Land at St. Margaret's Business Centre

Daylight and Sunlight Assessment

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Contents

1 Introduction

1.1 Introduction

1.1.1 Erban Consulting Ltd. was instructed by Godstone Development Ltd. to prepare a Daylight and Sunlight Assessment for the proposed development at Land at St. Margaret's Business Centre, Twickenham, London, TW1 1JN.

1.1.2 The purpose of this report is to assess the daylight and sunlight levels of the proposed new dwellings, and to assess the impact that the proposed development may have on the skylight and sunlight of existing surrounding residential buildings, in accordance with guidance set out in *BRE Report 209, Site Layout Planning for Daylight and Sunlight: A guide to good practice, Second Edition, 2011* (BR 209), and *BS 8206-2 Code of Practice for Daylighting* (BS 8206-2).

1.1.3 This report is not to be used to determine any right to light for existing building windows. The assessment of loss of light in rights to light cases is carried out in a different way to the methods used in BR 209 and this report. It should not be assumed that if the guidelines in BR 209 are satisfied that a proposed development will not infringe rights to light. If there is a concern over right to light, then an appropriately qualified person should be employed to investigate.

1.2 Development Description

1.2.1 Erection of 4 no. residential dwellings (Class C3) with associated parking, access, and landscaping (incl. removal of existing trees).

1.3 3D Models

1.3.1 Two 3D models have been developed. The first model is of the existing development and existing nearby buildings. The following information has been used to prepare the model:

- Survey drawings prepared by Laser Surveys; and
- Drawings showing the situation at 2 Godstone Road as downloaded from the London Borough of Richmond's planning register, application number 16/4818/FUL.

1.3.2 The second model is of the proposed development and existing nearby buildings. The 3D model of the proposed development has been produced from drawings prepared by Silverline Architects. The two models are shown in Figures 1 and 2.

Figure 1: Existing development and surrounding area

Figure 2: Proposed development and surrounding area

1.3.3 MBS Daylight for SketchUp, a program specifically developed to assess 3D models in accordance with guidance provided in BR 209, has been used.

1.3.4 Trees have not been included in the models because BR 209 Paragraph H1.2 states:

> Where the effect of a new building on existing buildings nearby is being analysed, it is usual to ignore the effect of existing trees.

1.3.5 Fences less than 1.5m high have not been included in the models.

2 Assessment

2.1 Daylight – Average Daylight Factors (ADFs) – New Development

2.1.1 BR 209 Paragraph 2.1.8 states:

> Daylight provision in new rooms may be checked using the average daylight factor (ADF). The ADF is a measure of the overall amount of daylight in a space. BS8206-2 *Code of practice for daylighting* recommends an ADF of 5% for a well daylit space and 2% for a partly daylit space. Below 2% the room will look dull and electric lighting is likely to be turned on. In housing BS8206-2 gives minimum values of ADF of 2% for kitchens, 1.5% for living rooms and 1% for bedrooms.

2.1.2 BS 8206-2 Paragraph 5.6 further explains that:

> Where one room serves more than one purpose, the minimum average daylight factor should be that for the room type with the highest value. For example, in a space which combines a living room and a kitchen the minimum average daylight factor should be 2%.

2.1.3 The plans in appendix A provide a record of the assessment of the ADFs of the habitable rooms of the proposed dwellings.

2.1.4 For the purposes of the ADF calculations, the area-weighted average reflectance of the room surfaces has been calculated on the assumption that the rooms have a white ceiling (0.85), light (pale cream) coloured walls (0.81) and light coloured carpet/light wood flooring (0.4). The maintenance factor has been calculated as 0.96. The effective net area glazing has been measured from the drawings prepared by Silverline Architects. The diffuse visible transmittance of glazing has been assumed as 0.68.

2.1.5 ADFs have been given to one decimal place in order to demonstrate whether the values stated in BR 209 have been met. However, when reviewing the ADFs, it is recommended that Peter Tregenza and Michael Wilson's observation below is taken into consideration:[1]

> We can say that there is a significant difference, in both the subjective character and the physical environment between a room with an average daylight factor of 2% and one with an average daylight factor of 5%. There may be a noticeable difference between rooms with daylight factors of 2% and 3%. However, not only would a difference between 2% and 2.1% be almost certainly subjectively unnoticeable, but such a distinction would be completely unjustified scientifically. The level of uncertainty in the parameters and the simplifying assumptions in the models preclude such pretensions to precision. Average daylight factor calculations have little absolute meaning beyond the decimal place.

2.1.6 All the proposed habitable rooms achieve the ADFs recommended in BR 209 and BS8206-2.

[1] Tregenza, P. and Wilson, M. (2011) *Daylighting: Architecture and Lighting Design*. Abingdon: Routledge.

2.2 Skylight – No Sky Line – New Development

2.2.1 BR 209 Paragraph C16 states:

> If a significant area of the working plane (normally more than 20%) lies beyond the no sky line (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.

2.2.2 Table 1 provides a record of the assessment of the percentage of the proposed habitable rooms that receive no direct skylight.

