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CONSULTING LIMITED

Client: Bugler Homes Limited

Daylight and Sunlight Assessment for the Development at Land at Hayes End Road, Hayes, London, UB4 8EH

September 2020

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Herrington Consulting Limited

Canterbury Office
Unit 6 – Barham Business Park
Elham Valley Road
Barham
Canterbury
Kent, CT4 6DQ
Tel +44 (0)1227 833855

London Office
Unit D
Taper Building
Weston Street
London
SE1 3QB

www.herringtonconsulting.co.uk

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1 Background and Scope of Appraisal

1.1 Study Objectives

Herrington Consulting has been commissioned by Bugler Homes Limited to assess the potential impact of the proposed development at Land at Hayes End Road, Hayes, London, UB4 8EH, in relation to daylight, sunlight and overshadowing on the neighbouring buildings. The key objectives of the assessment are to:

- assess the baseline conditions at the site;
- analyse the potential impacts of the development on the daylight and sunlight currently received by the neighbouring buildings;
- assess these impacts in line with any relevant planning policies and best practice guidance.

In addition to the assessment of impacts on the neighbouring buildings, this study also includes an assessment of the natural daylight and sunlight that will be available within the habitable rooms of the proposed development.

1.2 Site Location

The site is situated in the town of Hayes and is located within the London Borough of Hillingdon. The location of the site is shown in Figure 1.1 and the site plan included in Appendix A.1 of this report gives a more detailed reference to the site location and layout.

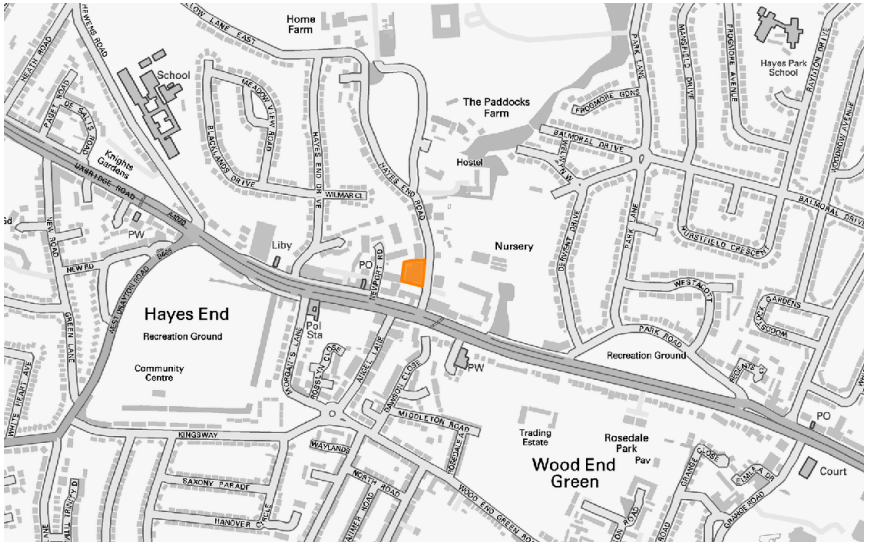


Figure 1.1 – Location map (Contains Ordnance Survey data © Crown copyright and database right 2011)

1.3 The Development

The proposal for development is for the demolition of existing buildings and redevelopment of the site to provide a building of 5 storeys with flexible commercial floorspace (Class E) at ground floor and residential accommodation (Use Class C3) at upper floors, with associated residential amenity space, landscaping, car and cycle parking, refuse storage and access. Drawings of the proposed scheme are included in Appendix A.1 of this report.

2 Policy and Guidance

2.1 National Planning Policy

National Planning Policy Framework (Revised February 2019)

Paragraph 123 on 'Achieving appropriate densities' states that *"c) local planning authorities should refuse applications which they consider fail to make efficient use of land, taking into account the policies in this Framework. In this context, when considering applications for housing, authorities should take a flexible approach in applying policies or guidance relating to daylight and sunlight, where they would otherwise inhibit making efficient use of a site (as long as the resulting scheme would provide acceptable living standards)."*

Guidance on Effective Use of Land (Revised July 2019)

The guidance states that: *'Where a planning application is submitted, local planning authorities will need to consider whether the proposed development would have an unreasonable impact on the daylight and sunlight levels enjoyed by neighbouring occupiers, as well as assessing whether daylight and sunlight within the development itself will provide satisfactory living conditions for future occupants.'*

Further to this, it also states that '*All developments should maintain acceptable living standards. What this means in practice, in relation to assessing appropriate levels of sunlight and daylight, will depend to some extent on the context for the development as well as its detailed design. For example in areas of high-density historic buildings, or city centre locations where tall modern buildings predominate, lower daylight and daylight and sunlight levels at some windows may be unavoidable if new developments are to be in keeping with the general form of their surroundings.*

In such situations good design (such as giving careful consideration to a building's massing and layout of habitable rooms) will be necessary to help make the best use of the site and maintain acceptable living standards.'

2.2 Regional Planning Policy

The London Plan – Spatial Development Strategy for London (2016)

Policy 7.6: 'Architecture' of the adopted London Plan, includes the following statements: *"Buildings and structures should… not cause unacceptable harm to the amenity of surrounding land and buildings, particularly residential buildings, in relation to… overshadowing. This is particularly important for tall buildings". "New development, especially large and tall buildings, should not have a negative impact on the character or amenity of neighbouring sensitive land uses".*

Policy 7.7: 'Location and design of tall and large buildings' includes the following statements: "*Tall and large buildings should not have an unacceptably harmful impact on their surroundings".* Furthermore, "*Tall buildings… should not affect their surroundings adversely in terms of… overshadowing".*

The London Plan – Supplementary Planning Guidance on Housing (2016)

Policy 7.6Bd on 'Standards for privacy, daylight and sunlight' *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'*. It also states that '*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'

In the 'Standards for privacy, daylight and sunlight', Paragraph 1.3.46 states that '*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'. Similarly,* Paragraph 2.3.47 on 'Daylight and Sunlight' includes the following statement '*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'*.

Standard 32 on 'Daylight and Sunlight' states that '*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 Local Planning Policy

Hillingdon Local Plan: Part 2 Development Management Policies (November 2012)

Paragraph 5.33 under '*High Buildings and Structures'* states that '*High buildings and structures are likely to have a greater effect on their surroundings than other building types, because of their potential significant visual impact, impact on the transport network, microclimate and surrounding occupiers' daylight and sunlight*.'

Paragraph 5.41 under '*Design of New Development'* states that '*The Council will aim to minimise the impact of the loss of daylight and sunlight and unacceptable overshadowing caused by new development on habitable rooms, amenity space and public open space. The council will also seek to ensure that the design of new development optimises the levels of daylight and sunlight. The Council will expect the impact of the development to be assessed following the methodology set out in the most recent version of the Building Research Establishments (BRE) "Site layout planning for daylight and sunlight. A guide to good practise*"'

Policy DMHB 11 '*Design of New Development'* states that '*Development proposals should not adversely impact on the amenity, daylight and sunlight of adjacent properties and open spaces*.'

Paragraph 5.72 under '*Private and Outdoor Amenity Spaces'* states that '*Private outdoor amenity space will be required to be well located, well designed and usable for the private enjoyment of the occupier. In assessing the quality of all amenity space in development proposals, whether individual or communal, consideration will be given to the shape and position and whether the layout has regard to matters such as daylight and sunlight, noise, enclosure and privacy*.'

Paragraph 5.66 under '*Residential Density'* states that '*A habitable room is defined as a room within a dwelling, the primary use of which is for living, sleeping or dining. This definition includes living rooms, dining rooms, bedrooms, studies and conservatories but excludes halls, corridors, bathrooms and lavatories. For the purpose of this policy, kitchens which provide spaces for dining and have windows, will be considered habitable rooms and should be fully considered as part of the assessment of amenity impacts'*.

Hillingdon Design and Accessibility Statement (HDAS) SPD – Residential Layouts (July 2006)

Paragraph 4.9 under 'Sunlight & Daylight' states that 'All residential developments and amenity space should receive adequate daylight and sunlight, including habitable rooms and kitchens. The daylight and sunlight available to adjoining properties should be adequately protected and careful. Sunlight, daylight, overbearing and overshadowing design can help minimise the negative impact of overbearing and overshadowing. Care must be taken to ensure that the new development is of an appropriate scale and mass and that proposals for new landscaping avoid overshadowing of proposed and adjacent buildings. Where a two or more storey building abuts a property or its garden, adequate distance should be maintained to overcome possible overdomination. The distance provided will be dependent on the bulk and size of the building but generally, 15m will be the minimum acceptable distance. It should be noted that the minimum 21m overlooking distance will still need to be complied with.'

Paragraph 4.11*: 'The Council's 45 degree principle will be applied and is designed to ensure that adequate daylight and sunlight is enjoyed in new and existing dwellings. It will be applied in infill developments where semi-detached or detached houses are involved. The principle involves drawing a line from the mid-point of an existing or new window which is potentially affected by the new dwelling(s), at an angle of 45 degree towards the new building. If the proposed building breaches that line, it is unlikely to be acceptable.'*

Hillingdon Unitary Development Plan (September 2007)

Paragraph 5.23 under *'Residential Amenity'* states that *'Ensuring adequate sunlight and daylight reaches both habitable rooms (including kitchens) and external private amenity space is an important principle of housing design which affects the enjoyment of occupants' living conditions. The Local Planning Authority will pay full regard to the effects of a proposal, whether it be for a new building or extensions of an existing one, on the sunlight and daylight reaching neighbouring properties, and will have regard to the recommendations of "Site Layout Planning for Daylight and Sunlight" (Building Research Establishment, 1991). Some proposals of substantial width, height and depth, particularly when built close to a party boundary, may not cause loss of amenity by reason of daylight or sunlight but may be overdominant in relation to the adjoining property and/or its private amenity space. This can result in a depressing outlook detracting from residential amenity.'*

Policy BE20 states that *'Buildings should be laid out so that adequate daylight and sunlight can penetrate into and between them and the amenities of existing houses are safeguarded.'*

2.4 Best Practice Guidance

In the absence of official national planning guidance / legislation on daylight and sunlight, the most recognised guidance document is published by the Building Research Establishment and entitled 'Site Layout Planning for Daylight and Sunlight – A Guide to Good Practice', Second Edition, 2011; herein referred to as the 'BRE Guidelines'.

