



4th Floor, Holborn Tower,
137-144 High Holborn
London
WC1V 6PL

T: +44(0)20 7148 6290

E: info@eb7.co.uk

W: eb7.co.uk

DAYLIGHT & SUNLIGHT REPORT

45 Caversham Road, Reading

05/10/2020

Contents

1. Introduction	3
2. Guidance	4
3. Application of the guidance	6
4. Planning Policy Context.....	9
5. Sources of information & assumptions .	10
6. The site and proposal.....	11
7. Assessment results.....	12
8. Conclusions	20

1. Introduction

- 1.1. eb7 have been instructed to assess the effect of proposed development at 45 Caversham Road, Reading on daylight and sunlight to the existing surrounding properties. These assessments consider the latest DHA Architects scheme proposals received October 2020.
- 1.2. The methodology and criteria used for these assessments is provided by Building Research Establishment's (BRE) guidance 'Site layout planning for daylight and sunlight: A guide to good practice' (BRE 209 2nd edition, 2011).
- 1.3. In order to carry out an assessment, we have generated a 3D computer model (Test Environment) of the existing site, the key surrounding properties and the proposed scheme. Using this model and our specialist software, we have calculated the daylight and sunlight levels in both the existing and proposed conditions for the relevant neighbouring buildings.
- 1.4. As the proposed development includes residential accommodation the amenity within the proposal has also been considered.
- 1.5. The numerical criteria suggested within the BRE guidelines has been applied to each of the assessments mentioned above. It is important to note that these guidelines are not a rigid set of rules, but are advisory and need to be applied flexibly according to the specific context of a site.

2. Guidance

Daylight & sunlight for planning

'Site layout planning for daylight and sunlight: A guide to good practice', BRE 2011

- 2.1. The Building Research Establishment (BRE) Report 209, *'Site layout planning for daylight and sunlight: A guide to good practice'*, is the reference document used by most local authorities for assessing daylight and sunlight in relation to new developments. Commonly referred to as 'the BRE guidelines', it provides various testing methodologies to calculate the potential light levels received by neighbours of a development site and provided within proposed new development.

Detailed daylight assessments

- 2.2. The guidance outlines three detailed methods for calculating daylight: the Vertical Sky Component (VSC); the No-Sky Line (NSL) and the Average Daylight Factor (ADF).
- 2.3. The VSC and NSL are primarily used for the assessment of existing neighbouring buildings, while the ADF test is generally recommended for proposed rather than existing dwellings. The ADF may sometimes be useful as a supplementary analysis for existing buildings, particularly newer ones, and a number of local authorities request this as a standard measurement for impact assessments. It can help in judging whether an impact on daylight, which might otherwise be deemed 'noticeable', is nonetheless acceptable, when considered in the broader town planning context.
- 2.4. The VSC test measures the amount of sky that is visible to a specific point on the outside of a property, which is directly related to the amount of daylight that can be received. It is measured on the outside face of the external walls, usually at the centre point of a window.
- 2.5. The NSL test calculates the distribution of daylight within rooms by determining the area of the room at desk / work surface height (the 'working plane') which can and cannot receive a direct view of the sky and hence 'sky light'. The working plane height is set at 850mm above floor level within residential property.
- 2.6. For the above methods, the guidance suggests that existing daylight may be noticeably affected by new development if: -
 - Windows achieve a VSC below 27% and are reduced to less than 0.8 times their former value; and
 - Levels of NSL within rooms are reduced to less than 0.8 times their former values.

- 2.7. Where rooms are greater than 5m in depth and lit from only one side, the guidance recognises that *"a greater movement of the no sky line may be unavoidable"* (page 8, paragraph 2.2.10).

Detailed sunlight assessments

- 2.8. For sunlight, the Annual Probable Sunlight Hours (APSH) test calculates the percentage of probable hours of sunlight received by a window or room over the course of a year.

- 2.9. In assessing sunlight effects to existing properties surrounding a new development, only those windows orientated within 90° of due south and which overlook the site require assessment. The main focus is on living rooms, with bedrooms and kitchens deemed less important.
- 2.10. The guidelines suggest that the main living rooms within new buildings should achieve at least 25% of annual sunlight hours, with 5% during the winter period. For neighbouring buildings, the guide suggests that occupiers will notice the loss of sunlight if the APSH to main living rooms is both less than 25% annually (with 5% during winter) and that the amount of sunlight, following the proposed development, is reduced by more than 4%, to less than 0.8 times its former value.

Daylight to new buildings

- 2.11. The ADF method calculates the average illuminance within a room as a proportion of the illuminance available to an unobstructed point outdoors under a sky of known luminance and luminance distribution. This is the most detailed of the daylight calculations and considers the physical nature of the room behind the window, including; window transmittance, and surface reflectivity. The BRE guidance and British Standard sets the following recommended ADF levels for habitable room uses: -
- Bedrooms – 1% ADF
 - Living Rooms – 1.5% ADF
 - Kitchens – 2% ADF

3. Application of the guidance

Scope of assessment

Impact analysis for neighbouring buildings

- 3.1. The BRE guidelines advise that, when assessing any potential effects on surrounding properties, only those windows and rooms that have a 'reasonable expectation' of daylight and sunlight need to be considered. At paragraph 2.2.2 it states: -

"The guidelines given here are intended for use for rooms in adjoining dwellings where daylight is required, including living rooms, kitchens and bedrooms. Windows to bathrooms, toilets, storerooms, circulation areas and garages need not be analysed."

- 3.2. Our assessments therefore consider the neighbouring residential properties only, which the BRE recognises have the highest expectation for natural light. We have tested the impact on the main rooms in each residential property and ignored non-habitable space (e.g. staircases, hallways, bathrooms, toilets, stores etc.) as per BRE guidance.

Application of the numerical criteria

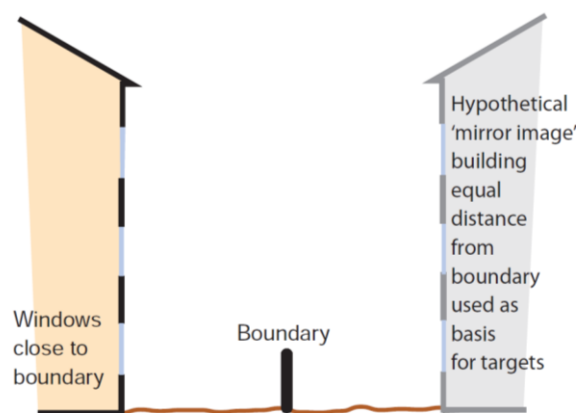
- 3.3. The opening paragraphs of the BRE guidelines state:

"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... 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".

- 3.4. It is therefore very important to apply the BRE guidance sensibly and flexibly, with careful consideration of the specific site context.
- 3.5. Suggested approaches for setting appropriate alternative target values are provided within Appendix F of the BRE guidelines.
- 3.6. Paragraph F5 at page 62 seeks *"to ensure that new development matches the height and proportions of existing buildings"*. This recognises that higher degrees of obstruction may be unavoidable if this objective is to be achieved with a flexible approach being required. This is particularly relevant in the instant case as relating to windows neighbouring a development site that are close to the joint boundary:
- 3.7. *F5: A similar approach may be adopted in cases where an existing building has windows that are unusually close to the site boundary and taking more than their fair share of light. Figure F3 shows an example, where side windows of an existing building are close*

to a boundary. To ensure a new development matches the height and proportions of existing buildings, the VSC and APSH targets for these windows could be set to those for a 'mirror image' building of the same height and size, an equal distance away on the other side of the boundary. The guide is intended for building designers and their clients, consultants and planning officials. The advice given here is not mandatory and the document 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 because natural lighting is only one of many factors in site layout design. In special circumstances the developer or planning authority may wish to use different target values. For example, in a historic city centre a higher degree of obstruction may be unavoidable if new developments are to match the height and proportions of existing buildings.



Extract 'Figure F3' in BRE Guide showing 'mirror-image' to set target values

- 3.8. Furthermore, the inherent design constraints of surrounding buildings can also be a key factor, making windows and rooms particularly sensitive and exaggerating the effect of new development. For example, if windows are set beneath balconies, are recessed or located adjacent to projecting wings, the BRE acknowledges that "even a modest obstruction opposite may result in a large relative impact" (page 8, paragraph 2.2.11).
- 3.9. Care must be taken when assessing the impact of a development proposal upon neighbouring properties that have been provided with external overhanging or recessed balconies. These balconies are intended to provide additional outdoor amenity to the apartments, but they also inhibit the access to/potential for daylight and sunlight. The BRE guidance gives the following statements in this regard: -

"2.2.11 - Existing windows with balconies above them typically receive less daylight. Because the balcony cuts out light from the top part of the sky, even a modest obstruction opposite may result in a large impact on the VSC, and on the area receiving direct skylight (NSC). One way to demonstrate this would be to carry out an additional calculation of the VSC and the area receiving direct skylight for both existing and proposed situations without the balcony in place."

"2.2.12 - A larger relative reduction in VSC may also be unavoidable if the existing window has projecting wings on one or both sides of it, or if it is recessed into the

building so that it is obstructed on both sides as well as above.”

- 3.10. It is therefore often relevant and necessary to conduct assessments of the surrounding properties with their balconies omitted, so that the impact upon the potential for good daylight and sunlight can be fully understood. Full results of these assessments where applied can be found in the appendix 3.

4. Planning Policy Context

- 4.1. We have considered local, regional and national planning policy relating to daylight and sunlight. In general terms, planning policy advises that new development will only be permitted where it is shown not to cause unacceptable loss of daylight or sunlight amenity to neighbouring properties.
- 4.2. The need to protect the amenity of neighbours is echoed within recent publications from the Secretary of State for Housing, Communities and Local Government however the guidance also stresses the need for flexibility where developments are located in urban areas and achieve higher densities. Specifically, these documents suggest that the nationally applicable criteria given within the BRE guidance needs to be applied carefully and in consideration of the development's context.
- 4.3. Reading Borough Local Plan (November 2019) - CC8: Safeguarding Amenity:
Development will not cause a detrimental impact on the living environment of existing residential properties or unacceptable living conditions for new residential properties, in terms of:
 - ... Access to sunlight and daylight;
- 4.4. Reading Borough Local Plan (November 2019) - Paragraph 4.1.42 (Reference 22):
For instance, reference to the 'BRE Site Layout Planning for Daylight and Sunlight: A guide to good practice' document may be of use in ensuring that new development adjacent to residential properties is not of adverse bulk and does not block out sunlight and daylight to habitable rooms and outdoor living spaces.

5. Sources of information & assumptions

- 5.1. A z-mapping survey, architectural 3D model and Ordnance Survey information have been used to create a 3D computer model of the proposed development in the context of the existing site and surrounding buildings.
- 5.2. Where survey or planning information was unavailable, the position of the neighbouring windows has been estimated based upon brick counts from site photographs. Window positions and dimensions used directly affect the results of all assessment methods.
- 5.3. We have not sought access to the surrounding properties and have sought to source floor layouts via public sources such as planning records or estate agents plans. Where such records are not available, the internal configuration and floor levels have been estimated. Unless the building form dictates otherwise, we assume room depths of c. 4.2m for principal living space. Room layouts used directly affect the results of the NSL and ADF assessments.
- 5.4. Where necessary, neighbouring building use has been identified via online research, including Valuation Office Agency (VOA) searches, and/or external observation.
- 5.5. The full list of source of information used in this assessment is as follows:

DHA Architects LTD

3D z-mapping model

Reading_260220_Solids XY@NE.DWG
Received 17/04/2020

CAD drawings / model & SKETCHUP model

121903-ELS-01 - Planning Layout -1 - 24.09.20.dwg
APT-A-M42-NDSS - 24.09.20.dwg
WIP 3d model - Caversham Road-24.09.20.skp
WIP 3d model - Caversham Road-24.09.dwg
Received dated 24/09/2020

Promap

6. The site and proposal

- 6.1. The development site is bound by Caversham Road to the east and Great Knollys Street to the north. The existing site consists of 1-2 storey buildings that are currently occupied by a car and van rental company.
- 6.2. The proposed development comprises:

"Demolition of existing buildings and construction of 40 flats including provision of 30% of units as affordable housing with associated landscaping and parking."