Table 1: % of room that receives no direct skylight – proposed development

Unit	Room	% of room that receives no direct skylight	Complies with BR 209 recommendations
01	Kitchen/dining	0.58	✓
01	Lounge	1.15	✓
01	Master bedroom	0.40	✓
01	First floor double bedroom	3.36	✓
01	First floor single bedroom	0.95	✓
01	Second floor single bedroom	10.45	✓
02	Kitchen/dining	0.38	✓
02	Lounge	0.36	✓
02	Master bedroom	0.38	✓
02	First floor double bedroom	3.18	✓
02	First floor single bedroom	2.92	✓
02	Second floor single bedroom	11.31	✓
03	Kitchen/dining	0.45	✓
03	Lounge	0.45	✓
03	Master bedroom	0.44	✓
03	First floor double bedroom	3.40	✓
03	First floor single bedroom	1.35	✓
03	Second floor single bedroom	9.02	✓
04	Kitchen/dining	0.07	✓
04	Lounge	0.31	✓
04	Master bedroom	0.55	✓
04	First floor double bedroom	0.36	✓
04	First floor single bedroom	0.14	✓
04	Second floor single bedroom	13.28	✓

2.2.3 All the proposed habitable rooms achieve the percentage of direct skylight recommended in BR 209.

2.3 Sunlight – Annual Probable Sunlight Hours (APSH) – New Development

2.3.1 BR 209 paragraph 3.1.15 states:

> In general a dwelling, or non-domestic building, which has a particular requirement for sunlight will appear reasonably sunlit provided:
>
> - At least one main window wall faces within 90° 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 annual probable sunlight hours in the winter months between 21 September and 21 March.

2.3.2 Table 2 provides a record of the percentage of annual probable sunlight hours (APSH) and annual probable sunlight hours in the winter months (WPSH) received by windows of the kitchen/dining rooms of the proposed new dwellings. The proposed lounges do not face within 90 degrees of due south and, therefore, receive low levels of sunlight. However, it is suggested that the size of the kitchen/dining rooms means that they will be used as social spaces as well as for cooking and dining. For this reason, they are considered a main living room.

2.3.3 Climate data from St James Park, London from the years between 2003-2017 has been used.

Table 2: APSH and WPSH – proposed development

Unit	Room	% APSH	% WPSH	Complies with BR 209 recommendations
01	Kitchen/dining	86.01	27.78	✓
02	Kitchen/dining	87.51	32.90	✓
03	Kitchen/dining	87.54	32.94	✓
04	Kitchen/dining	87.17	32.83	✓

2.3.4 All the proposed kitchen/dining rooms achieve the APSH and WPSH recommended in BR 209.

2.4 Skylight – Vertical Sky Component (VSC) – Existing Buildings

2.4.1 BR 209 paragraph 2.2.7 states:

> If the VSC (of the window in an existing building) 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 VSC, with the new development in place, is both less than 27% and less than 0.8 times its former value, occupants of the existing building will notice the reduction in the amount of skylight.

2.4.2 Table 3 provides a record of the assessment of the VSC of the windows assessed at the following addresses:

- 2&4 Godstone Road;
- 1&3 Godstone Road;
- 100 Winchester Road;
- 99 Winchester Road; and
- 101 Winchester Road.

2.4.3 The locations of the windows assessed are shown in Figures 3 to 7. One window at 2 Godstone Road has been excluded from the assessment as it is known to serve a bathroom. It is considered highly likely that the window above this belonging to 4 Godstone Road also serves a bathroom and so this window has also been excluded from the assessment.

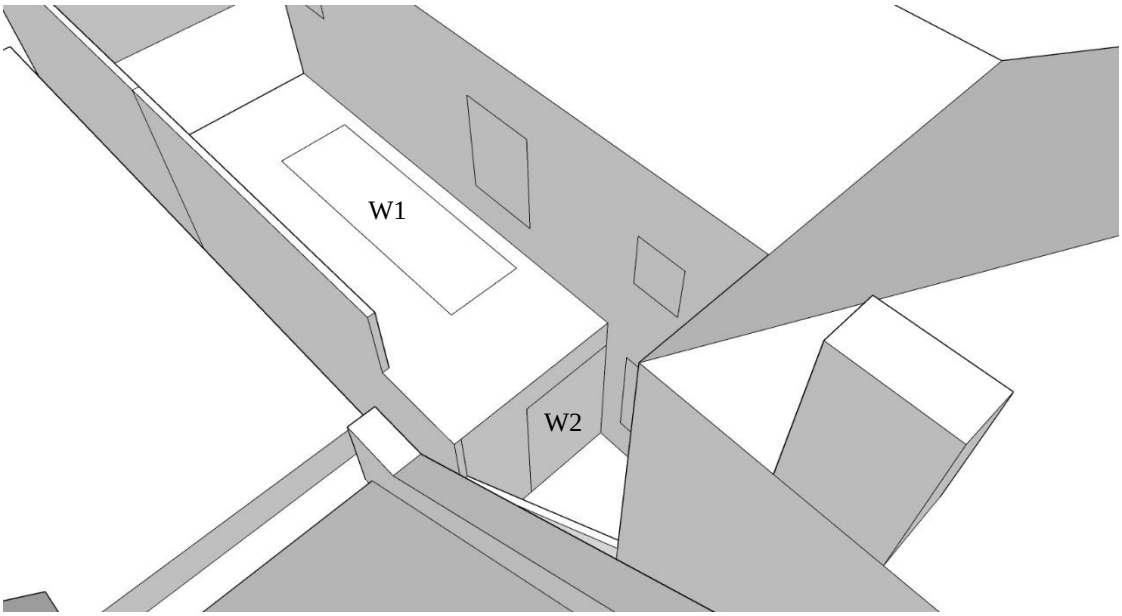


Figure 3: Windows assessed at 2&4 Godstone Road (1)

