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Daylight & Sunlight Report

Reichmann Properties PLC

163 Iverson Road

Final

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ABOUT HODKINSON CONSULTANCY

Our team of technical specialists offer advanced levels of expertise and experience to our clients. We have a wide experience of the construction and development industry and tailor teams to suit each individual project.

We are able to advise at all stages of projects from planning applications to handover.

Our emphasis is to provide innovative and cost effective solutions that respond to increasing demands for quality and construction efficiency.

Executive Summary

Hodkinson Consultancy has been instructed by Reichmann Properties PLC to assess the new development proposals for a roof extension at 163 Iverson Road, West Hampstead in respect of daylight and sunlight amenity for the new development and existing buildings and amenity space surrounding the site which may be affected.

This report has been prepared in line with the second edition of the BRE Report (2011) 'Site Layout Planning for Daylight and Sunlight – A Guide to Good Practice' and British Standards 8206-2:2008.

This report has assessed the following:

> The impact of the proposed extension on the residential dwellings to the south, on the opposite side of Iverson Road;

> The impact of the proposed extension on the amenity space of the development to the west of the application site, 159-161 Iverson Road, which is currently under construction; and

> The daylight level received by dwellings within the proposed roof extension itself.

In respect of the above assessment, this report concludes the following:

> Daylight received by the dwellings to the south will not be adversely affected by the proposed roof extension, based on BRE guidance;

> The proposed roof extension will not result in any loss of sunlight to the amenity spaces of the development currently under construction at 159-161 Iverson Road; and

> The proposed new dwellings within the roof extension will receive good levels of daylight.

Given the above findings, it is considered that planning permission should not be refused for any reason relating to daylight and sunlight.

CONTENTS

1. INTRODUCTION

1.1 This report has been prepared to review the potential impact of the proposed roof extension development on the surrounding dwellings and amenity spaces which may be affected. It also provides a review of the level of daylight likely to be received by the new dwellings within the proposed roof extension.

1.2 The report considers and uses where appropriate the following techniques in accordance with guidance published by BRE:

> 25° obstruction angle rule;

> Vertical Sky Component (VSC);

> Average Daylight Factor (ADF);

> Annual Probable Sunlight Hours (APSH);

> Assessment of garden and open spaces.

Site Location

1.3 The development site is located in West Hampstead, North West London, to the south of the Thameslink railway line and immediately adjacent to the West Hampstead Thameslink Station.

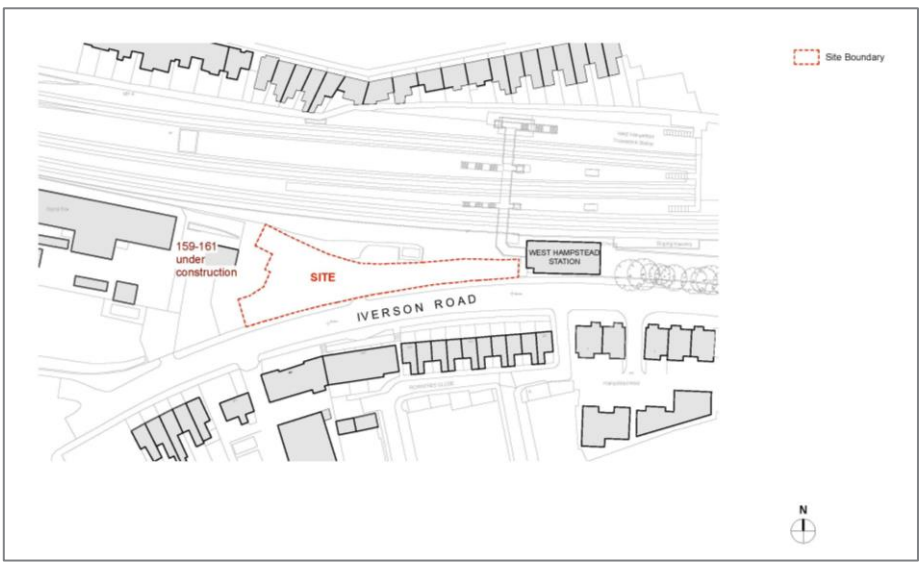

Figure 1: Location Plan

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Planning Background

1.4 The site consists of an existing development under construction which is the subject of planning consent reference 12/0099/P. This consented development consists of the following:

'Erection of a part four and part five storey building plus lower ground floor comprising 33 residential flats (2x one bed, 20x two bed, 9x studio flats) and 3 three-storey townhouses (Class C3), following the demolition of the existing garden centre buildings.'

1.5 The above application was granted consent subject to a Section 106 Legal Agreement by the London Borough of Camden on 12th December 2012. Amendments to the scheme comprising changes to the fenestration, access arrangements, structural columns and balcony walkways access were consented under application reference 2015/0385/P.

1.6 A Daylight and Sunlight Report was submitted with the consented planning application. The report concluded that based on the BRE guidance and British Standards, there will be no significant decrease in daylight and sunlight amenity to existing dwellings.

1.7 The Planning Officer's report for the development stated the following:

'Moving on to sunlight and daylight the applicant has submitted an Independent BRE study in respect of these matters. This has taken account of the windows in all elevations facing towards the application site comprising those directly opposite along Iverson Road. This report concludes that the existing residential properties will not experience any significant loss of daylight or sunlight as a result of the proposed development.

The site is north of residents facing the site on the opposite side of Iverson Road, therefore no loss of sunlight is considered to occur. In respects to daylight the height of the centre point of each of the existing ground floor windows was measured from site observations. It was established that the centre of the window was located 1.5m from the ground for each of the sections. The visible sky angle for the three sections was found to be 24.4°, 23.05° and 20.04° for each respective section, below the 25° threshold as defined in the BRE guidance. Therefore, according to the BRE guidance, the 'daylight [is] unlikely to be affected' (BRE, p.10) for the existing residential dwellings on Iverson Road.'

Development Proposals

1.8 The proposed development to which this daylight and sunlight report relates to consists of an additional storey roof extension to the rear wing element of the approved scheme. The development below that which is proposed in this current application will remain as consented in planning application 2012/0099/P and amended by application 2015/0385/P. Plans of the proposed roof extension development are submitted with the planning application.

