



Land Rear of 17-19 Newcastle Road, Reading

Daylight and Sunlight Assessment

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Contents

- 1.0 Introduction3
- 2.0 Project Summary.....4
- 3.0 Methodology.....5
- 4.0 Modelling & Data Sources.....6
- 5.0 BRE Guidance Targets.....7
- 6.0 Window Schedules.....8
- 7.0 Daylight Impact Results.....9
- 8.0 Daylight within the Proposal.....11
- 9.0 Conclusions.....14

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1.0 Introduction

- 1.1 This daylight and sunlight assessment has been prepared to support a planning application for the redevelopment of the site to the rear of 17-19 Newcastle Road, Reading.
- 1.2 The report assesses the proposals in respect of daylight, sunlight and overshadowing matters, having regard to industry standard guidance. The report concludes that the proposal is acceptable and in accordance with planning policy requirements in relation to daylight and sunlight.
- 1.3 There is no existing specific National Planning Policy relating to the prospective impacts of developments on daylight and sunlight on their surrounding environment.
- 1.4 However, the BRE Report 'Site Layout Planning for Daylight and Sunlight: A Guide to Good Practice' is the established National guidance to aid the developer to prevent and/or minimise the impact of a new development on the availability of daylight and sunlight in the environs of the site.
- 1.5 The 3rd edition of this guidance was published in June, 2022 and is now the current methodology.
- 1.6 It has been developed in conjunction with daylight and sunlight recommendations in BS EN 17037: 'Daylighting for Buildings
- 1.7 This reference document is accepted as the authoritative work in the field on daylight, sunlight and overshadowing and is specifically referred to in many Local Authorities' planning policy guidance for daylighting. The methodology therein has been used in numerous lighting analyses and the standards of permissible reduction in light are accepted as the industry standards.

2.0 Project Summary

- 2.1 The proposal site is a vacant parcel of land, lying to the north of 17-19 Newcastle Road, Reading.
- 2.2 The proposal is for the demolition of existing dwelling at No. 19, to provide access to the site, and the construction of 9 residential homes, associated landscaping and parking.
- 2.3 The impacts of the scheme have been assessed, in line with BRE guidance. Generally, it is the impacts on residential neighbours which are of primary concern. The only existing residential neighbours that are close enough to the site to warrant assessment are those situated along Newcastle Road.
- 2.4 Further details on the location of the assessed neighbours and their windows are given in Section 5.0
- 2.5 In addition to assessing the impacts of the scheme on neighbours, daylight within a selection of the proposed new dwellings has also been assessed.