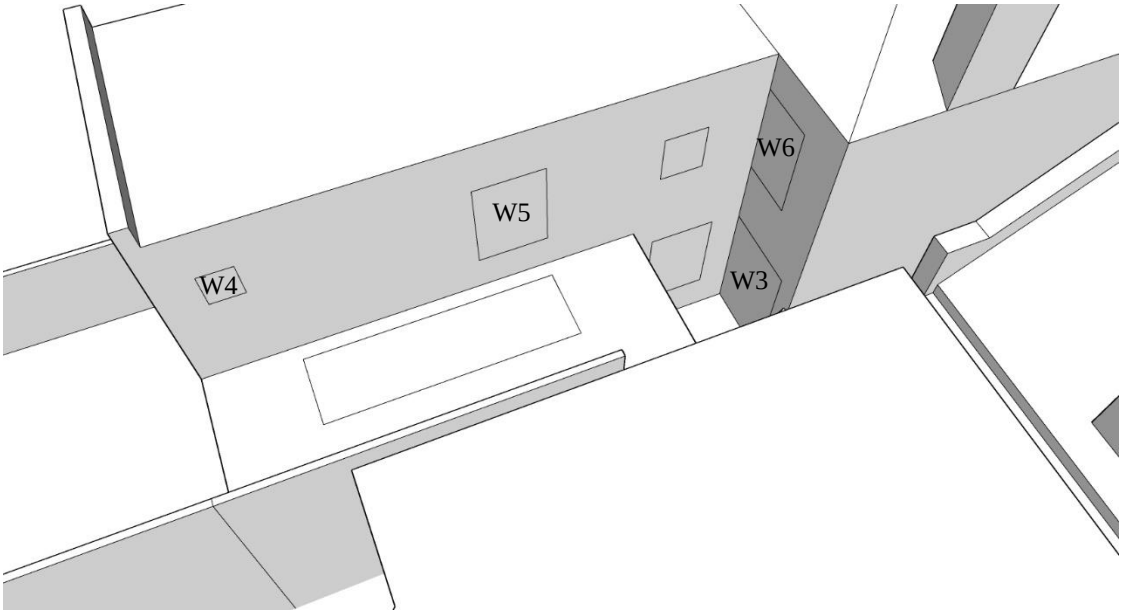


Figure 4: Windows assessed at 2&4 Godstone Road (2)

