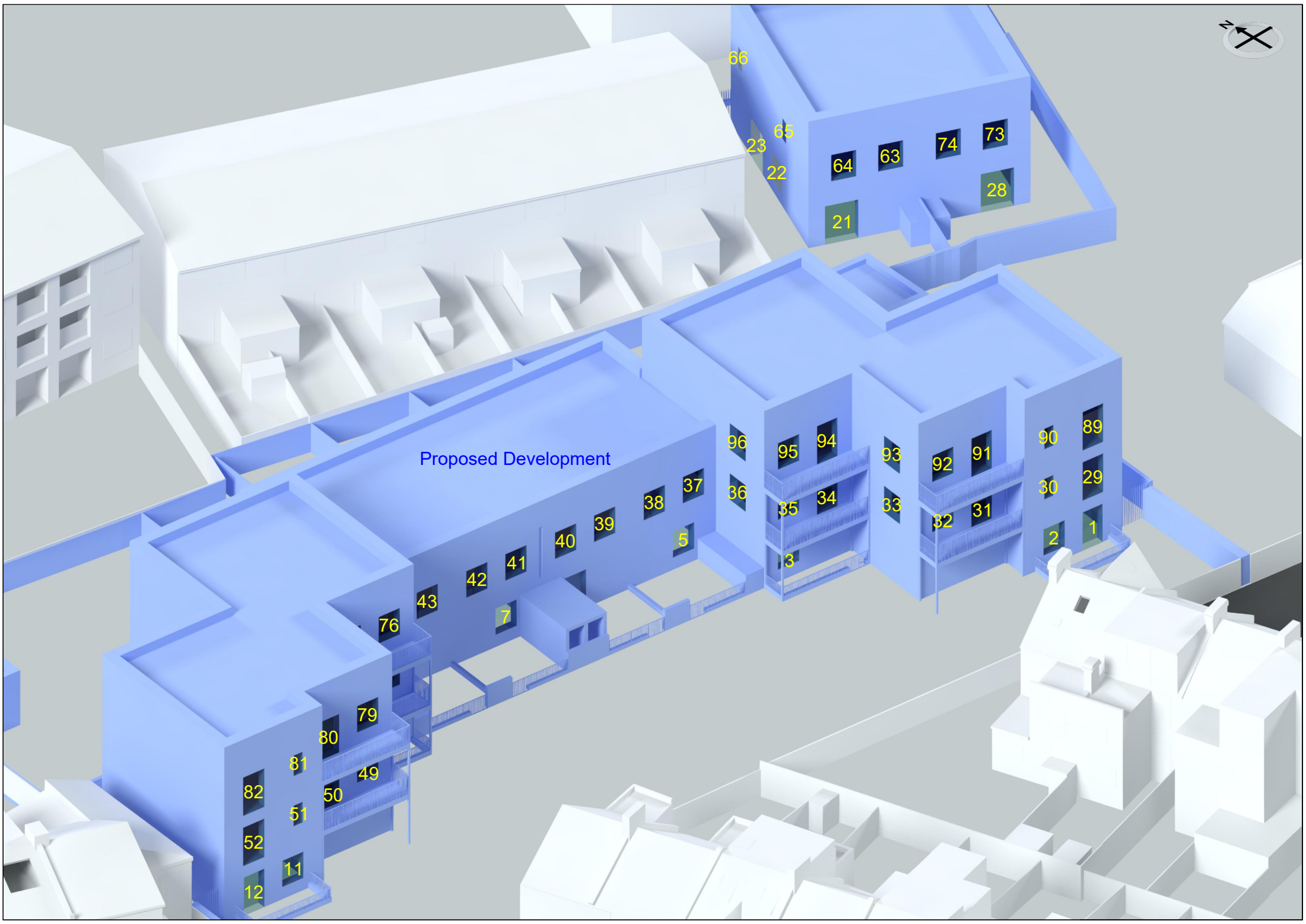
5

4

3

2

1





Proposed Development

88

62

20

87

61

19

86

60

4

59

18

58

17

57

16

56

15

14

85

84

54

83

53

13

72

27

71

26

70

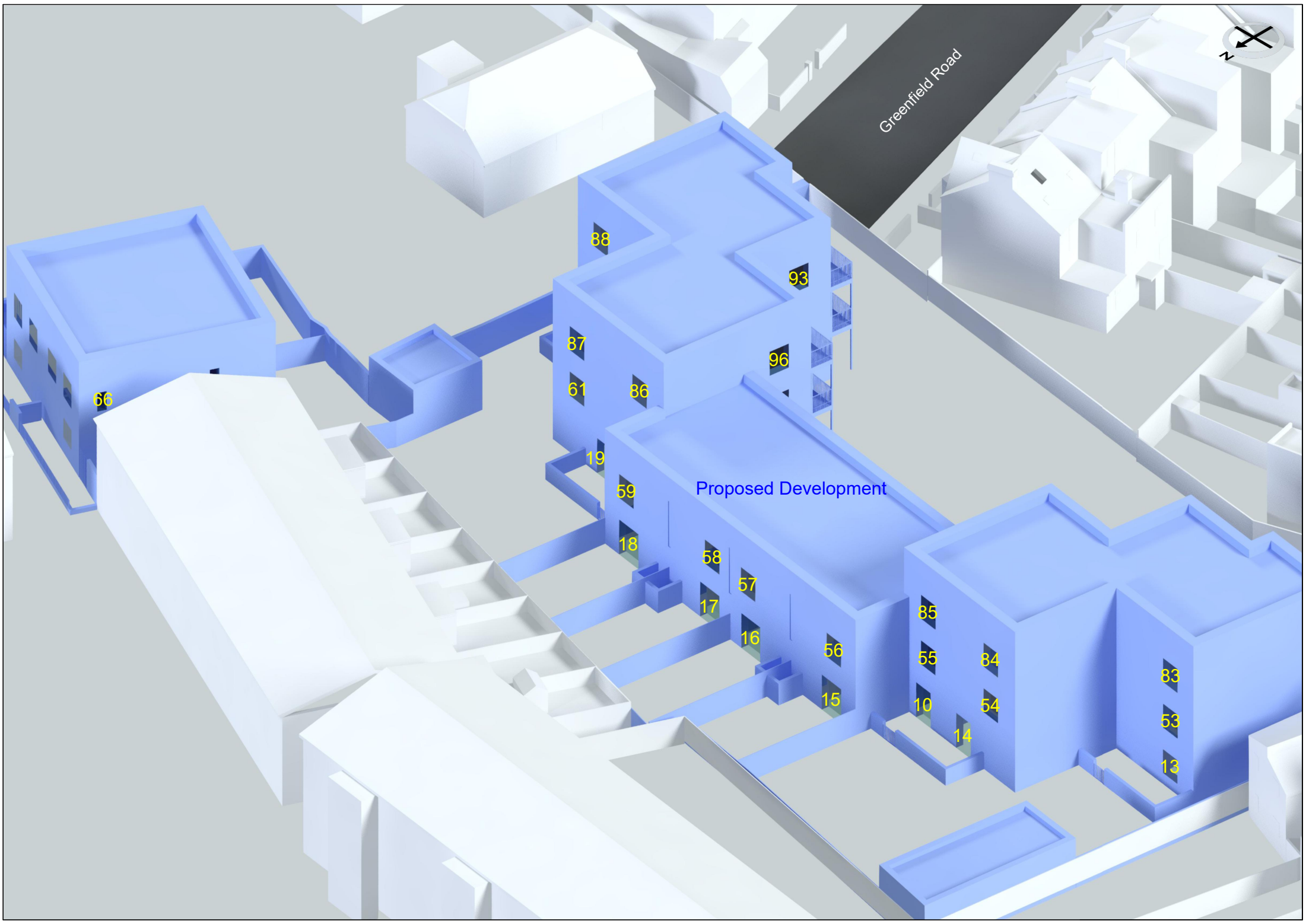
25

69

68

67

24



Greenfield Road



Proposed Development

66

88

93

87

61

86

96

19

59

18

58

57

17

16

56

15

85

55

10

84

54

14

83

53

13



Key:

- Window reference
- G1 Gardens and Amenity Areas