2. POLICY & GUIDANCE

London Borough of Camden

Camden Development Policies 2010-2025

2.1 **Policy DP26**: The Council will protect the quality of life of occupiers and neighbours by only granting permission for development that does not cause harm to amenity. The factors we will consider include (among others) overshadowing, sunlight, daylight and artificial light levels.

Camden Planning Guidance Note 6: Amenity

2.2 Section 6 of this document provides detail on the assessment of daylight and sunlight issues for planning. It states that Daylight and Sunlight reports will be required where there is potential to reduce existing levels of daylight and sunlight and that considerations will be based on the Average Daylight Factor and Vertical Sky Component.

2.3 The guidance outlines methodology in line with the BRE guidance, stating that for both new development and existing dwellings the 25° rule, VSC, ADF and sunlighting can be applied.

Building Research Establishment (BRE)

2.4 The **Building Research Establishment** (BRE) has set out in their handbook **'Site Layout Planning for Daylight and Sunlight a Guide to Good Practice (2011)'** guidelines and methodology for the measurement and assessment of daylight and sunlight within buildings. This document states that it is also intended to be used in conjunction with the interior daylight recommendations found within the British Standard BS8206-2:2008.

2.5 The document is intended as a guide with a stated aim to 'help rather than constrain the design'. It is predominantly focussed on residential development. Failure to achieve the stated target numerical factors does not necessarily mean that the development is unsuitable or that planning permission should be refused.

2.6 This document has therefore followed the guidance as described in the following reports:

> **P J Littlefair, (2011) Site Layout planning for daylight and sunlight: a guide to good practice, Second Edition, Building Research Establishment Report 209;**

> **British Standard, BS8206-2:2008 Lighting for Buildings – Part 2 Code of Practice for Daylighting, British Standards Institution.**

3. METHODOLOGY

3.1 This report has assessed the following in respect of the existing buildings which surround the development site and the proposed roof extension development itself:

> **Daylight: Surrounding Buildings** – This assesses the effect of the proposed roof extension development on the daylight received by existing residential buildings which may be affected.

> **Sunlight: Surrounding Buildings** – This assesses the effect of the proposed roof extension development on the level of sunlight received by existing residential buildings which may be affected.

> **Sunlight: Surrounding Amenity Space** – This assesses the effect of the proposed development on the level of sunlight received by the surrounding neighbouring residential amenity space which may be affected.

> **Daylight Availability: Proposed Development** – This assesses the level of daylight received by the proposed new dwellings within the roof extension itself.

3.2 Each assessment method and the calculations applied in accordance with the relevant guidance, is detailed below.

Daylight: Surrounding Buildings

3.3 When designing a new development or extension to a building, it is important to safeguard the daylight to nearby buildings. The guidelines provided by BRE are intended for use for rooms in adjoining dwellings where daylight is required, including living rooms, kitchens and bedrooms.

3.4 In this case, it is considered that the existing residential dwellings to the south of the site, on the opposite side of Iverson Road are those which may primarily be affected.

3.5 The BRE guidance provides a decision chart (Figure 2) outlining the sequential tests to be used to determine if a new development significantly affects daylighting levels in neighbouring existing buildings. This hierarchy is summarised below and has been applied in this report:

> **25° Obstruction Angle Rule**: if the profile of the building subtends an angle greater than 25° then the VSC test is to be applied;

> **Vertical Sky Component (VSC) Rule**: the VSC is a measure of the amount of light striking the face of the window, and is calculated from the centre point of each window. A pass rate of 27% is required to demonstrate that daylighting levels are acceptable, and if not the 80% test is to be applied;

> **80% rule**: if the VSC is less than 27% but greater than 0.8 times its former value, then daylight may not be seriously affected.

3.6 It should be noted that this assessment has not taken into account 'Right to Light' which is not a material planning consideration.

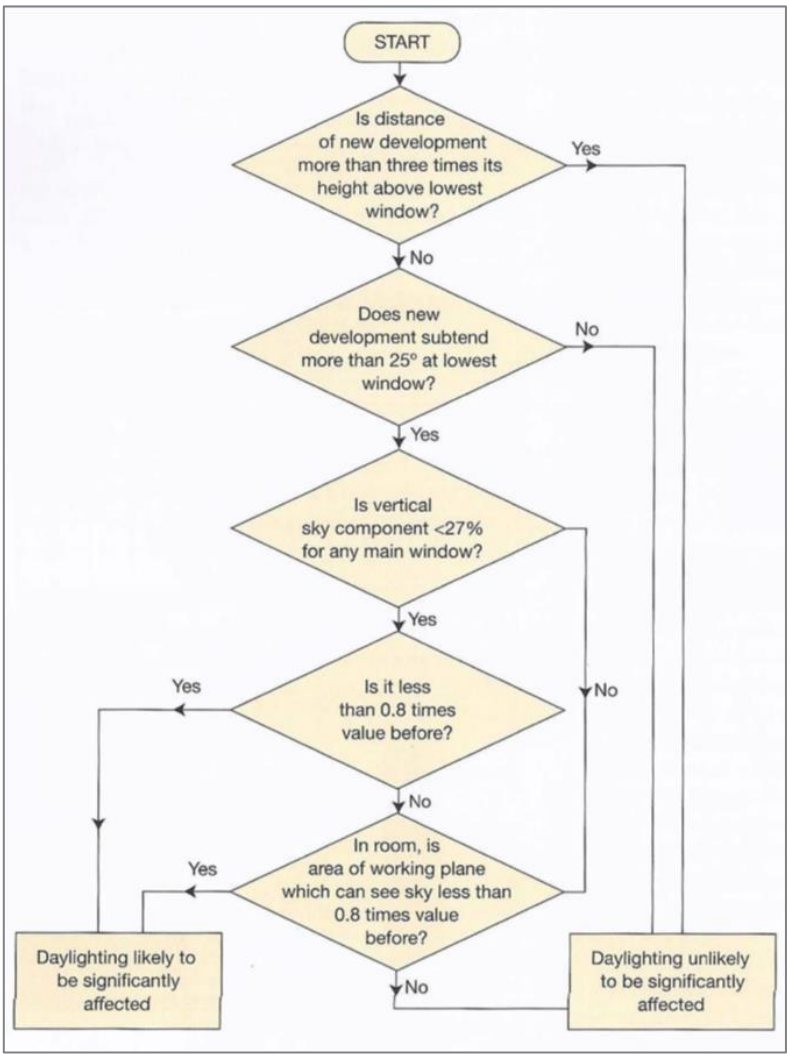

Figure 2: Decision Chart - Diffuse Daylight in Existing Buildings (BRE Report)

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Sunlight: Surrounding Buildings

3.7 The BRE provide guidance in respect of sunlight quality for existing buildings. It is generally acknowledged in the guidance that the presence of sunlight is more valuable in residential accommodation than it is in commercial, and this is reflected in the BRE document.

