# Daylight study for 13 Ainger Road London

**Author: Pradnya Naigaonkar**
**Checked by: Charles Couzens**

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*Engineering – materials, energy, structure, stability*
8A Chamberlain St
London NW1 8XB
T: 020 7722 7525
F: 020 7722 9711
office@ecosmaclean.co.uk
www.ecosmaclean.co.uk

## *Introduction*

A site inspection by the Planning Officer of the proposed rear (NE) elevation of 13 Ainger Road concluded that it may have an impact on the neighbouring terraced property of 12 Ainger Road. Consequently it is required that a detailed Daylighting and Sunlighting study needs to be undertaken for the lower ground floor window of 12 Ainger Road based on the 'Camden Planning Guidance 6 - amenity - Daylight and sunlight'.

## *Policy and assessment Objective*

The objective of this assessment is to consider whether the proposal complies with 'Camden Planning Guidance 6 - amenity - Daylight and sunlight'.
This guidance clearly states at paragraph 6.6 that: 'When assessing daylight issues, we will use the guidelines and methods contained in the BRE's *Site layout planning for daylight and sunlight: A guide to good practice*' referred in this study as BRE guidance. This BRE guidance was updated in 2011. It is not a definitive guidance on this issue and is purely advisory.

Paragraph 1.6 pg.1 of the BRE guidance states:
'*The guide is intended for building designers and their clients, consultants and planning officials. The advice given here is not mandatory and the guide should not be seen as an instrument of planning policy; its aim is to help rather than constrain the designer. Although it gives numerical guidelines, these should be interpreted flexibly since natural lighting is only one of many factors in site layout design.'*

Moreover paragraph 2.2.3 of the BRE guidance on existing buildings states:
*'Note that numerical values given here are purely advisory.*
*Another important issue is whether the existing building is itself a good neighbour, standing a reasonable distance from the boundary and taking no more than its fair share of light.'*

## *Assessment methodology and significance criteria*

As mentioned in paragraph 6.7 of the Camden Planning Guidance 6 for Daylight, this study will assess the access to daylight as indicated under 'Daylight to existing development'.

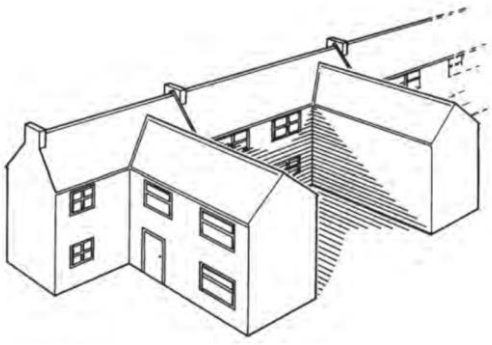
This study assesses whether the proposed two-storey extension to the Utility/Office room creates a 'Tunnel Effect' on the neighbouring property of 12 Ainger Road.

The study uses the BRE guidance paragraph 2.2.16 which explains the Tunnel effect and the need to check if any proposals have this effect on the neighbouring properties.

The paragraph states as below:
*'Like most rules of thumb, this one needs to be interpreted flexibly. For example, if the extension has another extension, or a much larger building, behind it then the daylight from that direction may be blocked anyway. Special care needs to be taken in cases where an extension already exists on the other side of the window, to avoid a 'tunnel effect'. A VSC calculation can be used to quantify the loss of light, if required.'*

The accompanied figure is exactly the case that this study focuses on.

The reference window at the lower ground floor on the NE elevation being studied has extension on both sides and there is a possibility that the proposal can have a tunnel effect on this window.



A tunnel effect can occur if a window is obstructed by extensions on both sides

## *Preliminary study*

A preliminary study of the proposal was carried out for the purposes of preparing the Daylight and sunlight report to measure the VSC and ADF as required by the Camden Planning Guidance.

The proposed submitted rear elevation for no. 13 Ainger Road has the two storey rear elevation with a mono-pitch roof sloping towards no. 12 Ainger Road.