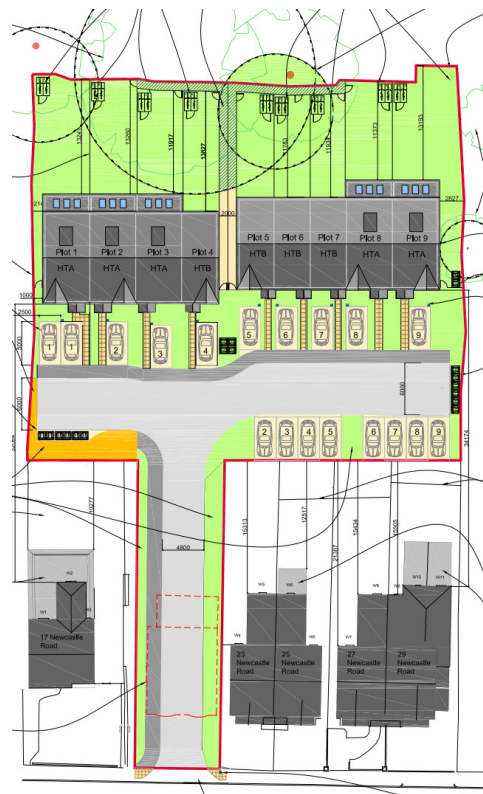
Site Location

3.0 Methodology

- 3.1 For this analysis, we have undertaken the most common calculations for the change in daylight and sunlight to existing buildings, as recommended in BRE Digest 209. These are:
- Vertical Sky Component (VSC) for daylight impacts and Target Daylight Factor (DF_T) for daylight within the proposal
 - Annual Probable Sunlight Hours and Winter Probable Sunlight Hours (WPSH) (APSH) for sunlight impacts
- 3.2 The VSC method measures the general amount of light available on the outside plane of the window as a ratio (%) of the amount of total unobstructed sky viewable following introduction of visible barriers such as buildings. The maximum value is just under 40% for a completely unobstructed vertical wall.
- 3.3 The VSC is calculated using computer simulation under a CIE overcast sky. This works by simulating the amount of visible sky from the centre point of each window. It is not affected by orientation and so all potentially affected windows are assessed.
- 3.4 Annual Probable Sunlight Hours (APSH) and Winter Probable Sun light Hours (WPSH) are a measure of the amount of potential direct sunlight that is available to a given surface.
- 3.5 APSH covers sunlight over the whole year and WPSH from September 21st to March 21st. The number of total available hours is calculated from a data file in the software, built up over a number of years of actual weather data records.
- 3.6 Only windows which face within 90° of due south need be assessed for sunlight. In this instance, no sunlight calculations are required as all assessed windows face within 90° of north.
- 3.7 APSH can also be used to assess the impact on external spaces such as gardens. In this instance, due to the orientation of the proposal in relation to neighbouring gardens, no overshadowing will occur.

4.0 Modelling & Data Sources

- 4.1 The first stage of the analysis is to create the analysis model of the existing site condition and the proposal. This allows us to analyse the impact of the proposal when compared to the existing condition.
- 4.2 2D drawings have been provided by the design team. These drawings are used to construct a 3D analysis model which is exported into the specialist daylight software. Calculations are then run, for both existing and proposed scenarios.
- 4.3 Sufficient detail is added to the model for the analysis. In accordance with BRE recommendations, trees and foliage have been omitted from the impacts on neighbours' calculations. They *are* included in the calculations of daylight within the proposal.
- 4.4 Information on the properties has been provided to us by the design team in the form of drawings and a model giving the site as existing and proposed and photographs of the site and surroundings.
- 4.5 Web-based mapping sources and planning records for neighbouring buildings have also been used.



Site Layout as Proposed

5.0 BRE Guidance Targets

- 5.1 The reference document for this analysis, BRE Digest 209, gives the methodology for undertaking the calculations. It also provides benchmark figures for the acceptable reduction in the daylight on existing properties which might be affected by development.
- 5.2 Specifically, the guidance gives figures for the VSC and APSH, as a percentage reduction that is "permissible" for the effect on existing windows.
- 5.3 It is worth noting the following statement in the Guidance introduction:
- 5.4 "The guide is intended for building designers and their clients, consultants and planning officials. The advice given here is not mandatory and this document should not be seen as an instrument of planning policy. Its aim is to help rather than constrain the developer.
- 5.5 Although it gives numerical guidelines, these should be interpreted flexibly because natural lighting is only one of the many factors in site layout design."
- 5.6 The relevant BRE recommendations for daylight and sunlight are:
- The Vertical Sky Component measured at the centre of a window should be no less than 27%, or if reduced to below this, no less than 0.8 times the former value.
 - The window should receive at least 25% of available annual sunlight hours and more than 5% during the winter months (September 21st to March 21st), or, where this is not the case, 80% of its former value.

6.0 Window Schedules



17-27 Newcastle Road (Rear)

7.0 Daylight Impact Results

- 7.1 The Vertical Sky Component has been calculated for each of the 23 assessed windows for both the existing and proposed conditions.
- 7.2 As can be seen in the results below, all windows retain in excess of 80% of their current values.
- 7.3 The scheme is therefore compliant with BRE recommendations in relation to daylight impacts.
- 7.4 As all the windows face within 90° of north, no sunlight calculations are required.

7.0 Daylight Impact Results

Vertical Sky Component				
Window	Existing VSC	Proposed VSC	% Retained	Meets BRE Guidance?
1	34.026	32.107	94.36%	Yes
2	36.016	34.976	97.11%	Yes
3	33.862	31.981	94.45%	Yes
4	33.371	32.230	96.58%	Yes
5	25.582	23.684	92.58%	Yes
6	30.931	29.851	96.51%	Yes
7	35.596	33.287	93.51%	Yes
8	37.337	36.070	96.61%	Yes
9	20.043	18.557	92.58%	Yes
10	27.381	26.398	96.41%	Yes
11	18.893	17.904	94.77%	Yes
12	25.248	24.697	97.82%	Yes
13	33.250	30.027	90.31%	Yes
14	37.350	35.976	96.32%	Yes
15	30.332	28.161	92.84%	Yes
16	33.840	31.322	92.56%	Yes
17	37.350	35.901	96.12%	Yes
18	21.914	21.914	100.00%	Yes
19	29.167	28.576	97.97%	Yes
20	37.218	35.444	95.24%	Yes
21	35.890	34.895	97.23%	Yes
22	34.230	32.449	94.80%	Yes
23	31.522	31.244	99.12%	Yes