- Area receives no direct sky light (applied to habitable rooms)
- Area does receive direct sky light.
- Light aperture.

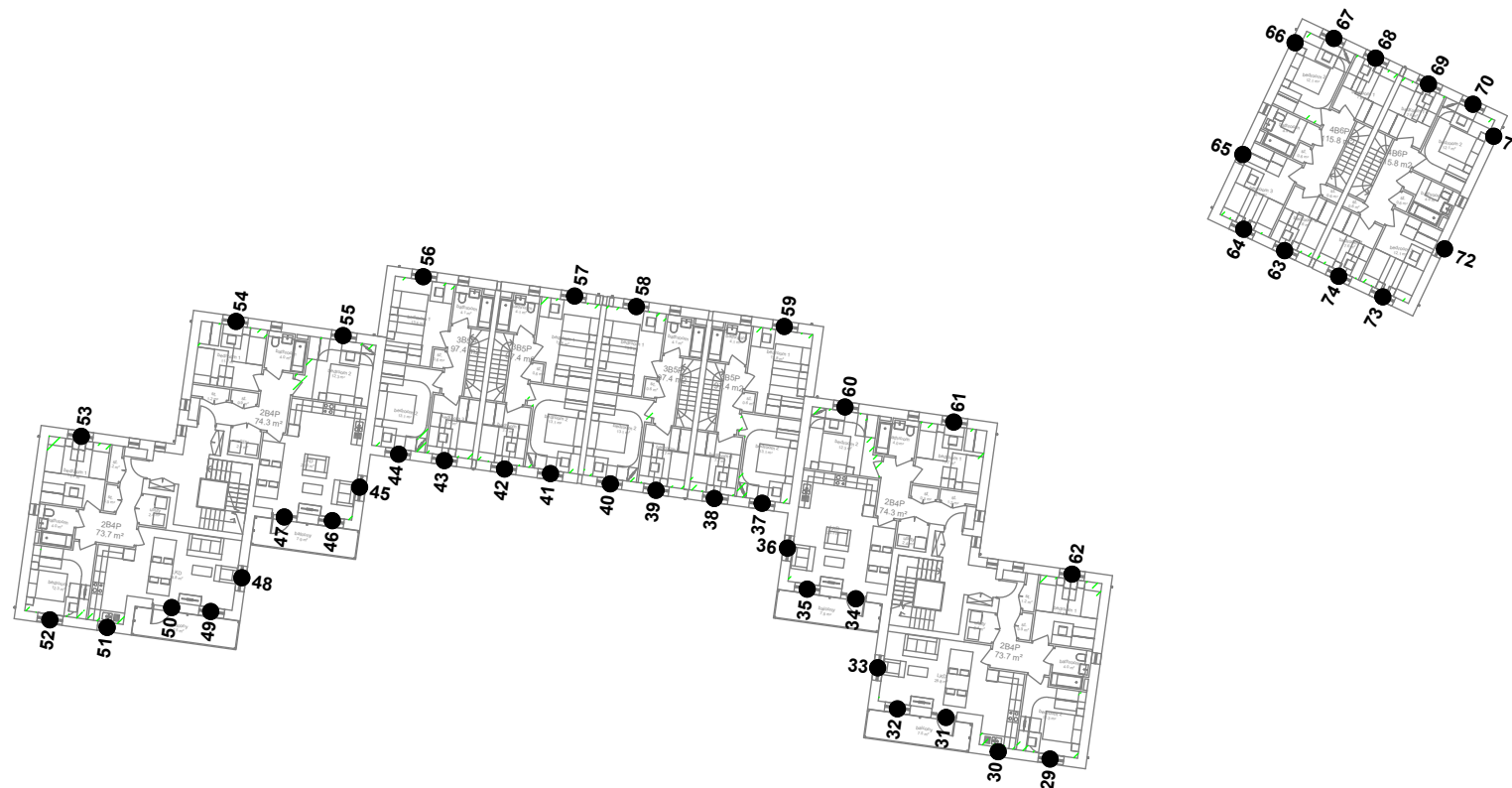
Drawing Title: Window Key and No Sky Line Contours

Scale: Do not scale

Drawing No: 1 of 3

Rev. .

Rev	Date	Details of revision



Key:

- Window reference
-  Gardens and Amenity Areas
-  Area receives no direct sky light (applied to habitable rooms)
-  Area does receive direct sky light.
-  Light aperture.

