



**Client: Holly Walk Developments
Limited**

Daylight and Sunlight Assessment for the
Neighbouring Properties to the
Development at No. 16 Frognal Gardens,
London, NW3 6UX

May 2018

Herrington Consulting Limited
Unit 6 – Barham Business Park
Elham Valley Road
Barham
Canterbury
Kent, CT4 6DQ
Tel/Fax +44 (0)1227 833855

www.herringtonconsulting.co.uk

This report has been prepared by Herrington Consulting Ltd in accordance with the instructions of their client, **Holly Walk Developments Limited**, for their sole and specific use. Any other persons who use any information contained herein do so at their own risk.

© Herrington Consulting Limited 2018

Template Rev – June 16

Client: Holly Walk Developments Limited

Daylight and Sunlight Assessment for the
Development at No. 16 Frognal Gardens,
London, NW3 6UX

Contents Amendment Record

This report has been issued and amended as follows:

Issue	Revision	Description	Date	Written by	Checked by
1	0	Draft Issue	28th March 2018	GI	SPH
2	1	Final Issue	5th April 2018	GI	SPH
3	1	Final Issue	11th May 2018	GI	SPH

Contents

1	Background and Scope of Appraisal	1
2	The Site and Development Proposals	2
2.1	Site Location	2
2.2	The Development	2
3	Policy and Guidance	3
3.1	National Planning Policy	3
3.2	Regional Planning Policy	3
3.3	Local Planning Policy	4
3.4	Best Practice Guidance	4
4	Assessment Techniques	5
4.1	Background	5
4.2	Vertical Sky Component (VSC)	6
4.3	No Sky Line	6
4.4	Overshadowing	7
4.5	Annual Probable Sunlight Hours	8
4.6	Average Daylight Factor	8
5	Assessment Methodology	10
5.1	Method of Baseline Data Collation	10
5.2	Identification of Key Sensitive Receptors	10
5.3	Numerical Modelling	12
5.4	Calculation Assumptions	12
5.5	Assessment criteria	13
6	Discussion of Daylighting Impacts	15
6.1	Vertical Sky Component Assessment	15
6.2	No Sky Line Assessment	15
6.3	Summary of Daylighting Impacts	16
7	Sunlight and Overshadowing Analysis	17
7.1	Annual Probable Sunlight Hours Assessment	17
7.2	Sun on the Ground	19
7.3	Transient Overshadowing	19
7.4	Solar Glare	20
8	Conclusions	21
A	Appendices	22

1

Background and Scope of Appraisal

Herrington Consulting has been commissioned by Holly Walk Developments Limited to assess the potential impact of the proposed development at No. 16 Frognal Gardens, London NW3 6UX, in relation to daylight, sunlight and overshadowing on the neighbouring buildings. The key objectives of the assessment are to:

- assess the baseline conditions at the site;
- analyse the potential impacts of the development on the daylight and sunlight currently received by the neighbouring buildings;
- assess these impacts in line with any relevant planning policies and best practice guidance.

2 The Site and Development Proposals

2.1 Site Location

The site is located within the London Borough of Camden. The location of the site is shown in Figure 2.1 and the site plan included in Appendix A.1 of this report gives a more detailed reference to the site location and layout.

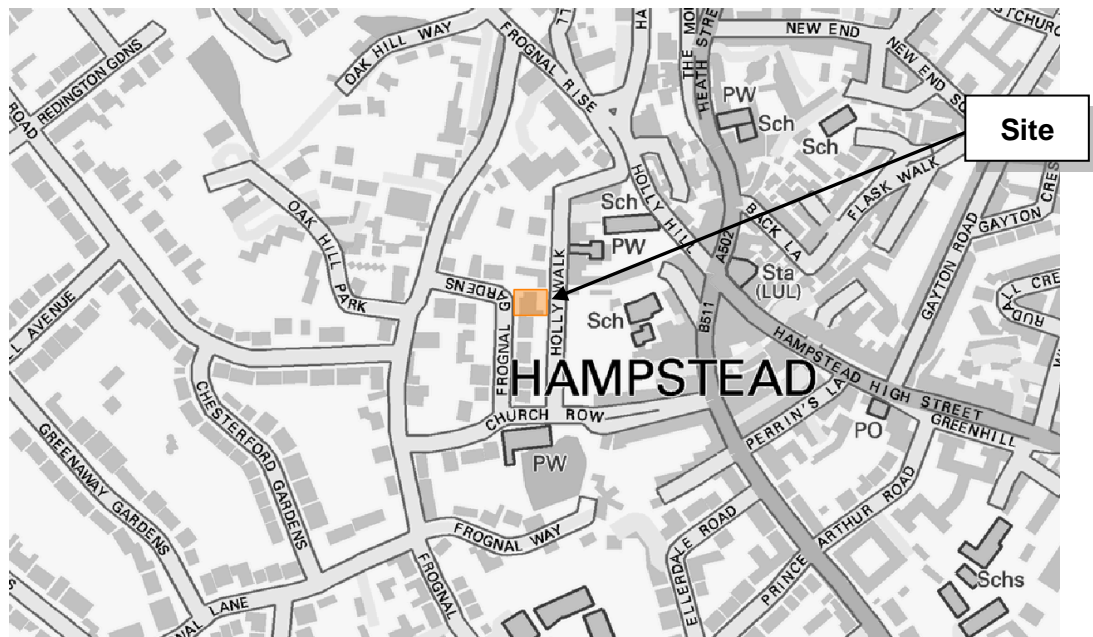


Figure 2.1 – Location map (Contains Ordnance Survey data © Crown copyright and database right 2011)

2.2 The Development

The proposal for development is to demolish the existing garage and erect a three-bedroom dwelling. Drawings of the proposed scheme are included in Appendix A.1 of this report.