Our computer modelling of the proposed scheme is shown in the image below and in more detail within our drawings at Appendix 1.

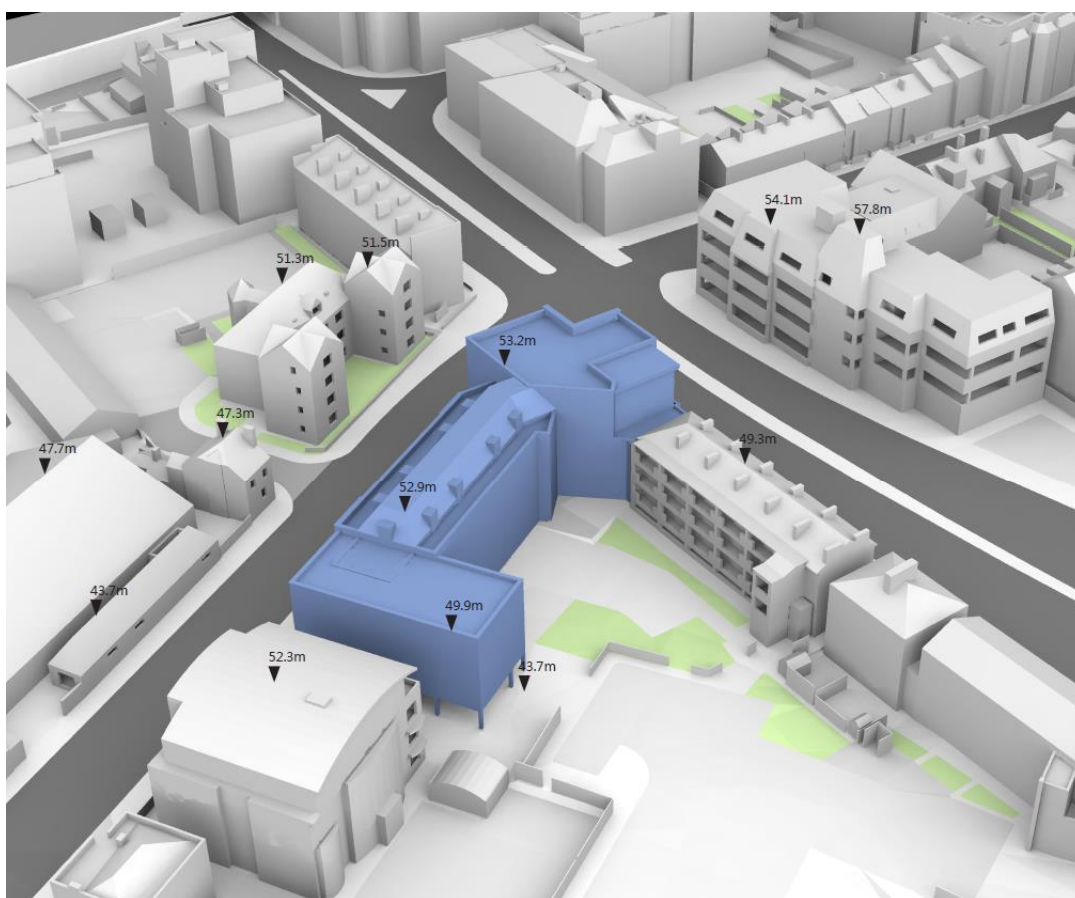


Image 1 – 3D view of the proposed development

7. Assessment results

- 7.1. Full results of the daylight and sunlight assessments are attached within Appendix 2. Drawings to show the existing and proposed buildings in the context of the neighbouring properties are attached within Appendix 1.

Daylight and sunlight to neighbouring buildings

- 7.2. Our assessment has considered all of the closest neighbouring residential properties with windows overlooking the proposed development. These are shown on the following image: -



Image 2 – site and neighbouring properties assessed

1. Lion Court
2. 18 Great Knollys Street
3. Regent Court
4. 33-41 Caversham Road

Lion Court



Image 3 – Lion Court

- 7.3. This four-storey block of apartments is located to the west of the site on Great Knollys Street. There are six secondary windows on this neighbour's east facing flank elevation (shown above) that will overlook the proposal. In addition, there are a number of windows that are set back on the top floor of the same eastern elevation that will also overlook the proposal.
- 7.4. The internal arrangement of this building has been based upon a combination of estate agency plans and assumed layouts.

Daylight

- 7.5. The results of our technical assessments demonstrate that the majority of windows within Lion Court meet the BRE targets in respect of the VSC or NSC assessments with the proposal in place.
- 7.6. There are VSC reductions beyond the BRE targets affecting the windows to the eastern elevation. However, these are secondary windows to the kitchen area of the dual aspect LKDs of these units with the main north and south elevations not being affected. There is an inevitable sensitivity to these windows due to them being located directly to the site boundary.
- 7.7. In addition, there are three windows located on the top floor of the eastern elevation that marginally deviate from the recommended targets, with retained VSC values of 0.7 times their existing levels. This is only a marginal transgression from the targets as a result both of the windows directly overlooking the boundary and the windows being constrained by the overhanging roof above.
- 7.8. Notwithstanding these specific sensitivities, the limited daylight effect is confirmed by the No Sky Contour analysis which shows no material change to the daylight

penetration within all neighbouring rooms, as a result of the proposal. All retained levels are within 0.8 times their existing value and thus are in accordance with the BRE criteria.

- 7.9. Where windows are close to a boundary appendix F of the BRE guide suggests that a contextual 'mirrored baseline' analysis may be carried out in order to set alternative target values for potential effects to the space. This reflects reasonable assumption that a development on the site would at least be a similar height to Lion Court.
- 7.10. The results of this study, attached at appendix 4, show that when the scheme is compared against a mirror massing of Lion Court, all windows and rooms will retain VSC and NSC levels that are fully compliant with the BRE guidance.
- 7.11. Overall, the scheme is considered to respond appropriately to this immediate neighbour with the proposal having been amended to reduce the massing to the boundary.
- 7.12. The residual localised effects are considered to be acceptable given the non-material impact on daylight penetration and the close proximity of the neighbour's windows to the joint boundary. In addition, the scheme proposals comply with the contextual 'mirrored baseline' assessment demonstrating that the scheme is appropriate within its immediate context. As such we consider the daylight effects to this neighbour accord with the BRE guidelines.

Sunlight

- 7.13. In addition to the daylight effects, we have considered the potential effect on sunlight levels to the south facing rooms of this neighbour. The results of our Annual Probable Sunlight Hours (APSH) assessments show that all rooms served by windows within 90 degrees of due south meet the BRE targets.

18 Great Knollys Street



Image 04 – 18 Great Knollys Street

- 7.14. This is a 2-storey detached property with a converted loft, located to the north of the development site on Great Knollys Street. There are three windows to the front façade that will overlook the proposal.
- 7.15. Our understanding of this neighbour's internal arrangement has been based upon a combination of assumed layouts for the first floor and a ground floor plan obtained from the local planning authority (LPA Ref: 90230).
- 7.16. This building is currently occupied as a hostel, with the planning drawing showing a 'front room' on the ground floor level. Although the first floor rooms have been based upon assumed layouts, they are likely to be bedrooms given the buildings c.2009 planning application to provide a three bedroom hostel. The entrance doorway is shown on the ground floor plan to serve a hallway, this is a non-habitable space that is not relevant for assessment according to the BRE guidance.

Daylight

- 7.17. The windows of 18 Great Knollys Street enjoy a relatively open outlook across the existing site which is unusual in the street scene, this is due to 45 Caversham Road being less developed and significantly lower in height than the nearby neighbours. Such a lack of obstruction is unusual in an urban environment such that any

development of reasonable scale on the site, will result in a degree of change to the VSC levels.

- 7.18. High existing light levels lead to a larger proportional change as a result of the proposal, with the results from the VSC assessment showing moderate deviations from the BRE targets and the windows retaining VSC levels within 0.6-0.7 times their former value. The retained levels remain high at c.22%-c.25% with the proposal in place. Retained VSC values within this range are considered to be high for an urban location.
- 7.19. Similarly there is a sensitivity in respect of NSC levels to these neighbours due the spaces currently facing an open site. Notwithstanding this the high retained VSC levels are considered to represent good daylight availability for an urban location and are acceptable given the urban context and underdeveloped nature of the existing site.

Sunlight

- 7.20. Our Annual Probable Sunlight Hours (APSH) study show that all habitable rooms served by south facing windows, significantly exceed the BRE criteria of 25% APSH with at least 5% during the winter months.

Regent Court



Image 06 – Regent Court

- 7.21. This block of flats is arranged over four storeys with projecting wings to the front, and is located to the north of the development on Great Knollys Street. The proposal will be visible to this neighbouring block, with a number of south facing windows on the front elevation that will overlook the development. In addition, there are west facing windows to the flank wall and courtyard elevation that will have an oblique view of the scheme.
- 7.22. Our understanding of the internal arrangement has been based upon a combination of estate agency plans and assumed layouts.

Daylight

- 7.23. The results from the VSC analysis has demonstrated that all but two of the windows will retain levels compliant with the BRE targets. There is a marginal deviation affecting three living room serving windows across the ground and first floor levels, with retained levels within 0.7 times the former value, compared to the target of 0.8. These spaces are served by multiple windows and, as suggested in paragraph 2.2.6 of the BRE guidance, it is appropriate to consider the mean VSC reduction. On this basis, the effects remain at or within 0.8 times the existing levels and therefore are in accordance with the BRE criteria.
- 7.24. The limited impact on daylight levels as a result of the proposal is confirmed by the results from the NSC assessment that show no material change in to the daylight distribution across all rooms as a result of the development. As such we consider the daylight effects of proposal to be fully in line with the BRE guidelines.

Sunlight

- 7.25. Our study shows that all relevant rooms meet the BRE criteria, retaining high levels of sunlight well in excess of the 25% target APSH with at least 5% during the winter months.

33-41 Caversham Road



Image 07 – 33-41 Caversham Road

- 7.26. This is a three storey plus basement, residential block situated to the south east of the development site, fronting Caversham Road. There are a number of windows across all floor levels to the rear elevation of this building that will overlook the scheme.
- 7.27. The site facing windows are positioned behind access decks, with the top floor windows overhung by the roof covering. These windows are therefore somewhat sensitive to neighbouring development.
- 7.28. Whilst assumed layouts have been used for the internal arrangement of these neighbouring flats within our analysis, it is clear from external observation that

doorway apertures serve entrance hallways. Hallways are non-habitable spaces and thus are not relevant for assessment according to the BRE guidance. In addition, the windows to this elevation are likely to serve secondary space with the main windows serving habitable rooms overlooking Caversham Road to the east. The windows and access decks to the rear of the property are illustrated in the image below:



- 7.29. As noted above, the design of this neighbour's rear elevation is 'self-limiting' in terms of outlook and existing daylight levels due to the presence of access decks causing the windows beneath them somewhat constrained.
- 7.30. Where design features of a neighbouring property lead to specific sensitivities in respect of daylight/sunlight, the BRE guidelines suggest an additional assessment with the overhanging elements removed in order to quantify the effects that the design of the neighbour is having on its sensitivity. This study has been undertaken and the results are attached at appendix 3.