Drawing Title: Window Key and No Sky Line Contours

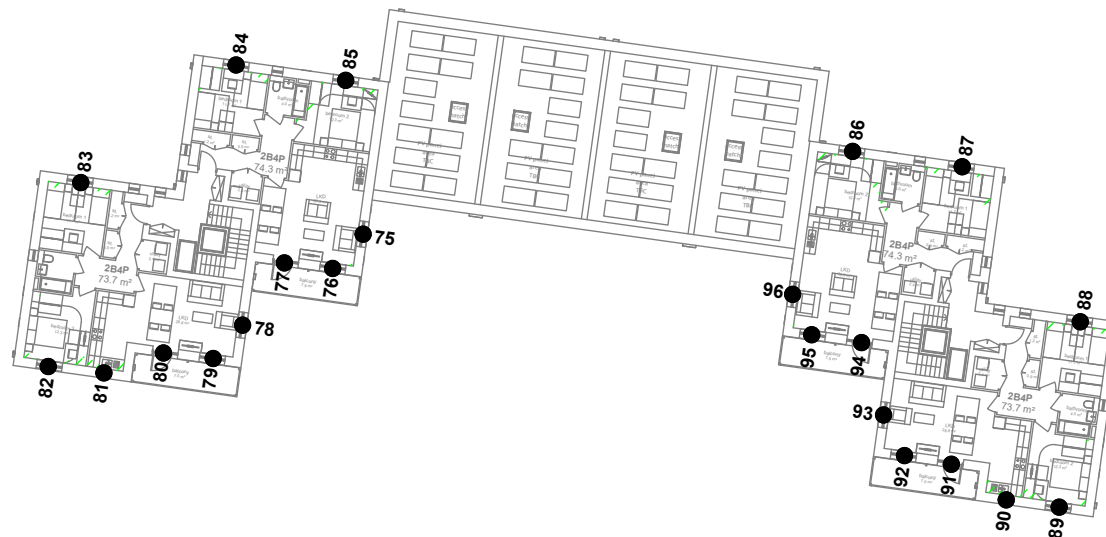
Scale:	Do not scale
--------	--------------

Drawing No: 2 of 3

Rev. _____

Rev	Date	Details of revision





Key:

- Window reference
- G1 Gardens and Amenity Areas
- Area receives no direct sky light (applied to habitable rooms)
- Area does receive direct sky light.
- Light aperture.

Drawing Title: Window Key and No Sky Line Contours

Scale: Do not scale

Drawing No: 3 of 3

Rev. .

Rev	Date	Details of revision

APPENDIX 2

DAYLIGHT & SUNLIGHT DATA

Appendix 2 - Average Daylight Factor (ADF)

Watts Close, London N15 5DW

Reference	Target ADF based on room use		Average Daylight Factor Coefficients					ADF
	Primary room use	ADF	T	Aw	A	R	θ	
<u>Watts Close</u>								
<u>Ground Floor</u>								
Window 1 (lower)	Living/Dining/Kitchen	2.0%	0.51	0.95	91.4	0.68	67.0	0.3%
Window 1 (upper)			0.51	1.74	91.4	0.68	72.6	1.3%
Window 2 (lower)			0.51	0.09	91.4	0.68	68.8	0.0%
Window 2 (upper)			0.51	1.8	91.4	0.68	71.5	1.3%
Total ADF for room								
Window 3 (lower)	Living/Dining/Kitchen	2.0%	0.51	0.09	122.95	0.69	48.8	0.0%
Window 3 (upper)			0.51	1.8	122.95	0.69	38.8	0.6%
Window 4 (lower)			0.51	0.98	122.95	0.69	52.1	0.2%
Window 4 (upper)			0.51	1.8	122.95	0.69	54.4	0.8%
Total ADF for room								
Window 5 (lower)	Dining/Kitchen	2.0%	0.51	0.09	69.01	0.71	57.7	0.0%
Window 5 (upper)			0.51	1.8	69.01	0.71	58.9	1.6%
Total ADF for room								
Window 6 (lower)	Dining/Kitchen	2.0%	0.51	0.09	69.01	0.71	57.4	0.0%
Window 6 (upper)			0.51	1.8	69.01	0.71	64.2	1.7%
Total ADF for room								
Window 7 (lower)	Dining/Kitchen	2.0%	0.51	0.09	69.01	0.71	56.5	0.0%
Window 7 (upper)			0.51	1.8	69.01	0.71	63.2	1.7%
Total ADF for room								
Window 8 (lower)	Dining/Kitchen	2.0%	0.51	0.09	69.01	0.71	57.9	0.0%
Window 8 (upper)			0.51	1.8	69.01	0.71	59.1	1.6%
Total ADF for room								
Window 9 (lower)	Living/Dining/Kitchen	2.0%	0.51	0.09	122.95	0.69	49.6	0.0%
Window 9 (upper)			0.51	1.8	122.95	0.69	39.7	0.6%
Window 10 (lower)			0.51	0.98	122.95	0.69	52.5	0.2%
Window 10 (upper)			0.51	1.8	122.95	0.69	54.4	0.8%
Total ADF for room								
Window 11 (lower)	Living/Dining/Kitchen	2.0%	0.51	0.09	91.4	0.68	73.2	0.0%
Window 11 (upper)			0.51	1.8	91.4	0.68	75.7	1.4%
Window 12 (lower)			0.51	0.95	91.4	0.68	70.7	0.3%
Window 12 (upper)			0.51	1.74	91.4	0.68	76.4	1.4%
Total ADF for room								
Window 13 (lower)	Bedroom	1.0%	0.51	0.09	59.18	0.71	62.1	0.0%
Window 13 (upper)			0.51	1.8	59.18	0.71	64.4	2.0%
Total ADF for room								
Window 14 (lower)	Bedroom	1.0%	0.51	0.98	66.91	0.7	64.2	0.4%
Window 14 (upper)			0.51	1.8	66.91	0.7	68.1	1.8%
Total ADF for room								
Window 15 (lower)	Living	1.5%	0.51	1.31	65.59	0.69	64.1	0.5%
Window 15 (upper)			0.51	2.4	65.59	0.69	71.3	2.5%
Total ADF for room								

Appendix 2 - Average Daylight Factor (ADF)