3.8 To quantify sunlight access for interiors where sunlight is expected, the BRE guidance refers to the BS 8206-2 criterion of Annual Probable Sunlight Hours (APSH). APSH is defined as 'the total number of hours in the year that the sun is expected to shine on unobstructed ground, allowing for average levels of cloudiness at the location in question'. In line with the recommendation, APSH is measured from a point on the inside face of the window. If these are unknown, sunlight availability is checked at points 1.6m above the ground or the lowest storey level on each main window wall, and no more than 5m apart.

3.9 The BRE guidance states that obstruction to sunlight may become an issue if some part of a new development is situated within 90° of due south of a main window wall of an existing building. The summary of section 3.2 of the guide states the following:

"If a living room of an existing dwelling has a main window facing within 90° of due south, and any part of a new development subtends an angle of more than 25° to the horizontal measured from the centre of the window in a vertical section perpendicular to the window, then the sunlighting of the existing dwelling may be adversely affected. This will be the case 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."*

3.10 It is also worth noting how paragraph 5.3 of the BS 8206-2 suggests that with regards to sunlight duration the degree of satisfaction is related to the expectation of sunlight; if a room is necessarily north facing or if the building is in a densely-built urban area, the absence of sunlight is more acceptable than when it is excluded.

3.11 In this case, the existing dwellings which may be affected and which are the subject of the assessment within this report, those on the opposite side of Iverson Road, are located to the south of the proposed development. Therefore, in accordance with the BRE guidance stated in the paragraphs above, the sunlighting of these existing dwellings will not be adversely affected by the proposed roof extension as they do not have windows facing within 90° of due south, from which, the new development subtends an angle of more than 25° to the horizontal measured from the centre of any such window.

3.12 Given the above, further APSH calculations in respect of the neighbours to the south have not been undertaken.

3.13 It is noted that there are residential dwellings to the north of the site, situated along Sumatra Road. However, these dwellings are on the opposite side of the Thameslink Railway line and therefore have south facing elevations which are largely unobstructed by development. At the closest point, they are situated approximately 53 metres from the proposed roof extension development. Given these circumstances they have not been subject to any more detailed assessment in respect of sunlight and daylight as they are considered unlikely to be significantly affected.

Sunlight: Surrounding Amenity Space

3.14 The BRE guidance suggests that the availability of sunlight should be checked for all open spaces where it will be required.

3.15 It is recognised in the guidance that it is difficult to suggest a hard and fast rule for the sunlighting requirements for different open spaces but it is recommended that at least half of the amenity area should receive at least two hours of sunlight on 21 March. This guidance applies both to new gardens and amenity areas and to existing ones which are affected by new developments. If an existing garden or outdoor space is already heavily obstructed then any further loss of sunlight should be kept to a minimum. In such a case, if as a result of new development the area which can receive two hours of direct sunlight on 21 March is reduced to less than 0.8 times its former size, this further loss of sunlight is significant and the garden or amenity area will tend to appear more heavily overshadowed.

3.16 In interpreting the impact of shadowing it is important to note that nearly all structures will create areas of new shadow, and some degree of transient overshadowing of a space is to be expected. The analysis does not take into account shading by natural vegetation such as trees and hedges which are often positioned around the boundary lines of residential properties for amenity and privacy purposes. Such vegetation will often create shading which can overlap that created by surrounding buildings and new developments.

3.17 As discussed later in this report, in this case the amenity spaces which may be affected are those that do not yet exist but form part of the consented development immediately to the west of the proposed development site of 159-161 Iverson Road (currently under construction). Whilst this development does not yet exist the impact of the proposed roof extension on the amenity space of the consented development has been assessed. There are two amenity spaces which may be affected; one area will be situated immediately adjacent to the boundary of the application site at ground floor level, the other will be situated at first floor level of the proposed neighbouring building. For the purpose of this report therefore, both of these amenity spaces have been considered as existing.

Daylight Availability: Proposed Development

3.18 An assessment of daylight into rooms within the proposed development has been carried out. This is to ensure that future residents of the flats within the proposed roof extension will benefit from the well-being of adequately lit rooms.

3.19 The BRE guidance states that 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.

3.20 The BRE guidance sets out detailed tests that assess the interior daylight conditions of rooms; this includes the calculation of the ADF. The ADF is derived from British Standards BS 8206-2:2008. The ADF takes into account the angle of visible sky reaching the window, and takes the following factors into account:

> Window size;

> The number of windows available to the room;

> Room size;

> Use and layout;

3.21 As assessment on one of the proposed new units has been carried out to provide a representation of the daylight levels likely to be received by the dwellings within the proposed roof extension.

3.22 BS 8206-2:2008 recommends a minimum ADF of 2% for kitchens, 1.5% for living and dining rooms and 1% for bedrooms.

Software: Ecotect

3.23 Ecotect is a detailed 3D modelling simulation tool designed to predict daylight and electric light levels. Vertical Sky Component and Average Daylight Factors can be calculated before and after the proposed development.

3.24 Details provided by the architect have been used to inform a model inputted into the software from which calculations relating to daylight and sunlight can be produced.

Sources of Data

3.25 A mass model of the proposed development and surrounding existing buildings and those currently under construction at the adjacent site was created using information provided by the architect.