3 Policy and Guidance

3.1 National Planning Policy

National Planning Policy Framework (2012)

The National Planning Policy Framework adopted on the 27th March 2012, replacing the Planning Policy Statements and Planning Policy Guidance, stipulates that “...*planning policies and decisions should always seek to secure a good standard of amenity for existing and future occupants of land and buildings.*”

National Planning Practice Guidance (2014)

The National Planning Practice Guidance was launched in 2014, creating an online resource for planning practitioners. The guidance does not provide any further detail in terms of amenity beyond that stated above.

3.2 Regional Planning Policy

The London Plan – Spatial Development Strategy for London (2016)

Policy 7.6: ‘Architecture’ of the adopted London Plan, includes the following statements: “*Buildings and structures should... not cause unacceptable harm to the amenity of surrounding land and buildings, particularly residential buildings, in relation to... overshadowing. “New development, should not have a negative impact on the character or amenity of neighbouring sensitive land uses.”.*

The London Plan – Supplementary Planning Guidance on Housing (2016)

Policy 7.6Bd on ‘Standards for privacy, daylight and sunlight’ requires new development to avoid causing ‘*unacceptable harm*’ to the amenity of surrounding land and buildings, particularly in relation to privacy and overshadowing’. It also states that ‘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. Guidelines should be applied sensitively to higher density development, especially in opportunity areas, town centres, large sites and accessible locations, where BRE advice suggests considering the use of alternative targets’

In the ‘Standards for privacy, daylight and sunlight’, Paragraph 1.3.46 states that ‘The degree of harm on adjacent properties should be assessed drawing on broadly comparable residential typologies within the area and of a similar nature across London’. Similarly, Paragraph 2.3.47 on ‘Daylight and Sunlight’ includes the following statement ‘Quantitative standards on daylight and sunlight should not be applied rigidly, without carefully considering the location and context and standards experienced in broadly comparable housing typologies in London’.

3.3 Local Planning Policy

Camden Local Plan (2017)

Policy A1 'Managing the impact of development' states that *'The Council will seek to protect the quality of life of occupiers and neighbours. We will grant permission for development unless this causes unacceptable harm to amenity. The factors we will consider include: ... f. sunlight, daylight and overshadowing'*. Section 6.5 states that: *'Loss of daylight and sunlight can be caused if spaces are overshadowed by development. To assess whether acceptable levels of daylight and sunlight are available to habitable, outdoor amenity and open spaces, the Council will take into account the most recent guidance published by the Building Research Establishment (currently the Building Research Establishment's Site Layout Planning for Daylight and Sunlight – A Guide to Good Practice 2011)'*.

3.4 Best Practice Guidance

In the absence of official national planning guidance / legislation on daylight and sunlight, the most recognised guidance document is published by the Building Research Establishment and entitled 'Site Layout Planning for Daylight and Sunlight – A Guide to Good Practice', Second Edition, 2011; herein referred to as the 'BRE Guidelines'.

The BRE Guidelines are not mandatory and themselves state that they should not be used as an instrument of planning policy, however in practice they are heavily relied upon as they provide a good guide to approach, methodology and evaluation of daylight and sunlight impacts.

In conjunction with the BRE Guidelines further guidance is given within the British Standard (BS) 8206-2:2008: 'Lighting for buildings - Part 2: Code of practice for daylighting'.

In this assessment, the BRE Guidelines have been used to establish the extent to which the Proposed Development meets current best practice guidelines. In cases where the Development is likely to reduce light to key windows the study has compared results against the BRE criteria.