The BRE Guidelines are not mandatory and themselves state that they should not be used as an instrument of planning policy, however in practice they are heavily relied upon as they provide a good guide to approach, methodology and evaluation of daylight and sunlight impacts.

In conjunction with the BRE Guidelines further guidance is given within the British Standard (BS) 8206-2:2008: 'Lighting for buildings - Part 2: Code of practice for daylighting'.

In this assessment, the BRE Guidelines have been used to establish the extent to which the Proposed Development meets current best practice guidelines. In cases where the Development is likely to reduce light to key windows the study has compared results against the BRE criteria.

Whilst the BRE Guidelines provide numerical guidance for daylight, sunlight and overshadowing, these criteria should not be seen as absolute targets. The document states that the intention of the guide is to aid rather than constrain the designer. The Guide is not an instrument of planning policy, therefore whilst the methods given are technically robust, it is acknowledged that some level of flexibility should be applied where appropriate.

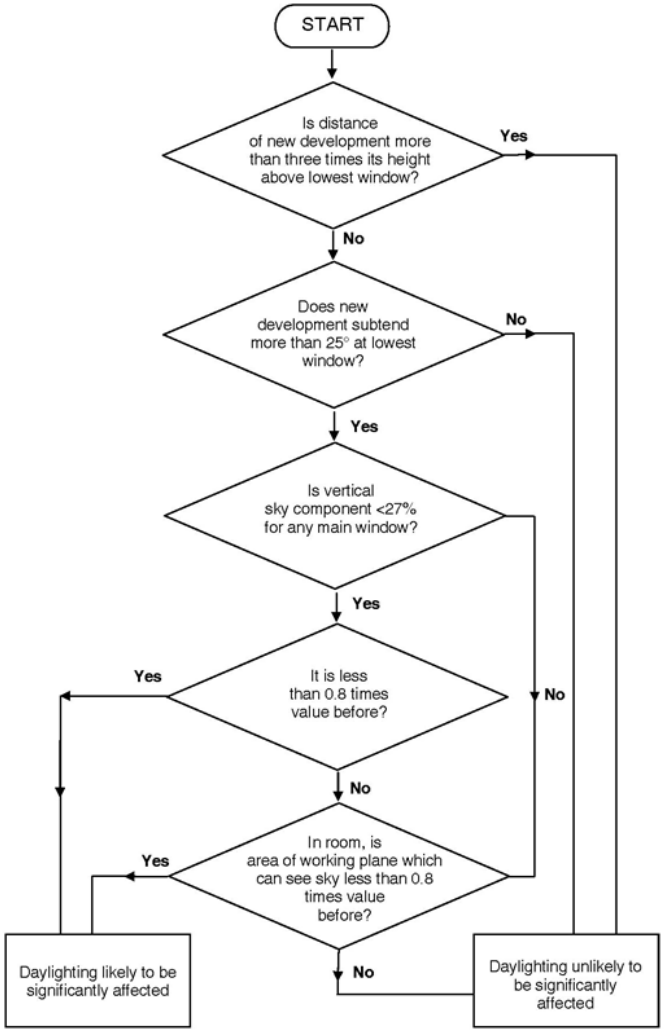
3 Assessment Techniques

3.1 Background

Natural light refers to both daylight and sunlight. However, a distinction between these two concepts is required for the purpose of analysis and quantification of natural light in buildings. In this assessment, the term '*Daylight*' is used for natural light where the source is the sky in overcast conditions, whilst '*Sunlight*' refers specifically to the light coming directly from the sun.

The primary objective of this assessment is to quantify the impacts of the proposed development on the adjacent building[s] and therefore the methods employed by this study are focussed on this objective. These methodologies are described in the following sections of this report and follow the hierarchical approach set out by the BRE Guidelines. The 'decision chart' outlining this process (Figure 20 of the Guidelines) has been reproduced for clarity.

The BRE guidelines are primarily intended for use for residential rooms in adjoining dwellings. However, they may also be applied to any existing non-domestic buildings where the occupants have a reasonable expectation of daylight, which could include schools, hospitals, hotels and offices in specific circumstances. For dwellings, it states that living rooms, dining rooms and kitchens should be assessed. Bedrooms should also be checked, although it states that they are less important. Other rooms, such as bathrooms, toilets, storerooms, circulation areas and garages need not be assessed.



3.2 Vertical Sky Component (VSC)

The Vertical Sky Component (VSC) calculation is the ratio of the direct sky illuminance falling on the outside of a window, to the simultaneous horizontal illuminance under an unobstructed sky. The standard CIE (Commission Internationale d'Éclairage) Overcast Sky is used and the ratio is expressed as a percentage. For example, a window that has an unobstructed view over open fields would benefit from the maximum VSC, which would be close to 40%. For a window to be considered as having a reasonable amount of skylight reaching it, the BRE Guidelines suggests that a minimum VSC value of 27% should be achieved. When assessing the impact of a new development on an existing building the BRE Guidelines sets out the following specific requirement:

If the VSC with the new development in place is both less than 27% and less than 0.8 times its former value, then the reduction in light to the window is likely to be noticeable.

This means that a reduction in the VSC value of up to 20% its former value would be acceptable and thus the impact would be considered negligible. It is important to note that the VSC is a simple geometrical calculation, which provides an early indication of the potential for daylight entering the space. It does not, however, assess or quantify the actual daylight levels inside the rooms.

3.3 No Sky Line

The No Sky Line, or sometimes referred to as No Sky View method, describes the distribution of daylight within rooms by calculating the area of the 'working plane', which can receive a direct view of the sky. The working plane height is generally set at 850mm above floor level within a residential property and 700mm within a commercial property. When assessing the potential impacts on the daylight available to the neighbouring properties, the BRE Guidelines state that if the area within a room receiving direct skylight is reduced by less than 0.8 following the construction of a new development, the impact will be noticeable to the occupants. This is also true if the No Sky Line encroaches onto key areas like kitchen sinks and worktops.

When assessing the provision of daylight to a new development, the BRE Guidelines state that if a significant area of the working plane (normally more than 20%) lies beyond the No Sky Line then the daylight distribution within the room will be poor and supplementary electric lighting will be required.

One benefit of this test is that the resulting contour plans show where the light falls within a room and a judgment can be made as to whether the room will retain light to a reasonable depth. However, this method can only be accurately used to examine the daylight distribution within the rooms where the layout and dimensions are known. In the case of the proposed development, room layouts are replicated from the floor plans provided by the architects or developer. When assessing the impact of a new development on the daylight distribution within existing buildings, however, such information may not be available. As consequence, the internal layout and dimensions of the affected room(s) must then be estimated based on the property type and its overall layout.

3.4 Average Daylight Factor

The Average Daylight Factor (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.

This method of quantifying the availability of daylight within a room does, however, require the internal layout to be known and is generally only used for establishing daylight provision in new rooms. The BRE Guide sets out the following guidelines for the assessment of the ADF:

If a predominantly daylit appearance is required, then the ADF should be 5% or more if there is no supplementary electric lighting, or 2% or more if supplementary electric lighting is provided. In dwellings, the following minimum average daylight factors should be achieved: 1% in bedrooms, 1.5% in living rooms and 2% in kitchens.

3.5 Room Depth Criteria

The BRE Guidelines do include advice for determining recommended room depths to proposed new rooms under specific circumstances using the Room Depth Criteria (RDC). This is more of a rule-of-thumb test that can be used to plan building layouts etc at an early conceptual stage, rather than providing quantitative outputs at the more detailed stage of a development.

This test has numerous limitations when being applied to anything but a simplistic room layout and does not take into account external obstructions. It is therefore not considered to provide any meaningful data on the level or distribution of daylight that is not already provided by the ADF and NSL tests. Consequently, it is only applied in very particular situations.

3.6 Annual Probable Sunlight Hours

It is also possible to quantify the amount of sunlight available to a new development and the recognised methodology for undertaking this analysis is the Annual Probable Sunlight Hours (APSH) method.

To pass this test the centre point of the window will need to receive more than one quarter (25%) of the APSH, including at least 5% APSH in the winter months between 21st September and the 21st March. The BRE Guidelines state that if 'post-development' the available sunlight hours are both less than the amount above and less than 0.8 times their 'pre-development' value, either over the whole year or just within the winter months, then the occupants of the existing building will notice the loss of sunlight. In addition, if the overall annual loss is greater than 4% of APSH, the room may appear colder and less pleasant.

For new development and especially where existing buildings are being re-developed, it is important to acknowledge that these are aspirational targets intended to aid and not constrain the designer.

These aspirational targets were derived to improve the amenity of single dwellings that typically comprise a living room, kitchen and bedrooms; the objective being to maximise sunlight in the main living areas. However, for buildings that contain multiple apartments, it is rarely possible to configure the internal layout such that all rooms receive direct sunlight as it is inevitable that some windows will be situated on an elevation that faces within 90 degrees of due north.

It is therefore important to understand that when assessing the provision of sunlight to a building containing multiple dwellings, the BRE Guidelines seek only to maximise the amount of sunlight received. They do not set absolute targets.