Daylight

- 7.31. The initial VCS analysis carried out, including the access deck in place, demonstrates that there are windows that deviate from the BRE targets. These windows that fall below the targets are overhung by access decks and are therefore heavily constrained in their existing outlook.
- 7.32. The NSC results show the majority of the habitable rooms retain levels that comply with the BRE targets with the exception of rooms that are materially overhung by access decks. The internal arrangement has been based on assumed layouts for this building such that the VSC assessment is considered to be the primary metric for assessing the changes in daylight to this property.
- 7.33. When considering the VSC effects to this building with the access decks removed, all but two of the windows serving habitable spaces comply with the BRE guidelines with the proposal in place. The two remaining deviations are marginal with the retained VSC levels within 0.7 times their former value, compared to the target of 0.8. The effects therefore solely result from the specific sensitivities around the design of this

neighbouring block and are not considered to be material given the secondary nature of the spaces.

Sunlight

- 7.34. The site facing windows serving this property are within 90 degrees of due north and therefore are not relevant for an APSH assessment under the BRE criteria.

Internal amenity within the proposal

- 7.35. In addition to the external effects of the scheme, we have considered the internal amenity within the proposed residential accommodation.
- 7.36. The amenity within the proposed residential accommodation has been assessed using the Average Daylight Factor (ADF) and the Annual Probable Sunlight Hours (APSH) tests following the methodology set out within the BRE guidance.
- 7.37. Full results of the daylight and sunlight assessments alongside drawings to show the layout of rooms and windows assessed are attached within Appendix 4.

Daylight

Room Type	ADF Target	Total No. of Rooms	Rooms That Meet ADF Target
L/K/D	1.5%	38	38(100%)
Living Room	1.5%	4	4(100%)
Kitchen	2.0%	3	3(100%)
Bedroom	1.0%	66	65(99%)
Total		111	110(99%)

Table 1 – Summary ADF results for proposed accommodation

- 7.38. The results of the ADF assessment have shown 110 of the 111 (99%) habitable rooms surpass the targets for their specific room use and fully comply with the BRE guidance.
- 7.39. A single bedroom drops marginally below the target but, as a secondary use, this deviation is not considered to be material particularly as the space achieves an ADF within 0.3% of the target level. Overall the compliance rate of over 99% is considered to be excellent for a modern flatted scheme.

8. Conclusions

- 8.1. This practice has undertaken a detailed assessment of the potential daylight and sunlight effects of the proposed development at 45 Caversham Road, on the neighbouring residential properties.

Daylight and sunlight impact to neighbouring properties

- 8.2. Our assessments have been undertaken using the VSC, NSL, ADF (daylight) and APSH (sunlight) tests set out within the BRE guidance '*Site layout planning for daylight and sunlight: A guide to good practice*' (2011) and the British Standard document BS8206 pt2.
- 8.3. Whilst the development of a previously underutilised site will inevitably result in changes to amenity levels in respect of the neighbours, the results of our assessments show that the scheme responds appropriately to its context and has been sensitively designed to specifically step down to the residential neighbours adjacent to the site.
- 8.4. There are localised effects to secondary windows serving Lion Court, however these effects are driven by their close proximity to the site. The design of the proposal limits the effects by stepping down and the affected spaces are served by multiple windows such that overall amenity remains high.
- 8.5. The BRE guidance suggests that an alternative target may be set by reference to a contextual 'mirrored' baseline as development may reasonably be expected to match the height of neighbours. We have undertaken this study for the affected spaces in Lion Court, which again shows the scheme to fully comply with the BRE targets.
- 8.6. In addition, where there are impacts beyond the BRE targets affecting 33-41 Caversham Road, these are primarily driven by the design of the neighbours having access decks making areas more sensitive to development.
- 8.7. Whilst there is a localised effect to 18 Great Knollys Street, the retained daylight levels are considered good and broadly typical of developments across urban areas such that the overall amenity use will remain unaffected.
- 8.8. Such impacts are not unusual in locations within an urban context and the NPPF 2019 makes it clear that efficient use of sites, particularly for housing delivery, should not be limited by such constraints particularly when related to the design of neighbouring properties.

Amenity within the proposed residential units

- 8.9. In addition to the external effects of the proposal we have also considered the internal amenity within the proposed units. The assessment of daylight and sunlight within the proposed units has shown that over 99% of the rooms within the proposed units will meet the targets for the Average Daylight Factor (ADF) with only a single marginal deviation from the targets.
- 8.10. Overall, the proposed scheme responds appropriately to its context as well as

providing high-quality living accommodation for future residents. As such we consider the proposal to be fully in line with the relevant BRE targets and local policy.



Appendix 1

Drawings of the existing, proposed and surrounding buildings



Sources of information

DHA Architecture LTD
WIP 3d model - Caversham Road-24.09.20.
skp
121903-ELS-01 - Planning Layout -1 -
24.09.20.dwg
APT-A-M42-NDSS - 24.09.20.dwg
WIP 3d model - Caversham Road-24.09.
dwg
Received 24/09/2020

EB7 Ltd
Site Photographs
Ordnance Survey

Key:

- Existing
- Proposed

NORTH



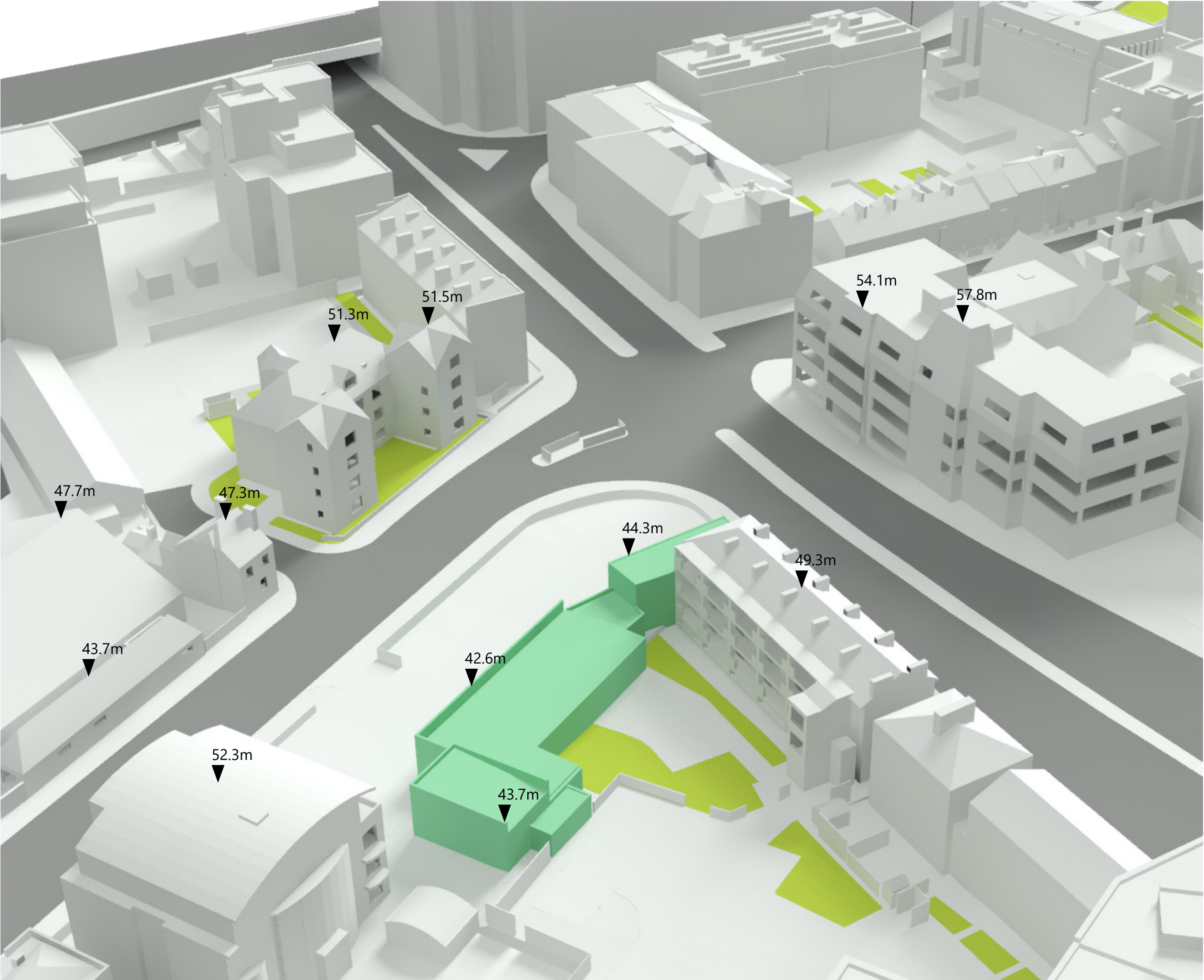
Project 45 Caversham Road
Reading
RG1 7BT

Title Existing Condition
Plan View

Drawn MR Checked --

Date 13/10/2020 Project 4266

Rel no. 02 Prefix DS01 Page no. 01



Sources of information

DHA Architecture LTD
WIP 3d model - Caversham Road-24.09.20.
skp
121903-ELS-01 - Planning Layout -1 -
24.09.20.dwg
APT-A-M42-NDSS - 24.09.20.dwg
WIP 3d model - Caversham Road-24.09.
dwg
Received 24/09/2020

EB7 Ltd
Site Photographs
Ordnance Survey

Key:

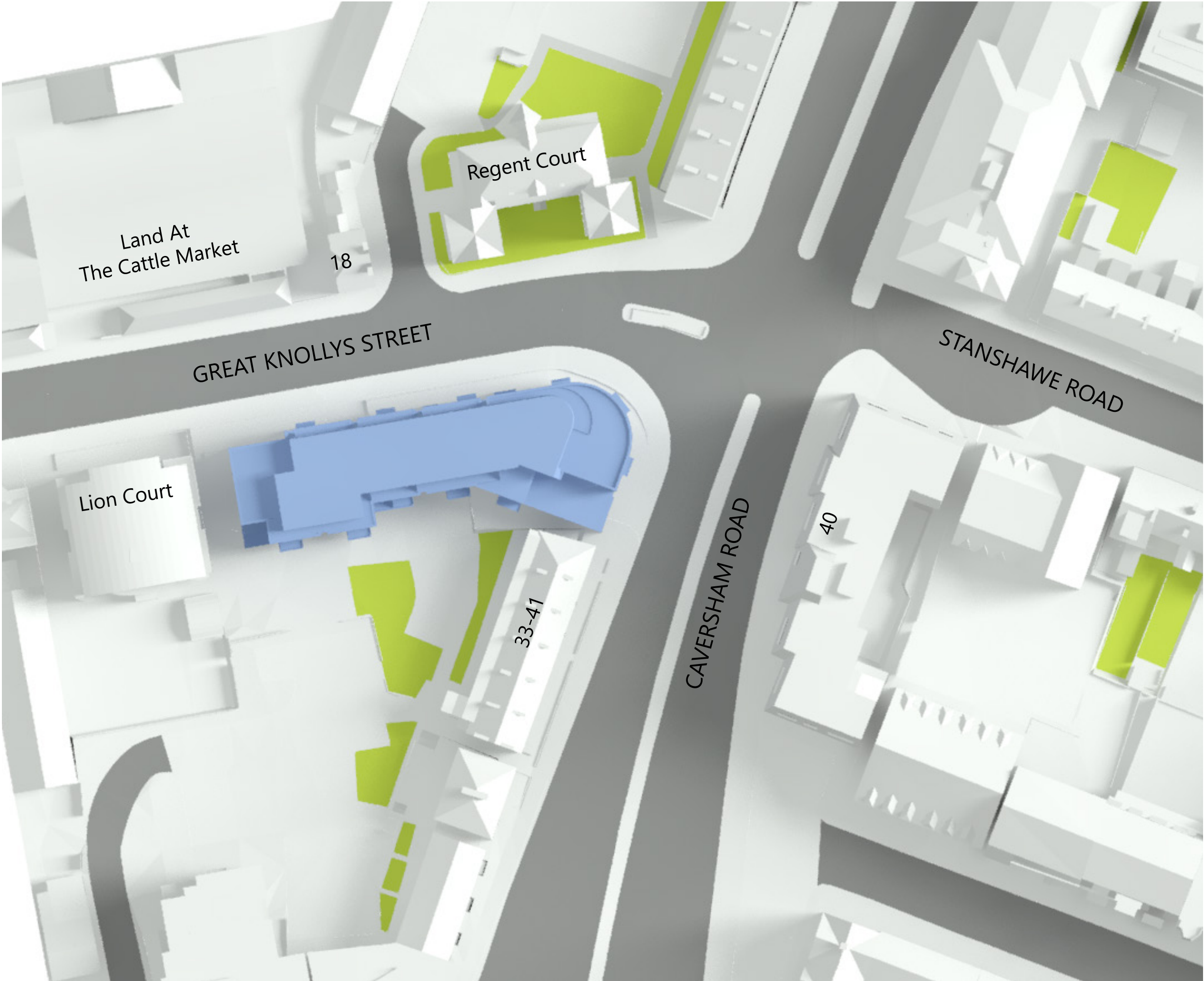
- Existing
- Proposed

Notes:
All heights and dimensions are in AOD

Project 45 Caversham Road
Reading
RG1 7BT

Title Existing Condition
3D View

Drawn	MR	Checked	--
Date	13/10/2020	Project	4266
Rel no.	02	Prefix	DS01
		Page no.	02