3.26 The room layouts and window sizes from the architect's plans were inputted into the model and the Ecotect software was used to make the relevant estimated daylight and sunlight calculations to inform the content of this report.

3.27 Where survey information required to undertake the calculations was not available, estimations were made using information gathered from the design team.

4. SITE INFORMATION

4.1 The site is located to the south of the Thameslink Railway, to the west of the West Hampstead Thameslink station, and to the east of a development site (159-161 Iverson Road) currently under construction to create a mixed use development. To the south of the site is Iverson Road with residential dwellings situated on the opposite side.

4.2 The consented development at the application site, reference 2012/0099/P (subsequently amended by application reference 2015/0385/P), is currently under construction.

4.3 Figure 3 below indicates the development site (outlined in red) within the context of its surroundings.

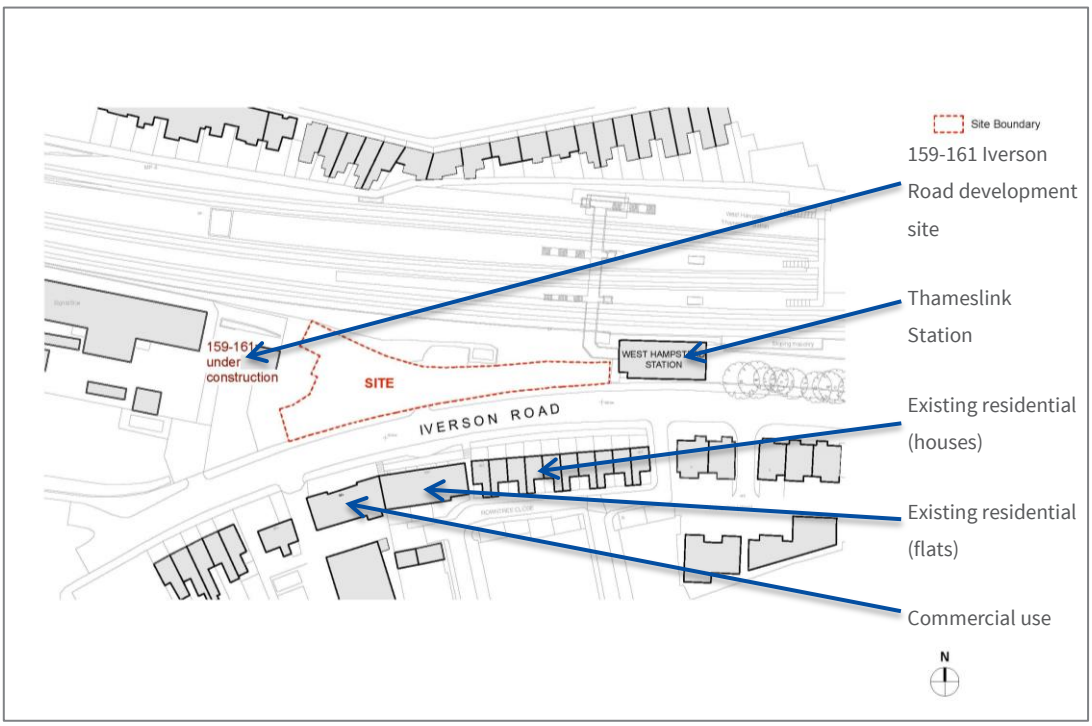

Figure 3: Site Location & Surrounding Buildings

4.4 Within this report, the impact of the proposed roof extension has been assessed in respect of the residential dwellings to the south on the opposite side of Iverson Road and the amenity spaces of the development currently under construction of 159-161 Iverson Road (for the purpose of this report, the amenity spaces are considered as existing features).

4.5 The diagrams below show indicative three dimensional models of the site and its surroundings, before and after the proposed roof extension development.

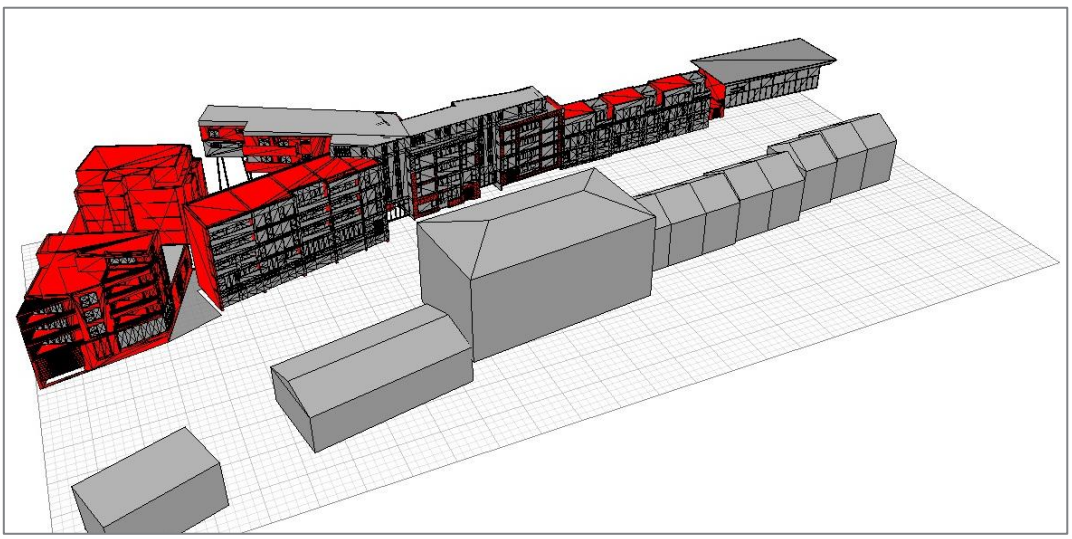

Figure 4: Existing development (under construction)