Watts Close, London N15 5DW

Reference	Target ADF based on room use		Average Daylight Factor Coefficients					ADF	
	Primary room use	ADF	T	Aw	A	R	θ		
Window 16 (lower)	Living	1.5%	0.51	1.27	65.59	0.69	63.5	0.5%	
Window 16 (upper)			0.51	2.33	65.59	0.69	71.9	2.5%	
Total ADF for room									3.0%
Window 17 (lower)	Living	1.5%	0.51	1.31	65.59	0.69	63.3	0.5%	
Window 17 (upper)			0.51	2.4	65.59	0.69	71.5	2.5%	
Total ADF for room									3.0%
Window 18 (lower)	Living	1.5%	0.51	1.31	65.59	0.69	63.9	0.5%	
Window 18 (upper)			0.51	2.4	65.59	0.69	71.0	2.5%	
Total ADF for room									3.0%
Window 19 (lower)	Bedroom	1.0%	0.51	0.98	66.91	0.7	63.6	0.4%	
Window 19 (upper)			0.51	1.8	66.91	0.7	67.4	1.8%	
Total ADF for room									2.2%
Window 20 (lower)	Bedroom	1.0%	0.51	0.98	59.18	0.7	58.4	0.4%	
Window 20 (upper)			0.51	1.8	59.18	0.7	63.7	2.0%	
Total ADF for room									2.4%
Window 21 (lower)	Living	1.5%	0.51	1.31	76.99	0.67	63.3	0.4%	
Window 21 (upper)			0.51	2.4	76.99	0.67	69.9	2.0%	
Window 22 (lower)			0.51	0.11	76.99	0.67	30.1	0.0%	
Window 22 (upper)			0.51	1.8	76.99	0.67	32.8	0.7%	
Total ADF for room									3.1%
Window 23 (lower)	Dining/Kitchen	2.0%	0.51	1.31	76.99	0.67	28.5	0.2%	
Window 23 (upper)			0.51	2.4	76.99	0.67	33.3	1.0%	
Window 24			0.51	1.58	76.99	0.67	52.9	1.0%	
Total ADF for room									2.2%
Window 25	Dining/Kitchen	2.0%	0.51	1.58	76.99	0.68	69.7	1.3%	
Window 26 (lower)			0.51	1.27	76.99	0.68	58.9	0.4%	
Window 26 (upper)			0.51	2.33	76.99	0.68	79.3	2.3%	
Total ADF for room									4.0%
Window 27 (lower)	Living	1.5%	0.51	0.11	76.99	0.67	65.2	0.0%	
Window 27 (upper)			0.51	1.8	76.99	0.67	79.3	1.7%	
Window 28 (lower)			0.51	1.31	76.99	0.67	64.7	0.4%	
Window 28 (upper)			0.51	2.4	76.99	0.67	73.5	2.1%	
Total ADF for room									4.2%
First Floor									
Window 29 (lower)	Bedroom	1.0%	0.51	0.98	62.88	0.7	77.3	0.5%	
Window 29 (upper)			0.51	1.8	62.88	0.7	79.9	2.3%	
Total ADF for room									2.8%
Window 30			0.51	0.63	121.77	0.68	78.4	0.4%	
Window 31 (lower)			0.51	0.95	121.77	0.68	51.5	0.2%	
Window 31 (upper)			0.51	1.74	121.77	0.68	42.3	0.6%	
Window 32 (lower)			0.51	0.11	121.77	0.68	56.8	0.0%	
Window 32 (upper)			0.51	1.8	121.77	0.68	46.2	0.6%	

Appendix 2 - Average Daylight Factor (ADF)

Watts Close, London N15 5DW

Reference	Target ADF based on room use		Average Daylight Factor Coefficients					ADF
	Primary room use	ADF	T	Aw	A	R	θ	
Window 33 (lower)	Living/Dining/Kitchen	2.0%	0.51	0.11	121.77	0.68	62.9	0.0%
Window 33 (upper)			0.51	1.8	121.77	0.68	64.5	0.9%
Total ADF for room								2.7%
Window 34 (lower)	Living/Dining/Kitchen	2.0%	0.51	0.95	115.1	0.67	44.0	0.1%
Window 34 (upper)			0.51	1.74	115.1	0.67	36.7	0.5%
Window 35 (lower)			0.51	0.11	115.1	0.67	52.6	0.0%
Window 35 (upper)	Living/Dining/Kitchen	2.0%	0.51	1.8	115.1	0.67	43.6	0.6%
Window 36 (lower)			0.51	0.11	115.1	0.67	59.3	0.0%
Window 36 (upper)			0.51	1.8	115.1	0.67	62.2	0.9%
Total ADF for room								2.1%
Window 37 (lower)	Bedroom	1.0%	0.51	0.11	63.08	0.71	58.9	0.0%
Window 37 (upper)			0.51	1.8	63.08	0.71	59.9	1.8%
Total ADF for room								1.8%
Window 38 (lower)	Bedroom	1.0%	0.51	0.11	42.06	0.71	70.5	0.1%
Window 38 (upper)			0.51	1.8	42.06	0.71	72.0	3.2%
Total ADF for room								3.3%
Window 39 (lower)	Bedroom	1.0%	0.51	0.11	42.06	0.71	76.8	0.1%
Window 39 (upper)			0.51	1.8	42.06	0.71	78.2	3.4%
Total ADF for room								3.5%
Window 40 (lower)	Bedroom	1.0%	0.51	0.11	63.08	0.71	78.2	0.1%
Window 40 (upper)			0.51	1.8	63.08	0.71	79.6	2.3%
Total ADF for room								2.4%
Window 41 (lower)	Bedroom	1.0%	0.51	0.11	63.08	0.71	78.2	0.1%
Window 41 (upper)			0.51	1.8	63.08	0.71	79.6	2.3%
Total ADF for room								2.4%
Window 42 (lower)	Bedroom	1.0%	0.51	0.11	42.06	0.71	76.6	0.1%
Window 42 (upper)			0.51	1.8	42.06	0.71	78.1	3.4%
Total ADF for room								3.5%
Window 43 (lower)	Bedroom	1.0%	0.51	0.11	42.06	0.71	70.6	0.1%
Window 43 (upper)			0.51	1.8	42.06	0.71	72.0	3.2%
Total ADF for room								3.3%
Window 44 (lower)	Bedroom	1.0%	0.51	0.11	63.08	0.71	58.9	0.0%
Window 44 (upper)			0.51	1.8	63.08	0.71	59.9	1.8%
Total ADF for room								1.8%
Window 45 (lower)	Living/Dining/Kitchen	2.0%	0.51	0.11	115.1	0.67	59.3	0.0%
Window 45 (upper)			0.51	1.8	115.1	0.67	62.2	0.9%
Window 46 (lower)			0.51	0.11	115.1	0.67	52.9	0.0%
Window 46 (upper)	Living/Dining/Kitchen	2.0%	0.51	1.8	115.1	0.67	44.0	0.6%
Window 47 (lower)			0.51	0.98	115.1	0.67	44.5	0.1%
Window 47 (upper)			0.51	1.8	115.1	0.67	37.1	0.5%
Total ADF for room								2.1%
Window 48 (lower)	Living/Dining/Kitchen	2.0%	0.51	0.11	121.77	0.68	62.8	0.0%
Window 48 (upper)			0.51	1.8	121.77	0.68	64.4	0.9%

Appendix 2 - Average Daylight Factor (ADF)