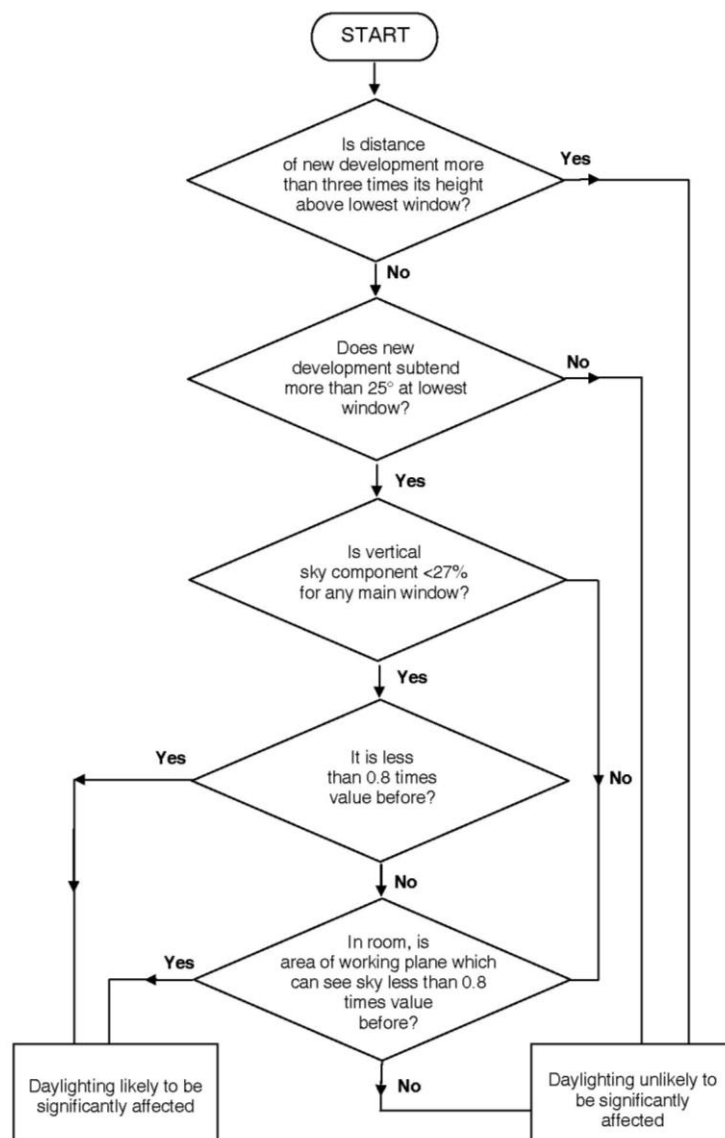
Whilst the BRE Guidelines provide numerical guidance for daylight, sunlight and overshadowing, these criteria should not be seen as absolute targets since, as the document states, the intention of the guide is to help rather than constrain the designer. The Guide is not an instrument of planning policy, therefore whilst the methods given are technically robust, it is acknowledged that some level of flexibility should be applied where appropriate.

4 Assessment Techniques

4.1 Background

Natural light refers to both daylight and sunlight. However, a distinction between these two concepts is required for the purpose of analysis and quantification of natural light in buildings. In this assessment, the term 'Daylight' is used for natural light where the source is the sky in overcast conditions, whilst 'Sunlight' refers specifically to the light coming directly from the sun.

The primary objective of this assessment is to quantify the impacts of the proposed development on the adjacent building[s] and therefore the methods employed by this study are focussed on this objective. These methodologies are described in the following sections of this report and follow the hierarchical approach set out by the BRE Guidelines. The 'decision chart' outlining this process (Figure 20 of the Guidelines) has been reproduced below.



The BRE guidelines are intended for use for rooms in adjoining dwellings. They may also be applied to any existing non-domestic buildings where the occupants have a reasonable expectation of daylight, which could include schools, hospitals, hotels and offices. For dwellings, it states that living rooms, dining rooms and kitchens should be assessed. Bedrooms should also be checked, although it states that they are less important. Other rooms, such as bathrooms, toilets, storerooms, circulation areas and garages need not be assessed.

4.2 Vertical Sky Component (VSC)

The Vertical Sky Component (VSC) calculation is the ratio of the direct sky illuminance falling on the outside of a window, to the simultaneous horizontal illuminance under an unobstructed sky. The standard CIE (Commission Internationale d'Éclairage) Overcast Sky is used and the ratio is expressed as a percentage. For example, a window that has an unobstructed view over open fields would benefit from the maximum VSC, which would be close to 40%. For a window to be considered as having a reasonable amount of skylight reaching it, the BRE Guidelines suggests that a minimum VSC value of 27% should be achieved. When assessing the impact of a new development on an existing building the BRE Guidelines sets out the following specific requirement:

If the VSC with the new development in place is both less than 27% and less than 0.8 times its former value, then the reduction in light to the window is likely to be noticeable.

This means that a reduction in the VSC value of up to 20% its former value would be acceptable and thus the impact would be considered negligible. It is important to note that the VSC is a simple geometrical calculation, which provides an early indication of the potential for daylight entering the space. It does not, however, assess or quantify the actual daylight levels inside the rooms.

4.3 No Sky Line

The No Sky Line, or sometimes referred to as No Sky View method, describes the distribution of daylight within rooms by calculating the area of the 'working plane', which can receive a direct view of the sky. The working plane height is generally set at 850mm above floor level within a residential property and 700mm within a commercial property.

The BRE Guidelines state that if following the construction of a new development the No Sky Line moves such that the area of existing room that does not receive direct skylight is reduced to less than 0.8 times its former value, the impact will be noticeable to the occupants. This is also true if the No Sky Line encroaches onto key areas like kitchen sinks and worktops.

One benefit of the daylight distribution test is that the resulting contour plans show where the light falls within a room, both in the existing and proposed conditions, and a judgment may be made as to whether the room will retain light to a reasonable depth.

This method can only be accurately used to examine the impact of new development on the daylight distribution within existing buildings when the internal room layout is known. However, in

circumstances where the internal layout and dimensions of the affected room are not known, best estimates are used.

