ABBEYCONSULTANTS

Sunlight and Daylight Report

53 Long Drive, Ruislip

James Daniel Construction Limited

Report No: PA-DAY-53R-JD-20-02

Report Date: October 2020

Assessment Information

Nature of Assessment:	Sunlight and Daylight Report-53 Long Drive
Project Name:	53 Long Drive
Project Address:	53 Long Drive, Ruislip
Client:	James Daniel Construction Limited
Developer:	James Daniel Construction Limited
Architect:	blue architecture
Architect's Address:	Quarry Lodge, Quarry Wood, Marlow, Buckinghamshire, SL7 1RF

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Issue Number	Date	Reason	Author
01	05/10/2020	Draft	AW
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2. GLOSSARY

Average daylight factors (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, natural light – Combined skylight and sunlight

Probable sunlight hours – The long-term average of the total number of hours during a year in which direct sunlight reaches the unobstructed ground (when clouds are taken into account)

CIE standard overcast sky – A completely overcast sky for which the ratio of its luminance Ly at an angle of elevation y above the horizontal to the luminance Lz at the zenith is given by:

Ly = Lz (1+2siny)/3

A CIE standard overcast sky is darkest at the horizon and brightest at the zenith (vertically overhead)

Vertical sky component (VSC) – Ratio of that part of illuminance, at a point on a given vertical plane, that is received directly from a CIE standard overcast sky, to illuminance on a horizontal plane due to an unobstructed hemisphere of the sky. Usually the 'given vertical plane' is the outside of a window wall. The VSC does not include reflected light, either from the ground or from other buildings

Annual probable sunlight hours (APSH) – The number of annual sunlight hours an unobstructed area would receive.

No sky line – The outline on the working plane of the area from which no sky can be seen

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.

Sky Factor – Ratio of the parts of illuminance at a point on a given plane that would be received directly through unglazed openings from a sky of uniform luminance, to illuminance on a horizontal plane due to the unobstructed hemisphere of this sky. The sky factor does not include reflected light, either from outdoor or indoor surfaces.

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.