3.7 Overshadowing

The BRE Guidance suggests that where new development may affect one or more amenity areas, then analysis can be undertaken to quantify the loss of sunlight resulting from overshadowing. Typical examples of areas that could be considered as open spaces or amenity areas are main back gardens of houses, allotments, parks and playing fields, children's playgrounds, outdoor swimming pools, sitting-out areas, such as in public squares and focal points for views, such as a group of monuments or fountains. Amenity areas in the form of balconies are not recommended to be assessed under the BRE Guidelines due to their small size and often significant obstruction.

Sun Hours on Ground

The BRE Guidelines recommend that for a garden or amenity area to appear adequately sunlit throughout the year, at least 50% of an amenity area should receive at least 2 hours of sunlight on 21st March. The BRE Guidelines also suggest that if, as a result of a new development, an existing garden or amenity area does not meet these guidelines, and the area which can receive some sun on the 21st March is less than 0.8 times its former value, then the loss of sunlight is likely to be noticeable.

When undertaking this analysis, sunlight from an altitude of 10° or less has been ignored as this is likely to be obscured by planting and undulations in the surrounding topography. Driveways and hard standing for cars is also usually left out of the area used for this calculation. Fences or walls less than 1.5 metres high are also ignored. Front gardens which are relatively small and visible from public footpaths are omitted with only main back gardens needing to be analysed.

The Guidelines also state that "normally, trees and shrubs need not be included, partly because their shapes are almost impossible to predict, and partly because the dappled shade of a tree is more pleasant than a deep shadow of a building". This is especially the case for deciduous trees, which provide welcome shade in the summer whilst allowing sunlight to penetrate during the winter months.

Transient Overshadowing

The BRE Guidelines suggest that where large buildings are proposed, which may affect a number of open spaces or amenity areas, it is useful and illustrative to plot a shadow plan to show the location of shadows at different times of the day and at key times during the year. Typically, the 21st March, the 21st June, and 21st December are used to represent the annual variance of sun position, noting that the position of the sun in the sky during the spring equinox (21st March) is equivalent to that of the autumn equinox.

The BRE Guidelines provide no criteria for the significance of transitory overshadowing other than to suggest that by establishing the different times of day and year when shadow would be cast over surrounding areas, provides an indication as to the significance of the likely effect of a new development. The assessment of transient overshadowing effects is therefore based upon expert judgment, taking into consideration the likely effects of the various baseline conditions and comparing them with the likely significant transient overshadowing effects of the redevelopment proposals.

4 Assessment Methodology

4.1 Method of Baseline Data Collation

The following data and information has been used to inform this study:

- OS Mastermap mapping
- Scheme drawings in AutoCAD format (ON Architecture – June 2020)
- Photographic information provided April 2020
- Aerial photography (Google Maps and Bing)

4.2 Identification of Key Sensitive Receptors

The BRE Guidelines are intended for use for rooms and adjoining dwellings where daylight is required, including living rooms, kitchens and bedrooms. Windows to bathrooms, toilets, storerooms circulation areas and garages are not deemed as requiring daylight and therefore are not identified as sensitive receptors. The BRE document also states that the guidelines may also be applied to any non-domestic building where the occupants have a reasonable expectation of daylight. This would normally include schools, hospitals, hotels, hostels, small workshops and some offices.

The first step in this process is to determine the key sensitive receptors, i.e. which windows may be affected by the proposed development. Key receptors are those windows that face, or are located broadly perpendicular to the proposed development.

If a window falls into this category, the second step is to measure the obstruction angle. This is the angle at the level of the centre of the lowest window between the horizontal plane and the line joining the highest point of nearest obstruction formed from any part of the proposed development. If this angle is less than 25° then it is unlikely to have a substantial effect on the diffuse daylight enjoyed by the existing window and the window is not deemed to be a sensitive receptor. A graphical representation of the 25° rule is illustrated in Figure 4.1 below.

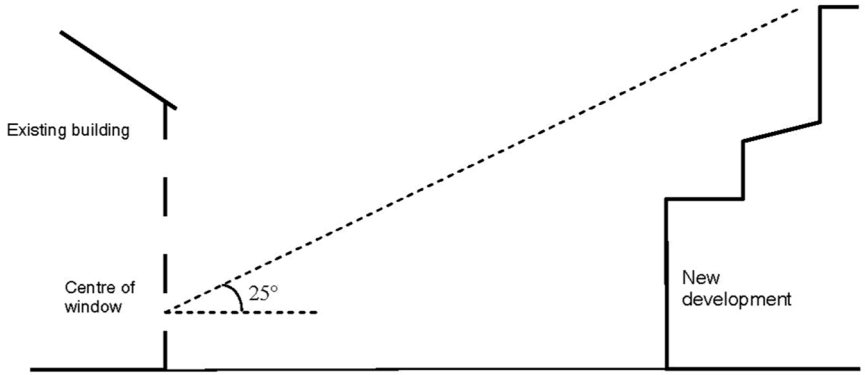


Figure 4.1 – Graphical representation of the 25° Rule (indicative buildings used for illustration purposes only)

As part of this assessment a digital three-dimensional model of the study area has been created for both the 'pre' and 'post' development scenarios. Images of these models are shown by the drawings appended to this report.

Using the 3D model, it is possible to identify all windows having an obstruction angle no greater than 25°. Impacts to these windows are therefore deemed to be negligible in line with the criteria set out within the BRE Guidelines.

There are, however, circumstances where the 25°*degree* rule is not wholly appropriate, for example where the development facing the window does not create a uniform obstruction along the skyline, or where the proposals are not directly adjacent to the receptor window. In these situations, professional judgement is used to differentiate between windows that require more detailed analysis and those that will clearly not be impacted. Where any level of uncertainty exists, the window is taken forward for detailed analysis.

Windows serving non-habitable spaces are not included within the assessment as these are not identified by planning policy or by the BRE Guidelines to be sensitive to changes in daylight and sunlight. Therefore, as part of the identification of sensitive receptor process, the use of each room is, where possible, established and windows serving non-habitable spaces such as toilets, store rooms, stairwells and circulation spaces are identified. Typically kitchens that have a floor area less then 13m^2 are not considered to be habitable spaces in their own right.

Windows serving rooms within commercial premises are assumed to be non-habitable and in accordance with the BRE Guidelines are not identified as sensitive receptors. However, there are special cases where it can be assumed that some non-domestic uses could be deemed to have a reasonable expectation of daylight and therefore could be taken forward for more detailed analysis. Typically, these could be school classrooms, hospital wards, art studios etc, but professional judgement is generally relied upon to determine this and where considered appropriate, windows serving commercial premises are included.

Drawings showing the location of all sensitive receptors that have been assessed as part of this study are included in Appendix A.2 of this report.

In summary, habitable rooms in the following residential buildings have been identified as potential sensitive receptors and have therefore been tested.

- 1200 Uxbridge Road
- Murray Grey House
- Thurbin House
- Hart House
- Charolias House

4.3 Numerical Modelling

The numerical analysis used in this assessment has been undertaken using the Waldrum Tools (Version 5.0.0.0) software package.

4.4 Calculation Assumptions

The following assumptions have been made when undertaking the analysis:

- When assessing the VSC the calculation is based on the centre point of the window position.
- When assessing the ADF for internal rooms and in the absence of specific information, the following parameters are assumed:
  - For new buildings, the glazing type is assumed to be double glazing (Pilkington K Glass 4/16/4 Argon filled) with a light transmittance value of 0.78 (value for double glazed unit not per pane). For existing buildings, a value of 0.68 has been assumed.
  - Correction factor for frames and glazing bars = 0.8

- Where information from the designer is not available, the following values are used to derive the Maintenance Factor applied to the transmittance values.

Location / setting	Building type (Residential – good maintenance)	Exposure (normal)	Special exposure	Maintenance Factor
Urban	8%	x 1.0	x 1.0	0.92
Rural / suburban	4%	x 1.0	x 1.0	0.96

Table 4.1 – Parameters used for deriving Maintenance Factor (refer to BS 8206-2:2008 Tables A3, A4 and A5)

- The reflectance values used in the ADF analysis of neighbouring buildings are based on typical values for internal surfaces. Where information on internal finishes is not available, the default value of 0.5 prescribed by the BRE Guidelines is adopted.

- The reflectance values used in the ADF analysis of the proposed new buildings are shown in table 4.2 below and are used unless specified otherwise by the designer:

Surface	Value
Internal walls (painted pale cream)	81%
Internal ceiling (painted white)	85%
Internal flooring	30%

Table 4.2 – Reflectance values used in ADF analysis

- Where information on internal room layouts of adjacent properties is not known, best estimates as to room layout and size have been made in order to undertake No Skyline analysis and, if applicable, ADF analysis.

- Where the internal arrangements and room uses have been estimated, it should be noted that this has no bearing upon the tests for VSC or APSH because the reference point is at the centre of the window being tested and windows have been accurately drawn from the survey information where possible. It is relevant to the daylight distribution assessment, but in the absence of suitable plans, estimation is a conventional approach.

- In areas where survey data has not been provided or needs to be supplemented with additional information, photographs, OS mapping and brick counts have been used in the process of building the 3D model of the surrounding and existing buildings.

- When analysing the effect of the new building on the existing buildings, the shading effect of the existing trees has been ignored. This is the recommended practice where deciduous trees that do not form a dense belt or tree line are present (BRE Guidelines – Appendix H). This is because daylight is at its scarcest and most valuable in the winter when most trees will not be in leaf.

- In situations where windows are deeply set-back beneath balconies or other overhanging features, it is common for these rooms to have low VSC values as a result of the obstruction caused by the balcony. It widely accepted and acknowledged within the BRE Guidelines that the presence of balconies can mask the impact of a proposed development when using the VSC test

and therefore the Guidelines suggest that the window should be tested both 'with' and 'without' the balcony in place. If the ratio of change with the development in place, but with the balconies removed, remains above 0.8, then it can be concluded that it is the presence of the balcony rather than the introduction of a new building that is the main factor in the relative loss of light.