Watts Close, London N15 5DW

Reference	Target ADF based on room use		Average Daylight Factor Coefficients					ADF
	Primary room use	ADF	T	Aw	A	R	θ	
Window 49 (lower)			0.51	0.11	121.77	0.68	58.6	0.0%
Window 49 (upper)			0.51	1.8	121.77	0.68	47.8	0.7%
Window 50 (lower)			0.51	0.98	121.77	0.68	53.2	0.2%
Window 50 (upper)			0.51	1.8	121.77	0.68	44.0	0.6%
Window 51			0.51	0.63	121.77	0.68	82.1	0.4%
Total ADF for room	Living/Dining/Kitchen	2.0%						2.8%
Window 52 (lower)			0.51	0.98	62.88	0.7	80.8	0.5%
Window 52 (upper)			0.51	1.8	62.88	0.7	83.1	2.4%
Total ADF for room	Bedroom	1.0%						2.9%
Window 53 (lower)			0.51	0.11	56.3	0.71	68.8	0.1%
Window 53 (upper)			0.51	1.8	56.3	0.71	70.3	2.3%
Total ADF for room	Bedroom	1.0%						2.4%
Window 54 (lower)			0.51	0.11	56.3	0.71	76.2	0.1%
Window 54 (upper)			0.51	1.8	56.3	0.71	77.9	2.6%
Total ADF for room	Bedroom	1.0%						2.7%
Window 55 (lower)			0.51	0.11	60.0	0.71	61.6	0.0%
Window 55 (upper)			0.51	1.8	60.0	0.71	63.7	2.0%
Total ADF for room	Bedroom	1.0%						2.0%
Window 56 (lower)			0.51	0.11	64.95	0.71	76.6	0.1%
Window 56 (upper)			0.51	1.8	64.95	0.71	78.3	2.2%
Total ADF for room	Bedroom	1.0%						2.3%
Window 57 (lower)			0.51	0.11	64.95	0.71	77.5	0.1%
Window 57 (upper)			0.51	1.8	64.95	0.71	79.2	2.3%
Total ADF for room	Bedroom	1.0%						2.4%
Window 58 (lower)			0.51	0.11	64.95	0.71	77.3	0.1%
Window 58 (upper)			0.51	1.8	64.95	0.71	79.1	2.3%
Total ADF for room	Bedroom	1.0%						2.4%
Window 59 (lower)			0.51	0.11	64.95	0.71	77.2	0.1%
Window 59 (upper)			0.51	1.8	64.95	0.71	79.2	2.3%
Total ADF for room	Bedroom	1.0%						2.4%
Window 60 (lower)			0.51	0.11	60.0	0.71	62.6	0.0%
Window 60 (upper)			0.51	1.8	60.0	0.71	65.1	2.0%
Total ADF for room	Bedroom	1.0%						2.0%
Window 61 (lower)			0.51	0.11	56.3	0.71	76.4	0.1%
Window 61 (upper)			0.51	1.8	56.3	0.71	78.7	2.6%
Total ADF for room	Bedroom	1.0%						2.7%
Window 62 (lower)			0.51	0.11	56.3	0.71	69.1	0.1%
Window 62 (upper)			0.51	1.8	56.3	0.71	71.1	2.3%
Total ADF for room	Bedroom	1.0%						2.4%
Window 63 (lower)			0.51	0.11	41.56	0.71	76.5	0.1%
Window 63 (upper)			0.51	1.8	41.56	0.71	78.1	3.5%
Total ADF for room	Bedroom	1.0%						3.6%

Appendix 2 - Average Daylight Factor (ADF)

Watts Close, London N15 5DW

Reference	Target ADF based on room use		Average Daylight Factor Coefficients					ADF
	Primary room use	ADF	T	Aw	A	R	θ	
Window 64 (lower)			0.51	0.11	58.35	0.7	75.6	0.1%
Window 64 (upper)			0.51	1.8	58.35	0.7	77.2	2.4%
Window 65			0.51	0.63	58.35	0.7	54.9	0.6%
Total ADF for room	Bedroom	1.0%						3.1%
Window 66			0.51	0.63	58.35	0.7	61.7	0.7%
Window 67 (lower)			0.51	0.11	58.35	0.7	64.2	0.0%
Window 67 (upper)			0.51	1.8	58.35	0.7	69.7	2.2%
Total ADF for room	Bedroom	1.0%						2.9%
Window 68 (lower)			0.51	0.11	41.56	0.71	67.3	0.1%
Window 68 (upper)			0.51	1.8	41.56	0.71	72.4	3.2%
Total ADF for room	Bedroom	1.0%						3.3%
Window 69 (lower)			0.51	0.11	41.56	0.71	74.5	0.1%
Window 69 (upper)			0.51	1.8	41.56	0.71	78.4	3.5%
Total ADF for room	Bedroom	1.0%						3.6%
Window 70			0.51	0.63	58.35	0.7	83.3	0.9%
Window 70 (lower)			0.51	0.11	58.35	0.7	78.3	0.1%
Window 71 (upper)			0.51	1.8	58.35	0.7	81.4	2.5%
Total ADF for room	Bedroom	1.0%						3.5%
Window 72			0.51	0.63	58.35	0.7	83.6	0.9%
Window 73 (lower)			0.51	0.11	58.35	0.7	78.5	0.1%
Window 73 (upper)			0.51	1.8	58.35	0.7	79.8	2.5%
Total ADF for room	Bedroom	1.0%						3.5%
Window 74 (lower)			0.51	0.11	41.56	0.71	77.7	0.1%
Window 74 (upper)			0.51	1.8	41.56	0.71	79.1	3.5%
Total ADF for room	Bedroom	1.0%						3.6%
<u>Second Floor</u>								
Window 75 (lower)			0.51	0.11	115.1	0.67	77.8	0.0%
Window 75 (upper)			0.51	1.8	115.1	0.67	85.8	1.2%
Window 76 (lower)			0.51	0.11	115.1	0.67	73.3	0.0%
Window 76 (upper)			0.51	1.8	115.1	0.67	78.5	1.1%
Window 77 (lower)			0.51	0.98	115.1	0.67	58.2	0.2%
Window 77 (upper)			0.51	1.8	115.1	0.67	65.6	1.0%
Total ADF for room	Living/Dining/Kitchen	2.0%						3.5%
Window 78 (lower)			0.51	0.11	121.77	0.68	72.4	0.0%
Window 78 (upper)			0.51	1.8	121.77	0.68	75.1	1.0%
Window 79 (lower)			0.51	0.11	121.77	0.68	80.5	0.0%
Window 79 (upper)			0.51	1.8	121.77	0.68	86.0	1.2%
Window 80 (lower)			0.51	0.98	121.77	0.68	67.9	0.2%
Window 80 (upper)			0.51	1.8	121.77	0.68	76.5	1.1%
Window 81			0.51	0.63	121.77	0.68	87.2	0.4%
Total ADF for room	Living/Dining/Kitchen	2.0%						3.9%
Window 82 (lower)			0.51	0.98	62.88	0.7	86.7	0.5%
Window 82 (upper)			0.51	1.8	62.88	0.7	88.2	2.6%

Appendix 2 - Average Daylight Factor (ADF)