4.4 Overshadowing

The BRE Guidance suggests that where new development may affect one or more amenity areas, then analysis can be undertaken to quantify the loss of sunlight resulting from overshadowing. Typical examples of areas that could be considered as open spaces or amenity areas are main back gardens of houses, allotments, parks and playing fields, children's playgrounds, outdoor swimming pools, sitting-out areas, such as in public squares and focal points for views, such as a group of monuments or fountains.

Sun Hours on Ground

The BRE Guidelines recommend that for a garden or amenity area to appear adequately sunlit throughout the year, at least 50% of an amenity area should receive at least 2 hours of sunlight on 21st March. The BRE Guidelines also suggest that if, as a result of a new development, an existing garden or amenity area does not meet these guidelines, and the area which can receive some sun on the 21st March is less than 0.8 times its former value, then the loss of sunlight is likely to be noticeable.

When undertaking this analysis, sunlight from an altitude of 10° or less has been ignored as this is likely to be obscured by planting and undulations in the surrounding topography. Driveways and hard standing for cars is also usually left out of the area used for this calculation. Fences or walls less than 1.5 metres high are also ignored. Front gardens which are relatively small and visible from public footpaths are omitted with only main back gardens needing to be analysed.

The Guidelines also state that “normally, trees and shrubs need not be included, partly because their shapes are almost impossible to predict, and partly because the dappled shade of a tree is more pleasant than a deep shadow of a building”. This is especially the case for deciduous trees, which provide welcome shade in the summer whilst allowing sunlight to penetrate during the winter months.

Transient Overshadowing

The BRE Guidelines suggest that where large buildings are proposed, which may affect a number of open spaces or amenity areas, it is useful and illustrative to plot a shadow plan to show the location of shadows at different times of the day and at key times during the year. Typically, the 21st March, the 21st June, and 21st December are used to represent the annual variance of sun position, noting that the position of the sun in the sky during the spring equinox (21st March) is equivalent to that of the autumn equinox.

The BRE Guidelines provide no criteria for the significance of transitory overshadowing other than to suggest that by establishing the different times of day and year when shadow would be cast over surrounding areas, provides an indication as to the significance of the likely effect of a new development. The assessment of transient overshadowing effects is therefore based upon expert

judgment, taking into consideration the likely effects of the various baseline conditions and comparing them with the likely significant transient overshadowing effects of the redevelopment proposals.

4.5 Annual Probable Sunlight Hours

It is also possible to quantify the amount of sunlight available to a new development and the recognised methodology for undertaking this analysis is the Annual Probable Sunlight Hours (APSH) method.

In the case of sunlight, the assessment is equally applied to adjoining dwellings and any existing non-domestic buildings where there is a particular requirement for sunlight. The BRE Guidelines set out a hierarchy of tests to determine whether the proposed development will have a significant impact. These are set out in order of complexity below:

Test 1 – Assess whether the windows to main living rooms and conservatories of the buildings surrounding the site are situated within 90° of due south. Obstruction to sunlight may become an issue if some part of the new development is situated within 90° of due south of a main window wall of an existing building.

Test 2 - Draw a section perpendicular from the centre of the window in any window walls identified by Test 1. If the angle subtended between the horizontal line drawn from the centre of the lowest window of the existing building and the proposed development is less than 25°, then the proposed development is unlikely to have a substantial effect on the direct sunlight enjoyed by the existing window.

Test 3 – If the window wall faces within 20° of due south and the reference point has a VSC of 27% or more, then the room is considered to receive sufficient sunlight.

Test 4 – If all of the above tests have been failed, then a more detailed analysis is required to determine the obstruction level to the existing building. In such cases, the BRE Guidance recommends the use of the Annual Probable Sunlight Hours (APSH) test to assess the impact on the availability of sunlight. To pass this test the centre point of the window will need to receive more than one quarter of APSH, including at least 5% APSH in the winter months between 21st September and the 21st March. The BRE Guidelines state that if ‘post-development’ the available sunlight hours are both less than the amount above and less than 0.8 times their ‘pre-development’ value, either over the whole year or just within the winter months, then the occupants of the existing building will notice the loss of sunlight. In addition, if the overall annual loss is greater than 4% of APSH, the room may appear colder and less pleasant.

4.6 Average Daylight Factor

The Average Daylight Factor (ADF) method calculates the average illuminance within a room as a proportion of the illuminance available to an unobstructed point outdoors under a sky of known luminance and luminance distribution. This is the most detailed of the daylight calculations and

considers the physical nature of the room behind the window, including; window transmittance, and surface reflectivity.

This method of quantifying the availability of daylight within a room does, however, require the internal layout to be known and is generally only used for establishing daylight provision in new rooms. The BRE Guide sets out the following guidelines for the assessment of the ADF:

If a predominantly daylit appearance is required, then the ADF should be 5% or more if there is no supplementary electric lighting, or 2% or more if supplementary electric lighting is provided. In dwellings, the following minimum average daylight factors should be achieved: 1% in bedrooms, 1.5% in living rooms and 2% in kitchens.