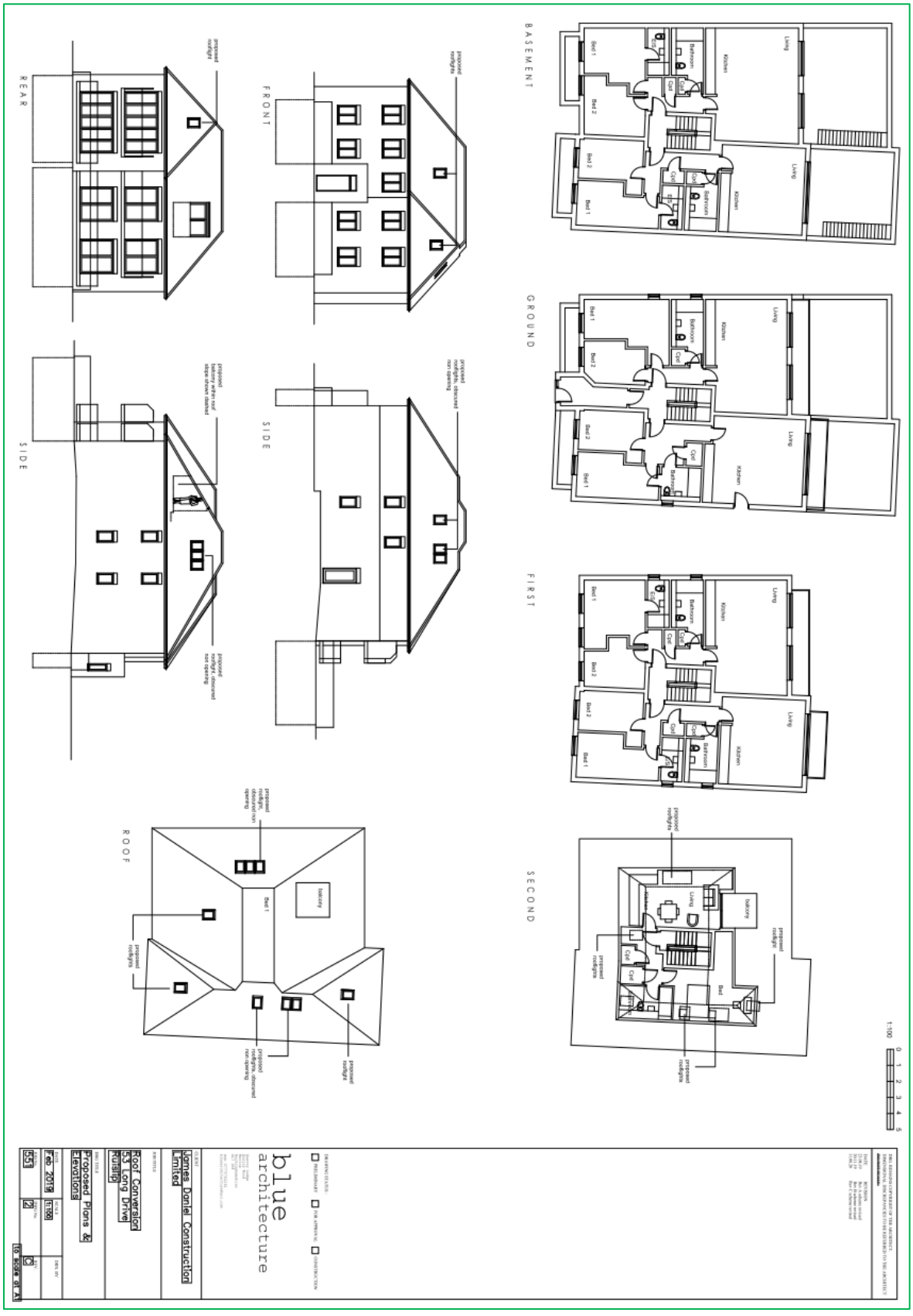
3. INTRODUCTION

Abbey Consultants have been commissioned to undertake a daylight and sunlight study of the proposed development at 53 Long Drive, Ruislip.

The aim of the study is to assess the internal daylight of the unit. The study is based on the various numerical tests laid down in the Building Research Establishment (BRE) guide 'Site Layout Planning for Daylight and Sunlight: a guide to good practice' by P J Littlefair 2011.

As highlighted in the Average Daylight Factor analysis (Appendix 1&2). Both the Kitchen/Living room and bedroom on the second floor of the proposed development are well in excess of good practice figures; and are therefore in full compliance with good practice requirements and should not be considered a constraint to the planning application.

4. PROPOSED EXTENSION



5. EXECUTIVE SUMMARY

Abbey Consultants (Southern) Ltd have been instructed by James Daniel Construction Limited to review the Sunlight and Daylight impacts on the proposed 53 Long Drive development to determine if the proposed scheme complies with good practice guidelines.

The Sunlight and Daylight analysis reviews the scheme against the good practice guidance as set out in "Site Layout Planning for Daylight and Sunlight: A guide to good practice" by Paul Littlefair (2011), with regard to the existing dwellings available daylight.

The Average Daylight Factor is the average illuminance on the working plane in a room, divided by the illuminance on an unobstructed horizontal surface outdoors. The CIE standard overcast sky is used, and the ratio is expressed as a percentage. There are good practice recommendations for domestic dwellings of 2% for kitchens, 1.5% for living rooms and 1% for bedrooms.

As highlighted in the Average Daylight Factor analysis (Appendix 1&2). Both the Kitchen/Living room and bedroom on the second floor of the proposed development are well in excess of good practice figures; and are therefore in full compliance with good practice requirements and should not be considered a constraint to the planning application.

6. APPLICATION OF BRE GUIDLINES

In its introduction the BRE Report 209 (second edition, 2011) states:

(Its) "main aim is… to help to ensure good conditions in the local environment, considered broadly, with enough sunlight and daylight on or between buildings for good interior and exterior conditions." (Para 1.1)

"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 designer." (Para 1.6)

"Although it gives numerical guidelines, these should be interpreted flexibly since natural lighting is only one of many factors in site layout design." (Para 1.6)

The BRE guide is an advisory document, not a rigid set of rules. Care must therefore be taken to apply its recommendations in a manner fitting to the location of the proposed development.

In theory the BRE report's numerical guidelines may be applied to any setting, whether that is a city centre, suburban area or rural village. However, it notes, "In special circumstances the developer or planning authority may wish to use different target values. For example, in a historic city centre, or in an area with modern high rise buildings, a higher degree of obstruction may be unavoidable if new developments are to match the height and proportions of existing buildings… The calculation methods…are entirely flexible in this respect." (Para 1.6)

At paragraph 2.2.3 it states "Note that numerical values given here are purely advisory. Different criteria may be used, based upon the requirements for daylighting in an area viewed against other site layout constraints." Appendix F of the BRE Guide gives advice on setting alternative target values for skylight access. At page 62 it states "different targets may be used, based on the special requirements of the proposed development or its location".

Rigid application of the numerical guidelines could well give rise to an inappropriate answer and form of development for city centre sites, in which case it may be appropriate to adopt lower target values that are more appropriate to the location concerned.

7. AVERAGE DAYLIGHT FACTOR ANALYSIS

7.1 AVERAGE DAYLIGHT FACTOR ANALYSIS TO THE SECOND FLOOR OF THE PROPOSED DEVELOPMENT

The method utilised was to run a 3D simulation to calculate Average Factors across an analysis grid at work place height, in line with the BRE methodology set out by Paul Littlefair.

The Average Daylight Factor is the average illuminance on the working plane in a room, divided by the illuminance on an unobstructed horizontal surface outdoors. The CIE standard overcast sky is used, and the ratio is expressed as a percentage. There are good practice recommendations for domestic dwellings of 2% for kitchens, 1.5% for living rooms and 1% for bedrooms.

The living room is serviced by the full heigh balcony doors as well as both rooms having roof lights resulting in the high levels of light entering the rooms; as highlighted in the Average Daylight Factor analysis (Appendix 1&2).

