43 A REDINGTON ROAD

CAMDEN

LONDON NW3 7RA

ANALYSIS

of

SITE LAYOUT

for

DAYLIGHT AND SUNLIGHT

AUGUST 2021

by

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ANALYSIS OF SITE LAYOUT FOR DAYLIGHT AND SUNLIGHT

1. Introduction

A planning application it to be made for alterations to the building at 43A Redington Road to extend the accommodation of the flat at lower ground and ground floors.

The daylight and sunlight to nearby houses and gardens and the daylight and sunlight to rooms within the development are analysed in this report.

This report is prepared to accord with the planning requirements of London Borough of Camden, current practice, BS8206 Part 2 (2008) and the BRE Guide Site 'Layout Planning for Daylight and Sunlight: a guide to good practice (2011)'

2. Description of the Site.

43A us the part lower ground and part ground floor flat within 43 Redington Road.

It is proposed to extend the building at lower ground and ground floors.

The proposals are shown on the following drawings by Amos Goldreich Architecture that are submitted with the planning application:

340/101C	Lower Ground Floor Plan.
340/102C	Ground Floor Plan.
340/103B	Roof Plan
340/201B	Existing and Proposed Sections.
340/300C	Front Elevation.
340/301C	Side Elevations.
340/302C	Rear Elevations.

3. Planning Requirements

3.1 London Borough of Camden

Camden Local Plan 2017, Policy A1, Managing the impact of development, says that the Council will seek to protect the amenity of neighbours. Factors to be included are (f) sunlight and daylight.

Paragraph 6.5 gives the following guidance

Sunlight, daylight and overshadowing
6.5 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).

Camden also publish guidance in Camden Planning Guidance Amenity March 2018. Section 3 includes a key message saying

KEY MESSAGES:

The Council expects applicants to consider the impact of development schemes on daylight and sunlight levels. Where appropriate a daylight and sunlight assessment should submitted which should be follow the guidance in the BRE's Site layout planning for daylight and sunlight: A guide to good practice.

The 45 degree and 25 degree tests cited in the BRE guidance should be used to assess ('screen') whether a sunlight and daylight report is required.

Levels of reported daylight and sunlight will be considered flexibly taking into account site-specific circumstances and context.

The Council may seek independent verification of sunlight and daylight reports if necessary

The current version of the BRE guide is the second edition published in 2011. This document is referred to as the Guide in this report.

3.2 The London Plan

The London Plan Policy 3.3 and 3.4 encourage the increase in housing supply.

3.3 London Supplementary Planning Guidance

The Mayor of London Supplementary Planning Guidance Housing (2016) makes recommendations that the BRE Guide should be applied sensitively to higher density development in London, particularly in central and urban areas.

1.3.45 Policy 7.6Bd requires new development to avoid causing 'unacceptable harm' to the amenity of surrounding land and buildings, particularly in relation to privacy and overshadowing and where tall buildings are proposed. An appropriate degree of flexibility needs to be applied when using BRE guidelines to assess the daylight and sunlight impacts of new development on surrounding properties, as well as within new developments themselves. 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. This should take into account local circumstances; the need to optimise housing capacity; and scope for the character and form of an area to change over time.

1.3.46 The degree of harm on adjacent properties and the daylight targets within a proposed scheme should be assessed drawing on broadly comparable residential typologies within the area and of a similar nature across London. Decision makers should recognise that fully optimising housing potential on large sites may necessitate standards which depart from those presently experienced, but which still achieve satisfactory levels of residential amenity and avoid unacceptable

The SPG includes Standard 32 regarding direct sunlight

Standard 32 - All homes should provide for direct sunlight to enter at least one habitable room for part of the day. Living areas and kitchen dining spaces should preferably receive direct sunlight

2.3.45 Daylight enhances residents' enjoyment of an interior and reduces the energy needed to provide light for everyday activities, while controlled sunlight can help to meet part of the winter heating requirement. Sunlight is particularly desirable in living areas and kitchen dining spaces. The risk of overheating should be taken into account when designing for sunlight alongside the need to ensure appropriate levels of privacy. In addition to the above standards, BRE good practice guidelines and methodology146 can be used to assess the levels of daylight and sunlight achieved within new developments, taking into account guidance below and in Section 1.3.