5 Assessment Methodology

5.1 Method of Baseline Data Collation

The following data and information has been used to inform this study:

- OS Mastermap mapping
- Measured survey data (Peter Bernamont Architects, Kent – December 2017)
- Scheme drawings (Peter Bernamont Architects, Kent – December 2017)
- Photographs provided by the client (March 2018)
- Aerial photography (Google Maps and Bing)

5.2 Identification of Key Sensitive Receptors

The BRE Guidelines are intended for use for rooms and adjoining dwellings where daylight is required, including living rooms, kitchens and bedrooms. Windows to bathrooms, toilets, storerooms circulation areas and garages are not deemed as requiring daylight and therefore are not identified as sensitive receptors. The BRE document also states that the guidelines may also be applied to any non-domestic building where the occupants have a reasonable expectation of daylight. This would normally include schools, hospitals, hotels, hostels, small workshops and some offices.

The first step in this process is to determine the key sensitive receptors, i.e. which windows may be affected by the proposed development. Key receptors are those windows that face, or are located broadly perpendicular to the proposed development.

If a window falls into this category, the second step is to measure the obstruction angle. This is the angle at the level of the centre of the lowest window between the horizontal plane and the line joining the highest point of nearest obstruction formed from any part of the proposed development. If this angle is less than 25° then it is unlikely to have a substantial effect on the diffuse daylight enjoyed by the existing window and the window is not deemed to be a sensitive receptor. A graphical representation of the 25° rule is illustrated in Figure 5.1 below.

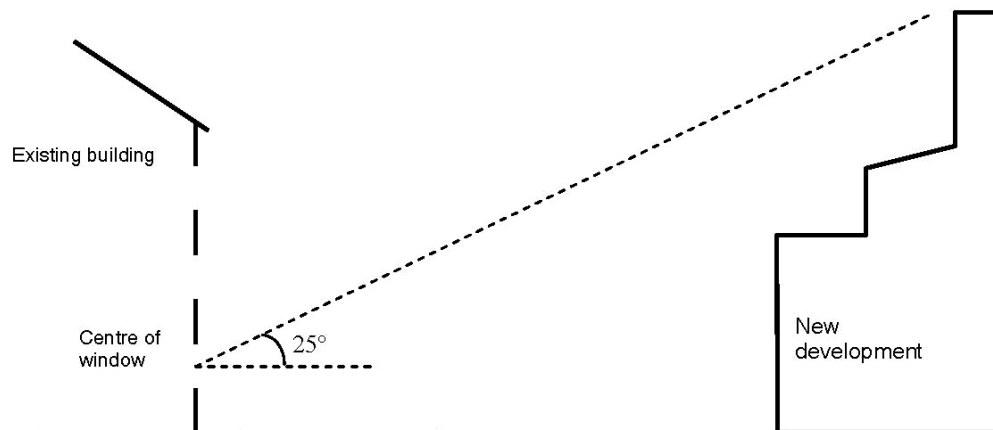


Figure 5.1 – Graphical representation of the 25° Rule (indicative buildings used for illustration purposes only)

As part of this assessment a digital three-dimensional model of the study area has been created for both the 'pre' and 'post' development scenarios. Images of these models are shown by the drawings appended to this report.

Using the 3D model, it is possible to identify all windows having an obstruction angle no greater than 25°. Impacts to these windows are therefore deemed to be negligible in line with the criteria set out within the BRE Guidelines.

There are, however, circumstances where the 25° degree rule is not wholly appropriate, for example where the development facing the window does not create a uniform obstruction along the skyline, or where the proposals are not directly adjacent to the receptor window. In these situations, professional judgement is used to differentiate between windows that require more detailed analysis and those that will clearly not be impacted. Where any level of uncertainty exists, the window is taken forward for detailed analysis.

Windows serving non-habitable spaces are not included within the assessment as these are not identified by planning policy or by the BRE Guidelines to be sensitive to changes in daylight and sunlight. Therefore, as part of the identification of sensitive receptor process, the use of each room is, where possible, established and windows serving non-habitable spaces such as toilets, store rooms, stairwells and circulation spaces are identified.

Windows serving rooms within commercial premises are assumed to be non-habitable and in accordance with the BRE Guidelines are not identified as sensitive receptors. However, there are special cases where it can be assumed that some non-domestic uses could be deemed to have a reasonable expectation of daylight and therefore could be taken forward for more detailed analysis. Typically, these could be school classrooms, hospital wards, art studios etc, but professional judgement is generally relied upon to determine this and where considered appropriate, windows serving commercial premises are included.

Drawings showing the location of all sensitive receptors that have been assessed as part of this study are included in Appendix A.2 of this report.

In summary, habitable rooms in the following residential buildings have been identified as potential sensitive receptors and have therefore been tested.

- 18 Holly Walk
- 16 Frogna Gardens

5.3 Numerical Modelling

The numerical analysis used in this assessment has been undertaken using the Waldrum Tools (Version 4.0.0.1) software package.