Sources of information

DHA Architecture LTD
WIP 3d model - Caversham Road-24.09.20.
skp
121903-ELS-01 - Planning Layout -1 -
24.09.20.dwg
APT-A-M42-NDSS - 24.09.20.dwg
WIP 3d model - Caversham Road-24.09.
dwg
Received 24/09/2020

EB7 Ltd
Site Photographs
Ordnance Survey

Key:

- Existing
- Proposed

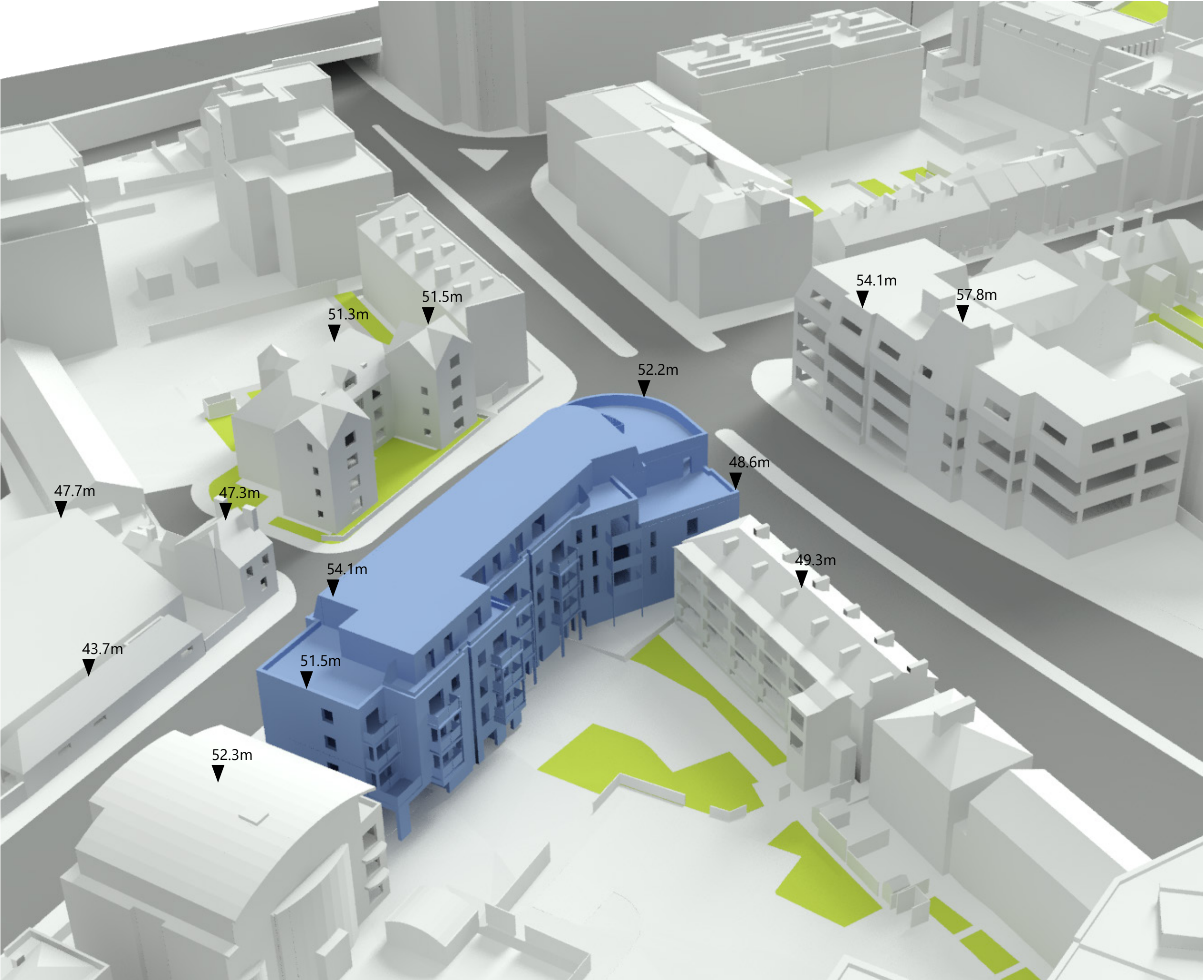
NORTH



Project 45 Caversham Road
Reading
RG1 7BT

Title Proposed Development
Plan View

Drawn	MR	Checked	--
Date	13/10/2020	Project	4266
Rel no.	02	Prefix	DS01
		Page no.	03



Sources of information

DHA Architecture LTD
WIP 3d model - Caversham Road-24.09.20.
skp
121903-ELS-01 - Planning Layout -1 -
24.09.20.dwg
APT-A-M42-NDSS - 24.09.20.dwg
WIP 3d model - Caversham Road-24.09.
dwg
Received 24/09/2020

EB7 Ltd
Site Photographs
Ordnance Survey

Key:

- Existing
- Proposed

Notes:
All heights and dimensions are in AOD

Project 45 Caversham Road
Reading
RG1 7BT

Title Proposed Development
3D View

Drawn	MR	Checked	--
Date	13/10/2020	Project	4266
Rel no.	02	Prefix	DS01
		Page no.	04



Appendix 2

**Results of the daylight & sunlight assessments
to neighbouring properties**

Address	Room	Window	Room Use	Existing VSC	Proposed VSC	Loss	Proportion Retained	Room Area	Existing NSC	Proposed NSC	Loss	Proportion Retained	Existing APSH Total	Proposed APSH Winter	Total Retained	Winter Retained		
Lion Court																		
Ground	R1	W1-L W1-U W2	LKD	24.8	25.8	-1.0	1.0											
				28.4	9.2	19.2	0.3	274.2	271.8	252.4	19.5	0.9	70	23	70	24	1.0	1.0
Ground	R2	W3 W4 W5	LKD	28.7	8.0	20.8	0.3											
				33.8	33.7	0.1	1.0											
				7.8	7.8	0.0	1.0	313.9	311.0	261.3	49.7	0.8	44	6	28	6	0.6	1.0
First	R1	W1-L W1-U W2	LKD	29.3	29.3	0.0	1.0											
				31.3	12.5	18.9	0.4	274.2	272.1	272.1	0.0	1.0	77	28	75	28	1.0	1.0
First	R2	W3 W4 W5	LKD	31.1	10.8	20.4	0.3											
				36.0	36.0	0.1	1.0											
				8.4	8.4	0.0	1.0	313.9	313.3	313.3	0.0	1.0	46	8	28	6	0.6	0.8
Second	R1	W1-L W1-U W2	LKD	37.0	37.0	0.0	1.0											
				32.5	17.1	15.4	0.5	274.2	273.6	273.6	0.0	1.0	87	29	85	29	1.0	1.0
Second	R2	W3 W4 W5	LKD	32.3	15.2	17.1	0.5											
				37.9	37.8	0.0	1.0											
				8.7	8.7	0.0	1.0	313.9	313.3	313.3	0.0	1.0	50	9	36	7	0.7	0.8
Third	R1	W1-L W1-U	Residential	20.3	15.9	4.4	0.8	169.0	163.8	163.7	0.1	1.0	N/F	N/F	N/F	N/F	N/F	N/F
Third	R2	W2-L W2-U	Residential	20.0	14.5	5.6	0.7	92.6	90.3	87.2	3.0	1.0	N/F	N/F	N/F	N/F	N/F	N/F
Third	R3	W3-L W3-U	Residential	20.1	14.0	6.1	0.7	92.6	90.4	87.1	3.4	1.0	N/F	N/F	N/F	N/F	N/F	N/F
Third	R4	W4-L W4-U W5-L W5-U	Residential	20.5	14.5	6.0	0.7											
				25.4	25.4	0.1	1.0	152.2	149.4	149.4	0.0	1.0	N/F	N/F	N/F	N/F	N/F	N/F
18 Great Knollys Street																		
Ground	R1	W1-L W1-U	Bedroom	34.6	22.1	12.5	0.6	144.0	137.9	60.5	77.4	0.4	84	26	64	6	0.8	0.2
First	R1	W1-L W1-U	Bedroom	35.8	25.2	10.6	0.7	62.5	60.9	40.1	20.8	0.7	84	26	70	12	0.8	0.5
First	R2	W2-L W2-U	Bedroom	35.9	25.2	10.7	0.7	62.5	61.1	39.7	21.4	0.6	85	27	69	11	0.8	0.4
Regent Court																		
Ground	R1	W1	Kitchen	29.9	27.1	2.8	0.9	54.5	48.9	48.9	0.0	1.0	41	13	33	5	0.8	0.4
Ground	R2	W2 W3	Living Room	34.5	23.3	11.2	0.7											
				21.9	21.1	0.8	1.0	137.3	133.3	132.1	1.2	1.0	84	27	67	10	0.8	0.4
Ground	R3	W4	Living Room	22.0	17.6	4.3	0.8	225.0	210.7	165.1	45.6	0.8	41	16	35	10	0.9	0.6
Ground	R4	W5-L W5-U W6-L W6-U W7-L W7-U	Living Room	6.1	4.5	1.6	0.7											
				27.0	20.6	6.4	0.8											
				5.5	5.3	0.2	1.0	204.0	19.3	19.3	0.0	1.0	50	21	41	12	0.8	0.6
Ground	R5	W8	Living Room	22.7	17.3	5.4	0.8	230.9	216.2	169.4	46.8	0.8	43	19	35	11	0.8	0.6
Ground	R6	W9 W10	Living Room	22.5	19.2	3.3	0.9											
				34.1	28.3	5.8	0.8	137.9	133.5	133.5	0.0	1.0	84	27	76	19	0.9	0.7
First	R1	W1	Kitchen	34.1	31.8	2.3	0.9	54.5	48.8	48.8	0.0	1.0	49	16	42	9	0.9	0.6
First	R2	W2 W3	Living Room	35.8	26.4	9.5	0.7											
				26.0	25.4	0.6	1.0	137.3	136.1	135.4	0.7	1.0	85	27	74	16	0.9	0.6
First	R3	W4	Living Room	23.7	20.2	3.5	0.9	225.0	213.9	187.5	26.4	0.9	45	16	40	11	0.9	0.7
First	R4	W5	Living Room	27.5	23.1	4.5	0.8	179.9	176.7	158.6	18.1	0.9	49	20	43	14	0.9	0.7
First	R5	W6	Living Room	24.3	19.9	4.5	0.8	230.9	219.0	193.5	25.6	0.9	46	19	41	14	0.9	0.7
First	R6	W7 W8	Living Room	26.6	23.9	2.7	0.9											
				35.5	30.6	4.9	0.9	137.9	136.4	136.4	0.0	1.0	85	28	78	21	0.9	0.8
Second	R1	W1	Kitchen	37.5	35.8	1.7	1.0	54.5	48.8	48.8	0.0	1.0	52	17	47	12	0.9	0.7
Second	R2	W2 W3	Living Room	37.0	29.7	7.3	0.8											
				30.5	30.1	0.4	1.0	137.3	136.4	136.4	0.0	1.0	87	28	80	21	0.9	0.8
Second	R3	W4	Living Room	26.4	23.7	2.7	0.9	225.0	218.9	217.5	1.3	1.0	49	16	47	14	1.0	0.9
Second	R4	W5	Living Room	30.7	27.3	3.4	0.9	179.9	178.5	178.1	0.4	1.0	58	20	55	17	0.9	0.9
Second	R5	W6	Living Room	26.9	23.5	3.4	0.9	230.9	224.2	223.0	1.2	1.0	55	21	52	18	0.9	0.9