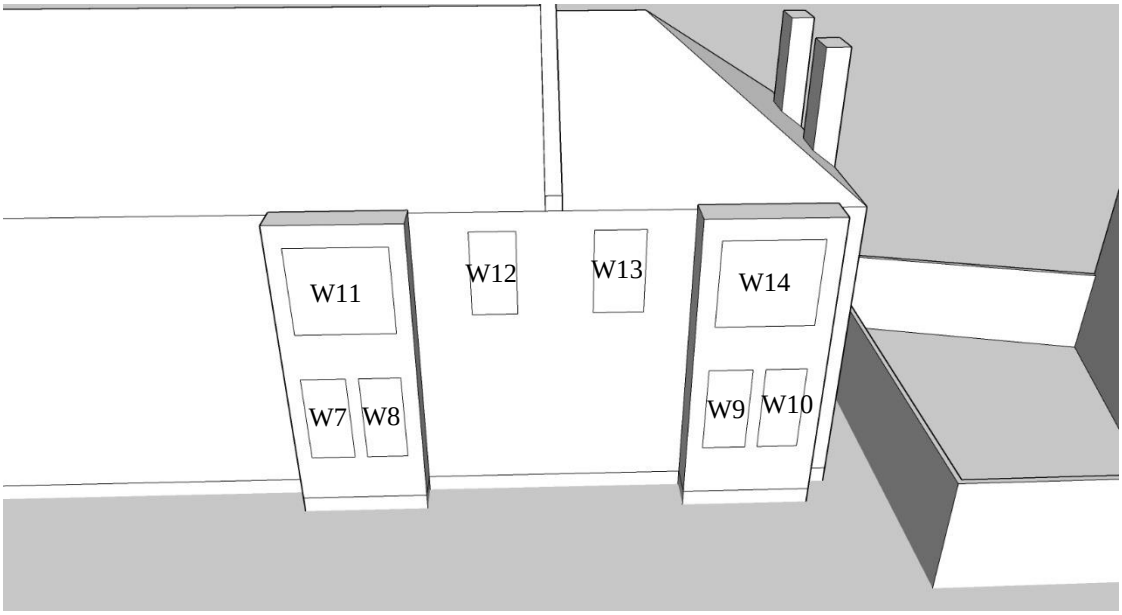


Figure 5: Windows assessed at 1&3 Godstone Road

Figure 6: Windows assessed at 100 Winchester Road

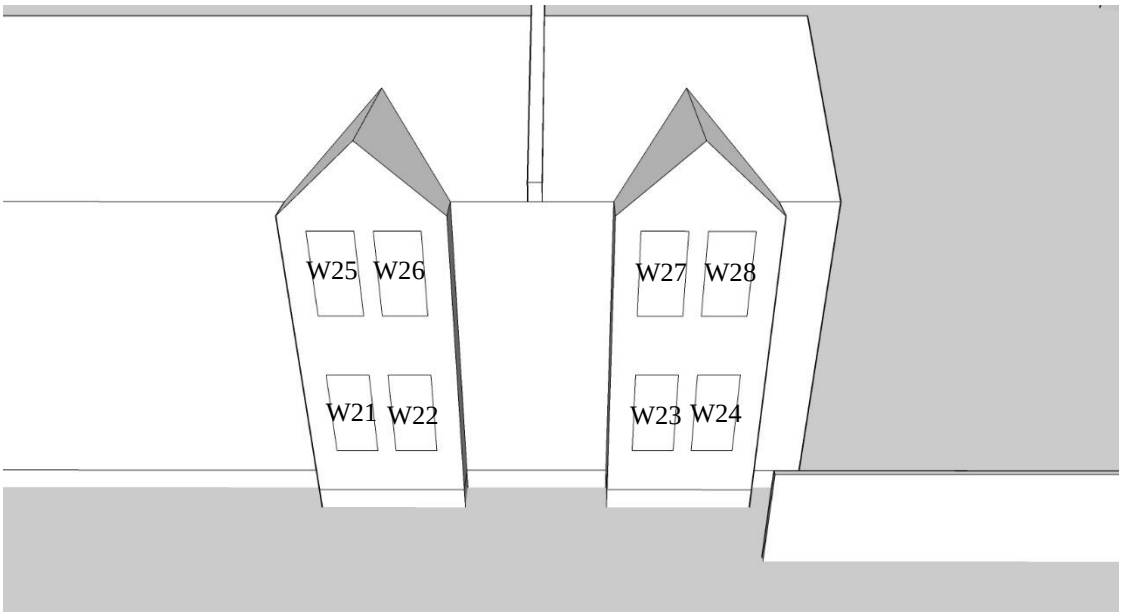


Figure 7: Windows assessed at 99 and 101 Winchester Road

Table 3: VSC – existing surrounding buildings

Window	VSC before development	VSC after development	Fraction of former value	Complies with BR 209 paragraph 2.2.7 recommendations
W1	58.37	52.01	0.89	✓
W2	10.37	2.88	0.28	x
W3	15.98	10.36	0.65	x
W4	38.19	33.35	0.87	✓
W5	37.32	24.81	0.66	x

Window	VSC before development	VSC after development	Fraction of former value	Complies with BR 209 paragraph 2.2.7 recommendations
W6	24.07	20.47	0.85	✓
W7	33.74	31.48	0.93	✓
W8	33.98	31.52	0.93	✓
W9	35.37	31.71	0.90	✓
W10	35.45	31.55	0.89	✓
W11	36.50	35.15	0.96	✓
W12	35.95	34.41	0.96	✓
W13	35.91	34.17	0.95	✓
W14	37.37	35.17	0.94	✓
W15	36.08	31.86	0.88	✓
W16	35.85	31.45	0.88	✓
W17	33.14	28.96	0.87	✓
W18	38.14	36.00	0.94	✓
W19	37.87	35.42	0.94	✓
W20	36.25	33.79	0.93	✓
W21	36.84	35.47	0.96	✓
W22	36.83	35.37	0.96	✓
W23	36.84	34.88	0.95	✓
W24	36.86	34.78	0.94	✓
W25	38.24	37.57	0.98	✓
W26	38.24	37.54	0.98	✓
W27	38.30	37.35	0.98	✓
W28	38.32	37.30	0.97	✓

2.4.4 The calculations show that the proposed development would have an imperceptible impact on the skylight of 25 of the 28 windows assessed (W1, W4, and W6-W28). It would have a noticeable impact on the skylight of 3 of the 28 windows assessed (W2, W3, and W5). This is because the VSC of each of these windows after development is less than 27% and less than 0.8 times its fraction of former value. The following justifications are provided for the infringement on these windows.

Justification for infringement on W2

2.4.5 According to plans from planning application number 16/4818/FUL, W2 is a tertiary window serving the kitchen/living room of 2 Godstone Road. The primary and secondary windows that serve the kitchen/living room are a large 4.8m wide door with 11.4m^2 of glazing and a 3.7m wide rooflight with 3.5m^2 glazing. It has been calculated that the very large primary and secondary windows would mean that the kitchen/living room could retain excellent daylight, with an ADF of circa 11.0%, after development proposals. This is far above the minimum ADF of 2.0% recommended for kitchen/living rooms in BR 209. In addition, 99.93% of the room would retain direct skylight after development proposals.

2.4.6 For the purposes of the ADF calculation, the area-weighted average reflectance of the room surfaces has been calculated on the assumption that the room has a white ceiling (0.85), light (pale cream) coloured walls (0.81) and light coloured carpet/light wood flooring (0.4). The maintenance factor has been calculated as 0.96 for the windows and 0.88 for the rooflight. The effective net area glazing has been measured from the drawings from planning application number 16/4818/FUL. The diffuse visible transmittance of glazing has been assumed as 0.68.