- Where the results of the detailed analysis are presented in the appendix to 2 decimal places, these values may be rounded to a single decimal place when interpreting the results and discussing compliance with assessment criteria. This is to fit with the convention adopted within the BRE Guidelines where all ratio of change values are expressed to one decimal place.

4.5 Assessment criteria

The numerical assessment criteria specified within the BRE Guidelines is designed to identify the threshold at which point a change in daylight or sunlight would become 'noticeable' to the occupants. Consequently, where the results of the daylight/sunlight analysis demonstrate compliance with the BRE criteria it can be concluded that the impact will be negligible. However, a point that should be stressed here is that 'noticeable' does not necessarily equate to 'unacceptable' and the BRE's standard target values should not always be considered as pass/fail criteria. Whilst the BRE Guidelines provide numerical guidance for daylight, sunlight and overshadowing, these criteria should not be seen as absolute targets since, as the document states, the intention of the guide is to help rather than constrain the designer. The Guide is not an instrument of planning policy, therefore whilst the methods given are technically robust, it is acknowledged that some level of flexibility should be applied where appropriate.

Consequently, based on the numerical assessment criteria set out with the BRE Guidelines and the use of professional judgment, the following assessment criteria have been established and are used in describing the impacts of the proposed development.

Significance	Description	Change Ratio
Negligible	No alteration or a small alteration from the existing scenario. Results demonstrate full compliance with the BRE assessment criteria and therefore occupants are unlikely to notice any change.	1.0 to 0.8
Minor adverse	An alteration from the existing scenario which may be marginally noticeable to the occupant. This may include a marginal infringement of the numerical levels suggested in the BRE Guidelines, which should be viewed in context. A typical change ratio for this level of significance would be 0.7	0.7 to 0.8
Moderate adverse	An alteration from the existing scenario which may cause a moderate noticeable change to the occupant. This may consist of a moderate infringement of the numerical BRE assessment criteria with	0.6 to 0.7
Major adverse	An alteration from the existing scenario which may cause a major noticeable change to the occupant. This may consist of a significant infringement of the numerical BRE assessment criteria.	Less than 0.6

Table 4.3 – Daylight & Sunlight Impact Descriptors

5 Discussion of Daylighting Impacts

Based on the results of the numerical analysis summarised in Appendix A.3, it is possible to draw conclusions on the impacts that the proposed development will have on the neighbouring buildings. These are based on the principle numerical tests that are discussed below.

5.1 Vertical Sky Component Assessment

The BRE Guidelines operate on the general principle that where the retained VSC is 27% or greater, or where the retained VSC has not reduced to less than 0.8 times its former value, then the reduction in daylight is unlikely to be noticeable to the building's occupants and thus the impact can be deemed negligible. The results of the VSC analysis are summarised below.

Property	No. Windows Tested	Windows meeting BRE Guidelines		VSC Windows		
				Transgressions		
		No.	%	Minor adverse	Moderate adverse	Major adverse
1200 Uxbridge Road	1	1	100%	0	0	0
Murray Grey House	44	44	100%	0	0	0
Thurbin House	18	13	72%	1	2	2
Hart House	6	6	100%	0	0	0
Charolias House	11	11	100%	0	0	0
Total	**80**	**75**	**94%**	**1**	**2**	**2**

Table 5.1 – Results of Vertical Sky Component (VSC) Analysis

Inspection of the results of this test show that the majority of windows either retain a VSC value greater than 27% post development, or have a ratio of change that is 0.8 or above and therefore are fully compliant. Consequently, in line with the assessment criteria set out within the BRE Guidelines it is possible to conclude that the impact will be **negligible**.

There are a small number of ground floor windows at Thurbin House which receive transgressional results. Inspection of these results show that these windows are already significantly obscured by the balcony serving the first floor above and therefore any change in the obstructing view will be exacerbated by the fact that the sky view is constrained by this feature. This is demonstrated in the below images where Figure 5.1 shows the sky view with the balcony and Figure 5.2 shows the sky view without the balcony (Grey: Surrounding, Red: Proposed, Green: Existing).

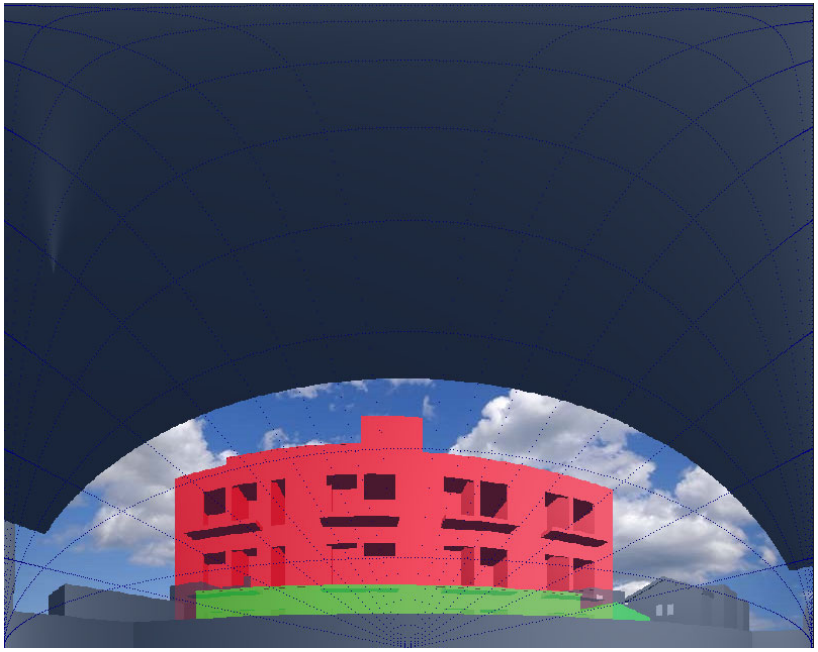


Figure 5.1 – Waldrum Diagram – Thurbin House Ground Floor Window W2 (with balcony)

As stated in the BRE Guidelines '*Because the balcony cuts out light from the top part of the sky, even a modest obstruction opposite may result in a large relative impact on VSC*'. As a sensitivity test, the VSC analysis had be re-run with the balcony removed and the results are shown in Table 5.2.

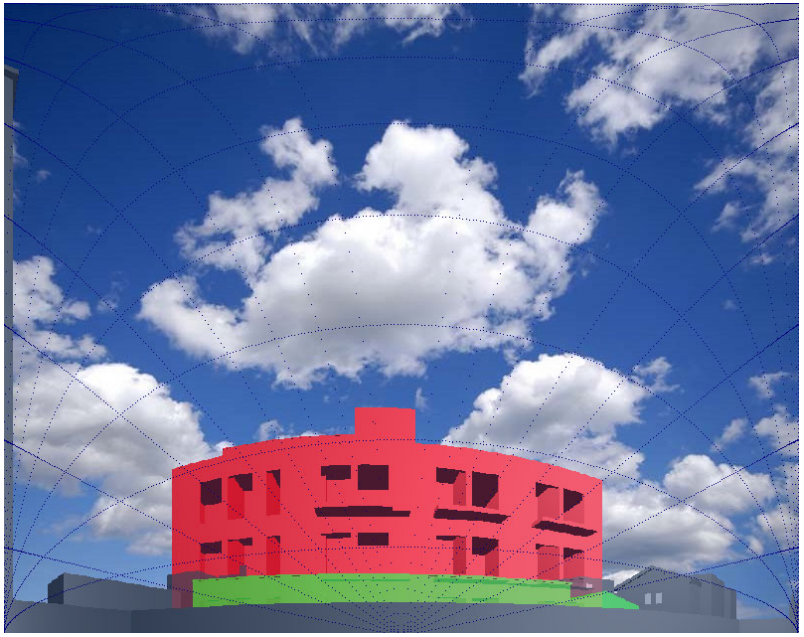


Figure 5.2 – Waldrum Diagram – Thurbin House Ground Floor Window W2 (without balcony)

Property	No. Windows Tested	Windows meeting BRE Guidelines		VSC Windows Transgressions		
		No.	%	Minor adverse	Moderate adverse	Major adverse
Thurbin House	18	18	100%	0	0	0
Total	**18**	**18**	**100%**	**0**	**0**	**0**

Table 5.2 – Results of Vertical Sky Component (VSC) Analysis – without balconies

The results above demonstrate that when the influence of the balcony is ignored, there will be a negligible reduction in daylight. It can therefore be concluded that the reduction in VSC is primarily influenced by the balcony above the windows, which is exacerbating the impact of the proposed development. Therefore, when the influence of the balcony is taken into account, the overall reduction in VSC is considered acceptable.

5.2 No Sky Line Assessment

In order to pass the No Sky Line Assessment, the BRE Guidelines state that the area of the working plane within the room that has a view of the sky should not be reduced to less than 0.8 times its former value as a result of new development. One benefit of the daylight distribution test is that the resulting contour plans show where the light falls within a room, for both the existing and proposed conditions, and a judgement can be made as to whether the room will retain light to a reasonable depth.

In this case, the dimensions and layouts of the habitable rooms of Thurbin House have been reproduced from information obtained via estate agent details. The dimensions and layouts of the habitable rooms of Hart House have been reproduced from information obtained via the planning portal (Application numbers: 10852/APP/2003/2196). There are no internal floor layouts available for the remaining properties and therefore an estimate of the room dimensions and layouts has been made. As is considered best practice, the rooms within this/these buildings have been assumed to be 4.2m deep when considered appropriate to the building.

The results of the No Sky Line/Daylight Distribution analysis are summarised below.