As per this study, the findings were as given below:

### VSC (Vertical sky component)

- The outcome of the preliminary study for the VSC at point O from figure II is that the existing VSC at point O is 30 crosses i.e. 15%. With the proposed extension the VSC at point O is 24 crosses i.e. 12%.

- The resultant VSC is 80% of the existing VSC which meets the minimum requirement as that mentioned in the paragraph 6.10 of the 'Camden planning guidance 6 - Amenity - Daylight and sunlight'.

- This confirms that the submitted proposed extension will not have a tunnel effect on the neighbouring property.

### *ADF (Average daylight factor)*

- The outcome of the preliminary study is that the existing annual probable sunlight hours (APSH) reaching point O is 5% all of which are in the summer months located in the arc NE-E. With the proposed extension the APSH reaching point O is only 1%, which in numerical terms means only 1% of 1486, or 14.86 hours per year.

- This result is even lower than the 2% mentioned in the paragraph 6.12 of the 'Camden planning guidance 6 - Amenity - Daylight and sunlight' when any supplementary electric lighting may be provided.

Comparing the results of this submitted proposal for the rear elevation, although the it does not have any tunnel effect on the neighbouring property, the reference window located at the lower ground floor on the NE elevation of no. 12 Ainger road fails to receive the minimum amount of available sunlight required for any habitable space.

Therefore it was decided to amend the submitted proposal to try and reduce the impact on No 12 Ainger Rd.

A further study for the VSC and ADF measurements was carried out with a change in pitch such that the proposal will now have a fall (mono-pitch) opposite to that proposed i.e. sloping towards 13 Ainger Road.

## *Plotting the site on the Direction Finder*

Tables 1 and 2 show the distance to height ratio and their results are plotted on the figures I, II and III on the following pages.

**Table 1: Distance Height Ratio - Centre of Patio Doors - The existing condition**

| Reference | Location - in relation with the reference point | Distance (m) | Height above viewing point (m) | distance/height rounded to nearest decimal |
|---|---|---|---|---|
| A | nearest point on 13 Ainger Road 3 storey extension | 1.36 | 7.575 | 0.18 |
| B | furthest point on 13 Ainger Road 3 storey extension | 2.38 | 7.575 | 0.30 |
| C | nearest point on 13 Ainger Road 2 storey extension - ridge | 2.38 | 5.05 | 0.50 |
| D | furthest point on 13 Ainger Road 2 storey extension - ridge | 4.475 | 5.05 | 0.90 |
| E | 12 Ainger road - extension nearest point on eaves | 1.36 | 3.6 | 0.40 |
| F | 12 Ainger road - extension furthest point on eaves | 6.45 | 3.6 | 1.80 |

**Table 2: Distance Height Ratio - Centre of Patio Doors - With the proposed addition**

| Reference | Location - in relation with the reference point | Distance (m) | Height above viewing point (m) | distance/height rounded to nearest decimal |
|---|---|---|---|---|
| A | nearest point on 13 Ainger Road 3 storey extension | 1.36 | 7.575 | 0.18 |
| B | furthest point on 13 Ainger Road 3 storey extension | 2.38 | 7.575 | 0.30 |
| C | nearest point on 13 Ainger Road 2 storey extension - eaves | 2.38 | 3.975 | 0.50 |
| D | replaced with X | - | - | - |
| X | furthest point on 13 Ainger Road 2 storey extension - eaves | 6.45 | 3.975 | |
| E | 12 Ainger road - extension nearest point on eaves | 1.36 | 3.6 | 0.40 |
| F | 12 Ainger road - extension furthest point on eaves | 6.45 | 3.6 | 1.80 |

In figure I, DXIH is the proposed two storey extension which is being checked for any possible 'tunnel effect' that it might have on the neighbouring property. For the purposes of this study only this extension is being studied for its potential to act as an obstruction to the available daylight of the neighbour.