Justification for infringement on W3

2.4.7 W3 is located on the rear of 2 Godstone Road and serves a bedroom. It has a relatively low VSC of 15.98% before development proposals because it is adjacent to a projecting wall and because the extension approved under planning application number 16/4818/FUL has been constructed directly opposite it. BR 209 paragraph 2.2.12 states:

> A larger relative reduction in VSC may be unavoidable if the existing window has projecting wings on one or both sides of it, or is recessed into the building so that it is obstructed on both sides as well as above.

2.4.8 It is suggested that the projecting wall and the extension approved under planning application number 16/4818/FUL are the main factor in the relative loss of light to W3 and not the proposed development. To demonstrate this, an additional calculation of the VSC of W3 has been carried out for both the existing and proposed situation, without the projecting wall and the extension approved under planning application number 16/4818/FUL in place. Table 4 shows the result.

Table 4: VSC – W3 without projecting wall and the extension approved under planning application number 16/4818/FUL in place

Window	VSC before development	VSC after development	Fraction of former value	Complies with BR 209 paragraph 2.2.7 recommendations
W3	34.12	28.13	0.82	✓

2.4.9 In addition, W3 is a relatively large window with 2.33m^2 of glazing. It has been calculated that the relatively large window would mean that the bedroom could retain good daylight, with an ADF of circa 1.5%, after development proposals. This is above the minimum ADF of 1.0% recommended for bedrooms in BR 209.

2.4.10 For the purposes of the ADF calculation, the area-weighted average reflectance of the room surfaces has been calculated on the assumption that the room has a white ceiling (0.85), light (pale cream) coloured walls (0.81) and light coloured carpet/light wood flooring (0.4). The maintenance factor of the window has been calculated as 0.96. The effective net area glazing has been measured from the drawings from planning application number 16/4818/FUL. The diffuse visible transmittance of glazing has been assumed as 0.68.

Justification for infringement on W5

2.4.11 Whilst BR 209 gives numerical guidelines for assessing daylight and sunlight levels, it is important to bear in mind that the numerical guidelines should be interpreted flexibly. BR 209 Paragraph 1.6 states:

> The guide (BR 209) 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 taken 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.

2.4.12 Further, BR 209 Paragraph F1 states

> Sections 2.1, 2.2 and 2.3 give numerical target values in assessing how much light from the sky is blocked by obstructing buildings. These values are purely advisory and different targets may be used based on the special requirements of the proposed development or its location. Such alternative targets may be generated from the layout dimensions of existing development.

2.4.13 The need for flexibility is of particular relevance in London due to the high density of development and tight proximity of buildings. This has been recognised in *the London Housing Supplementary Planning Guidance* (March 2016). Paragraphs 1.3.45 and 1.3.46 state:

> An appropriate degree of flexibility needs to be applied when using BRE guidelines to assess the daylight and sunlight impacts of new development on surrounding properties, as well as within new developments themselves…The degree of harm on adjacent properties and the daylight targets within a proposed scheme should be assessed drawing on broadly comparable residential typologies within the area and of a similar nature across London. Decision makers should recognise that fully optimising housing potential on large sites may necessitate standards which depart from those presently experienced but which still achieve satisfactory levels of residential amenity and avoid unacceptable harm.

2.4.14 The infringement on W5 is considered minor because the window retains a VSC of 24.81% after development proposals. Whilst this is below the 27% recommended by BR 209 paragraph 2.2.7, it is higher than many of the windows serving similar properties in the surrounding area. For example, the majority of the existing north-east and south-west facing windows located on the ground floors of the rear extensions of the mid terrace houses at 6 to 92 Godstone Road have a VSC of less than 10.00%.

2.4.15 Since the infringement on the skylight of W2, W3 and W5 can be justified, it is suggested that the proposed development's impact on the skylight of existing surrounding dwellings should be considered acceptable.

2.5 Sunlight – Annual Probable Sunlight Hours – Existing Buildings

2.5.1 BR 209 paragraph 3.2.3 states:

> To assess the loss of sunlight to an existing building it is suggested that all main living rooms of dwellings, and conservatories, should be checked if they have a window facing within 90 degrees of due south.

2.5.2 BR 209 paragraph 3.2.11 states:

> If a living room of an existing dwelling has a main window facing within 90° of due south…the sunlighting of the existing dwelling may be adversely affected…if the centre of the window:
>
> - Receives less than 25% of annual probable sunlight hours, or less than 5% of annual probable sunlight hours between 21 September and 21 March and;
> - Receives less than 0.8 times its former sunlight hours during either period and;
> - Has a reduction in sunlight received over the whole year greater than 4% of annual probable sunlight hours.

2.5.3 Table B1 in appendix B provides a record of the percentage of the annual probable sunlight hours (APSH) and the annual probable sunlight hours in the winter months (WPSH) received by windows assessed. W2, W4 and W5 have not been assessed as they do not face within 90 degrees of due south. W3 has not been assessed as it is known to serve a bedroom.