2.3.46 Where direct sunlight cannot be achieved in line with Standard 32, developers should demonstrate how the daylight standards proposed within a scheme and individual units will achieve good amenity for residents. They should also demonstrate how the design has sought to optimise the amount of daylight and amenity available to residents, for example, through the design, colour and landscaping of surrounding buildings and spaces within a development.

2.3.47 BRE guidelines on assessing daylight and sunlight should be applied sensitively to higher density development in London, particularly in central and urban settings, recognising the London Plan's strategic approach to optimise housing output (Policy 3.4) and the need to accommodate additional housing supply in locations with good accessibility suitable for higher density development (Policy 3.3). 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.

3.4 The BRE Guide

The current version of the BRE guide is the second edition published in 2011. This document is referred to as the Guide in this report.

4. General Effects of Development on Light to Nearby Buildings.

The proposed development extends the outer envelope of the building at the front and rear and will affect daylight and sunlight to the building at 41 Redington Road to some extent.

There are no other extensions to the outer envelope of the building that might impinge on daylight or sunlight to any other building

5. Daylight and Sunlight to Nearby Windows in 41 Redington Road.

Figure 1 of this report is a plan showing the 41 Redington Road at lower ground floor level in relation to the proposed alterations at 43.

Figure 2 is a side elevation of 41 with windows numbered for reference.

All the windows face within 90 degrees of north. The BRE Guide recommends that sunlight to windows facing north will not be significantly affected and the sunlight need not be analysed

Windows W5 is at first floor and are higher than the roof of the proposed extension in 41. There will therefore be no reduction in daylight

The BRE Guide recommends that north facing windows are analysed for daylight. The Guide recommends that daylight is satisfactory provided the sky component is greater than 27%. Where this is not achievable the ratio of vertical sky component before and after development should be above 80%
The vertical sky component (VSC) for the windows is evaluated by the method described in Appendix B of the BRE Guide using the Waldram Sky availability indicator diagram.

Figure 3 of this report is a Waldram Diagram for W1

The results for the windows are in the Table 1

Table 1					
Window	VSC Before development	VSC After development	Ratio After/Before	BRE Recommended minimum ratio	Pass/Fail BRE Test
W 1	7.05%	5.8%	82%	80%	Pass
W 2	2.1%	2.0%	95%	80%	Pass
W 3	12.9%	12.9%	100%	80%	Pass
W 4	3.5%	3.4%	97%	80%	Pass

There is no significant reduction in daylight or sunlight to windows in 41 Redington Road in terms of the criteria in the BRE Guide

6. Daylight to Rooms within the Extension to 43A

6.1. Requirements.

The Camden Supplementary Planning Guides, in common with the usual Local Authority requirements and the BRE Guide recommend that new developments satisfy criteria for

- Average daylight factor
- Sunlight.
- Room depth as given by the equation $L/W+L/H < 2/(1-R)$ where the terms have the meanings in the BRE Guide

These requirements are applied to habitable rooms being Living Rooms, Dining Rooms and Bedrooms. Bathrooms, dressing rooms, kitchens and store cupboards are not required to meet the criteria.

6.2 Average Daylight Factor.

The Average Daylight Factor (Df) for rooms within the proposed flat has been calculated by the methods described in BRE Guide Appendix C5 and BS 8206 using the formula:

$Df = Aw\ T\ \Theta / A(1-R^2)$

Where,

Df = Daylight factor
Aw = window area
A = Sum of areas of walls, floors and ceilings
R = Average reflectance of walls floors and ceilings taken as 0.5.
Θ = Angle from Table C1 of the 2011 Guide
T = Transmittance of the glass taken as 0.68.

The value of Θ is derived from the vertical sky component at the window. The vertical sky component is evaluated from a Waldram Sky Availability diagram using the methods described in Appendix B of the Guide. The value for roof windows is calculated by the method in Appendix C paragraph C12.

The BRE Guide and BS 8206 recommend that average daylight factor exceeds the following values:

For kitchens 2%
For living rooms and dining rooms 1.5%
For bedrooms 1%
Average daylight factor is not applicable to bathrooms, dressing rooms and utility rooms.

The calculations for average daylight factor for all relevant rooms in the development are given in Appendix 2

All rooms have adequate daylight by the criteria of the BRE Guide.