5.4 Calculation Assumptions

The following assumptions have been made when undertaking the analysis:

- When assessing the VSC the calculation is based on the centre point of the window position
- When assessing the ADF for internal rooms and in the absence of specific information, the following parameters are assumed:
 - Correction factor for frames and glazing bars = 0.8
 - Where information from the designer is not available, the following values are used to derive the Maintenance Factor applied to the transmittance values.

Location / setting	Building type (Residential – good maintenance)	Exposure (normal)	Special exposure	Maintenance Factor
Urban	8%	x 1.0	x 1.0	0.92
Rural / suburban	4%	x 1.0	x 1.0	0.96

Table 5.1 – Parameters used for deriving Maintenance Factor (refer to BS 8206-2:2008 Tables A3, A4 and A5)

- The reflectance values used in the ADF analysis of neighbouring buildings are based on typical values for internal surfaces. Where information on internal finishes is not available, the default value of 0.5 prescribed by the BRE Guidelines is adopted.
- Where information on internal room layouts of adjacent properties is not known, best estimates as to room layout and size have been made in order to undertake ADF and / or No Skyline analysis

- Where the internal arrangements and room uses have been estimated, it should be noted that this has no bearing upon the tests for VSC or APSH because the reference point is at the centre of the window being tested and windows have been accurately drawn from the survey information. It is relevant to the daylight distribution assessment, but in the absence of suitable plans, estimation is a conventional approach.
- In areas where survey data has not been provided or needs to be supplemented with additional information, photographs, OS mapping and brick counts have been used in the process of building the 3D model of the surrounding and existing buildings.
- When analysing the effect of the new building on the existing buildings, the shading effect of the existing trees has been ignored. This is the recommended practice where deciduous trees that do not form a dense belt or tree line are present (BRE Guidelines – Appendix H). This is because daylight is at its scarcest and most valuable in the winter when most trees will not be in leaf.
- In situations where windows are deeply set-back beneath balconies or other overhanging features, it is common for these rooms to have low VSC values as a result of the obstruction caused by the balcony. It is widely accepted and acknowledged within the BRE Guidelines that the presence of balconies can mask the impact of a proposed development when using the VSC test and therefore the Guidelines suggest that the window should be tested both 'with' and 'without' the balcony in place. If the ratio of change with the development in place, but with the balconies removed, remains above 0.8, then it can be concluded that it is the presence of the balcony rather than the introduction of a new building that is the main factor in the relative loss of light.

5.5 Assessment criteria

The numerical assessment criteria specified within the BRE Guidelines is designed to identify the threshold at which point a change in daylight or sunlight would become 'noticeable' to the occupants. Consequently, where the results of the daylight/sunlight analysis demonstrate compliance with the BRE criteria it can be concluded that the impact will be negligible.

However, a point that should be stressed here is that 'noticeable' does not necessarily equate to 'unacceptable' and the BRE's standard target values should not always be considered as pass/fail criteria. Whilst the BRE Guidelines provide numerical guidance for daylight, sunlight and overshadowing, these criteria should not be seen as absolute targets since, as the document states, the intention of the guide is to help rather than constrain the designer. The Guide is not an instrument of planning policy, therefore whilst the methods given are technically robust, it is acknowledged that some level of flexibility should be applied where appropriate.

Consequently, based on the numerical assessment criteria set out with the BRE Guidelines and the use of professional judgment, the following assessment criteria have been established and are used in describing the impacts of the proposed development.

Significance	Description	Typical Change Ratio
Negligible	No alteration or a small alteration from the existing scenario. Results demonstrate full compliance with the BRE assessment criteria and therefore occupants are unlikely to notice any change.	1.0 to 0.8
Minor adverse	An alteration from the existing scenario which may be marginally noticeable to the occupant. This may include a marginal infringement of the numerical levels suggested in the BRE Guidelines, which should be viewed in context. A typical change ratio for this level of significance would be 0.7	0.7 to 0.8
Moderate adverse	An alteration from the existing scenario which may cause a moderate noticeable change to the occupant. This may consist of a moderate infringement of the numerical BRE assessment criteria with	0.6 to 0.7
Major adverse	An alteration from the existing scenario which may cause a major noticeable change to the occupant. This may consist of a significant infringement of the numerical BRE assessment criteria.	Less than 0.6

Table 5.2 – Daylight & Sunlight Impact Descriptors

6 Discussion of Daylighting Impacts

Based on the results of the numerical analysis summarised in Appendix A.3 it is possible to draw conclusions as to the impacts that the proposed development will have on the neighbouring buildings. These are based on the principal numerical tests that are discussed below.

6.1 Vertical Sky Component Assessment

The BRE Guidelines operate on the general principle where the retained VSC is 27% or greater, or where the VSC is below 27% and is not reduced to less than 0.8 times its former value, then the reduction in daylight is unlikely to be noticeable to the building's occupants and thus the impact can be deemed negligible.

The results of the VSC analysis are summarised below.