Property	Number of Rooms Tested	Rooms that meet BRE Guidelines		No Sky Line		
				No. of Rooms Experiencing Transgressions		
		No.	%	Minor adverse	Moderate adverse	Major adverse
1200 Uxbridge Road	1	1	100%	0	0	0
Murray Grey House	37	37	100%	0	0	0
Thurbin House	16	12	75%	3	1	0
Hart House	3	3	100%	0	0	0
Charolias House	9	9	100%	0	0	0
Total	**66**	**62**	**94%**	**3**	**1**	**0**

Table 5.3 – Results of No Sky Line (NSL) Analysis

From the results summarised above, it can be seen that as a result of the proposed development, the impact on the daylight distribution within the majority of assessed rooms will be negligible. The reduction in the area of the working plane that has a direct view of the sky will be less than 20% therefore occupants are unlikely to notice any change.

There are four ground floor rooms at Thurbin House showing transgressional results. As discussed in Section 5.1, these rooms/windows are heavily obstructed by their own building. As a sensitivity test, the NSL analysis has been re-run with the balcony removed. The results shown in Table 5.4 below demonstrate that there will be a negligible reduction in daylight distribution.

Property	Number of Rooms Tested	Rooms that meet BRE Guidelines		No Sky Line No. of Rooms Experiencing Transgressions		
		No.	%	Minor adverse	Moderate adverse	Major adverse
Thurbin House	16	16	100%	0	0	0
Total	**16**	**16**	**100%**	**0**	**0**	**0**

Table 5.3 – Results of No Sky Line (NSL) Analysis - without balconies

Therefore, when the influence of the balcony above these rooms is taken into account, the overall reduction in daylight distribution is considered acceptable.

5.3 Summary of Daylighting Impacts

The proposed development at Land at Hayes End Road, Hayes, London, UB4 8EH has been evaluated against the criteria set out by the BRE Guidelines for the assessment of the potential impacts on the daylight of the neighbouring properties. Five properties have been identified as sensitive receptors for this study, and therefore, the habitable rooms and the windows serving these rooms have been tested.

As a consequence of the already obstructed view from the windows beneath the balconies at Thurbin House, any change to the proposed site can have a large relative impact on the constrained windows. Therefore, when taking into account the context in which the development is set and the requirement for the BRE Guidelines to be interpreted flexibly, the overall impact on the surrounding windows/rooms is not considered significant.

6 Sunlight and Overshadowing Analysis

6.1 Annual Probable Sunlight Hours Assessment

The Annual Probable Sunlight Hours (APSH) tests have been carried out using the numerical model described in Section 4.3. The assessment requirements for the APSH test, as set out in the BRE Guidelines, have been reiterated below. For the assessment to conclude that the sunlighting of the existing dwelling could be adversely affected, all three of the following tests need to have been failed:

Test A - Does the window receive less than 25% of the APSH, or less than 5% the APSH between 21st September and 21st March?

Test B - Does the assessed window receive less than 0.8 times its former sunlight hours during either the 'whole year' or 'winter' period?

Test C - Is the reduction in sunlight received over the whole of the year greater than 4% of the APSH?

However, these tests are only applicable to windows that face within 90 degrees of due south. Consequently, in line with the guidelines and assessment methodologies set out within the BRE document, the analysis of sunlight impacts has only been carried out for these windows. Windows facing within 90 degrees of due north are not analysed and impacts are deemed to be negligible.

It should also be noted that where rooms have windows on more than one elevation, it is acceptable to sum the non-coincident sunlight hours to achieve a 'room total'. This approach is acknowledged by the BRE Guidelines and facilitates a greater understanding of the sunlight received within a room by taking into account the fact that some windows will receive sunlight at different times during the day.

When examining the results of the three sunlight tests, it is first necessary to understand why there are three separate tests and more importantly, why it is not necessary to pass all three to demonstrate that there is no adverse impact. The BRE Guidelines clearly state that for the proposed development to be considered to have an adverse effect on the available sunlight to neighbouring windows, all three tests would need to have been failed.

This is because sunlight is not assessed in terms of its contribution to the overall lighting levels within the room. The value attributed to sunlight is its transient presence and the way in which it can make a room appear bright and cheerful. There are also therapeutic values associated with sunlight and therefore it can be seen that these are not quantitative metrics that can be assessed using a single pass/fail criteria test. It is also necessary to understand that the amount of sunlight received by a window is strongly influenced by the orientation of the window elevation and any surrounding obstructions.

As a consequence of these factors, the assessment methodology embodied within the three separate tests allows the change in sunlight to be assessed in terms of the magnitude of change, absolute change and the retained level of sunlight. To conclude that a new development has no adverse impact, all that is required is for one of the three tests to be passed. The APSH test has been carried out and the detailed results of the analysis are included in Appendix A.3 and a summary of the results are shown in Table 6.1 below.

Property	Number of Windows Tested	Annual			Winter		
		Windows that meet BRE Guidelines		No. of Windows Experiencing Adverse Impacts	Windows that meet BRE Guidelines		No. of Windows Experiencing Adverse Impacts
		No.	%		No.	%	
1200 Uxbridge Road	*North facing windows*						
Murray Grey House	43	43	100%	0	43	100%	0
Thurbin House	*North facing windows*						
Hart House	*North facing windows*						
Charolias House	10	10	100%	0	10	100%	0
Total	**53**	**53**	**100%**	**0**	**53**	**100%**	**0**

Table 6.1 – Results of APSH Analysis

When the results of the APSH analysis summarised in Table 6.1 are inspected, it can be seen that all windows and rooms pass at least one of the three sunlight tests. Consequently, it has been demonstrated that the proposed scheme will have a negligible impact on neighbouring buildings.

6.2 Sun on the Ground

The BRE Guidelines acknowledge that good site layout planning for daylight and sunlight should not limit itself to providing good natural light inside buildings. Sunlight in the space between buildings has an important effect on the overall appearance and ambiance of a development.

The 2011 BRE Guidelines suggest that the Spring Equinox (21st March) is a suitable date for the assessment and therefore using the specialist software described in Section 4.3, the path of the sun is tracked to determine where the sun would reach the ground and where it would not.

The BRE guidelines recommend that at least half of a garden or amenity area should receive at least 2 hours of sunlight on March 21st or the area which receives 2 hours of direct sunlight should not be reduced to less than 0.8 times its former value (i.e. there should be no more than a 20% reduction).

Typical examples of areas that could be considered as open spaces or amenity areas are main back gardens of houses, allotments, parks and playing fields, children's playgrounds, outdoor swimming pools, sitting-out areas, such as in public squares and focal points for views.

The gardens of the following properties have been identified as sensitive amenity areas and the results of the sun on the ground analysis are summarised in Table 6.2.

- Communal Gardens to Murray Grey House
- Patio A1 – A4 to Murray Grey House
- Patio A1 and A2 to Thurbin House
- Communal Gardens to Charolias House

The graphical results of the overshadowing analysis are included in Appendix A.2.

Amenity area	Percentage of area lit for 2 hours or more on the 21st March		Ratio of change	Compliant with BRE criteria?
	Existing	Proposed		
Communal Gardens to Murray Grey House	100%	100%	1.0	Yes
Patio A1 to Murray Grey House	100%	100%	1.0	Yes
Patio A2 to Murray Grey House	66%	66%	1.0	Yes
Patio A3 to Murray Grey House	100%	100%	1.0	Yes
Patio A4 to Murray Grey House	61%	61%	1.0	Yes
Patio A1 to Thurbin House	56%	56%	1.0	Yes
Patio A2 to Thurbin House	59%	59%	1.0	Yes
Communal Gardens to Charolias House	94%	94%	1.0	Yes

Table 6.2 – Results of the Sun on Ground analysis

From the above results, it can be seen that with the proposed scheme in place, the amenity areas benefit from two hours or more of direct sunlight to well over 50% of their area on the 21st March. In addition, it can be seen that as a result of the proposed development, the sunlight available to these amenity areas will not

be reduced by more than 20% which is the acceptable reduction limit prescribed by the BRE Guidelines.

Consequently, it can be concluded that the proposed development will not result in a noticeable increase in overshadowing to the neighbouring gardens.

6.3 Transient Overshadowing

Where amenity areas are used at specific times of day or year, it is useful and illustrative to comment on the overshadowing that will occur throughout the day and at different times of the year. However, with traditional rear gardens and public open spaces that are potentially used all year round, it is acknowledged by the BRE Guidelines that the 21st March equinox is used, as this represents a much worst case than an assessment during the summer when shadows are shorter and impacts of new development are less magnified.

It is also worth highlighting that whilst the BRE Guidelines do not provide any thresholds or assessment criteria for overshadowing analysis carried out at any date other than the 21st March. All that is quoted in the Guidelines is an acknowledgement that some degree of transient overshadowing should be expected from new development. Consequently, unless there is a specific reason to assess overshadowing at a specific time of day, the use of transient shadow plots is not recommended by the BRE Guidelines.

In this situation, it is not considered that any of the amenity areas that are potentially affected by the proposed development would be described as being sensitive to overshadowing at any particular time of day. Consequently, transient overshadowing is not considered appropriate for this assessment.

6.4 Solar Glare

Solar glare or dazzle can affect neighbouring buildings and pose potential hazards for road users under certain circumstances. The BRE Guidelines highlight two particular cases where this can be a problem; these being where there are large areas of reflective glass or cladding on the façade, or where large areas of glass or cladding slope back such that high-altitude sunlight can be reflected along the ground.

When the proposed design is considered, it can be seen that the building does not slope back, nor does it include large areas of reflective glass or cladding. Given the building design and the BRE Guideline's stance on this matter, it is not considered necessary or appropriate to incorporate an analysis of solar glare.