6.3. Room Depth

The BRE Guide C13 recommends that the following is calculated.

$L/W + L/H < 2/(1-R)$
Where
W is the room width
H is the window head height
R is the average reflectance, taken as 0.5 in this case.

The room is considered adequately lit if $L/W + L/H < 2/(1-R)$
Rooms with windows on two sides or with roof light are considered to pass the test.

Calculations for the habitable rooms is in included in the Appendix.

All rooms satisfy the recommendations of the BRE Guide for room depth.

6.4 Sunlight

The BRE Guide 3.1.10 recommends that rooms for which occupants expect sunlight should receive 25% of annual probable sunlight hours and 5% in winter.

For the whole flat the sunlight should be better than 25% annual probable sunlight hours for whole year and 5% in winter.

Sunlight to rooms is estimated using the method described in the BRE Guide Appendix A. Results are included in the table in Appendix 2 of this report.

The flat has sunlight better than the recommendations of the BRE Guide.

7. Conclusion

7.1 Daylight and Sunlight to Nearby Buildings

This development has no significant affect upon the daylight and sunlight to nearby buildings.

7.2 Daylight and Sunlight to Rooms within Development.

The Guide recommends that the average daylight factor and room depth criteria are satisfied. As shown in Appendix 2 all rooms have adequate daylight factors as recommended in the BRE Guide, Camden Planning Guidance and the London Plan.

The BRE Guide recommends that residential accommodation should have sunlight for some rooms. For this flat, with the proposed alterations, sunlight for the whole year and for winter is better than the recommended minimum.

Terence A Rook Bsc C.Eng., MIMechE, FCIBSE 26 August 2021.

References:

Camden Local Development Framework. Camden Planning Guidance CPG 6.

Building Research Establishment publication ‘Site layout and planning for daylight and sunlight, a guide to good practice’ published in 2011.

List of Attachments:

Figure 1 Plan of roof of 43 Redington Road with Ground Floor of 41.
Figure 2 Side Elevation of 41 Redington Road.
Figure 3 Waldram Diagram for W1 in 41 Redington Road
Figure 4 Plan of Lower Ground Floor as Proposed.
Figure 5 Plan of Ground Floor as Proposed.

Appendix Daylight within Development.