Address	Room	Window	Room Use	Existing VSC	Proposed VSC	Loss	Proportion Retained	Room Area	Existing NSC	Proposed NSC	Loss	Proportion Retained	Existing APSH Total	Proposed APSH Winter	Existing APSH Total	Proposed APSH Winter	Total Retained	Winter Retained
			W2-U					129.7	114.3	59.6	54.7	0.5	N/F	N/F	N/F	N/F	N/F	N/F
Second	R3	W3	Hallway	5.1	2.5	2.6	0.5	51.6	34.0	16.1	18.0	0.5	N/F	N/F	N/F	N/F	N/F	N/F
Second	R4	W4-L W4-U	Residential	15.7	9.9	5.8	0.6	130.0	114.6	72.0	42.6	0.6	N/F	N/F	N/F	N/F	N/F	N/F
Second	R5	W5	Hallway	5.1	3.1	2.0	0.6	51.7	34.0	25.2	8.7	0.7	N/F	N/F	N/F	N/F	N/F	N/F
Second	R6	W6-L W6-U	Residential	15.7	11.4	4.4	0.7	130.3	115.8	85.6	30.2	0.7	N/F	N/F	N/F	N/F	N/F	N/F
Second	R7	W7	Hallway	5.0	3.7	1.3	0.7	51.8	34.0	32.7	1.3	1.0	N/F	N/F	N/F	N/F	N/F	N/F
Second	R8	W8-L W8-U	Residential	15.7	12.4	3.2	0.8	130.5	116.3	97.5	18.8	0.8	N/F	N/F	N/F	N/F	N/F	N/F
Second	R9	W9	Hallway	4.9	4.0	0.9	0.8	51.9	34.4	34.4	0.0	1.0	N/F	N/F	N/F	N/F	N/F	N/F
Second	R10	W10-L W10-U	Residential	13.5	11.1	2.4	0.8	130.8	106.8	98.8	8.0	0.9	N/F	N/F	N/F	N/F	N/F	N/F



Appendix 3

**Drawings and results of the daylight & sunlight assessments
within balconies removed**

Address	Room	Window	Room Use	Existing VSC	Proposed VSC	Loss	Proportion Retained	Room Area	Existing NSC	Proposed NSC	Loss	Existing APSH		Proposed APSH		Total Retained	Winter Retained	ROOM P/F
33-41 Caversham Road												Total	Winter	Total	Winter			
Lower Grou	R1	W1	Test	14.5	15.3	-0.8	1.1	59.9	19.2	17.4	1.8	N/F	N/F	N/F	N/F	N/F	N/F	N/F
Lower Grou	R2	W2-L W2-U	Test	23.0	20.4	2.6	0.9	129.7	99.7	76.1	23.6	N/F	N/F	N/F	N/F	N/F	N/F	N/F
Lower Grou	R3	W3	Test	24.1	19.3	4.9	0.8	51.6	33.7	19.9	13.8	N/F	N/F	N/F	N/F	N/F	N/F	N/F
Lower Grou	R4	W4-L W4-U	Test	29.7	23.8	5.9	0.8	130.0	124.7	88.8	36.0	N/F	N/F	N/F	N/F	N/F	N/F	N/F
Lower Grou	R5	W5	Test	28.1	22.1	6.0	0.8	51.7	44.6	27.0	17.5	N/F	N/F	N/F	N/F	N/F	N/F	N/F
Lower Grou	R6	W6-L W6-U	Test	32.1	26.0	6.1	0.8	130.3	125.3	101.5	23.9	N/F	N/F	N/F	N/F	N/F	N/F	N/F
Lower Grou	R7	W7	Test	29.2	23.7	5.6	0.8	51.8	42.9	33.6	9.3	N/F	N/F	N/F	N/F	N/F	N/F	N/F
Lower Grou	R8	W8-L W8-U	Test	31.6	26.3	5.3	0.8	130.5	122.6	109.8	12.8	N/F	N/F	N/F	N/F	N/F	N/F	N/F
Lower Grou	R9	W9	Test	26.3	21.7	4.6	0.8	51.9	42.0	40.4	1.6	N/F	N/F	N/F	N/F	N/F	N/F	N/F
Lower Grou	R10	W10-L W10-U	Test	22.4	18.1	4.3	0.8	130.8	105.1	100.5	4.7	N/F	N/F	N/F	N/F	N/F	N/F	N/F
Ground	R1	W1	Hallway	19.0	17.3	1.7	0.9	59.9	49.8	20.7	29.0	N/F	N/F	N/F	N/F	N/F	N/F	N/F
Ground	R2	W2-L W2-U	Residential	30.5	22.9	7.6	0.8	129.7	124.0	82.6	41.4	N/F	N/F	N/F	N/F	N/F	N/F	N/F
Ground	R3	W3	Hallway	30.6	21.6	8.9	0.7	51.6	48.7	24.1	24.7	N/F	N/F	N/F	N/F	N/F	N/F	N/F
Ground	R4	W4-L W4-U	Residential	35.3	26.4	8.9	0.7	130.0	125.8	97.8	28.0	N/F	N/F	N/F	N/F	N/F	N/F	N/F
Ground	R5	W5	Hallway	32.2	24.4	7.8	0.8	51.7	48.8	33.5	15.3	N/F	N/F	N/F	N/F	N/F	N/F	N/F
Ground	R6	W6-L W6-U	Residential	35.7	28.6	7.1	0.8	130.3	125.8	110.9	15.0	N/F	N/F	N/F	N/F	N/F	N/F	N/F
Ground	R7	W7	Hallway	32.0	26.0	6.0	0.8	51.8	48.7	42.0	6.7	N/F	N/F	N/F	N/F	N/F	N/F	N/F
Ground	R8	W8-L W8-U	Residential	34.3	28.9	5.5	0.8	130.5	123.4	116.5	6.9	N/F	N/F	N/F	N/F	N/F	N/F	N/F
Ground	R9	W9	Hallway	28.5	24.0	4.5	0.8	51.9	48.6	48.6	0.0	N/F	N/F	N/F	N/F	N/F	N/F	N/F
Ground	R10	W10-L W10-U	Residential	24.2	20.1	4.1	0.8	130.8	105.2	104.5	0.7	N/F	N/F	N/F	N/F	N/F	N/F	N/F
Ground	R11	W11-L W11-U	Stairwell	36.8	33.4	3.4	0.9	106.6	106.6	106.6	0.0	N/F	N/F	N/F	N/F	N/F	N/F	N/F
First	R1	W1	Hallway	28.8	20.2	8.6	0.7	59.9	56.9	27.0	30.0	N/F	N/F	N/F	N/F	N/F	N/F	N/F
First	R2	W2-L W2-U	Residential	37.1	26.1	11.0	0.7	129.7	125.4	95.4	30.1	N/F	N/F	N/F	N/F	N/F	N/F	N/F
First	R3	W3	Hallway	33.5	24.5	9.0	0.7	51.6	48.7	30.5	18.3	N/F	N/F	N/F	N/F	N/F	N/F	N/F
First	R4	W4-L W4-U	Residential	37.5	29.3	8.2	0.8	130.0	125.8	111.7	14.1	N/F	N/F	N/F	N/F	N/F	N/F	N/F
First	R5	W5	Hallway	33.6	27.0	6.7	0.8	51.7	48.8	38.7	10.1	N/F	N/F	N/F	N/F	N/F	N/F	N/F
First	R6	W6-L W6-U	Residential	37.4	31.3	6.1	0.8	130.3	126.0	120.2	5.8	N/F	N/F	N/F	N/F	N/F	N/F	N/F
First	R7	W7	Hallway	33.5	28.5	5.0	0.9	51.8	48.8	45.8	3.1	N/F	N/F	N/F	N/F	N/F	N/F	N/F
First	R8	W8-L W8-U	Residential	36.5	32.0	4.5	0.9	130.5	126.1	124.8	1.3	N/F	N/F	N/F	N/F	N/F	N/F	N/F
First	R9	W9	Hallway	31.0	27.3	3.7	0.9	51.9	48.9	48.9	0.0	N/F	N/F	N/F	N/F	N/F	N/F	N/F
First	R10	W10-L W10-U	Residential	26.7	23.3	3.4	0.9	130.8	107.5	107.5	0.0	N/F	N/F	N/F	N/F	N/F	N/F	N/F
First	R11	W11-L W11-U	Stairwell	37.8	35.1	2.6	0.9	106.6	106.6	106.6	0.0	N/F	N/F	N/F	N/F	N/F	N/F	N/F
Second	R1	W1	Hallway	34.5	24.0	10.5	0.7	59.9	56.9	38.2	18.7	N/F	N/F	N/F	N/F	N/F	N/F	N/F
Second	R2	W2-L W2-U	Residential	38.4	29.1	9.3	0.8	129.7	120.6	67.6	53.0	N/F	N/F	N/F	N/F	N/F	N/F	N/F

Address	Room	Window	Room Use	Existing VSC	Proposed VSC	Loss	Proportion Retained	Room Area	Existing NSC	Proposed NSC	Loss	Existing APSH Total	Existing APSH Winter	Proposed APSH Total	Proposed APSH Winter	Total Retained	Winter Retained	ROOM P/F
Second	R3	W3	Hallway	34.5	27.5	7.0	0.8	51.6	48.7	39.9	8.8	N/F	N/F	N/F	N/F	N/F	N/F	N/F
Second	R4	W4-L W4-U	Residential	38.4	31.8	6.6	0.8	130.0	121.0	81.1	39.9	N/F	N/F	N/F	N/F	N/F	N/F	N/F
Second	R5	W5	Hallway	34.5	29.4	5.1	0.9	51.7	48.8	45.6	3.2	N/F	N/F	N/F	N/F	N/F	N/F	N/F
Second	R6	W6-L W6-U	Residential	38.3	33.5	4.9	0.9	130.3	121.3	93.8	27.5	N/F	N/F	N/F	N/F	N/F	N/F	N/F
Second	R7	W7	Hallway	34.5	30.7	3.8	0.9	51.8	48.8	48.7	0.1	N/F	N/F	N/F	N/F	N/F	N/F	N/F
Second	R8	W8-L W8-U	Residential	38.2	34.6	3.6	0.9	130.5	121.6	105.8	15.8	N/F	N/F	N/F	N/F	N/F	N/F	N/F
Second	R9	W9	Hallway	34.3	31.5	2.8	0.9	51.9	48.9	48.9	0.0	N/F	N/F	N/F	N/F	N/F	N/F	N/F
Second	R10	W10-L W10-U	Residential	32.8	30.1	2.7	0.9	130.8	110.5	103.7	6.8	N/F	N/F	N/F	N/F	N/F	N/F	N/F