The proposal also includes a single-storey rear extension to the lower ground floor and a double storey extension on the ground and first floor to the study room and the bathroom. This extension is shielded by the proposed two storey extension and so has no possible impact on daylight availability of the neighbours and is therefore excluded from this study.

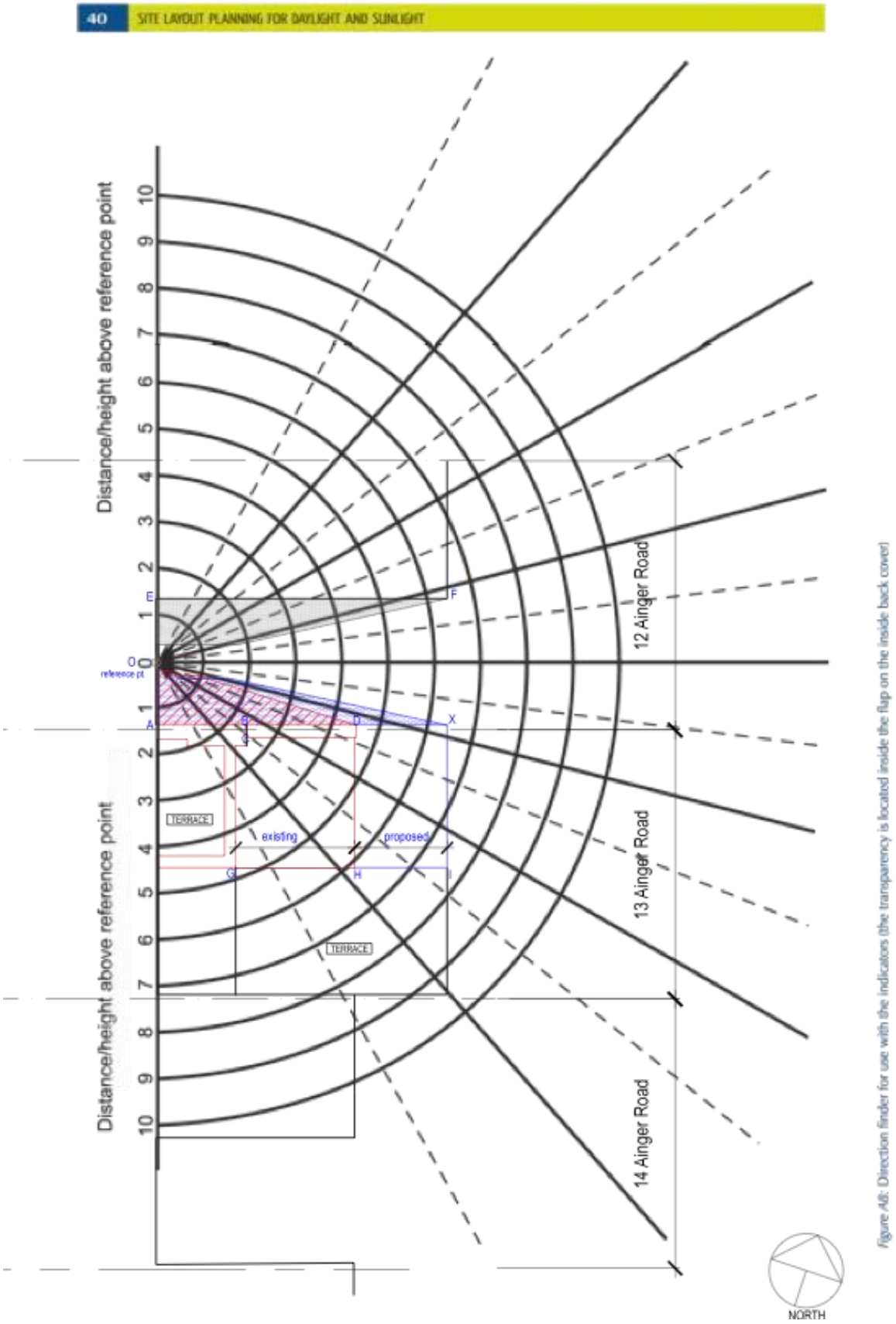



Figure I showing the site plan along with the reference point, obstruction study points and the use of the Direction Finder as specified on page 41 of Appendix A of the BRE