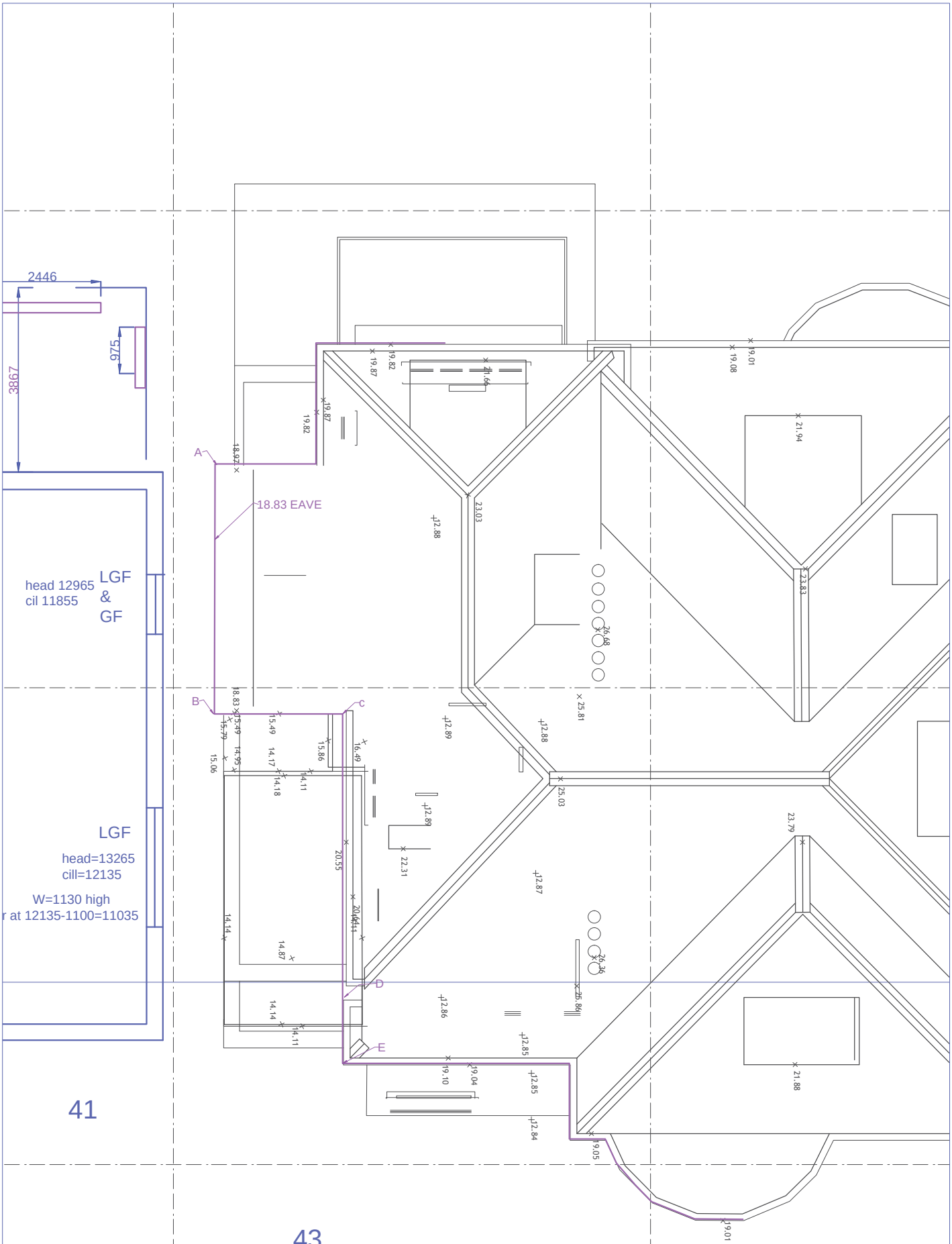

Figure 1 Roof of 43 as Proposed with Lower Ground Floor of 41

Figure 2 Side of 41 Redington

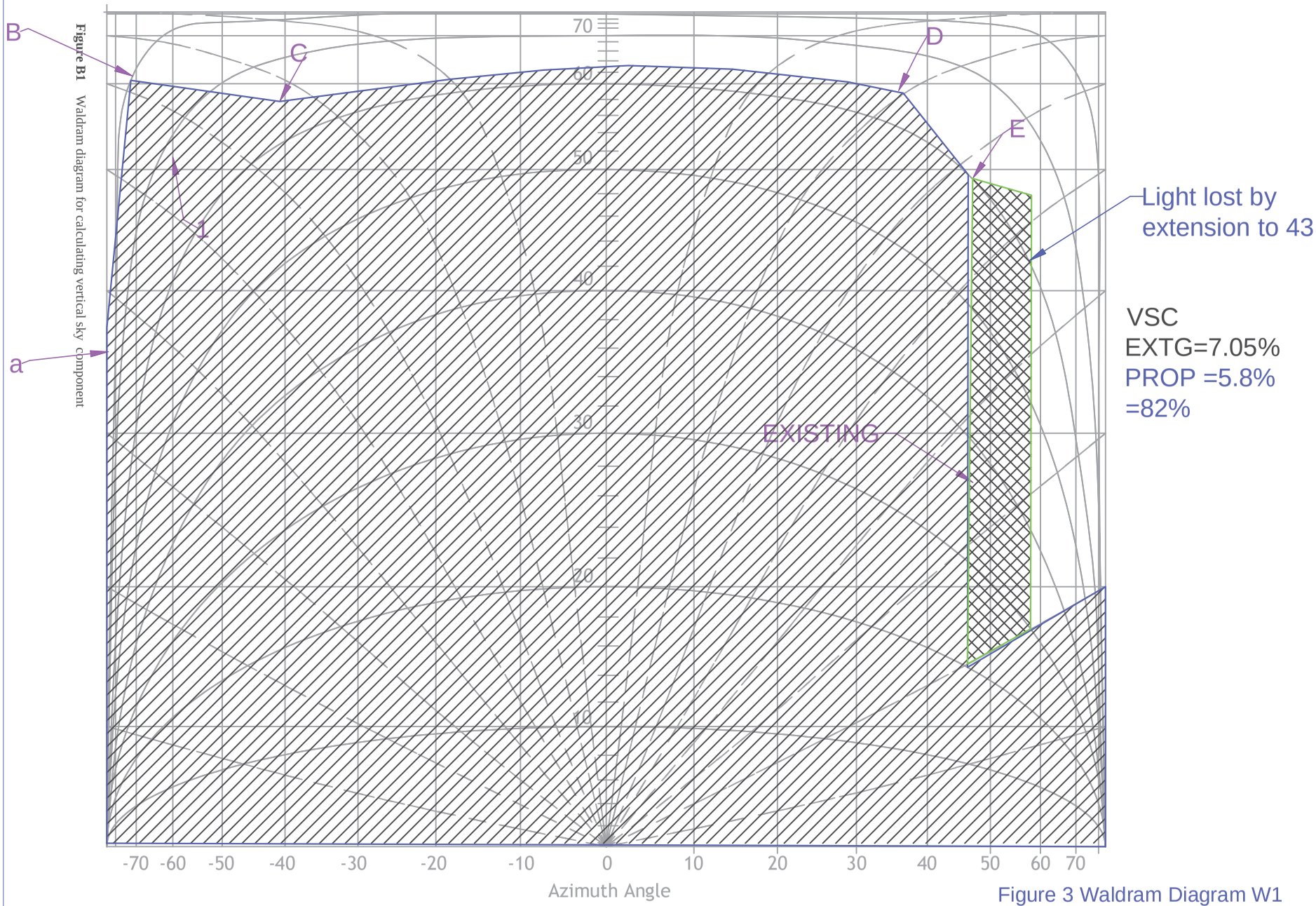

Figure B1 Waldram diagram for calculating vertical sky component

Figure 3 Waldram Diagram W1

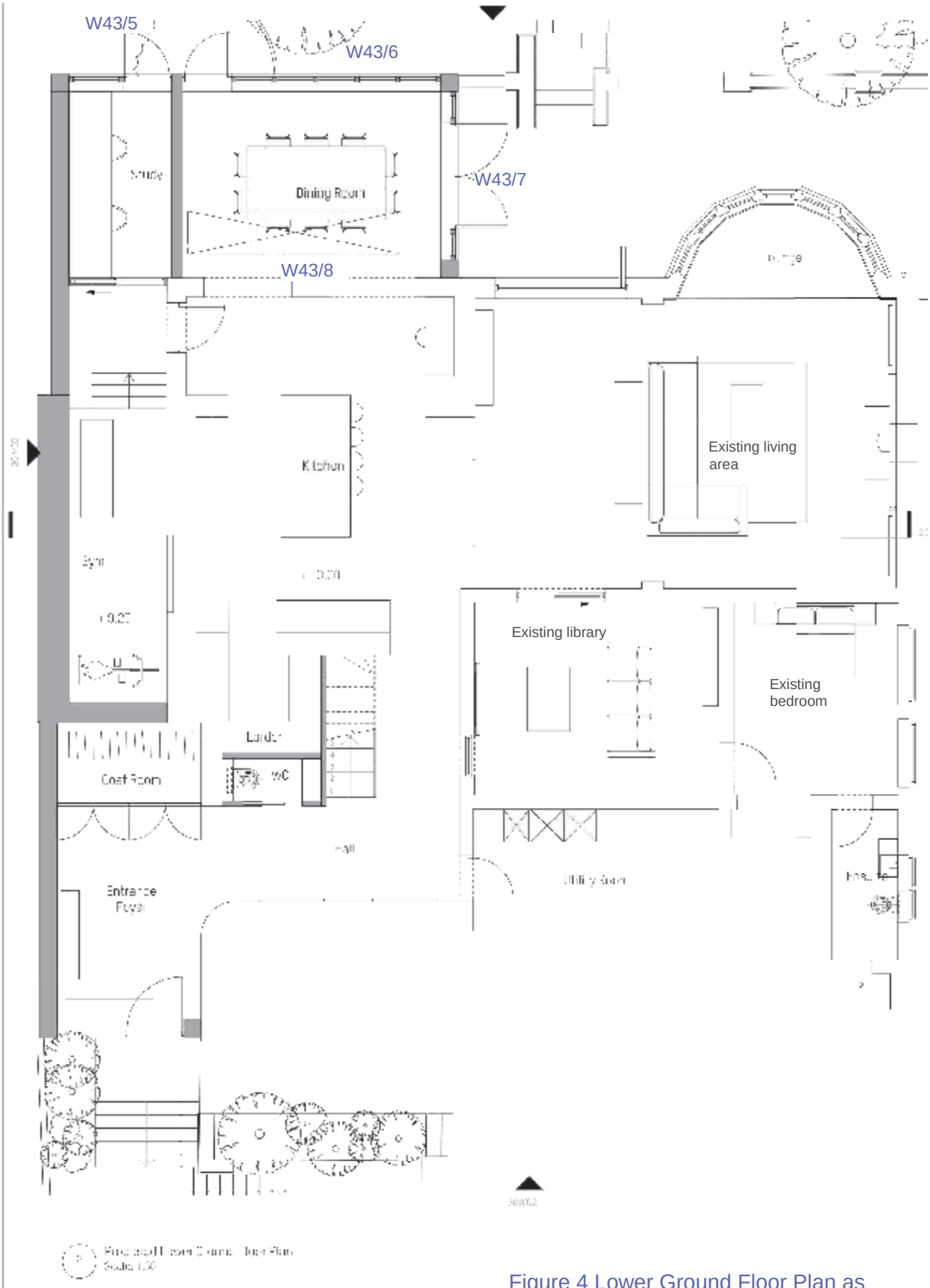

Figure 4 Lower Ground Floor Plan as Proposed with Window Numbers

Figure 5 Ground Floor Plan as Proposed with Window Numbers

APPENDIX 2 INTERNAL DAYLIGHT FACTORS

	Window	Room Depth	Room Width	Window Width	Window Head Height	Window H above 0.85	Rm Height	TM	AW	As	VSC	θ Table C1	1-R2	ADF	Df by BS8206 %	ADF Meet BRE Criterion