7 Daylight and Sunlight Provision to Proposed Development

7.1 Overview

As discussed in Section 4, the primary test for daylight within the proposed development is the Average Daylight Factor (ADF) test and this is discussed in detail in the following section. The No Sky Line (NSL) analysis has also been carried out to provide supporting information on the distribution of daylight within each of the habitable rooms. The NSL results are processed by the computational model in both graphical and numerical formats and these are included in the appendix to this report.

It is the intention of the BRE Guidelines to aid, rather than constrain the designer and as such a range of qualitative and quantitative tests are outlined, which vary in complexity. During the early stages of design, it is often appropriate to use the more simplistic rule-of-thumb tests. However, when assessing a final design at the planning application stage, it is more appropriate to rely upon the more detailed and quantitative analysis techniques. These allow window size and position, glazing type, room layout and dimensions etc to be taken into consideration. Consequently, the assessment of natural daylight provision has been based primarily on the results of the ADF test, although reference to the NSL results is made when deemed necessary.

7.2 Assessment of Daylight Provision to New Rooms

Using the analytical techniques discussed in Section 4, the Average Daylight Factor (ADF) for the habitable rooms within the proposed development has been calculated.

It is fist important to note that in accordance with the guidance set out in both the BRE Guidelines and the BS 8206-2:2008 document, rooms that have a dual use, i.e. an open plan kitchen and lounge, are assessed as a single room and assessed against the room use with the highest daylighting requirement.

However, where kitchens have a floor area that is less than 13m^2 it is conventional to assume that this is not a habitable room, in reference to the Metric Handbook, and the daylight tests need not be applied. Notwithstanding this, where kitchens form an integral part of a room, they have been included but the interpretation of the daylighting results reflects the non-habitable status of the kitchen area. The LKDs have therefore been assessed by applying the parameters for the primary rooms use i.e. the living room (LD – 1.5%). The BRE Guidelines advise that this is acceptable as long as they are directly linked to a well-lit space.

The results are summarised in Table 7.1 below

Unit number & Floor level	Room number and use	ADF value achieved	Target ADF value	Meets BRE criteria
Ground Flat 1	R1 Bedroom	1.6%	1.0%	Yes
	R2 LD	3.6%	1.5%	Yes
	R3 Bedroom	1.3%	1.0%	Yes
Ground Flat 2	R1 Bedroom	1.3%	1.0%	Yes
	R2 LD	4.2%	1.5%	Yes
	R3 Bedroom	1.7%	1.0%	Yes
Ground Flat 3	R1 Bedroom	1.8%	1.0%	Yes
	R2 LD	2.2%	1.5%	Yes

First Flat 4	R1 Bedroom	2.1%	1.0%	Yes
	R2 Bedroom	2.7%	1.0%	Yes
	R3 LD	2.8%	1.5%	Yes
	R4 Bedroom	1.7%	1.0%	Yes
First Flat 5	R1 Bedroom	1.7%	1.0%	Yes
	R2 LD	2.6%	1.5%	Yes
	R3 Bedroom	2.7%	1.0%	Yes
	R4 Bedroom	2.1%	1.0%	Yes
First Flat 6	R1 Bedroom	2.8%	1.0%	Yes
	R2 LD	1.8%	1.5%	Yes
First Flat 7	R1 Bedroom	1.8%	1.0%	Yes
	R2 LD	3.5%	1.5%	Yes
	R3 Bedroom	2.4%	1.0%	Yes
First Flat 8	R1 Bedroom	3.4%	1.0%	Yes
	R2 LD	3.2%	1.5%	Yes
First Flat 9	R1 Bedroom	2.8%	1.0%	Yes
	R2 LD	3.2%	1.5%	Yes
First Flat 10	R1 Bedroom	2.3%	1.0%	Yes
	R2 Bedroom	3.3%	1.0%	Yes
	R3 LD	1.7%	1.5%	Yes
First Flat 11	R1 LD	1.8%	1.5%	Yes
	R2 Bedroom	2.8%	1.0%	Yes
Second Flat 12	R1 Bedroom	2.3%	1.0%	Yes
	R2 Bedroom	3.0%	1.0%	Yes
	R3 LD	3.2%	1.5%	Yes
	R4 Bedroom	1.9%	1.0%	Yes
Second Flat 13	R1 Bedroom	1.9%	1.0%	Yes
	R2 LD	3.2%	1.5%	Yes
	R3 Bedroom	3.0%	1.0%	Yes
	R4 Bedroom	2.3%	1.0%	Yes
Second Flat 14	R1 Bedroom	3.0%	1.0%	Yes
	R2 LD	2.0%	1.5%	Yes
Second Flat 15	R1 LD	1.9%	1.5%	Yes
	R2 Bedroom	3.7%	1.0%	Yes
	R3 Bedroom	2.5%	1.0%	Yes
Second Flat 16	R1 Bedroom	3.6%	1.0%	Yes
	R2 LD	3.4%	1.5%	Yes
Second Flat 17	R1 LD	3.0%	1.5%	Yes
	R2 Bedroom	3.5%	1.0%	Yes
Second Flat 18	R1 Bedroom	2.5%	1.0%	Yes
	R2 Bedroom	3.6%	1.0%	Yes
	R3 LD	1.9%	1.5%	Yes
Second Flat 19	R1 LD	2.0%	1.5%	Yes
	R2 Bedroom	3.0%	1.0%	Yes
Third Flat 20	R1 Bedroom	2.7%	1.0%	Yes
	R2 Bedroom	4.8%	1.0%	Yes
	R3 LD	4.3%	1.5%	Yes
	R4 Bedroom	2.0%	1.0%	Yes
Third Flat 21	R1 Bedroom	2.0%	1.0%	Yes
	R2 LD	4.3%	1.5%	Yes
	R3 Bedroom	4.8%	1.0%	Yes
	R4 Bedroom	2.7%	1.0%	Yes
Third Flat 22	R1 Bedroom	4.7%	1.0%	Yes
	R2 LD	3.0%	1.5%	Yes

Third Flat 23	R1 LD	2.9%	1.5%	Yes
	R2 Bedroom	5.7%	1.0%	Yes
	R3 Bedroom	2.8	1.0	Yes
Third Flat 24	R1 Bedroom	4.2%	1.0%	Yes
	R2 LD	3.0%	1.5%	Yes
Third Flat 25	R1 LD	4.1%	1.5%	Yes
	R2 Bedroom	5.5%	1.0%	Yes
Third Flat 26	R1 Bedroom	2.8%	1.0%	Yes
	R2 Bedroom	5.7%	1.0%	Yes
	R3 LD	2.9%	1.5%	Yes
Third Flat 27	R1 LD	3.0%	1.5%	Yes
	R2 Bedroom	4.7%	1.0%	Yes
Fourth Flat 28	R1 LD	6.9%	1.5%	Yes
	R2 Bedroom	4.5%	1.0%	Yes
Fourth Flat 29	R1 LD	3.9%	1.5%	Yes
	R2 Bedroom	4.7%	1.0%	Yes

Table 7.1 – Calculated ADF Values

From the results above, it can be seen that all the habitable rooms within the 29 residential units proposed, far exceed the ADF target values set out by the BRE Guidelines. Consequently, it can be concluded that these habitable spaces will be well lit throughout the year and will have a reduced reliance on supplementary electric lighting.

7.3 Provision of Sunlight to New Rooms

The BRE Guidelines provide guidance in respect of sunlight quality for new developments stating: "in housing, the main requirement for sunlight is in living rooms, where it is valued at any time of the day, but especially in the afternoon. Sunlight is also required in conservatories. It is viewed as less important in bedrooms and in kitchens where people prefer it in the morning rather than the afternoon."

The assessment criteria set out within the BRE document are discussed in Section 4.3 of this report, but in general terms the overall objective sought by the guidelines is as follows:

"In general, a dwelling or non-domestic building which has a particular requirement for sunlight, will appear reasonably sunlit provided that at least one main window faces within 90 degrees of due south; and the centre of at least one window to a main living room can receive 25% of annual probable sunlight hours, including at least 5% of annual probable sunlight hours in the winter months between 21st September and 21st March.

It is also worth noting that in paragraph 3.1.11 of the BRE guidance it is suggested that if a room faces significantly north of due east or west it is unlikely to meet the recommended levels of sunlight. A further observation from paragraph 5.3 of the BS 8206-2 is that with regards to sunlight duration, the degree of satisfaction is related to the expectation of sunlight. Therefore, if a room is north facing or if the building is in a densely-built urban area, the expectation of sunlight will be lower.

It should be noted that where rooms have more than one window, it is acceptable to sum the non-coincident sunlight hours to achieve a 'room total'. This approach is acknowledged by the BRE Guidelines and facilitates a greater understanding

of the sunlight received within a room by taking into account the fact that some windows will receive sunlight at different times during the day.

Following the approach prescribed by the BRE Guidelines where preference for sunlight is given to the main living area of a proposed unit, in this case, the Living/ Dining (LD) areas, only the LD rooms within the proposed units have been included in the table of results below. The complete set of results of the APSH analysis which includes the remainder rooms within the units (all bedrooms) are presented on Appendix A.4 of this report.

The results of this analysis are summarised in Table 7.2.