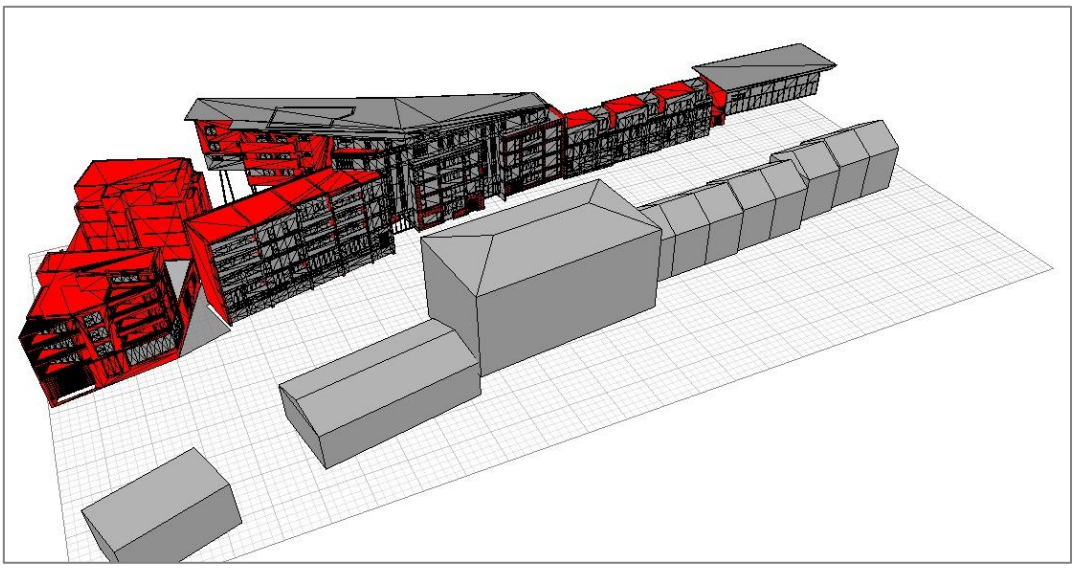

Figure 5: Proposed development (roof extension)

5. DAYLIGHT IMPACT: SURROUNDING DWELLINGS

5.1 The BRE guidance stipulates that in designing a new development, it is important to safeguard the daylight to nearby buildings. The BRE guidance document states that the guidelines within it are intended for use for rooms in adjoining dwellings where daylight is required such as living rooms, kitchens and bedrooms.

5.2 As discussed earlier in this report, the location of the site, to the south of the Thameslink Railway line, is such that the proposed roof extension would not be considered to have any significant impact in terms of loss of daylight or sunlight to dwellings situated further to the north along Sumatra Road. The report and assessment therefore focuses on the dwellings which it is considered may be affected; those situated on the opposite side of Iverson Road, to the south of the proposed development.

5.3 As discussed in the introduction section of this report, the consented development of the application site was assessed for daylight and sunlight impact and was found to not result in any significant adverse impact on the residential neighbours to the south, on the opposite side of Iverson Road. Therefore, this report seeks to assess the impact of the proposed roof extension in its own right to establish whether any adverse impact would result from it in comparison to the consented scheme currently under construction.

5.4 A sample of the dwellings on the opposite side of Iverson Road have been assessed using indicative ground floor window positions in order to present the worst case scenario of results in terms of potential daylight impact upon them. The buildings which have been tested are labelled in the diagram in Figure 6.

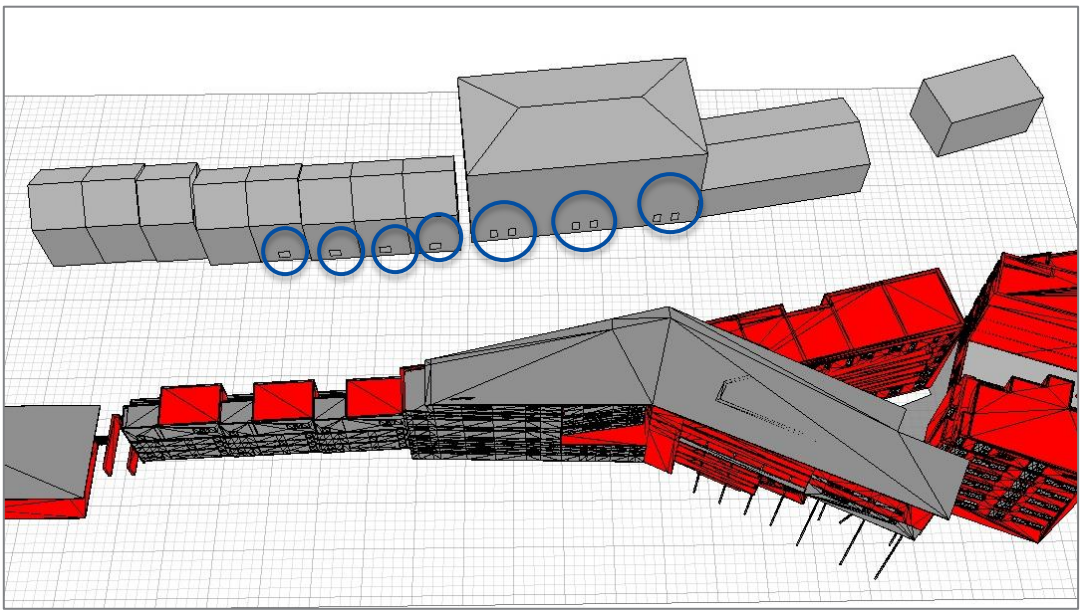

Figure 6: Tested dwelling indicative window positions (circled in blue)

5.5 In accordance with BRE guidance the initial analysis of the daylight impact on surrounding buildings consists of a 25° plane being drawn from windows of the surrounding buildings. Where any development infringes this plane, further analysis will need to be carried out to establish the severity of the impact, in accordance with the BRE decision chart in Figure 2 of this report. In accordance with the BRE guidance, if the angle at which the development subtends the plane from the horizontal at the centre of a tested window is less that 25°, then it is unlikely to have a substantial effect on the diffuse skylight enjoyed by the existing building.

5.6 The figure below shows a 3D image of the proposed development with the surrounding buildings. The 25° obstruction angle was measured from an indicative ground floor window position from the sample of dwellings on the southern side of Iverson Road. The BRE guidance methodology states that the 25° obstruction angle should be measured in a vertical section perpendicular to a main window wall of an existing building. The Ecotect software allows a splayed plane to be drawn, as displayed in the 3D images below, rather than just a vertical section; it therefore offers a better visual representation for the purposes of this report as well as a more rigorous test than the BRE guidance and methodology stipulates as being required.