Receptor Address	No. of windows tested	No. passing BRE test (negligible impact)	Transgression		
			Minor adverse	Moderate adverse	Major adverse
No. 18 Holly Walk	6	6	0	0	0
No. 16 Frogna! Gardens	15	14	1	0	0
Total	21	20	1	0	0

Table 6.1 – Results of Vertical Sky Component (VSC) Analysis

Inspection of the results of this test show that all but one of the windows either retain a VSC value greater than 27% post development, or have a ratio of change that is 0.8 or above and therefore are fully compliant. However, the window which serves the ground floor bedroom at No. 16 Frogna! Gardens experiences a ratio of change of 0.78. Whilst a reduction in VSC of this magnitude does indicate a potentially 'noticeable' change, the BRE Guidelines are quite clear in stating that this does not necessarily mean that the degree of change is unacceptable. Furthermore, the window falling marginally short of the VSC target value falls within the 'minor adverse impact' category. For minor transgressional impacts such as this, it is general practice to assess the results of the other daylight tests before concluding whether or not such impacts are considered to be 'noticeable' by the occupants.

6.2 No Sky Line Assessment

In order to pass the No Sky Line Assessment, the BRE Guidelines state that the area of the working plane within the room that has a view of the sky should not be reduced to less than 0.8 times its former value as a result of new development. One benefit of the daylight distribution test is that the resulting contour plans show where the light falls within a room, both in the existing and proposed conditions, and a judgement may be made as to whether the room will retain light to a reasonable depth.

In this case the dimensions and exact layout of the rooms within the existing buildings are not known. However, in order to gain an understanding of the impact of the proposed development on the daylight distribution within the potentially affected rooms an estimate of the room dimension and layout has been made.

The results of the No Sky Line/Daylight Distribution analysis are summarised below.

Receptor Address	No. of rooms tested	No. passing BRE test (negligible impact)	Transgression		
			Minor adverse	Moderate adverse	Major adverse
No. 18 Holly Walk	3	3	0	0	0
No. 16 Frognal Gardens	14	14	0	0	0
Total	17	17	0	0	0

Table 6.2 – Results of No Sky Line (NSL) Analysis

From the results summarised above, it can be seen that as a result of the proposed development, the impact on the daylight distribution within the assessed rooms will be negligible. The reduction in the area of the working plane that has a direct view of the sky will be less than 20% therefore occupants are unlikely to notice any change.

6.3 Summary of Daylighting Impacts

From the results of the daylight analysis, it is evident that there will be a reduction in the amount of daylight reaching the windows of the buildings that surround the development site. However, when the magnitude of reduction is considered, it is evident that this will be within the acceptable limits set out within the BRE Guidelines for all but one of the neighboring windows.

No. 16 Frognal Gardens does have a very minor VSC transgression to one of its windows, however, when the results of the NSL test are examined, it is evident that this room will retain good levels of daylight distribution. In addition, if the results of the analysis were expressed to 1 decimal place rather than two, this result would in fact be registered as 0.8 and would therefore be deemed as fully compliant.

Taking all of the above into consideration, it is possible to conclude that any changes to the daylight received by the habitable rooms of the neighbouring buildings will not be significant and is unlikely to be noticeable by the occupants.

7

Sunlight and Overshadowing Analysis

7.1 Annual Probable Sunlight Hours Assessment

Whilst the application of the four-stage assessment outlined in Section 4.5 allows the use of the more simplistic tests (Tests 1 to 3) to be used where applicable, when using a computational numerical model, it is a more robust and efficient approach to test all windows using the most detailed methodology.

It should also be noted that where rooms have windows on more than one elevation, it is acceptable to sum the non-coincident sunlight hours to achieve a 'room total'. This approach is acknowledged by the BRE Guidelines and facilitates a greater understanding of the sunlight received within a room by taking into account the fact that some windows will receive sunlight at different times during the day.

The assessment requirements for the APSH test, as set out in the BRE Guidelines, have been reiterated below. For the assessment to conclude that the sunlighting of the existing dwelling could be adversely affected, all three of the following tests need to have been failed:

Test A - Does the window receive less than 25% of the APSH, or less than 5% the APSH between 21st September and 21st March?

Test B - Does the assessed window receive less than 0.8 times its former sunlight hours during either the 'whole year' or 'winter' period?

Test C - Is the reduction in sunlight received over the whole of the year greater than 4% of the APSH?

However, these tests are only applicable to windows that face within 90 degrees of due south. When the orientation of the windows identified as being sensitive receptors is examined, it is evident that some of these face within 90 degrees of due north. Consequently, in line with the guidelines and assessment methodologies set out within the BRE document, the analysis of sunlight impacts is not required for those windows and they have been excluded from Table 7.1 below.

The APSH test has been carried out and the detailed results of the analysis and model outputs are included in Appendix A.3 and a summary of the results are shown in Table 7.1 below.

Receptor Address	No. of windows tested	No. of rooms tested	Test A		Test B	Test C	No. of windows passing at least one test
			Windows passing	Rooms passing			
No. 18 Holly Walk	5	3	5	3	5	5	5
No. 16 Frogna! Gardens	12	11	12	11	12	12	16
Totals	17	14	17	14	17	17	17

Table 7.1 – Results of APSH Analysis

When examining the results of the three sunlight tests described above, it is first necessary to understand why there are three separate tests and more importantly, why it is not necessary to pass all three to demonstrate that there is no adverse impact. The BRE Guidelines clearly state that for the proposed development to be considered to have an adverse effect on the available sunlight to neighbouring windows, all three tests would need to have been failed.