2.5.4 Climate data from St James Park, London from the years between 2003-2017 has been used.

2.5.5 The calculations show that the proposed development would have an imperceptible impact on the sunlight of all windows, complying with BR 209 guidance.

2.6 Sunlight – Gardens – Existing Buildings

2.6.1 BR 209 paragraph 3.3.17 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 21 March. If as a result of a 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.

2.6.2 Table 5 shows the percentage of the existing gardens at 2&4 Godstone Road and 100 Winchester Road that receive two hours of sunlight on 21 March. It is asserted that the proposed development would have an acceptable impact on all other existing surrounding amenity areas.

Table 5: Sunlight to amenity areas – existing surrounding buildings

Amenity area	% of area that receives at least 2 hours of sunlight on 21 March before development	% of area that receives at least 2 hours of sunlight on 21 March after development	Fraction of former value
2&4 Godstone Road garden	26.03	26.03	1.00
100 Winchester Road garden	60.27	60.27	1.00

2.6.3 The proposed development would have an acceptable impact on the sunlight of existing gardens, complying with BR 209 guidance.

3 Conclusions

3.1.1 An assessment of the daylight and sunlight levels of the proposed new dwellings at Land at St Margaret's Business Centre, and an assessment of the impact that the proposed development may have on the skylight and sunlight levels of existing surrounding residential buildings, has been undertaken in accordance with guidance set out in *BRE report 209, Site Layout Planning for Daylight and Sunlight: A guide to good practice, Second Edition, 2011* (BR 209), and *BS 8206-2 Code of Practice for Daylighting* (BS8206-2).

3.1.2 Whilst BR 209 gives numerical guidelines for assessing daylight and sunlight levels, it is important to bear in mind that the numerical guidelines should be interpreted flexibly. BR 209 Paragraph 1.6 states:

> The guide (BR 209) 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 taken 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.

3.1.3 The need for flexibility is of particular relevance in London due to the high density of development and tight proximity of buildings. This has been recognised in *the London Housing Supplementary Planning Guidance* (March 2016). Paragraphs 1.3.45 and 1.3.46 state:

> An appropriate degree of flexibility needs to be applied when using BRE guidelines to assess the daylight and sunlight impacts of new development on surrounding properties, as well as within new developments themselves…The degree of harm on adjacent properties and the daylight targets within a proposed scheme should be assessed drawing on broadly comparable residential typologies within the area and of a similar nature across London. Decision makers should recognise that fully optimising housing potential on large sites may necessitate standards which depart from those presently experienced but which still achieve satisfactory levels of residential amenity and avoid unacceptable harm.

3.1.4 The need for flexibility in applying policies or guidance relating to daylight and sunlight is also stated in Paragraph 123 of the *National Planning Policy Framework*:

> Where there is an existing or anticipated shortage of land for meeting identified housing needs, it is especially important that planning policies and decisions avoid homes being built at low densities, and ensure that developments make optimal use of the potential of each site. In these circumstances:
>
> a) plans should contain policies to optimise the use of land in their area and meet as much of the identified need for housing as possible. This will be tested robustly at examination, and should include the use of minimum density standards for city and town centres and other locations that are well served by public transport. These standards should seek a significant uplift in the average density of residential development within these areas, unless it can be shown that there are strong reasons why this would be inappropriate;
>
> b) the use of minimum density standards should also be considered for other parts of the plan area. It may be appropriate to set out a range of densities that reflect the accessibility and potential of different areas, rather than one broad density range; and
>
> c) 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).

3.1.5 With this in mind, the following conclusions have been drawn:

1) All the proposed habitable rooms achieve the average daylight factors (ADFs) recommended in BR 209 and BS8206-2.

2) All the proposed habitable rooms achieve the percentage of direct skylight recommended in BR 209.

3) All the proposed kitchen/dining rooms achieve the annual probable sunlight hours (APSH) and annual probable sunlight hours in the winter months (WPSH) recommended in BR 209.

4) The proposed development would have an imperceptible impact on the skylight of 25 of the 28 windows assessed (W1, W4, and W6-W28). It would have a noticeable impact on the skylight of 3 of the 28 windows assessed (W2, W3, and W5). The following justifications are provided for the infringement on the skylight of these three windows:

    i. According to plans from planning application number 16/4818/FUL, W2 is a tertiary window serving the kitchen/living room of 2 Godstone Road. The primary and secondary windows that serve the kitchen/living room are a large 4.8m wide door with 11.4m^2 of glazing and a 3.7m wide rooflight with 3.5m^2 glazing. It has been calculated that the very large primary and secondary windows would mean that the kitchen/living room could retain excellent daylight, with an ADF of circa 11.0%, after development proposals. This is far above the minimum ADF of 2.0% recommended for kitchen/living rooms in BR 209. In addition, 99.93% of the room would retain direct skylight after development proposals.

ii. Calculations show that the projecting wall adjacent to W3 and the extension approved under planning application number 16/4818/FUL are the main factor in the relative loss of light to W3 and not the proposed development. In addition, W3 is a relatively large window with 2.33m^2 of glazing. It has been calculated that the relatively large window would mean that the bedroom it serves could retain good daylight, with an ADF of circa 1.5%, after development proposals. This is above the minimum ADF of 1.0% recommended for bedrooms in BR 209.

iii. The infringement on W5 is considered minor because the window retains a VSC of 24.81% after development proposals. Whilst this is below the 27% recommended by BR 209 paragraph 2.2.7, it is higher than many of the windows serving similar properties in the surrounding area. For example, the majority of the existing north-east and south-west facing windows located on the ground floors of the rear extensions of the mid terrace houses at 6 to 92 Godstone Road have a VSC of less than 10.00%.