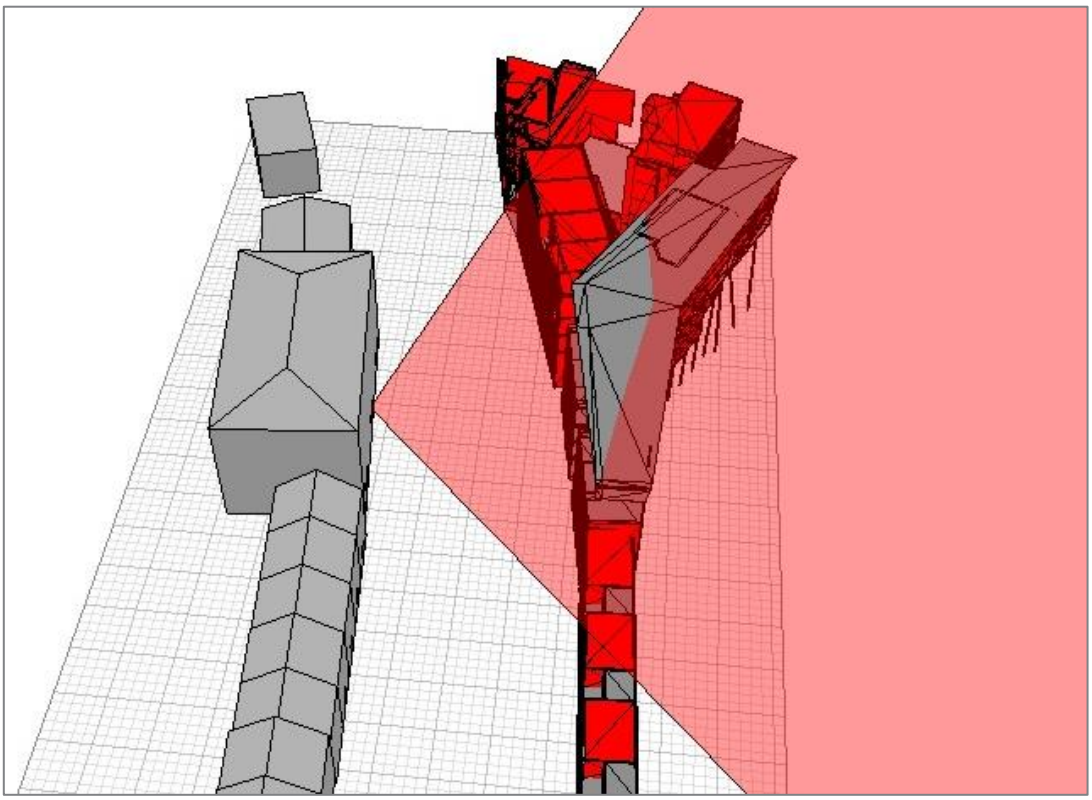

Figure 7: 25 degree place from closest dwellings opposite

5.7 The image above shows a 25° plane taken from an indicative ground floor window position of the flats on the opposite side of Iverson Road as these are considered most likely to have a 25° vertical section intruded by the proposed development given their relationship with it; closest and directly opposite.

25 Degree Plane Results

5.8 The graphic in Figure 7 indicating a 25° plane from an indicative ground floor window level of the flats opposite the development is intruded by the proposed roof extension. The front building line of the dwellings being assessed is level; therefore, it is considered fair to conclude that a 25 plane would also be intruded from each of the other neighbours.

5.9 The BRE guidance stipulates that if any part of a new building or extension subtends an angle of more than 25° to the horizontal, then the diffuse daylighting of the existing building may be adversely affected.

5.10 Therefore, in accordance with the BRE Decision Chart (Figure 2), the Vertical Sky Component (VSC) has been assessed to ascertain the level of impact involved on all of the tested dwellings.

Vertical Sky Component Analysis

5.11 To gain a thorough impression of the impact of the proposed development on the daylighting of the existing buildings a Vertical Sky Component (VSC) analysis has been conducted on a series of representative windows in each building. As with the 25° plane analysis, each window position tested is at ground floor level as this is considered to represent the worst case result.

5.12 VSC is a ratio of that part of illuminance, at a point on a given vertical plane, that is received directly from an overcast sky, to illuminance on a horizontal plane due to an unobstructed hemisphere of this sky. The VSC does not include reflected light, either from the ground or from other buildings.

5.13 The table below show the results generated by the VSC analysis expressed as percentages. The BRE guidance advises that if the VSC is less than 27%, and less than 80% of its former value, then the diffuse daylighting of the existing building may be adversely affected.

VSC Results

Table 1: Sky Component Analysis

	BEFORE	AFTER	PERCENTAGE OF ORIGINAL VALUE
	(%SC)	(%SC)	(%)
Flat 1	28.11	26.36	93.77%
	28.17	26.28	93.29%
Flat 2	28.32	26.31	92.90%
	28.40	26.41	92.99%
Flat 3	28.88	27.09	93.80%
	29.02	27.43	94.52%

House 1	28.10	26.90	95.73%
House 2	28.86	28.14	97.51%
House 3	29.56	29.06	98.31%
House 4	30.58	30.30	99.08%

5.14 All of the windows showed a difference as a result of the proposed roof extension. However, the results in all cases indicate the difference as a result of the proposed roof extension is relatively minor with all tested windows achieving a VSC result of over 0.8 times its former value.

5.15 The BRE Guidance states that 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. The area lit by the window is likely to appear more gloomy, and electric lighting will be needed more of the time. The results above indicate that this will not be the case in this instance.

5.16 The BRE Guidance also states that where room layouts are known, the impact on the daylighting distribution in the existing buildings can be found by plotting the 'no sky line' in each of the main rooms. For houses this would include living rooms, dining rooms and kitchens. In this instance the room layouts of the tested dwellings are not known. However, given the positive VSC results achieved and that these are from indicative window positions at ground floor level offering a worst case scenario, it is considered that daylight levels within the neighbouring dwellings on the southern side of Iverson Road will not be adversely affected by the proposed roof extension.