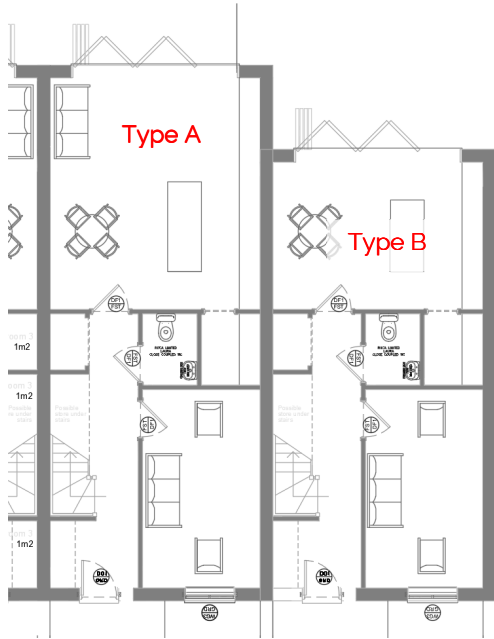
8.0 Daylight within the Proposal

- 8.1 Target Daylight Factor (DF_T) values have been calculated for the habitable rooms in a selection of the proposed new units, in accordance with BRE and BS EN 17037:2018 methodology
- 8.2 The calculations have assumed a white ceiling, cream walls and mid-grey carpet or wooden floor using reflectance values taken from the BS EN 170437 Guidance.
- 8.3 The units are of a similar layout, divided into three house types, A, B and C.
- 8.4 The BRE guidance allows for assessing only "worst case" units, where it can reasonably be assumed that other similar types would perform no worse than those tested.
- 8.5 As a result, only Plots 2, 3 and 9 need to be tested. It can be assumed that the other plots will perform at least as well as these units.
- 8.6 For the sake of clarity, the nearby trees, whilst omitted from the model when assessing impacts, *are* included in the model when assessing daylight within the proposed new units.
- 8.7 The benchmark values for all habitable rooms which are recommended by the BRE guidance and BS:EN 17037:2018 are:

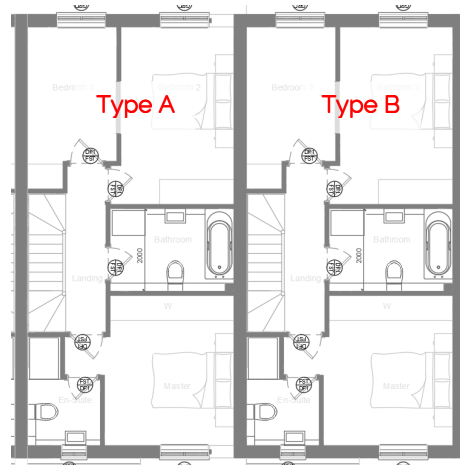
Table C2 – Target daylight factors (D) for London		
Level of recommendation	Target daylight factor D for half of assessment grid	Target daylight factor D for 95% of assessment grid
Minimum	2.1%	0.7%
Medium	3.5%	2.1%
High	5.3%	3.5%

- 8.8 It is deemed by the guidance that if the minimum DF_T criteria are met, then the occupiers of the dwelling will have sufficient daylight. As can be seen from the results below that all assessed habitable rooms meet and exceed the minimum levels of internal daylight.