Watts Close, London N15 5DW

Reference	Target ADF based on room use		Average Daylight Factor Coefficients					ADF
	Primary room use	ADF	T	Aw	A	R	θ	
Total ADF for room	Bedroom	1.0%						3.1%
Window 83 (lower)			0.51	0.11	56.3	0.71	76.0	0.1%
Window 83 (upper)			0.51	1.8	56.3	0.71	78.3	2.6%
Total ADF for room	Bedroom	1.0%						2.7%
Window 84 (lower)			0.51	0.11	56.3	0.71	83.3	0.1%
Window 84 (upper)			0.51	1.8	56.3	0.71	85.1	2.8%
Total ADF for room	Bedroom	1.0%						2.9%
Window 85 (lower)			0.51	0.11	60.0	0.71	77.5	0.1%
Window 85 (upper)			0.51	1.8	60.0	0.71	85.4	2.6%
Total ADF for room	Bedroom	1.0%						2.7%
Window 86 (lower)			0.51	0.11	60.0	0.71	80.2	0.1%
Window 86 (upper)			0.51	1.8	60.0	0.71	87.9	2.7%
Total ADF for room	Bedroom	1.0%						2.8%
Window 87 (lower)			0.51	0.11	56.3	0.71	86.0	0.1%
Window 87 (upper)			0.51	1.8	56.3	0.71	88.2	2.9%
Total ADF for room	Bedroom	1.0%						3.0%
Window 88 (lower)			0.51	0.11	56.3	0.71	78.0	0.1%
Window 88 (upper)			0.51	1.8	56.3	0.71	80.9	2.6%
Total ADF for room	Bedroom	1.0%						2.7%
Window 89 (lower)			0.51	0.98	62.88	0.7	84.6	0.5%
Window 89 (upper)			0.51	1.8	62.88	0.7	87.2	2.5%
Total ADF for room	Bedroom	1.0%						3.0%
Window 90			0.51	0.63	121.77	0.68	86.0	0.4%
Window 91 (lower)			0.51	0.95	121.77	0.68	66.9	0.2%
Window 91 (upper)			0.51	1.74	121.77	0.68	75.9	1.0%
Window 92 (lower)			0.51	0.11	121.77	0.68	79.5	0.0%
Window 92 (upper)			0.51	1.8	121.77	0.68	85.2	1.2%
Window 93 (lower)			0.51	0.11	121.77	0.68	72.4	0.0%
Window 93 (upper)			0.51	1.8	121.77	0.68	75.1	1.0%
Total ADF for room	Living/Dining/Kitchen	2.0%						3.8%
Window 94 (lower)			0.51	0.95	115.1	0.67	58.1	0.2%
Window 94 (upper)			0.51	1.74	115.1	0.67	65.7	0.9%
Window 95 (lower)			0.51	0.11	115.1	0.67	73.3	0.0%
Window 95 (upper)			0.51	1.8	115.1	0.67	78.5	1.1%
Window 96 (lower)			0.51	0.11	115.1	0.67	77.8	0.0%
Window 96 (upper)			0.51	1.8	115.1	0.67	85.1	1.2%
Total ADF for room	Living/Dining/Kitchen	2.0%						3.4%

Appendix 2 - Room Depth Calculation

Watts Close, London N15 5DW

Reference	Room Depth Coefficients				Room Depth Calculation			Result
	L	W	H	Rb	L/W + L/H	<=	2/1-Rb	
<u>Watts Close</u>								
<u>Ground Floor</u>								
Window 5	4.6	3.2	2.4	0.71	3.35	<=	6.79	Pass
Window 6	4.6	3.2	2.4	0.71	3.35	<=	6.79	Pass
Window 7	4.6	3.2	2.4	0.71	3.35	<=	6.79	Pass
Window 8	4.6	3.2	2.4	0.71	3.35	<=	6.79	Pass
Window 13	3.6	3.3	2.4	0.71	2.59	<=	6.96	Pass
Window 14	3.0	4.9	2.4	0.7	1.86	<=	6.64	Pass
Window 15	4.4	3.2	2.4	0.69	3.21	<=	6.38	Pass
Window 16	4.4	3.2	2.4	0.69	3.21	<=	6.4	Pass
Window 17	4.4	3.2	2.4	0.69	3.21	<=	6.38	Pass
Window 18	4.4	3.2	2.4	0.69	3.21	<=	6.38	Pass
Window 19	3.0	4.9	2.4	0.7	1.86	<=	6.64	Pass
Window 20	3.6	3.3	2.4	0.7	2.59	<=	6.72	Pass
<u>First Floor</u>								
Window 29	4.1	3.3	2.4	0.7	2.95	<=	6.77	Pass
Window 37	4.4	3.2	2.4	0.71	3.21	<=	6.9	Pass
Window 38	3.2	2.4	2.4	0.71	2.67	<=	6.9	Pass
Window 39	3.2	2.4	2.4	0.71	2.67	<=	6.9	Pass
Window 40	4.5	3.2	2.4	0.71	3.28	<=	6.9	Pass
Window 41	4.5	3.2	2.4	0.71	3.28	<=	6.9	Pass
Window 42	3.2	2.4	2.4	0.71	2.67	<=	6.9	Pass
Window 43	3.2	2.4	2.4	0.71	2.67	<=	6.9	Pass
Window 44	4.5	3.2	2.4	0.71	3.28	<=	6.9	Pass
Window 52	4.1	3.3	2.4	0.7	2.95	<=	6.77	Pass
Window 53	3.6	3.3	2.4	0.71	2.59	<=	6.85	Pass
Window 54	3.3	3.6	2.4	0.71	2.29	<=	6.85	Pass
Window 55	3.3	4.1	2.4	0.71	2.18	<=	6.9	Pass
Window 56	4.6	3.2	2.4	0.71	3.35	<=	6.87	Pass
Window 57	4.6	3.2	2.4	0.71	3.35	<=	6.87	Pass
Window 58	4.6	3.2	2.4	0.71	3.35	<=	6.87	Pass
Window 59	4.6	3.2	2.4	0.71	3.35	<=	6.87	Pass
Window 60	3.3	4.1	2.4	0.71	2.18	<=	6.9	Pass
Window 61	3.3	3.5	2.4	0.71	2.32	<=	6.85	Pass
Window 62	3.6	3.3	2.4	0.71	2.59	<=	6.85	Pass
Window 63	3.1	2.4	2.4	0.71	2.58	<=	6.9	Pass
Window 68	3.1	2.4	2.4	0.71	2.58	<=	6.9	Pass
Window 69	3.1	2.4	2.4	0.71	2.58	<=	6.9	Pass
Window 74	3.1	2.4	2.4	0.71	2.58	<=	6.9	Pass
<u>Second Floor</u>								
Window 82	4.1	3.3	2.4	0.7	2.95	<=	6.77	Pass
Window 83	3.6	3.3	2.4	0.71	2.59	<=	6.85	Pass
Window 84	3.3	3.6	2.4	0.71	2.29	<=	6.85	Pass
Window 85	3.3	4.1	2.4	0.71	2.18	<=	6.9	Pass
Window 86	3.3	4.1	2.4	0.71	2.18	<=	6.9	Pass