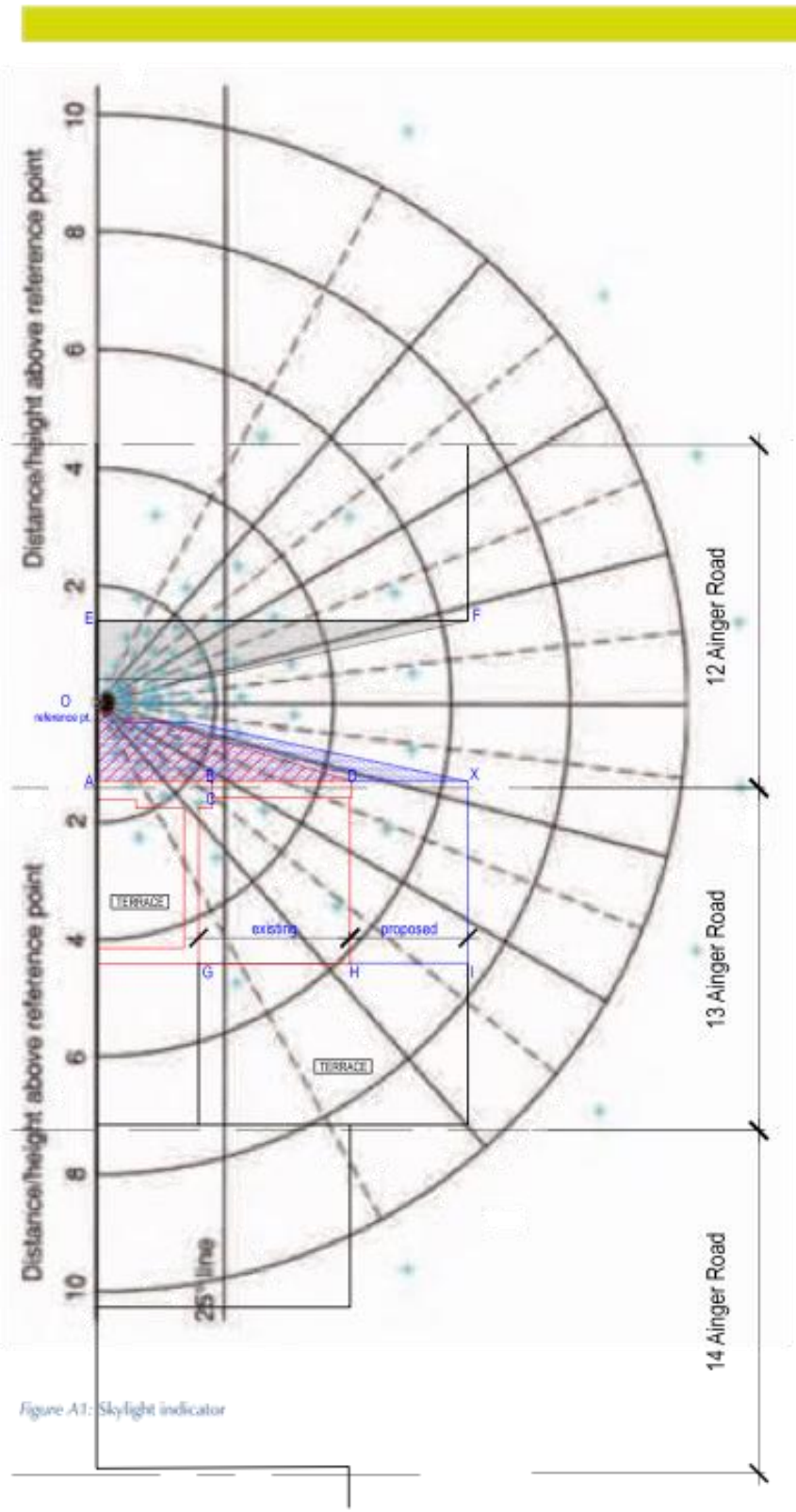



Figure II - study of the Vertical Sky Component in the lower ground floor patio door of no 12 Ainger Road

**Study of the Vertical sky component (VSC)**

The figures in Tables 1 and 2 reflect the site conditions.