Since the infringement on the skylight of W2, W3 and W5 can be justified, it is suggested that the proposed development's impact on the skylight of existing surrounding dwellings should be considered acceptable.

5) The proposed development would have an imperceptible impact on the sunlight of all main living rooms of existing surrounding residential buildings, complying with BR 209 guidance.

6) The proposed development would have an acceptable impact on the sunlight of existing gardens, complying with BR 209 guidance.

4 Appendix A: ADFs of the proposed development

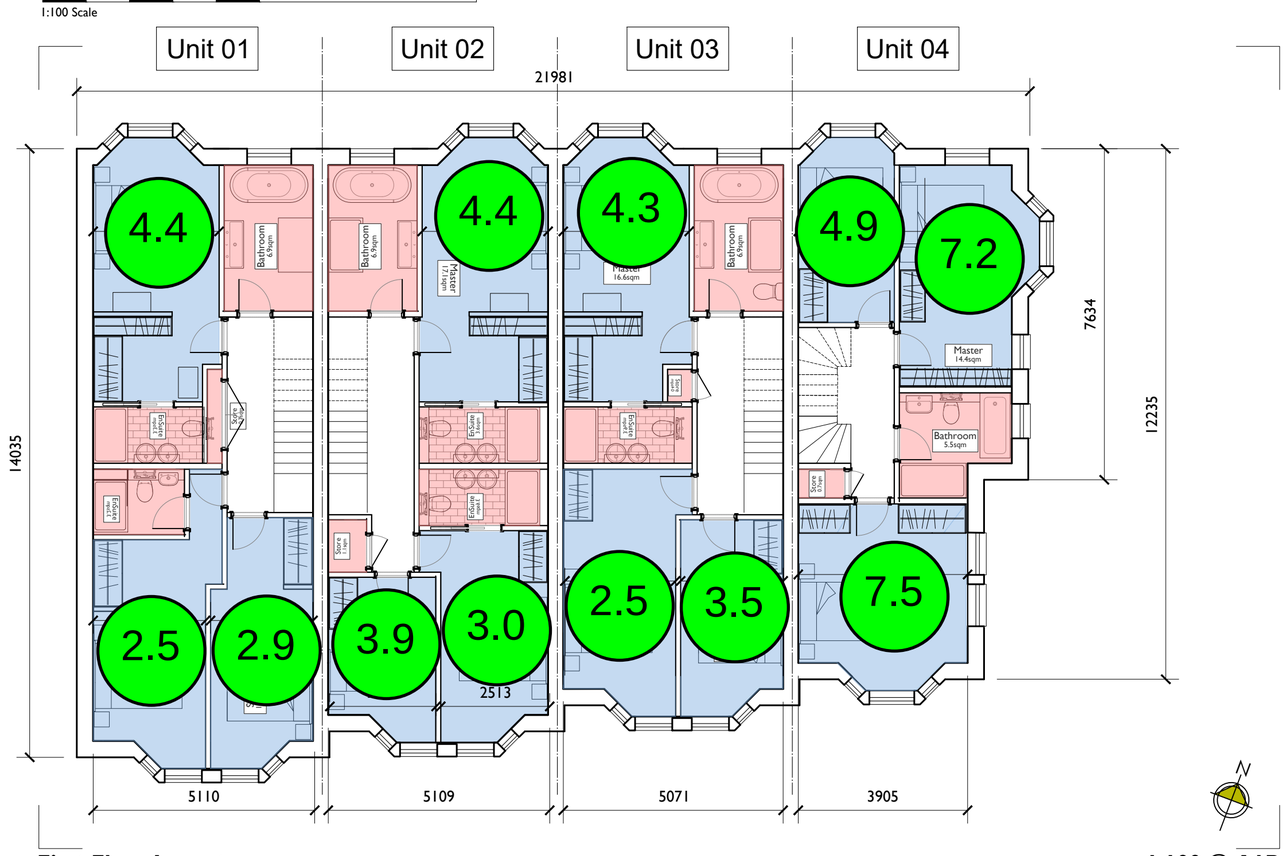
4.1.1 The following plans provide a record of the assessment of the ADFs of the habitable rooms of the proposed dwellings.