Both the Kitchen/Living room and bedroom on the second floor of the proposed development are well in excess of good practice figures; with the living room scoring 6.484 and the bedroom 3.068 with good practice threshold being 2.00 and 1.00 respectively and are therefore in full compliance with good practice requirements and should not be considered a constraint to the planning application.

8. CONCLUSION

Abbey Consultants (Southern) Ltd have been instructed by James Daniel Construction Limited to review the Sunlight and Daylight impacts on the proposed 53 Long Drive development to determine if the proposed scheme complies with good practice guidelines.

The Sunlight and Daylight analysis reviews the scheme against the good practice guidance as set out in "Site Layout Planning for Daylight and Sunlight: A guide to good practice" by Paul Littlefair (2011), with regard to the existing dwellings available daylight.

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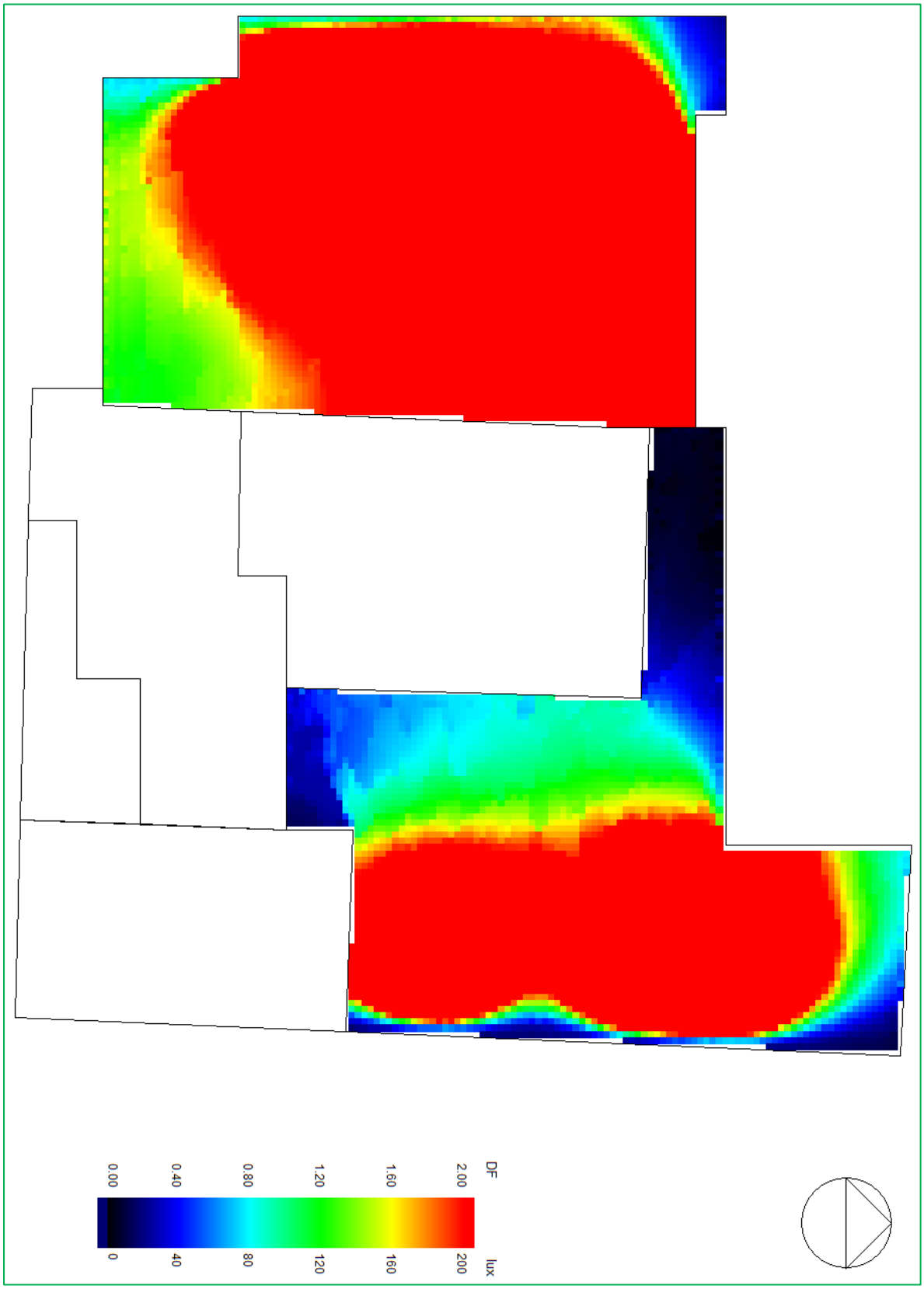
APPENDIX 1: AVERAGE DAYLIGHT FACTOR ANALYSIS

Second Floor Average Daylight Factor Analysis of the Proposed Unit



APPENDIX 2: AVERAGE DAYLIGHT FACTOR RESULTS FOR THE PROPOSED DEVELOPMENT

Table 1: Average Daylight Factor Results for the proposed development

Floor	Room	Average Daylight Factor	Good Practice Threshold	Result
Second Floor	Living, Dining & Kitchen	6.484	2.00	Pass
	Bedroom 1	3.068	1.00	Pass