Studying Figure II, gives us the following data and results:

- The red shaded region is the obstruction in the sky vista to point O (reference window) caused by the existing extension at no. 13 Ainger Road. The grey shaded region is the obstruction in the sky vista to point O caused by the property as it stands at no. 12 Ainger Road. The blue region is the obstruction in the sky vista to point O caused by the proposed new two-storey extension at no. 13 Ainger Road.

- The outcome of the study for the VSC at point O from figure II is that the existing VSC at point O is 30 crosses i.e. 15%. With the proposed extension the VSC at point O is 29 crosses i.e. 14.5%.

- This clearly concludes that the proposed two-storey extension does not have any significant impact on the majority of the existing sky vista along the arc NE to E to the reference point on the neighbouring patio door.

- This confirms that the two-storey proposal at no. 13 Ainger Road will not create a Tunnel effect on no. 12 Ainger Road.

- Although the VSC at point O is much lower than the 27% as given in the BRE guidance, the difference in the existing VSC against that proposed is only a change of 1.25%.

Further to the above results, it is important to note that the paragraph 6.10 of the 'Camden planning guidance 6 - Amenity - Daylight and sunlight' page 33 clearly states that,

*'Windows to some existing rooms may already fail to achieve this target under existing conditions. In these circumstances it is possible to accept a reduction to the existing level of daylight to no less than 80% of its former value.'*

In the case of this proposal,

The existing VSC = 15%

The proposed VSC = 14.5%

This change in existing to proposed VSC is 96.67% which is above the minimum requirement as that mentioned in the paragraph 6.10 quoted earlier.