Appendix 2 - Room Depth Calculation
Watts Close, London N15 5DW

Reference	Room Depth Coefficients				Room Depth Calculation			Result
	L	W	H	Rb	L/W + L/H	<=	2/1-Rb	
Window 87	3.3	3.5	2.4	0.71	2.32	<=	6.85	Pass
Window 88	3.6	3.3	2.4	0.71	2.59	<=	6.85	Pass
Window 89	4.1	3.3	2.4	0.7	2.95	<=	6.77	Pass

Appendix 2 - Sunlight to Windows

Watts Close, London N15 5DW

Reference	Room Use	APSH	
		Total	Winter
<u>Watts Close</u>			
<u>Ground Floor</u>			
Window 1	Living/Dining/Kitchen	40%	17%
Window 2	Living/Dining/Kitchen	41%	17%
Window 3	Living/Dining/Kitchen	12%	11%
Window 4	Living/Dining/Kitchen	0%	0%
Window 9	Living/Dining/Kitchen	13%	13%
Window 10	Living/Dining/Kitchen	0%	0%
Window 11	Living/Dining/Kitchen	44%	20%
Window 12	Living/Dining/Kitchen	43%	20%
Window 15	Living	0%	0%
Window 16	Living	0%	0%
Window 17	Living	0%	0%
Window 18	Living	0%	0%
Window 21	Living	45%	16%
Window 22	Living	2%	0%
Window 27	Living	38%	10%
Window 28	Living	46%	18%
<u>First Floor</u>			
Window 30	Living/Dining/Kitchen	21%	13%
Window 31	Living/Dining/Kitchen	13%	13%
Window 32	Living/Dining/Kitchen	18%	17%
Window 33	Living/Dining/Kitchen	24%	3%
Window 34	Living/Dining/Kitchen	10%	10%
Window 35	Living/Dining/Kitchen	15%	14%
Window 36	Living/Dining/Kitchen	22%	4%
Window 45	Living/Dining/Kitchen	30%	7%
Window 46	Living/Dining/Kitchen	14%	14%
Window 47	Living/Dining/Kitchen	11%	11%
Window 48	Living/Dining/Kitchen	30%	6%
Window 49	Living/Dining/Kitchen	18%	18%
Window 50	Living/Dining/Kitchen	15%	15%
Window 51	Living/Dining/Kitchen	23%	15%
<u>Second Floor</u>			
Window 75	Living/Dining/Kitchen	35%	7%
Window 76	Living/Dining/Kitchen	43%	20%
Window 77	Living/Dining/Kitchen	33%	16%

Appendix 2 - Sunlight to Windows

Watts Close, London N15 5DW

Reference	Room Use	APSH	
		Total	Winter
Window 78	Living/Dining/Kitchen	34%	7%
Window 79	Living/Dining/Kitchen	48%	24%
Window 80	Living/Dining/Kitchen	40%	21%
Window 81	Living/Dining/Kitchen	23%	15%
Window 90	Living/Dining/Kitchen	23%	15%
Window 91	Living/Dining/Kitchen	42%	22%
Window 92	Living/Dining/Kitchen	48%	24%
Window 93	Living/Dining/Kitchen	27%	5%
Window 94	Living/Dining/Kitchen	34%	16%
Window 95	Living/Dining/Kitchen	45%	21%
Window 96	Living/Dining/Kitchen	27%	5%

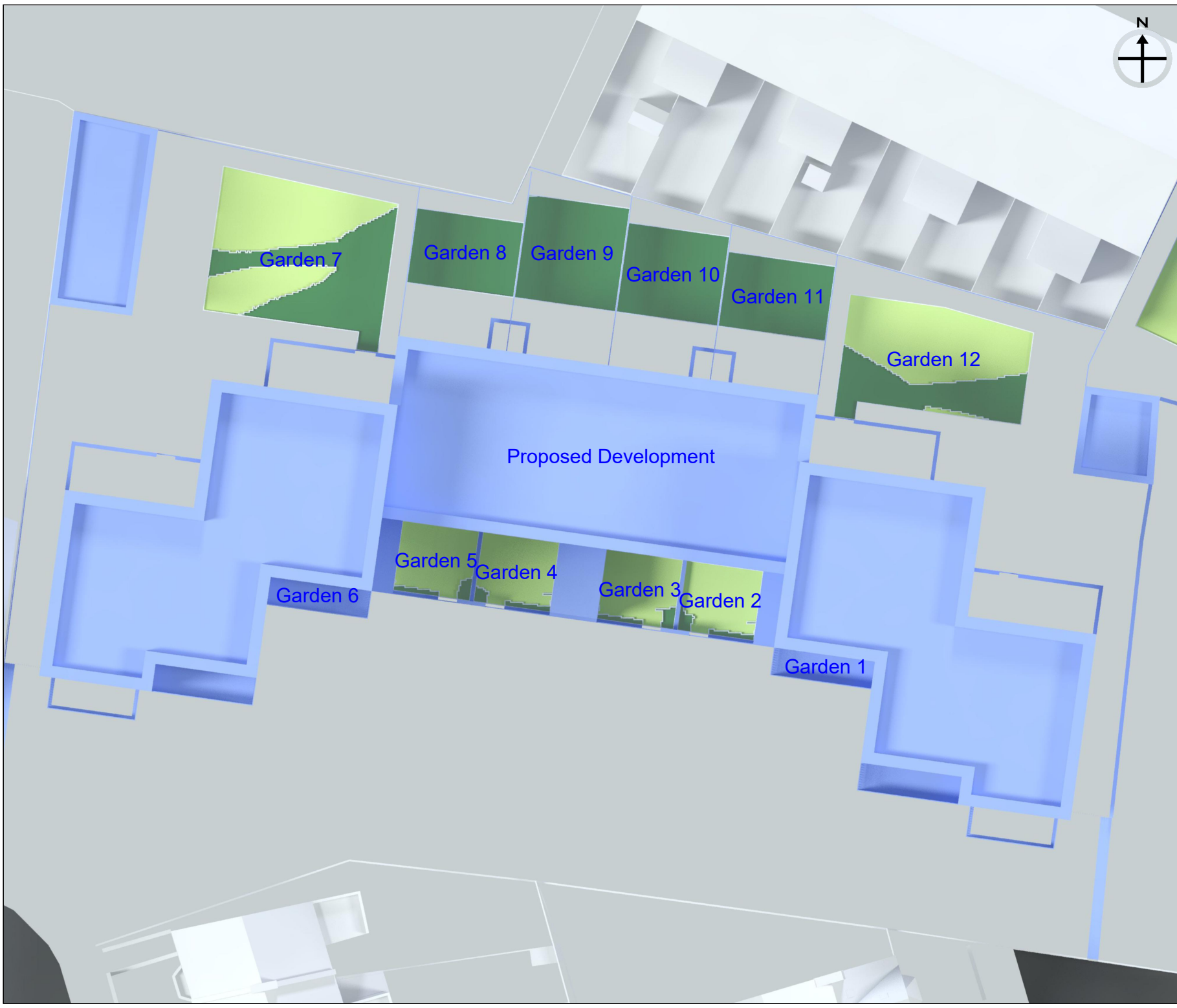
Appendix 2 - Overshadowing to Gardens and Open Spaces