Appendix 4

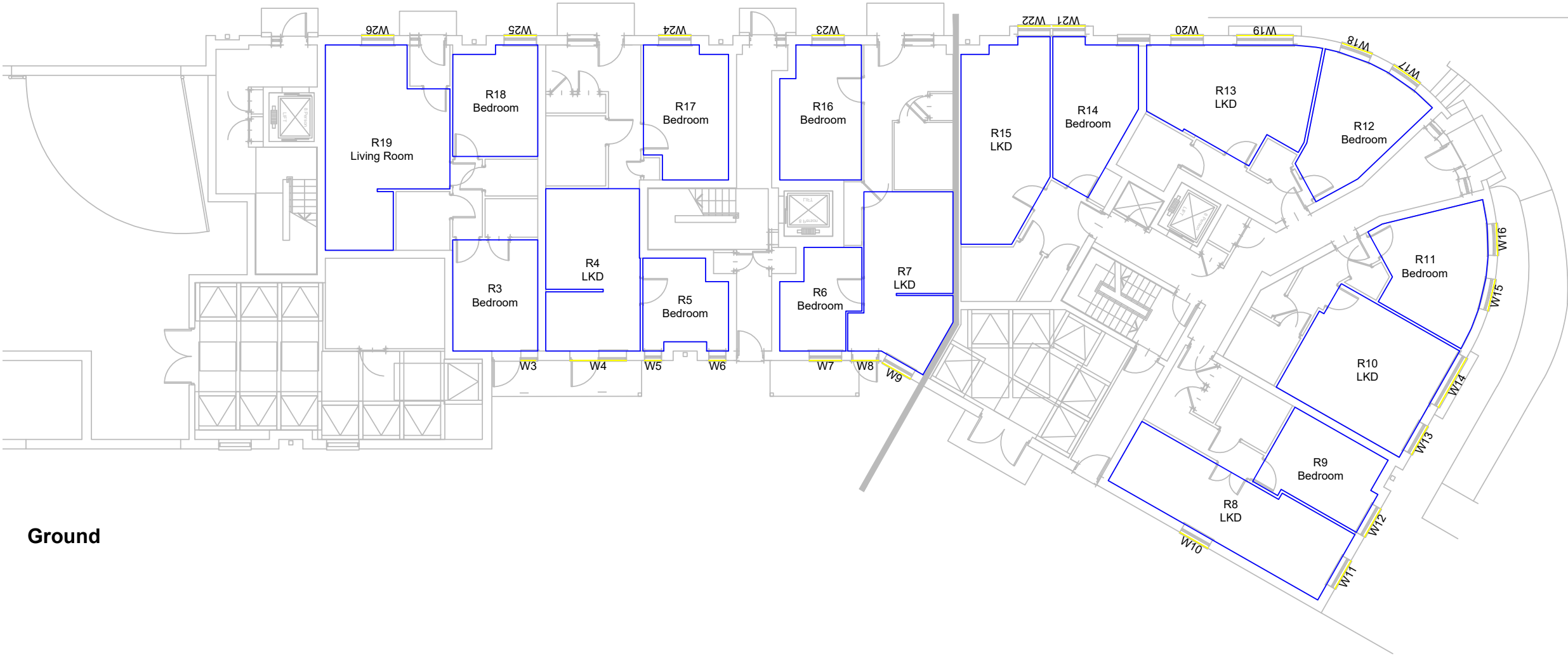
**Drawings and results of the daylight & sunlight assessments
contextual baseline**

Address	Room	Window	Room Use	Existing VSC	Proposed VSC	Loss	Proportion Retained	Room Area	Existing NSC	Proposed NSC	Loss	Existing APSH		Proposed APSH		Total Retained	Winter Retained
Lion Court												Total	Winter	Total	Winter		
Ground	R1	W1-L	LKD	25.7	25.8	-0.1	1.0										
		W1-U W2		0.6	9.2	-8.5	14.3	274.2	226.8	252.4	-25.5	68	24	70	24	1.0	1.0
Ground	R2	W3	LKD	0.7	8.0	-7.3	11.5										
		W4		33.7	33.7	0.0	1.0										
		W5		7.8	7.8	0.0	1.0	313.9	247.5	261.3	-13.8	9	0	28	6	3.1	0.0
First	R1	W1-L	LKD	29.2	29.3	-0.1	1.0										
		W1-U W2		1.5	12.5	-10.9	8.1	274.2	265.5	272.1	-6.7	73	28	75	28	1.0	1.0
First	R2	W3	LKD	1.6	10.8	-9.2	6.8										
		W4		35.9	36.0	0.0	1.0										
		W5		8.4	8.4	0.0	1.0	313.9	312.9	313.3	-0.4	11	0	28	6	2.5	0.0
Second	R1	W1-L	LKD	36.9	37.0	-0.1	1.0										
		W1-U W2		4.6	17.1	-12.5	3.8	274.2	273.0	273.6	-0.6	83	29	85	29	1.0	1.0
Second	R2	W3	LKD	4.6	15.2	-10.7	3.3										
		W4		37.8	37.8	0.0	1.0										
		W5		8.7	8.7	0.0	1.0	313.9	312.9	313.3	-0.4	20	2	36	7	1.8	3.5
Third	R1	W1-L W1-U	Residential	13.6	15.9	-2.3	1.2	169.0	163.8	163.7	0.1	N/F	N/F	N/F	N/F	N/F	N/F
Third	R2	W2-L W2-U	Residential	12.3	14.5	-2.2	1.2	92.6	90.3	87.2	3.0	N/F	N/F	N/F	N/F	N/F	N/F
Third	R3	W3-L W3-U	Residential	12.4	14.0	-1.6	1.1	92.6	90.4	87.1	3.4	N/F	N/F	N/F	N/F	N/F	N/F
Third	R4	W4-L W4-U	Residential	13.6	14.5	-0.9	1.1										
		W5-L W5-U		25.3	25.4	0.0	1.0	152.2	149.4	149.4	0.0	N/F	N/F	N/F	N/F	N/F	N/F

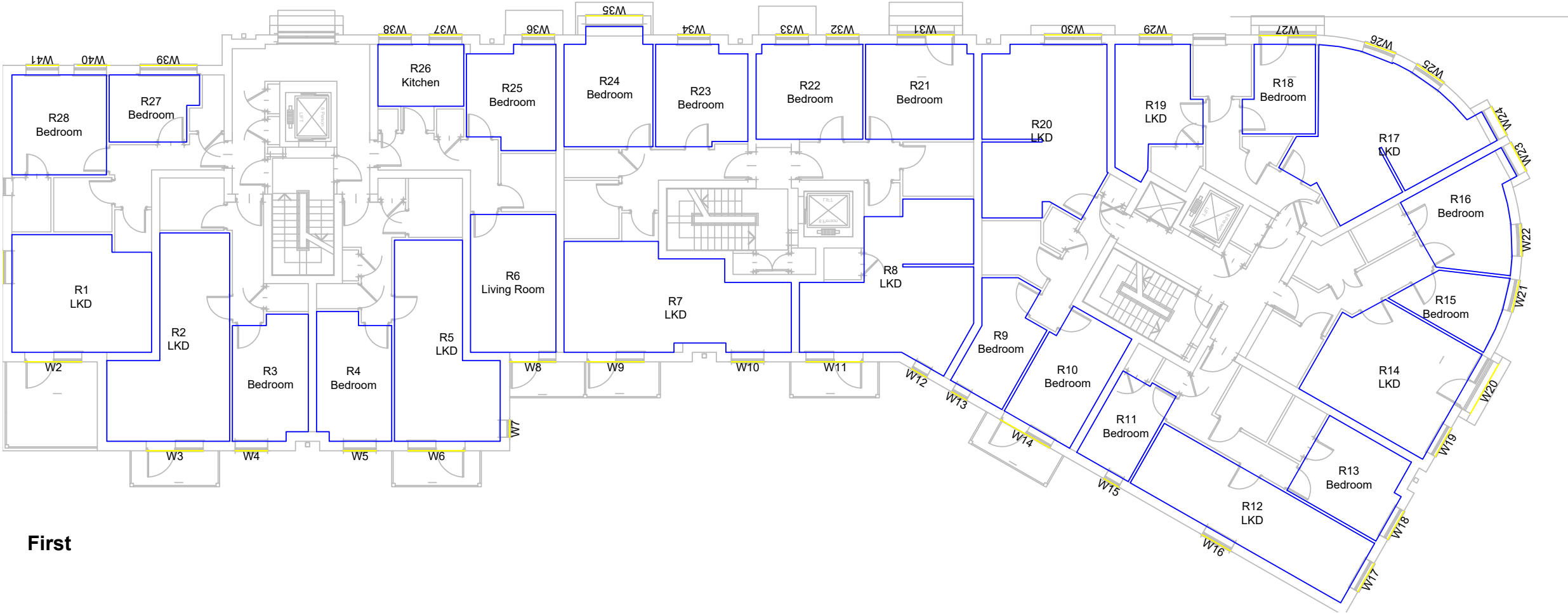


Appendix 5

Internal amenity assessment



Ground



First

4th Floor, Holborn Tower
137-144 High Holborn
London WC1V 6PL
T: +44(0)20 7148 6290
E: info@eb7.co.uk
W: eb7.co.uk



Sources of information

DHA Architecture Ltd
121903-APT - 08.10.20.dwg
Received 08/10/2020

EB7 Ltd
Site Photographs
Ordnance Survey



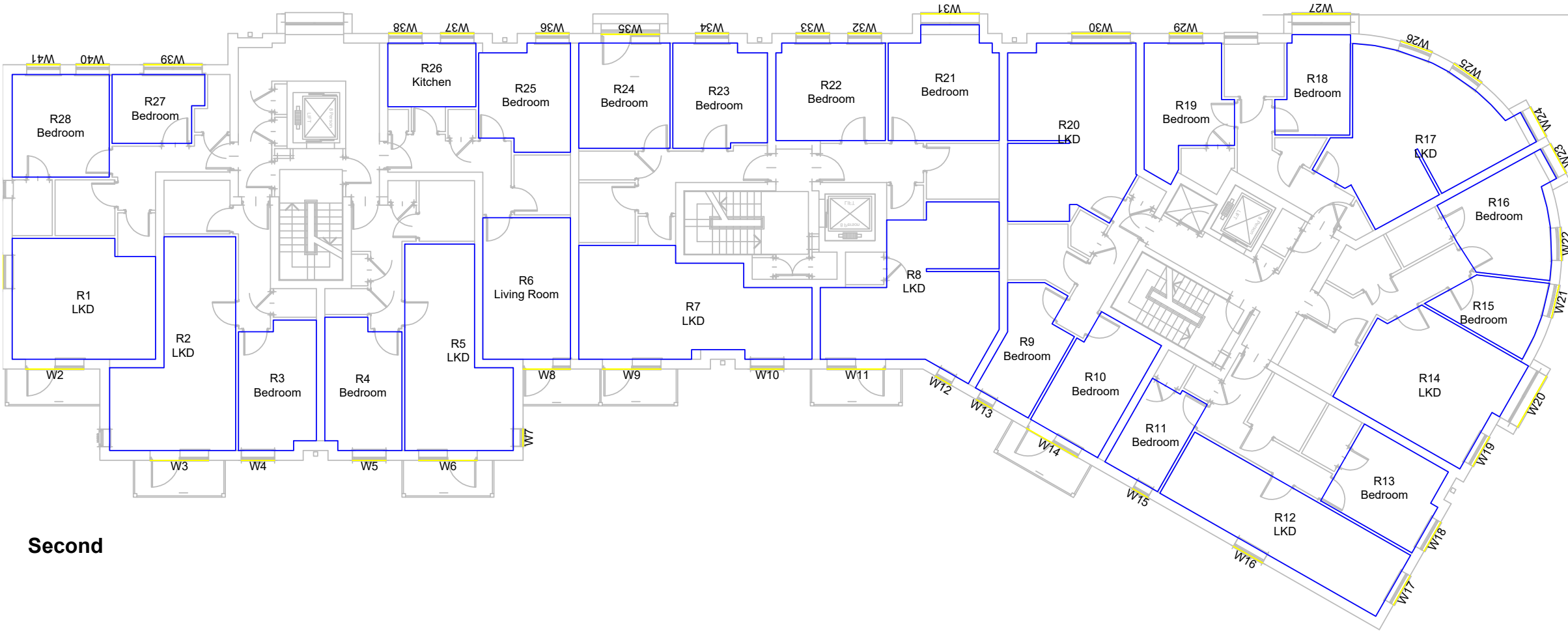
Project 45 Caversham Road
Reading
RG1 7BT