Master bedroom	43/1	4.8	25.6	2.2	2.1	1.25	2.4	0.68	2.75	391.68	35.0%	80.0	0.75	0.51	1.0	No
Bedroom 01	43/2	4.4	4	1.7	2.1	1.25	2.4	0.68	2.13	75.52	35.0%	80.0	0.75	2.04	1.0	
	43/3	4.4	4	1.3	2.1	1.25	2.4	0.68	1.63	75.52	35.0%	80.0	0.75	1.56	1.0	
	Total													3.60	1.0	Yes
Bedroom 02	43/4	3.8	4	2.5	2.1	1.25	2.4	0.68	3.13	67.84	40.0%	90.0	0.75	3.76	1.0	Yes
Study	43/5	3.5	1.8	1.7	2.1	1.25	2.4	0.68	2.13	38.04	30.0%	70.0	0.75	3.55	1.5	Yes
Kitchen dine	43/6	9.5	5	4.6	2.1	1.25	2.4	0.68	5.75	164.6	30.0%	70.0	0.75	2.22		
	43/7	9.5	5	3	2.1	1.25	2.4	0.68	3.75	164.6	25.0%	62.0	0.75	1.28		
	43/8 Sky	7	5	4	3.5	0.5	2.4	0.68	2.00	127.6	50.0%	90.0	0.75	1.28		
	Total													4.78	1.5	Yes

APPENDIX 2 INTERNAL DAYLIGHT FACTORS

	Window	Window Head height.	L/W+ L/H	2/1-R	Meet BRE Criterion L/W+L/H	Window % Floor area		Sunlight %APSH	% APSH Winter	Meet BRE Criteria of sun and sky
Master bedroom	43/1	2.1			Yes	2		25	16	Yes
Bedroom 01	43/2	2.1	3.20	4		12		27	17	
	43/3	2.1	3.20	4		9		27	17	
	Total				Yes			27	17	Yes
Bedroom 02	43/4	2.1	2.76	4	Yes	21		70	39	Yes
Study	43/5	2.1	3.61	4	Yes	34		65	35	Yes
Kitchen dine	43/6					12		65	35	
	43/7					8		-	-	
	43/8 Sky	3.5	3.40	4	Yes	6		65	35	
	Total	Lit with roof window			Yes			65	35	Yes