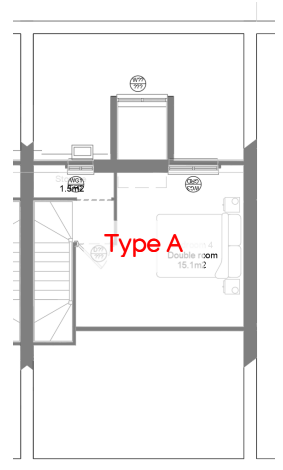
8.0 Daylight within the Proposal



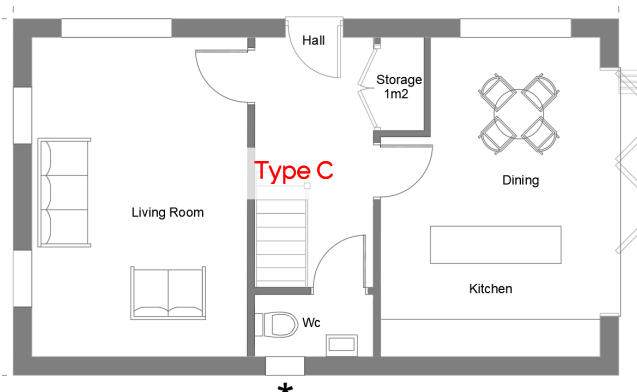
Type A/B – GF Plan



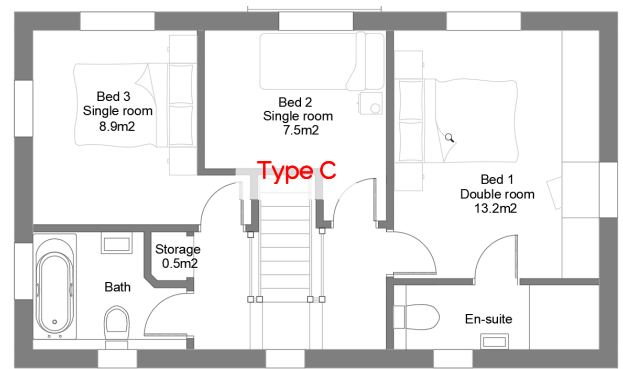
Type A/B – FF Plan



Type A – 2F Plan



Type C – GF Plan



Type C – FF Plan

8.0 Daylight within the Proposal

Minimum Target Daylight Factor						
Unit	Room	0.7% DF Target Area	Area Receiving 0.7% DF	2.1% DF Target Area	Area Receiving 2.1% DF	Meets Standards?
2	K/D	95%	100%	50%	100%	Yes
2	Living	95%	100%	50%	57.3%	Yes
2	Bedroom 1	95%	100%	50%	56.8%	Yes
2	Bedroom 2	95%	99.8%	50%	53.9%	Yes
2	Bedroom 3	95%	100%	50%	86.4%	Yes
2	Bedroom 4	95%	97.1%	50%	52.3%	Yes
3	K/D	95%	100%	50%	100%	Yes
3	Living	95%	100%	50%	57.3%	Yes
3	Bedroom 1	95%	100%	50%	56.8%	Yes
3	Bedroom 2	95%	99.8%	50%	53.8%	Yes
3	Bedroom 3	95%	100%	50%	86.4%	Yes
9	K/D	95%	100%	50%	100%	Yes
9	Living	95%	100%	50%	100%	Yes
9	Bedroom 1	95%	100%	50%	95.3%	Yes
9	Bedroom 2	95%	100%	50%	85.1%	Yes
9	Bedroom 3	95%	99.5%	50%	86.8%	Yes

9.0 Conclusions

- 9.1 Using industry standard methodology, we have made numerical analyses to ascertain the effects of the proposal to the rear of 17-19 Newcastle Road, Reading, and the levels of change in daylight and sunlight for the windows of the neighbouring properties.
- 9.2 The main criteria used in this analysis to show compliance are the Vertical Sky Component for daylight impacts and Annual and Winter Probable Sunlight Hours for sunlight impacts
- 9.3 As has been shown, the effect on VSC is within the guidance values in all cases.
- 9.4 There will therefore be no adverse impact on neighbouring residential properties in terms of daylight.
- 9.5 In terms of sunlight, all of the assessed windows face within 90° of north and so do not need to be assessed for sunlight.
- 9.6 No overshadowing of gardens will occur due to the orientation of the site relative to its neighbours.
- 9.7 The scheme is therefore compliant with BRE guidance in relation to sunlight impacts.
- 9.8 The new residential units will benefit from daylight levels in excess of the requirements of BSEN 17037:2018 recommendations even when the nearby trees are factored into the modelling.
- 9.9 From a planning perspective therefore, it is the conclusion of this report that the proposed development is entirely acceptable for planning, in daylight and sunlight terms.



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