5.17 Further to these results, it is important to also consider any impact on the level of sunlight received by these neighbouring dwellings. This is addressed in the following chapter of this report.

6. SUNLIGHT ASSESSMENT: SURROUNDING DWELLINGS

6.1 To assess sunlight onto individual windows of the existing dwellings on the opposite side of Iverson Road, an Annual Probable Sunlight Hours (APSH) calculation can be carried out.

6.2 APSH looks at the long-term average of the total number of hours during a year in which direct sunlight reaches the unobstructed ground.

6.3 BRE Guidance states that if a living room of an existing dwelling has a main window facing within 90° of due south, and any part of a new development subtends an angle of more than 25° to the horizontal measured from the centre of the window in a vertical section perpendicular to the window, then the sunlighting of the existing dwelling may be adversely affected.

6.4 The residential dwellings being assessed within this report, those on the opposite side of Iverson Road, are located to the south of the development site and as such do not have any windows which face within 90° of due south from which the new development subtends an angle of more than 25°.

6.5 Given these circumstances, it is considered that the proposed development will not have any significant impact on sunlight received by these neighbouring dwellings. Therefore, in accordance with the BRE guidance, an APSH calculation has not been carried out.

7. SUNLIGHT ASSESSMENT: SURROUNDING AMENITY SPACE

7.1 The effect of the proposed development on the amenity space of the adjacent development to the west of the application site, at 159-161 Iverson Road (currently under construction), has been assessed. There are two amenity spaces in question;

> Amenity space at ground floor level immediately adjacent to the boundary of the application site; and

> First floor level amenity space for use by residents of the development under construction.

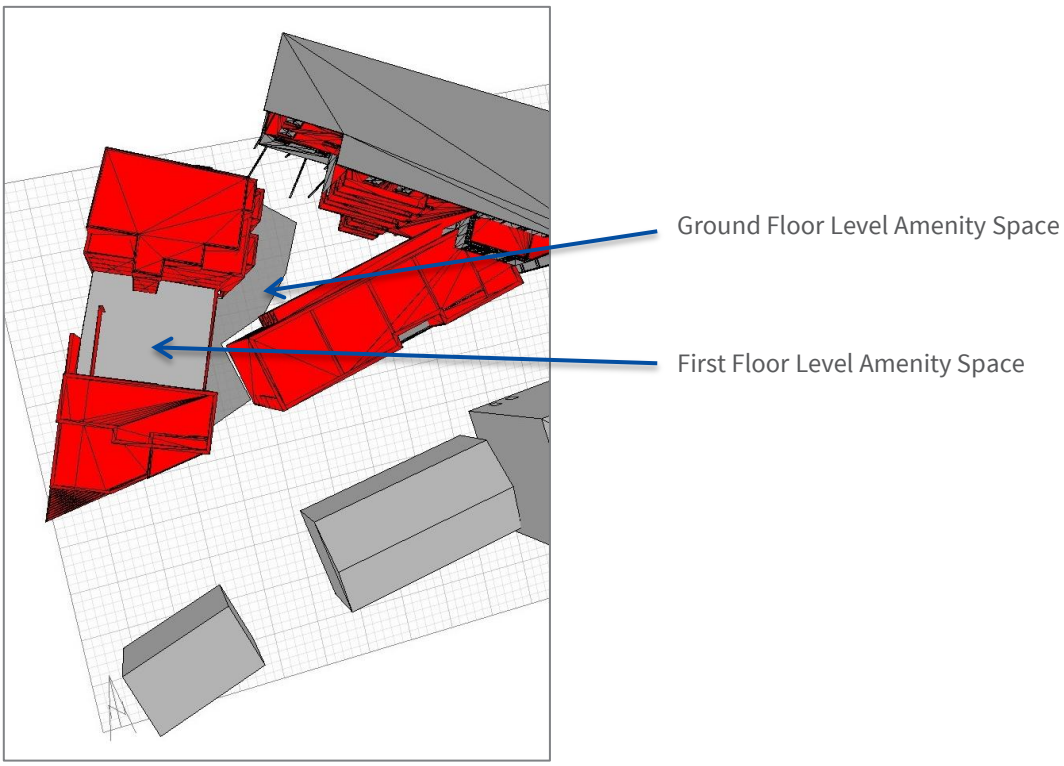

Figure 8: Amenity space locations

7.2 Whilst the above are not yet in existence as the development is under construction, for the purpose of this report they are considered as existing amenity spaces.

7.3 In accordance with the BRE guidance, an assessment of the sunlight received by the amenity spaces on 21 March was undertaken.

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

7.5 The assessment carried out on the tested amenity spaces calculated the percentage of the spaces which receives at least 2 hours sunlight on the 21 March both before and after the proposed roof extension development. The results are set out in the table below.

Table 2: Percentage of amenity space receiving at least 2 hours of sunlight on 21st March – Pre and post development

	% Prior to Development	% Post Development	% of former value
Ground Floor Level Amenity Space	9.13%	9.13%	100%
First Floor Level Amenity Space	17.25%	17.25%	100%

7.6 The results show that both amenity spaces will receive less that the recommended level of 50% of the space receiving at least 2 hours sunlight on 21st March, both before the proposed development and once in situ. Therefore in accordance with the BRE guidance, it is important to assess what amount of these amenity spaces' former sunlit area (that which receives 2 hours or more on 21st March) will remain once the proposed development has been built.

7.7 The results show that the proposed roof extension would have no impact on the former sunlit area (i.e. 100% of the former value is achieved). Therefore the proposed extension would not be considered to have any significant adverse impact on the sunlight received by the amenity spaces.

8. DAYLIGHT AVAILABILITY: PROPOSED DEVELOPMENT

8.1 An assessment of the daylight received by rooms within the proposed development has been carried out using the Average Daylight Factor (ADF). This is to ensure that future residents will benefit from the well-being of adequately lit rooms where possible. A sample flat from within the proposed roof extension development was assessed. The sample flat, marked as '5-1' in the plan below, was tested as it includes one of the deepest single aspect living/dining/kitchen areas of the new flats with a single window and was therefore considered to represent one of the worst case scenario rooms in terms of layout and windows.