Ground Floor Layouts

1:100 @ A1P

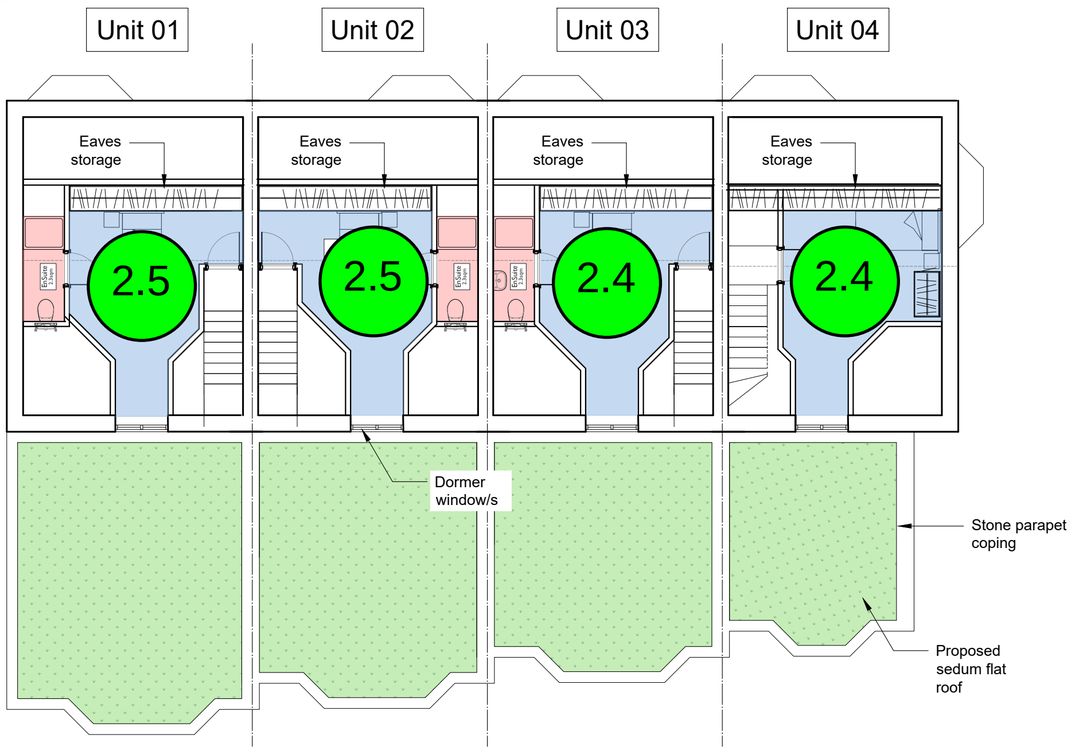
0 1 m 2 m 3 m 4 m 5 m 10 m

1:100 Scale



First Floor Layouts

1:100 @ A1P



Second Floor Layouts

1:100 @ A1P

Site/Block Plan

1:200 @ A1P

0 2 m 4 m 6 m 8 m 10 m 20 m

1:200 Scale

Proposed 1800x840x1090mm Bike Store

ISSUED FOR PLANNING

TITLE
ST MARGARET'S BUSINESS CENTRE

CLIENT
SHEEN LANE DEVELOPMENTS LTD

DESCRIPTION
Proposed Layouts

date:	scale	project	drawing	revision
AUG 2020	1:100 @A1P		P-001	B

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5 Appendix B: APSH and WPSH – Existing Buildings

5.1.1 Table B1 provides a record of the percentage of the annual probable sunlight hours (APSH) and the annual probable sunlight hours in the winter months (WPSH) received by the windows assessed on existing surrounding residential buildings.

Table B1: APSH and WPSH - existing surrounding buildings

Window	% APSH before development	% APSH after development	Fraction of former value	% WPSH before development	% WPSH after development	Fraction of former value	Complies with BR 209 recommendations
W1	51.84	40.27	0.78	13.07	13.07	1.00	✓
W6	86.28	83.17	0.96	14.03	12.08	0.86	✓
W7	86.86	83.55	0.96	27.51	24.40	0.89	✓
W8	88.19	81.67	0.93	28.09	24.78	0.88	✓
W9	88.46	80.89	0.91	31.57	25.05	0.79	✓
W10	92.15	91.16	0.99	32.05	24.47	0.76	✓
W11	84.78	83.48	0.98	33.38	32.39	0.97	✓
W12	85.46	83.69	0.98	32.12	30.82	0.96	✓
W13	92.15	90.14	0.98	33.31	31.54	0.95	✓
W14	88.98	81.02	0.91	33.38	31.37	0.94	✓
W15	88.70	79.83	0.90	33.38	25.43	0.76	✓
W16	77.92	69.52	0.89	33.31	24.44	0.73	✓
W17	93.62	92.97	0.99	32.56	24.16	0.74	✓

Window	% APSH before development	% APSH after development	Fraction of former value	% WPSH before development	% WPSH after development	Fraction of former value	Complies with BR 209 recommendations
W18	90.31	89.18	0.99	33.38	32.73	0.98	✓
W19	81.54	80.72	0.99	33.38	32.25	0.97	✓
W20	50.03	49.97	1.00	32.63	31.81	0.97	✓
W21	50.03	49.86	1.00	16.76	16.69	1.00	✓
W22	50.03	49.76	0.99	16.76	16.59	0.99	✓
W23	50.03	49.76	0.99	16.76	16.62	0.99	✓
W24	50.03	50.03	1.00	16.76	16.62	0.99	✓
W25	50.03	50.03	1.00	16.76	16.76	1.00	✓
W26	50.03	50.03	1.00	16.76	16.76	1.00	✓
W27	50.03	50.03	1.00	16.76	16.76	1.00	✓
W28	51.84	40.27	0.78	16.76	16.76	1.00	✓