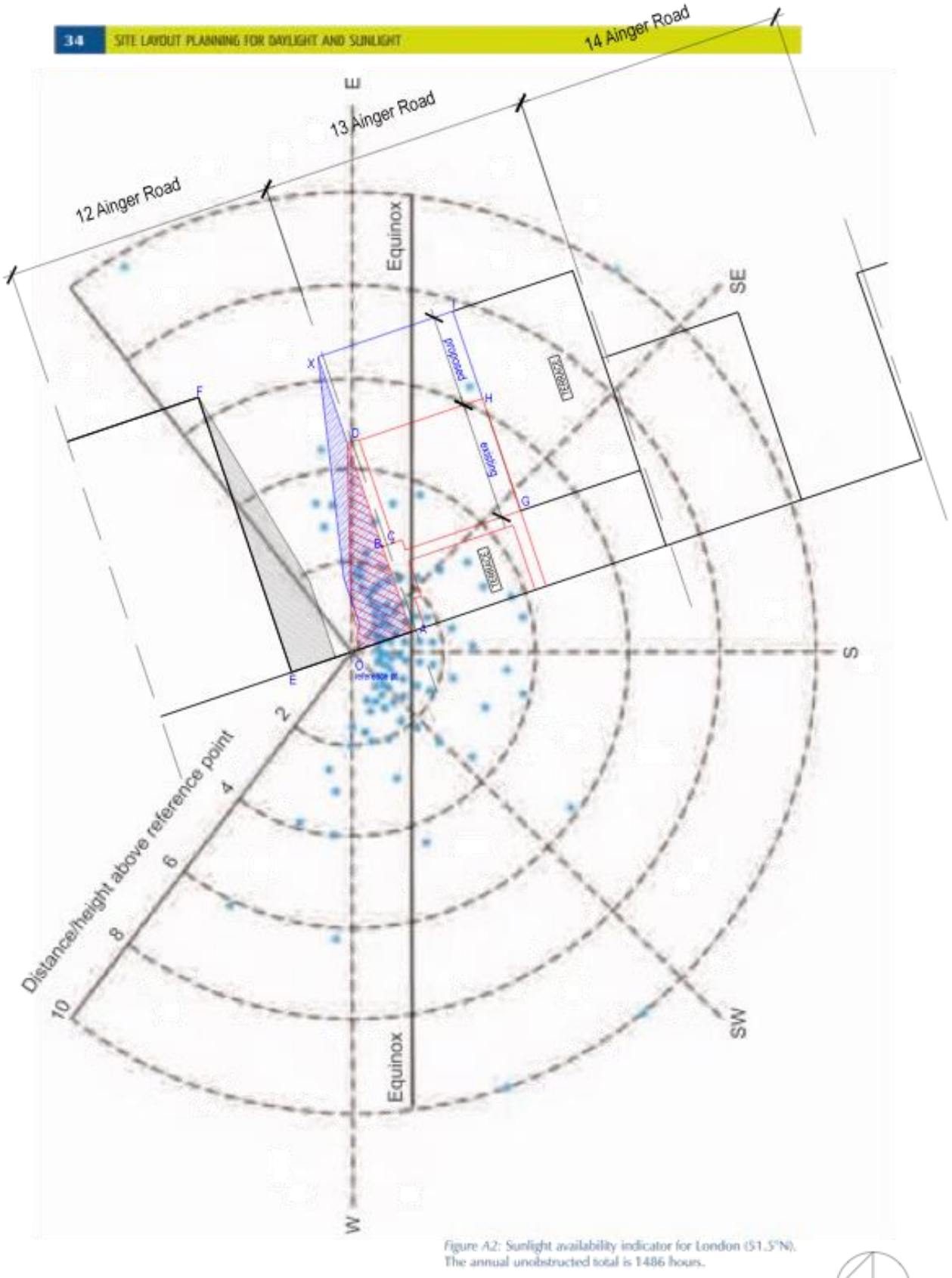



Figure III - study of the Sunlight availability

***Study for the Average daylight factor (ADF)***

The Figure III shows the results of the sunlight assessment for point O.

- The red shaded area is the obstruction of the available sunlight received at point O caused by the existing property as is at no. 13 Ainger Road. The grey shaded area is the obstruction in the available sunlight received at point O caused by the property as it stands at no. 12 Ainger Road. The blue shaded area is the obstruction in the available sunlight received at point O caused by the proposed two-storey extension at no. 13 Ainger Road, with the reversal of the roof pitch. This amended proposed extension is shown in drawing 15069 – 20 – rev 02 dated 15 Nov 2015.

- The outcome of the study is that the existing annual probable sunlight hours (APSH) reaching point O is 5% of available daylight, all of which is also in the summer months located in the arc NE-E. With the proposed extension the APSH reaching point O is also 5%. The total probable sunlight hours reaching point O is 5% of 1486, or 74.3 hours per year.

- Therefore the proposed two-storey extension does not have any significant impact on the available sunlight reaching point O - the reference point on the neighbouring patio door.

Further to the above results, it is important to note that the paragraph 6.12 of the 'Camden planning guidance 6 - Amenity - Daylight and sunlight' page 34 clearly states that,

*'If a predominantly daylit appearance is required, then the daylight factor should be 5% or more if there is no supplementary electric lighting, or 2% or more if supplementary electric lighting is provided. This figure should be as high as possible to enable occupiers to rely on as much natural light and not use artificial lighting, but as a minimum for dwellings the figures should be 2% for kitchens, 1.5% for living rooms and 1% for bedrooms.'*

In the case of this proposal,

the existing and proposed APSH reaching point O is 5% ; which meets the criteria for any habitable room as mentioned in paragraph 6.12 as quoted above.