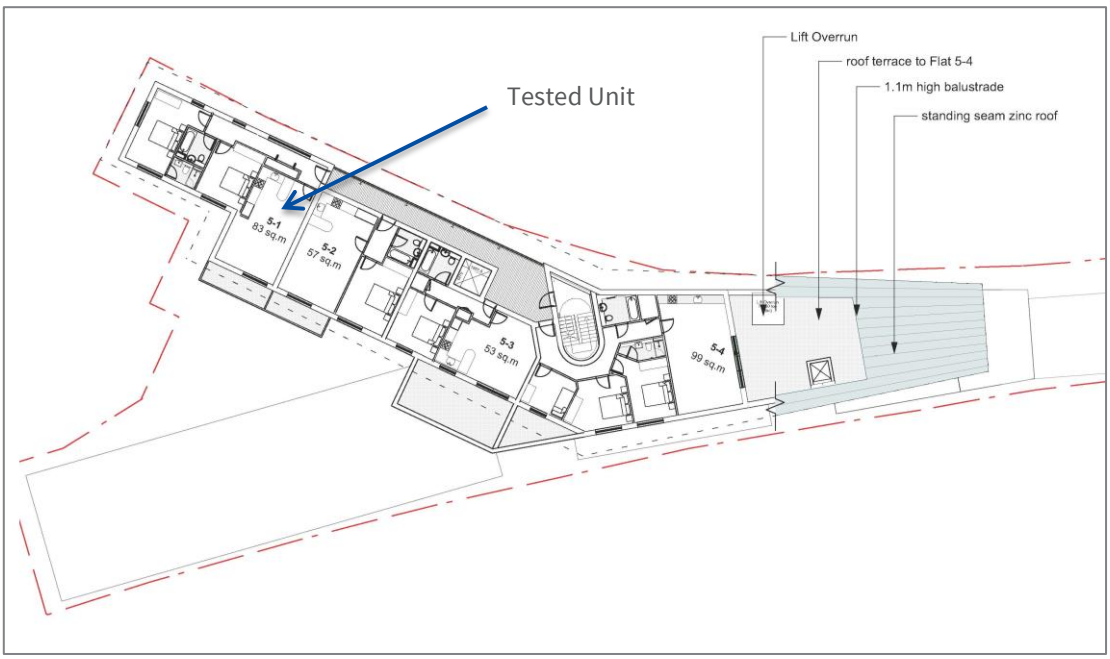

Figure 9: Internal layout of proposed units

8.2 The above layout has been inputted into the Ecotect model along with the position and size of relevant windows which service habitable rooms based on the elevation drawings provided.

Average Daylight Factor Results

8.3 The table below shows the ADF results generated by the Ecotect software in respect of the tested unit within the proposed development. It indicates in the 'Pass or Fail' column whether or not the estimated result meets or fails to meet the recommended levels in the BRE guidance.

Table 3: Average Daylight Factor for proposed dwellings			
Dwellings Assessed (1)			
Test Unit	**Estimated ADF %**	**Target ADF %**	**Pass or Fail**
Kitchen	1.56	2.00	FAIL
Living / Dining Room	1.56	1.50	PASS
Bedroom	5.94	1.00	PASS

8.4 The results show that only the kitchen area fell below the ADF level recommended by the BRE guidance. However, it only falls short by 0.44% which is considered to represent a relatively small margin. Furthermore, it is considered that there is scope for both alterations to internal layout and window size which could be used to bring the estimated ADF result above the recommended target level suggested by BRE. It is expected therefore that as a result of this assessment, during detailed design minor adjustments will be made to maximise daylight received by all rooms within the proposed roof extension.

9. CONCLUSION

9.1 This report has been designed to assess the new development proposals for a roof extension at 163 Iverson Road, West Hampstead in respect of daylight and sunlight amenity for the new development and existing buildings and amenity space surrounding the site which may be affected.

9.2 The report has been prepared in line with the second edition of the BRE Report (2011) 'Site Layout Planning for Daylight and Sunlight – A Guide to Good Practice' and British Standards 8206-2:2008.

9.3 The following has been assessed:

> The impact of the proposed extension on the residential dwellings to the south, on the opposite side of Iverson Road;

> The impact of the proposed extension on the amenity space of the development to the west of the application site, 159-161 Iverson Road, which is currently under construction; and

> The daylight level received by dwellings within the proposed roof extension itself.

9.4 In respect of the above assessment, this report concludes the following:

> Daylight received by the dwellings to the south will not be adversely affected by the proposed roof extension, based on BRE guidance;

> The proposed roof extension will not result in any loss of sunlight to the amenity spaces of the development currently under construction at 159-161 Iverson Road; and

> The proposed new dwellings within the roof extension will receive good levels of daylight.

9.5 Given the above findings, it is considered that planning permission should not be refused for any reason relating to daylight and sunlight.

10.GLOSSARY

10.1 The following terms are referenced throughout the report. They are described below as stated in the BRE guidance:

> **Average Daylight Factor (ADF)**: Ratio of total daylight flux incident on the working plane to the area of the working plane, expressed as a percentage of the outdoor illuminance on a horizontal plane due to an unobstructed CIE standard overcast sky. Thus a 1%ADF would mean that the average indoor illuminance would be one hundredth the outdoor unobstructed illuminance.

> **Daylight**: Combined skylight and sunlight.

> **Obstruction Angle**: The angular altitude of the top of an obstruction above the horizontal, measured from a reference point in a vertical plane in a section perpendicular to the vertical plane.

> **Probable Sunlight Hours**: The long-term average of the total number of hours during a year in which direct sunlight reaches the unobstructed ground.

> **Vertical Sky Component (VSC)**: Ratio of that part of illuminance, at a point on a given vertical plan, that is received directly from an overcast sky, to illuminance on a horizontal plane due to an unobstructed hemisphere of this sky.

> **Working Plane**: Horizontal, vertical or inclined plane in which a visual task lies. Normally the working plane may be taken to be horizontal, 0.85m above the floor in houses and factories, 0.7m above the floor in offices.