Watts Close, London N15 5DW

Reference	Total Area	Area receiving at least 2 hours of sunlight on 21 March	
<u>Watts Close</u>			
<u>Ground Floor</u>			
Garden 1	7.26 m2	4.98 m2	69%
Garden 2	16.62 m2	15.0 m2	90%
Garden 3	16.62 m2	15.03 m2	90%
Garden 4	16.62 m2	15.25 m2	92%
Garden 5	16.62 m2	15.09 m2	91%
Garden 6	7.26 m2	4.98 m2	69%
Garden 7	77.25 m2	42.77 m2	55%
Garden 8	24.87 m2	0.0 m2	0%
Garden 9	32.56 m2	0.03 m2	0%
Garden 10	28.13 m2	0.0 m2	0%
Garden 11	24.87 m2	0.0 m2	0%
Garden 12	59.86 m2	37.44 m2	63%
Garden 13	42.87 m2	28.04 m2	65%
Garden 14	41.45 m2	35.34 m2	85%

APPENDIX 3

OVERSHADOWING TO GARDENS & OPEN SPACES



Key



Receives under two hours sunlight on 21st March before and after the development.



Receives at least two hours sunlight on 21st March before and after the development.

Project Name: Watts Close, London N15 5DW

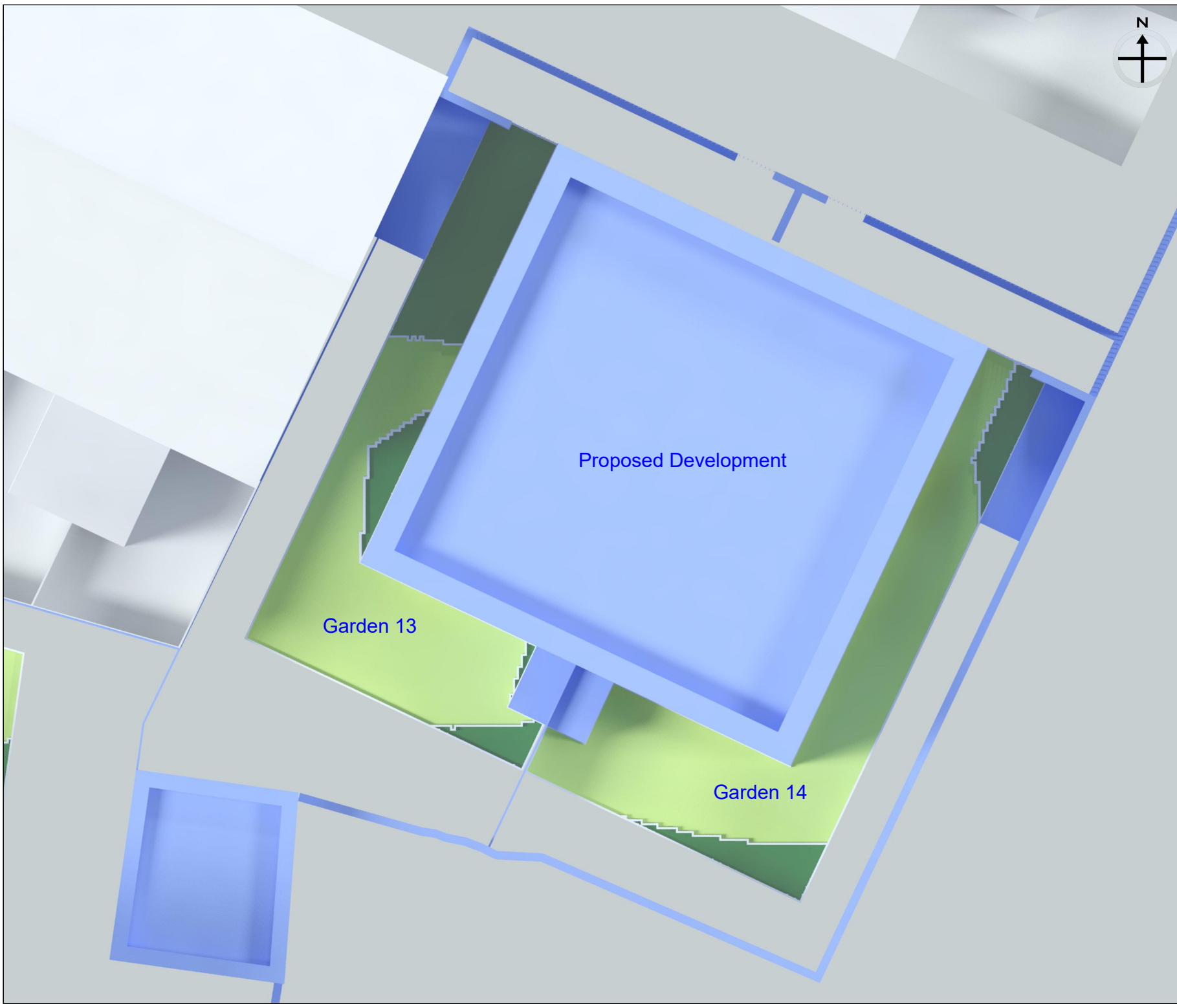
Drawing Title: Appendix 3 - Overshadowing to Gardens and Open Spaces



**RIGHT OF LIGHT
CONSULTING**
Chartered Surveyors

Right of Light Consulting

Burley House
15 - 17 High Street
Rayleigh
Essex
SS6 7EW
TEL 0800 197 4836
E-MAIL enquiries@right-of-light.co.uk
WEBSITE www.right-of-light.co.uk



Key

-  Receives under two hours sunlight on 21st March before and after the development.
-  Receives at least two hours sunlight on 21st March before and after the development.

Project Name: Watts Close, London N15 5DW

Drawing Title: Appendix 3 - Overshadowing to Gardens and Open Spaces



**RIGHT OF LIGHT
CONSULTING**
Chartered Surveyors

Right of Light Consulting
Burley House
15 - 17 High Street
Rayleigh
Essex
SS6 7EW
TEL 0800 197 4836
E-MAIL enquiries@right-of-light.co.uk
WEBSITE www.right-of-light.co.uk