Title Ground & First Floor
Room Layout

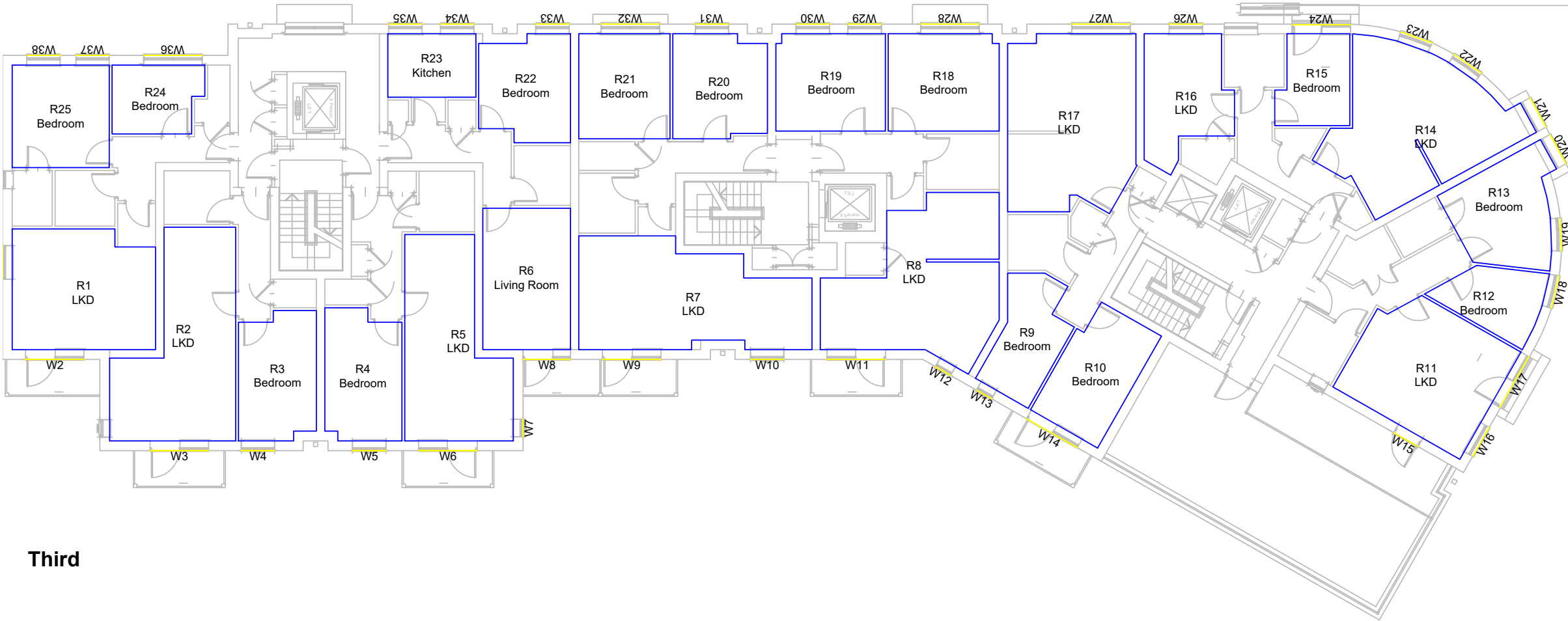
Drawn MR Checked --

Date 12/10/2020 Project 4266

Rel no. 02 Prefix ID02 Page no. ID01



Second



Third



Sources of information

DHA Architecture Ltd
121903-APT - 08.10.20.dwg
Received 08/10/2020

EB7 Ltd
Site Photographs
Ordnance Survey



Project 45 Caversham Road
Reading
RG1 7BT

Title Second & Third Floor
Room Layout

Drawn MR Checked --

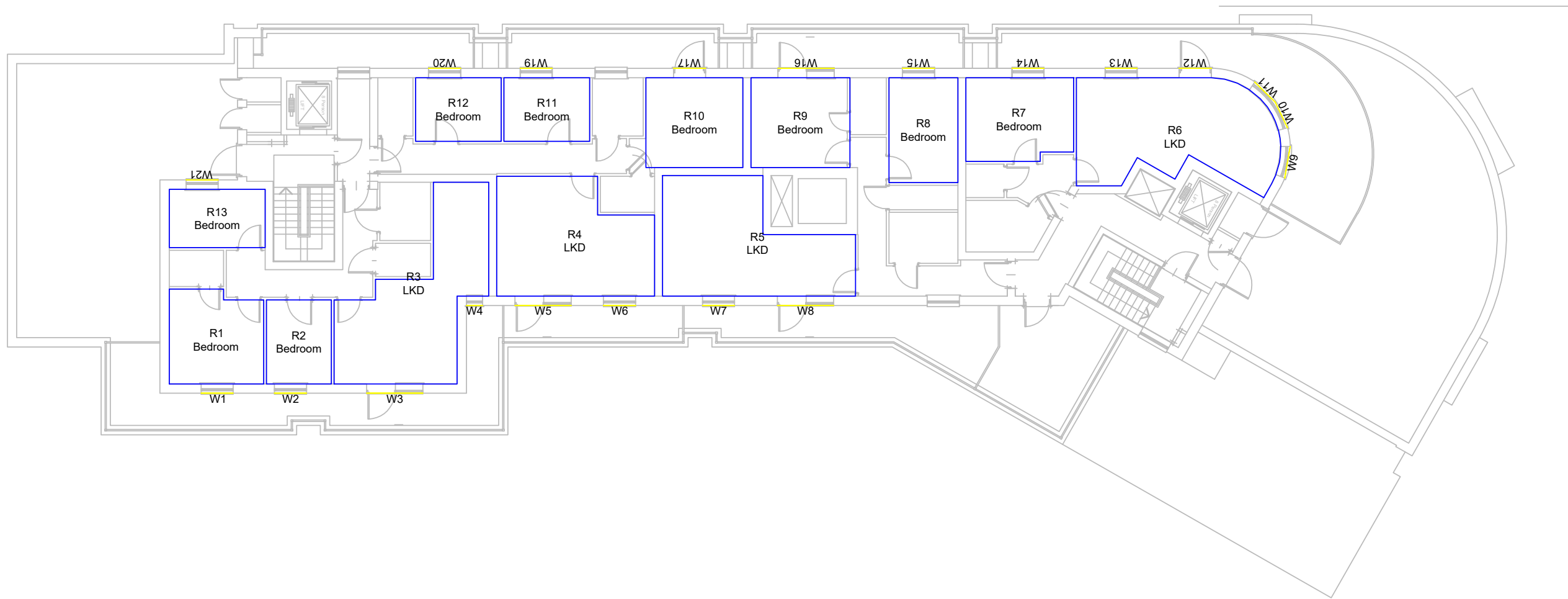
Date 12/10/2020 Project 4266

Rel no. 02 Prefix ID02 Page no. ID02

Sources of information

DHA Architecture Ltd
121903-APT - 08.10.20.dwg
Received 08/10/2020

EB7 Ltd
Site Photographs
Ordnance Survey



Project 45 Caversham Road
Reading
RG1 7BT

Title Fouth Floor
Room Layout

Drawn MR Checked --

Date 12/10/2020 Project 4266

Rel no. 02 Prefix ID02 Page no. ID03

Floor	Room ID	Window ID	Room Use	ADF	TOTAL ADF
B1					
Ground	R3	W3-L	Bedroom	0.2	0.7
		W3-U	Bedroom	0.6	
Ground	R4	W4-L	LKD	0.5	2.1
		W4-U	LKD	1.6	
Ground	R5	W5-L	Bedroom	0.3	2.7
		W5-U	Bedroom	1.0	
		W6-L	Bedroom	0.3	
		W6-U	Bedroom	1.1	
Ground	R6	W7-L	Bedroom	0.5	2.2
		W7-U	Bedroom	1.7	
Ground	R7	W8-L	LKD	0.2	2.2
		W8-U	LKD	0.7	
		W9-L	LKD	0.3	
		W9-U	LKD	1.0	
Ground	R8	W10-L	LKD	0.1	1.5
		W10-U	LKD	0.5	
		W11-L	LKD	0.5	
		W11-U	LKD	0.4	
Ground	R9	W12-L	Bedroom	0.5	2.4
		W12-U	Bedroom	1.9	
Ground	R10	W13-L	LKD	0.3	3.8
		W13-U	LKD	1.1	
		W14-L	LKD	0.5	
		W14-U	LKD	1.8	
Ground	R11	W15-L	Bedroom	0.4	3.9
		W15-U	Bedroom	1.5	
		W16-L	Bedroom	0.4	
		W16-U	Bedroom	1.6	
Ground	R12	W17-L	Bedroom	0.4	4.1
		W17-U	Bedroom	1.6	
		W18-L	Bedroom	0.4	
		W18-U	Bedroom	1.6	
Ground	R13	W19-L	LKD	0.6	4.0
		W19-U	LKD	1.9	
		W20-L	LKD	0.3	
		W20-U	LKD	1.2	
Ground	R14	W21-L	Bedroom	0.5	2.2
		W21-U	Bedroom	1.7	
Ground	R15	W22-L	LKD	0.3	1.5
		W22-U	LKD	1.2	
Ground	R16	W23-L	Bedroom	0.5	2.3
		W23-U	Bedroom	1.8	
Ground	R17	W24-L	Bedroom	0.5	2.2
		W24-U	Bedroom	1.8	
Ground	R18	W25-L	Bedroom	0.3	2.8
		W25-U	Bedroom	2.5	
Ground	R19	W26-L	Living Room	0.2	1.5
		W26-U	Living Room	1.3	
First	R1	W1-L	LKD	0.0	2.7
		W1-U	LKD	0.9	
		W2-L	LKD	0.5	
		W2-U	LKD	1.4	
First	R2	W3-L	LKD	0.5	1.9
		W3-U	LKD	1.4	
First	R3	W4-L	Bedroom	0.6	2.6
		W4-U	Bedroom	2.0	
First	R4	W5-L	Bedroom	0.5	2.6
		W5-U	Bedroom	2.0	