This is because sunlight is not assessed in terms of its contribution to the overall lighting levels within the room. The value attributed to sunlight is its transient presence and the way in which it can make a room appear bright and cheerful. There are also therapeutic values associated with sunlight and therefore it can be seen that these are not quantitative metrics that can be assessed using a single pass/fail criteria test. It is also necessary to understand that the amount of sunlight received by a window is strongly influenced by the orientation of the window elevation and any surrounding obstructions.

As a consequence of these factors, the assessment methodology embodied within the three separate tests allows the change in sunlight to be assessed in terms of the magnitude of change, absolute change and the retained level of sunlight. To conclude that a new development has no adverse impact, all that is required is for one of the three tests to be passed.

When the results of the APSH analysis summarised in Table 7.1 are inspected, it can be seen that all windows and rooms pass all three of the sunlight tests. Consequently, it has been demonstrated that the proposed scheme will have a **negligible** impact on neighbouring buildings.

7.2 Sun on the Ground

The BRE Guidelines acknowledge that good site layout planning for daylight and sunlight should not limit itself to providing good natural light inside buildings. Sunlight in the space between buildings has an important effect on the overall appearance and ambiance of a development. The worst situation is to have significant areas on which the sun does not shine for a large part of the year. These areas would, in general, be damp, chilly and uninviting.

The 2011 BRE Guidelines suggest that the Spring Equinox (21st March) is a suitable date for the assessment and therefore using the specialist software described in Section 5.3, the path of the sun is tracked to determine where the sun would reach the ground and where it would not.

The BRE guidelines recommend that at least half of a garden or amenity area should receive at least 2 hours of sunlight on March 21st or the area which receives 2 hours of direct sunlight should not be reduced to less than 0.8 times its former value (i.e. there should be no more than a 20% reduction).

Typical examples of areas that could be considered as open spaces or amenity areas are main back gardens of houses, allotments, parks and playing fields, children's playgrounds, outdoor swimming pools, sitting-out areas, such as in public squares and focal points for views.

However, from inspection of aerial photographs and site-specific photos, it is evident that there are no amenity areas in close proximity to the proposed development and therefore there is no potential for adverse impacts from overshadowing.

7.3 Transient Overshadowing

Where amenity areas are used at specific times of day or year, it is useful and illustrative to comment on the overshadowing that will occur throughout the day and at different times of the year. However, with traditional rear gardens and public open spaces that are potentially used all year round, it is acknowledged by the BRE Guidelines that the 21st March equinox is used, as this represents a much worst case than an assessment during the summer when shadows are shorter and impacts of new development are less magnified.

It is also worth highlighting that whilst the BRE Guidelines do not provide any thresholds or assessment criteria for overshadowing analysis carried out at any date other than the 21st March. All that is quoted in the Guidelines is an acknowledgement that some degree of transient overshadowing should be expected from new development. Consequently, unless there is a specific reason to assess overshadowing at a specific time of day, the use of transient shadow plots is not recommended by the BRE Guidelines.

In this situation, it is not considered that any of the amenity areas that are potentially affected by the proposed development would be described as being sensitive to overshadowing at any particular time of day. Consequently, transient overshadowing is not considered appropriate for this assessment.

7.4

Solar Glare

Solar glare or dazzle can affect neighbouring buildings and pose potential hazards for road users under certain circumstances. The BRE Guidelines highlight two particular cases where this can be a problem; these being where there are large areas of reflective glass or cladding on the façade, or where large areas of glass or cladding slope back such that high-altitude sunlight can be reflected along the ground.

When the proposed design is considered, it can be seen that the building does not slope back, nor does it include large areas of reflective glass or cladding. Given the building design and the BRE Guideline's stance on this matter, it is not considered necessary or appropriate to incorporate an analysis of solar glare.

8

Conclusions

The detailed analysis undertaken as part of this assessment has examined the impact of the proposed development on the amount of daylight enjoyed by the neighbouring buildings. In line with the assessment criteria prescribed by the BRE Guidelines, it has been shown that the reduction in daylighting to the majority of the neighbouring windows is less than the value that is considered to represent a notable impact. There is one transgressional VSC result, however, this is very minor and given that the NSL results for this room are fully compliant, the overall impact is not considered to represent a significant or noticeable reduction.

The assessment of the impact of the proposed development on the sunlight enjoyed by the neighbouring buildings has also shown that whilst there will be a reduction in the number of probable sunlight hours enjoyed by these windows, this reduction is within the limits prescribed by the BRE Guidelines as being acceptable.

In summary, the development proposals have been appraised in line with the guidelines set out in the BRE document. When assessed against the criteria for establishing whether the proposed development will have a significant impact, it has been possible to conclude that the development will not result in a notable reduction in the amount of either daylight or sunlight enjoyed by the neighbouring buildings.

A Appendices

A.1 Appendix A.1 – Scheme Drawings

A.2 Appendix A.2 – Graphical Model Outputs

A.3 Appendix A.3 – Tabulated Results for Daylight & Sunlight Calculations (Impacts on Neighbours)