Floor	Room ID	Window ID	Room Use	ADF	TOTAL ADF
First	R5	W6-L	LKD	0.5	2.6
		W6-U	LKD	1.5	
		W7-L	LKD	0.1	
		W7-U	LKD	0.5	
First	R6	W8-L	Living Room	0.4	1.7
		W8-U	Living Room	1.3	
First	R7	W9-L	LKD	0.4	2.8
		W9-U	LKD	1.2	
		W10-L	LKD	0.3	
		W10-U	LKD	1.0	
First	R8	W11-L	LKD	0.4	2.0
		W11-U	LKD	1.1	
		W12-L	LKD	0.1	
		W12-U	LKD	0.4	
First	R9	W13-L	Bedroom	0.3	1.4
		W13-U	Bedroom	1.1	
First	R10	W14-L	Bedroom	0.8	3.0
		W14-U	Bedroom	2.2	
First	R11	W15-L	Bedroom	0.3	1.6
		W15-U	Bedroom	1.2	
First	R12	W16-L	LKD	0.2	2.3
		W16-U	LKD	0.7	
		W17-L	LKD	0.3	
		W17-U	LKD	1.2	
First	R13	W18-L	Bedroom	0.6	2.7
		W18-U	Bedroom	2.1	
First	R14	W19-L	LKD	0.3	4.2
		W19-U	LKD	1.2	
		W20-L	LKD	0.6	
		W20-U	LKD	2.1	
First	R15	W21-L	Bedroom	0.8	3.6
		W21-U	Bedroom	2.9	
First	R16	W22-L	Bedroom	0.5	5.2
		W22-U	Bedroom	2.0	
		W23-L	Bedroom	0.6	
		W23-U	Bedroom	2.1	
First	R17	W24-L	LKD	0.3	3.8
		W24-U	LKD	1.0	
		W25-L	LKD	0.3	
		W25-U	LKD	1.0	
		W26-L	LKD	0.3	
		W26-U	LKD	1.0	
First	R18	W27-L	Bedroom	1.2	4.9
		W27-U	Bedroom	3.7	
First	R19	W29-L	LKD	0.5	2.6
		W29-U	LKD	2.0	
First	R20	W30-L	LKD	0.5	2.3
		W30-U	LKD	1.8	
First	R21	W31-L	Bedroom	0.9	3.6
		W31-U	Bedroom	2.7	
First	R22	W32-L	Bedroom	0.6	5.3
		W32-U	Bedroom	2.1	
		W33-L	Bedroom	0.6	
		W33-U	Bedroom	2.1	
First	R23	W34-L	Bedroom	0.6	2.8
		W34-U	Bedroom	2.2	
First	R24	W35-L	Bedroom	1.0	4.6
		W35-U	Bedroom	3.7	
First	R25	W36-L	Bedroom	0.6	2.9
		W36-U	Bedroom	2.3	

Floor	Room ID	Window ID	Room Use	ADF	TOTAL ADF
First	R26	W37-L	Kitchen	0.9	8.8
		W37-U	Kitchen	3.5	
		W38-L	Kitchen	0.9	
		W38-U	Kitchen	3.4	
First	R27	W39-L	Bedroom	1.5	7.0
		W39-U	Bedroom	5.5	
First	R28	W40-L	Bedroom	0.6	5.8
		W40-U	Bedroom	2.3	
		W41-L	Bedroom	0.6	
		W41-U	Bedroom	2.3	
Second	R1	W1-L	LKD	0.0	3.1
		W1-U	LKD	1.2	
		W2-L	LKD	0.5	
		W2-U	LKD	1.5	
Second	R2	W3-L	LKD	0.5	2.0
		W3-U	LKD	1.5	
Second	R3	W4-L	Bedroom	0.4	2.6
		W4-U	Bedroom	2.2	
Second	R4	W5-L	Bedroom	0.4	2.5
		W5-U	Bedroom	2.2	
Second	R5	W6-L	LKD	0.5	2.8
		W6-U	LKD	1.6	
		W7-L	LKD	0.1	
		W7-U	LKD	0.5	
Second	R6	W8-L	Living Room	0.4	1.8
		W8-U	Living Room	1.4	
Second	R7	W9-L	LKD	0.4	2.9
		W9-U	LKD	1.2	
		W10-L	LKD	0.2	
		W10-U	LKD	1.1	
Second	R8	W11-L	LKD	0.4	2.2
		W11-U	LKD	1.2	
		W12-L	LKD	0.1	
		W12-U	LKD	0.5	
Second	R9	W13-L	Bedroom	0.2	1.5
		W13-U	Bedroom	1.3	
Second	R10	W14-L	Bedroom	0.9	3.5
		W14-U	Bedroom	2.6	
Second	R11	W15-L	Bedroom	0.3	1.9
		W15-U	Bedroom	1.6	
Second	R12	W16-L	LKD	0.2	2.8
		W16-U	LKD	1.2	
		W17-L	LKD	0.2	
		W17-U	LKD	1.3	
Second	R13	W18-L	Bedroom	0.4	2.7
		W18-U	Bedroom	2.3	
Second	R14	W19-L	LKD	0.2	4.4
		W19-U	LKD	1.2	
		W20-L	LKD	0.6	
		W20-U	LKD	2.3	
Second	R15	W21-L	Bedroom	0.5	3.6
		W21-U	Bedroom	3.0	
Second	R16	W22-L	Bedroom	0.4	5.2
		W22-U	Bedroom	2.1	
		W23-L	Bedroom	0.6	
		W23-U	Bedroom	2.2	
Second	R17	W24-L	LKD	0.3	3.9
		W24-U	LKD	1.1	
		W25-L	LKD	0.2	
		W25-U	LKD	1.1	
		W26-L	LKD	0.2	
		W26-U	LKD	1.1	

Floor	Room ID	Window ID	Room Use	ADF	TOTAL ADF
Second	R18	W27-L	Bedroom	1.4	6.5
		W27-U	Bedroom	5.1	
Second	R19	W29-L	Bedroom	0.4	2.6
		W29-U	Bedroom	2.2	
Second	R20	W30-L	LKD	0.5	2.5
		W30-U	LKD	2.0	
Second	R21	W31-L	Bedroom	0.9	4.4
		W31-U	Bedroom	3.5	
Second	R22	W32-L	Bedroom	0.4	5.2
		W32-U	Bedroom	2.2	
		W33-L	Bedroom	0.4	
		W33-U	Bedroom	2.2	
Second	R23	W34-L	Bedroom	0.4	2.8
		W34-U	Bedroom	2.4	
Second	R24	W35-L	Bedroom	1.0	4.4
		W35-U	Bedroom	3.3	
Second	R25	W36-L	Bedroom	0.4	2.9
		W36-U	Bedroom	2.5	
Second	R26	W37-L	Kitchen	0.6	8.6
		W37-U	Kitchen	3.7	
		W38-L	Kitchen	0.6	
		W38-U	Kitchen	3.6	
Second	R27	W39-L	Bedroom	1.5	7.3
		W39-U	Bedroom	5.8	
Second	R28	W40-L	Bedroom	0.4	5.7
		W40-U	Bedroom	2.4	
		W41-L	Bedroom	0.4	
		W41-U	Bedroom	2.4	
Third	R1	W1-L	LKD	0.0	4.4
		W1-U	LKD	1.5	
		W2-L	LKD	0.6	
		W2-U	LKD	2.3	
Third	R2	W3-L	LKD	0.6	2.9
		W3-U	LKD	2.3	
Third	R3	W4-L	Bedroom	0.2	2.6
		W4-U	Bedroom	2.4	
Third	R4	W5-L	Bedroom	0.2	2.6
		W5-U	Bedroom	2.4	
Third	R5	W6-L	LKD	0.7	3.2
		W6-U	LKD	2.5	
		W7-L	LKD	0.0	
		W7-U	LKD	0.0	
Third	R6	W8-L	Living Room	0.5	2.6
		W8-U	Living Room	2.1	
Third	R7	W9-L	LKD	0.5	3.7
		W9-U	LKD	2.0	
		W10-L	LKD	0.1	
		W10-U	LKD	1.1	
Third	R8	W11-L	LKD	0.5	3.1
		W11-U	LKD	2.0	
		W12-L	LKD	0.0	
		W12-U	LKD	0.6	
Third	R9	W13-L	Bedroom	0.1	1.6
		W13-U	Bedroom	1.5	
Third	R10	W14-L	Bedroom	1.1	5.4
		W14-U	Bedroom	4.2	
Third	R11	W15-L	LKD	0.3	
		W15-U	LKD	1.3	
		W16-L	LKD	0.1	

Floor	Room ID	Window ID	Room Use	ADF	TOTAL ADF
		W16-U	LKD	1.4	5.8
		W17-L	LKD	0.6	
		W17-U	LKD	2.0	
Third	R12	W18-L	Bedroom	0.3	3.5
		W18-U	Bedroom	3.2	
Third	R13	W19-L	Bedroom	0.2	5.3
		W19-U	Bedroom	2.2	
		W20-L	Bedroom	0.6	
		W20-U	Bedroom	2.3	
Third	R14	W21-L	LKD	0.3	3.9
		W21-U	LKD	1.1	
		W22-L	LKD	0.1	
		W22-U	LKD	1.1	
		W23-L	LKD	0.1	
		W23-U	LKD	1.1	
Third	R15	W24-L	Bedroom	1.4	5.9
		W24-U	Bedroom	4.5	
Third	R16	W26-L	LKD	0.2	2.5
		W26-U	LKD	2.3	
Third	R17	W27-L	LKD	0.6	2.8
		W27-U	LKD	2.2	
Third	R18	W28-L	Bedroom	1.1	5.1
		W28-U	Bedroom	4.0	
Third	R19	W29-L	Bedroom	0.2	5.0
		W29-U	Bedroom	2.3	
		W30-L	Bedroom	0.2	
		W30-U	Bedroom	2.3	
Third	R20	W31-L	Bedroom	0.2	2.7
		W31-U	Bedroom	2.5	
Third	R21	W32-L	Bedroom	1.2	5.6
		W32-U	Bedroom	4.4	
Third	R22	W33-L	Bedroom	0.2	2.8
		W33-U	Bedroom	2.6	
Third	R23	W34-L	Kitchen	0.3	8.2
		W34-U	Kitchen	3.8	
		W35-L	Kitchen	0.3	
		W35-U	Kitchen	3.8	
Third	R24	W36-L	Bedroom	1.6	7.6
		W36-U	Bedroom	6.0	
Third	R25	W37-L	Bedroom	0.2	5.3
		W37-U	Bedroom	2.5	
		W38-L	Bedroom	0.2	
		W38-U	Bedroom	2.5	
Fourth	R1	W1-L	Bedroom	0.5	3.1
		W1-U	Bedroom	2.6	
Fourth	R2	W2-L	Bedroom	0.7	4.4
		W2-U	Bedroom	3.7	
Fourth	R3	W3-L	LKD	0.5	3.2
		W3-U	LKD	2.3	
		W4-L	LKD	0.0	
		W4-U	LKD	0.4	
Fourth	R4	W5-L	LKD	0.5	4.7
		W5-U	LKD	2.4	
		W6-L	LKD	0.3	
		W6-U	LKD	1.5	
Fourth	R5	W7-L	LKD	0.3	4.5
		W7-U	LKD	1.4	
		W8-L	LKD	0.5	
		W8-U	LKD	2.4	
Fourth	R6	W9-L	LKD	0.3	
		W9-U	LKD	1.2	

Floor	Room ID	Window ID	Room Use	ADF	TOTAL ADF
		W10-L	LKD	0.3	
		W10-U	LKD	1.0	
		W11-L	LKD	0.2	
		W11-U	LKD	1.0	
		W12-L	LKD	0.2	
		W12-U	LKD	1.2	
		W13	LKD	0.7	6.1
Fourth	R7	W14-L	Bedroom	0.4	
		W14-U	Bedroom	2.2	2.6
Fourth	R8	W15-L	Bedroom	0.6	
		W15-U	Bedroom	2.6	3.2
Fourth	R9	W16-L	Bedroom	0.9	
		W16-U	Bedroom	3.9	4.8
Fourth	R10	W17-L	Bedroom	0.5	
		W17-U	Bedroom	2.3	2.7
Fourth	R11	W19-L	Bedroom	0.7	
		W19-U	Bedroom	3.2	3.9
Fourth	R12	W20-L	Bedroom	0.7	
		W20-U	Bedroom	3.2	3.9
Fourth	R13	W21-L	Bedroom	0.7	
		W21-U	Bedroom	2.9	3.6