Floor level	Unit number	Room number & use	Percentage APSH	
			All year	Winter
Ground	Flat 1	R2 LD	74	15
Ground	Flat 2	R2 LD	82	19
Ground	Flat 3	R1 LD	24	6
First	Flat 4	R3 LD	88	25
First	Flat 5	R2 LD	90	25
First	Flat 6	R2 LD	29	8
First	Flat 7	R1 LD	39	12
First	Flat 8	R2 LD	33	9
First	Flat 9	R1 LD	22	7
First	Flat 10	R3 LD	34	8
First	Flat 11	R1 LD	21	6
Second	Flat 12	R3 LD	91	28
Second	Flat 13	R2 LD	95	29
Second	Flat 14	R2 LD	31	10
Second	Flat 15	R1 LD	43	14
Second	Flat 16	R2 LD	36	11
Second	Flat 17	R1 LD	25	9
Second	Flat 18	R3 LD	38	11
Second	Flat 19	R1 LD	24	9
Third	Flat 20	R3 LD	93	30
Third	Flat 21	R2 LD	96	30
Third	Flat 22	R2 LD	52	15
Third	Flat 23	R1 LD	52	15
Third	Flat 24	R2 LD	52	15
Third	Flat 25	R1 LD	49	15
Third	Flat 26	R3 LD	48	15
Third	Flat 27	R1 LD	48	15
Fourth	Flat 28	R1 LD	55	15
Fourth	Flat 29	R1 LD	93	30

Table 7.2 – Results of APSH analysis

From the results summarised in Table 7.2 it can be seen that the main living areas of the majority of proposed units receive well in excess of the target values set out by the BRE Guidelines of 25% annual probable sun hours and 5% winter probable sun hours. Although flats 3, 9, 11 and 19 fall marginally short of the aspirational target set out by the BRE Guidelines, they do exceed the winter target values and receive good levels of annual sunlight hours. In line with the London Plan which states that '*All homes should provide for direct sunlight to enter at least one habitable room for part of the day',* the sunlight available to

these flats is considered adequate and in line with the requirements of the London Plan. When adopted the flexible approach promoted by the NPPF and the London Plan, it is also possible to conclude that the aspirational targets set by the BRE Guidelines are achieved in principle. As consequence, it can be concluded that the proposed units will be well sunlit throughout the year.

7.4 Direct Sunlighting to Amenity Spaces

The BRE Guidelines acknowledge that good site layout planning for daylight and sunlight should not limit itself to providing good natural light inside buildings. Sunlight in the space between buildings has an important effect on the overall appearance and ambiance of a development. The worst situation is to have significant areas on which the sun does not shine for a large part of the year. These areas would, in general, be damp, chilly and uninviting.

The BRE Guidelines set out the following principle benefits of sunlight in the spaces between buildings:

- To provide attractive sunlit views (all year)
- To make outdoor activities, like sitting out and children's play more pleasant (mainly during the warmer months)
- To encourage plant growth (mainly in spring and summer)
- To dry out the ground, reducing moss and slime (mainly during the colder months)
- To melt frost, ice and snow (in winter)
- To dry clothes (all year)

The assessment criteria set out within the BRE Guidelines is based on the recommendation that for an amenity space to appear adequately sunlit throughout the year, at least half of this area should receive at least two hours of sunlight on 21st March.

Inspection of the site plan shows clearly that the residents of the 29 flats will have access to an area of high-quality amenity space in the form of a shared garden at ground level which lies to the south west of the property. This will receive well in excess of 2 hours of direct sunlight to over 50% of its area on the 21st March.

8 Conclusions

The detailed analysis undertaken as part of this assessment has examined the impact of the proposed development at the Land at Hayes End Road, Hayes, on the amount of daylight enjoyed by the neighbouring buildings. Five properties have been identified as sensitive receptors for this study, and therefore, the habitable rooms and the windows serving these rooms have been tested.

In line with the assessment criteria prescribed by the BRE Guideline, it has been shown that although there may be a reduction in daylighting to the windows/rooms of one of the neighbouring buildings, these reductions are minor and not considered unacceptable. The remaining surrounding buildings will be within the acceptable limits set out within the BRE Guidelines. Consequently, it can be concluded that any changes to the daylight received by the habitable rooms of the neighbouring buildings will not be significant and is unlikely to be noticeable by the occupants.

It is also possible to show that there will be a minimal impact on the number of probable sunlight hours enjoyed by neighbouring buildings, and that all results are within the limits prescribed by the BRE Guidelines as being acceptable. Furthermore, the assessment of the sunlight available to the neighbouring amenity areas indicates that all of the amenity areas will experience no change to the excellent sunlight levels they currently enjoy.

In addition to the impact on its neighbours, the provision of natural daylight and sunlight to the habitable rooms within the proposed development itself has also been quantified. This analysis has shown that all habitable rooms exceed the minimum target values for natural daylight set out within the BRE Guidelines and the British Standards. Consequently, it can be concluded that these habitable spaces will be well lit and will have a reduced reliance on supplementary electric lighting.

It has also been possible to demonstrate that in each of the proposed units, the main living area will receive direct sunlight for part of the day, in line with the *London Plan (2016).* As a consequence of the light and additional visual interest provided by this direct sunlight, the amenity value of these rooms will be enhanced.

A Appendices

Appendix A.1 – Scheme Drawings

Appendix A.2 – Graphical Model Outputs

Appendix A.3 – Tabulated Results for Daylight & Sunlight Calculations (Impacts on Neighbours)

Appendix A.4 – Tabulated Results for Daylight & Sunlight Calculations (Provision to New Development)

Appendix A.1 – Scheme Drawings



Hayes End Road

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Scale:

0 1 3 5 10m

LEGEND

FFL 40.85 Proposed Finished floor level

N

1. Proposed vehicular access
2. Proposed pedestrian access
3. Proposed communal landscaped areas
4. Secure cycle storage
5. Sheffield Stands. Visitor cycle parking spaces
6. Refuse Store
7. Wheelchair accessible parking
8. Main Entrance with 1.2m deep external canopy (indicated with dotted line)
9. Secondary Lobby (access from car park)
10. Proposed private terraces to ground floor units
11. Proposed private access to wheelchair ground floor units
12. Dashed red lines indicates existing buildings to be demolished
13. Proposed hedge buffer to ground floor private gardens
14. Private secure cycle storage
15. Proposed Substation

Existing Building Footprint

Existing trees to be retained

New Planting to be added

NB: OS map data and Topographical survey information overlayed

NB: For detailed existing ground levels please refer to topographical survey drawing produced by Laser Survey Services

Revision Note & Date

Rev	Date	Note	Initial
P02	01.05.20	Amendments as per Consultans' comments	IR

ON ARCHITECTURE

Canterbury Studio
Logan House, St Andrews Close
Canterbury,
CT1 2RP

London Studio
Ink Rooms, 28, Easton Street
Clerkenwell
WC1X 0DS

info@onarchitecture.co.uk
onarchitecture.co.uk
01227 634334

Project Title
LAND OFF HAYES END ROAD

Clients Details
BUGLER HOMES

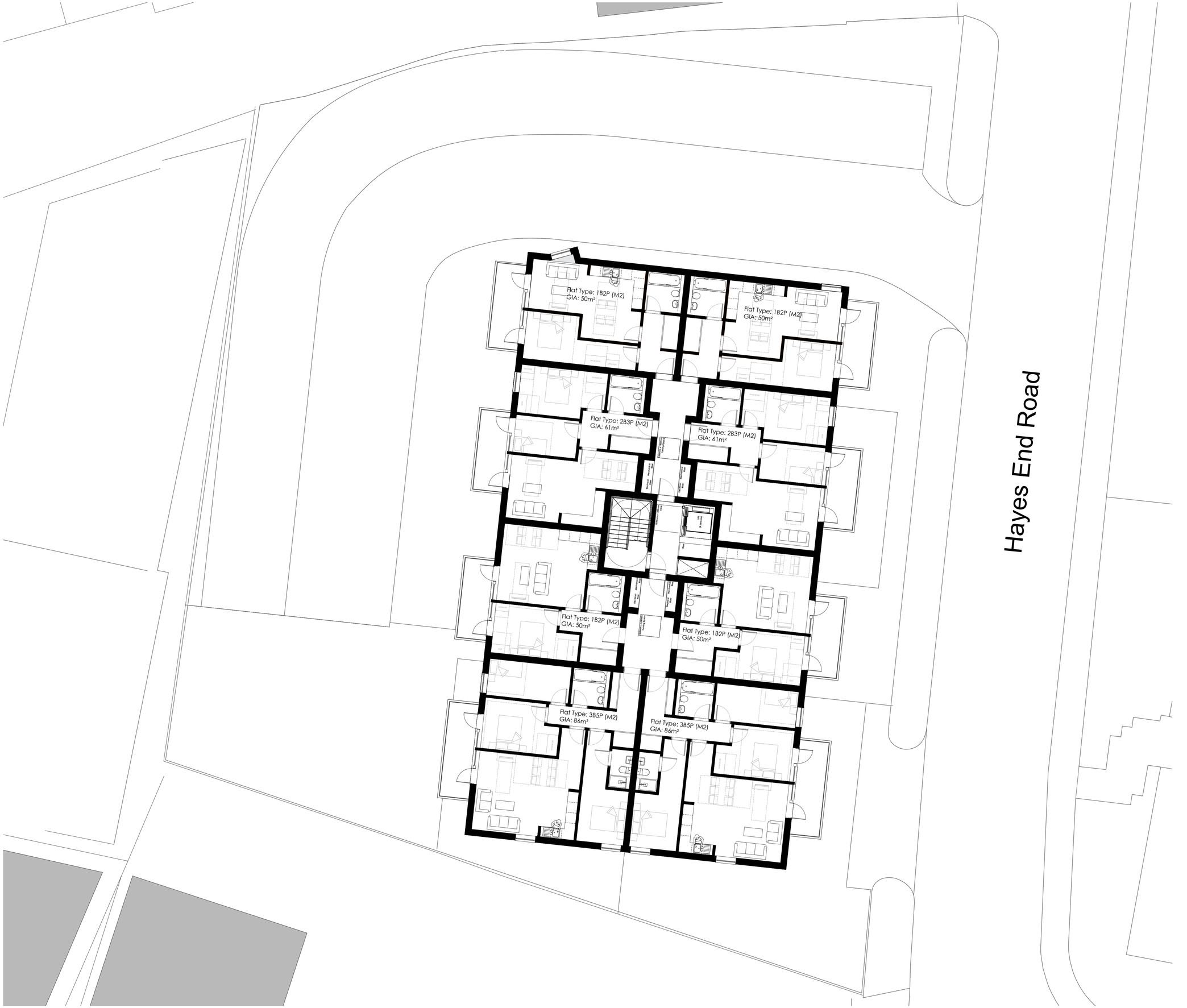
Drawing Title
GROUND FLOOR PLAN

BIM Number
N/A

Scale	Date	Drawn	Checked
1:100 @ A1	28/05/2020	IR	NL

Drawing Status
PLANNING

Project Number	Drawing Number	Drawing Revision
19.156	0200	P04



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Scale:

0 1 3 5 10m

LEGEND

1 Projecting angled windows to omit direct overlooking to adjacent development

N

Revision Note & Date

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P02	01.05.20	Amendments as per Consultants' comments	IR

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Canterbury Studio
Logan House, St Andrews Close
Canterbury,
CT1 2RP

London Studio
Ink Rooms, 28, Easton Street
Clerkenwell
WC1X 0DS

info@onarchitecture.co.uk
onarchitecture.co.uk
01227 634334

Project Title
LAND OFF HAYES END ROAD

Clients Details
BUGLER HOMES

Drawing Title
FIRST FLOOR PLAN

BIM Number
N/A

Scale	Date	Drawn	Checked
1:100 @ A1	18/06/2020	IR	NL

Drawing Status
PLANNING

Project Number	Drawing Number	Drawing Revision
19.156	0201	P03



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Scale:

0 1 3 5 10m

LEGEND

1 Projecting angled windows to omit direct overlooking to adjacent development

N

Revision Note & Date

Rev	Date	Note	Initial
P02	01.05.20	Amendments as per Consultants' comments	IR

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Canterbury Studio
Logan House, St Andrews Close
Canterbury,
CT1 2RP

London Studio
Ink Rooms, 28, Easton Street
Clerkenwell
WC1X 0DS

info@onarchitecture.co.uk
onarchitecture.co.uk
01227 634334

Project Title
LAND OFF HAYES END ROAD

Clients Details
BUGLER HOMES

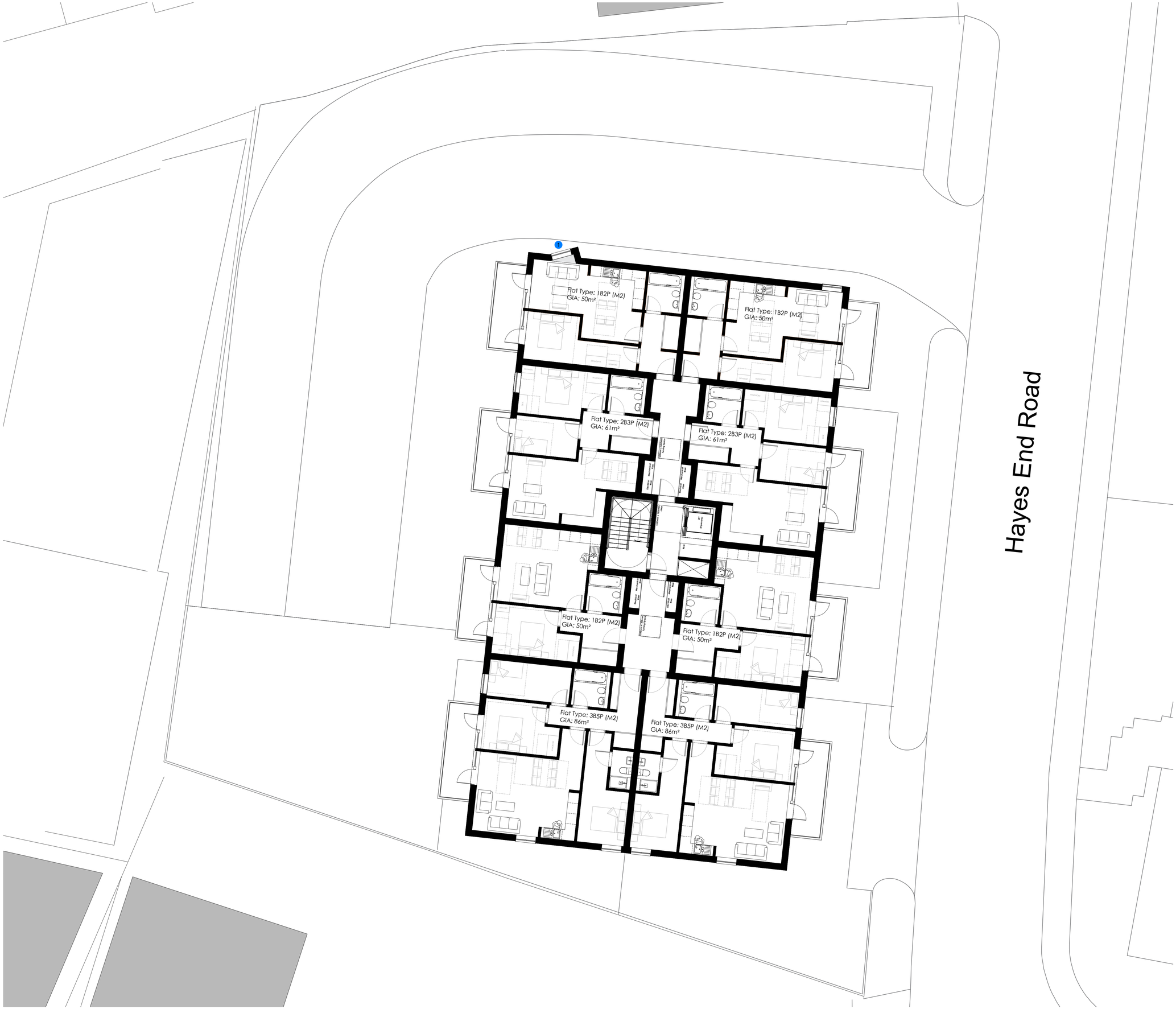
Drawing Title
SECOND FLOOR PLAN

BIM Number
N/A

Scale	Date	Drawn	Checked
1:100 @ A1	29/06/2020	IR	NL

Drawing Status
PLANNING

Project Number	Drawing Number	Drawing Revision
19.156	0202	P04



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Scale:
0 1 3 5 10m

LEGEND

1 Projecting angled windows to omit direct overlooking to adjacent development

N

Revision Note & Date

Rev	Date	Note	Initial
P02	01.05.20	Amendments as per Consultants' comments	IR

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Canterbury Studio
Logan House, St Andrews Close
Canterbury,
CT1 2RP

London Studio
Ink Rooms, 28, Easton Street
Clerkenwell
WC1X 0DS

info@onarchitecture.co.uk
onarchitecture.co.uk
01227 634334

Project Title
LAND OFF HAYES END ROAD

Clients Details
BUGLER HOMES

Drawing Title
THIRD FLOOR PLAN

BIM Number
N/A

Scale	Date	Drawn	Checked
1:100 @ A1	29/06/2020	IR	NL

Drawing Status
PLANNING

Project Number	Drawing Number	Drawing Revision
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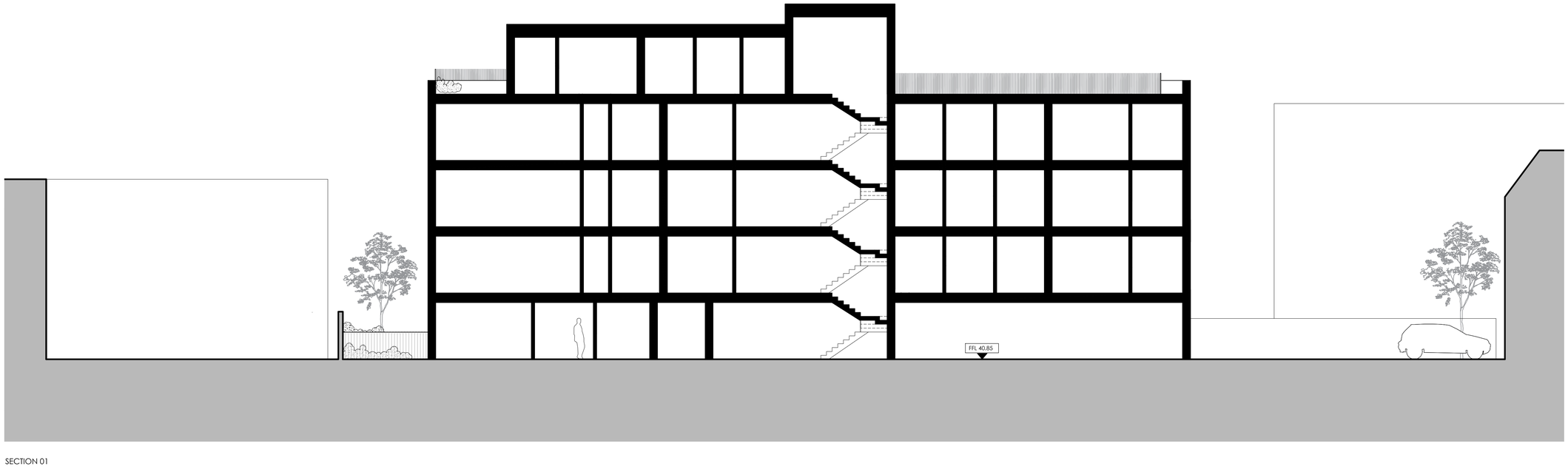
Scale:

0 1 3 5 10m



SECTION KEY

SECTION 01



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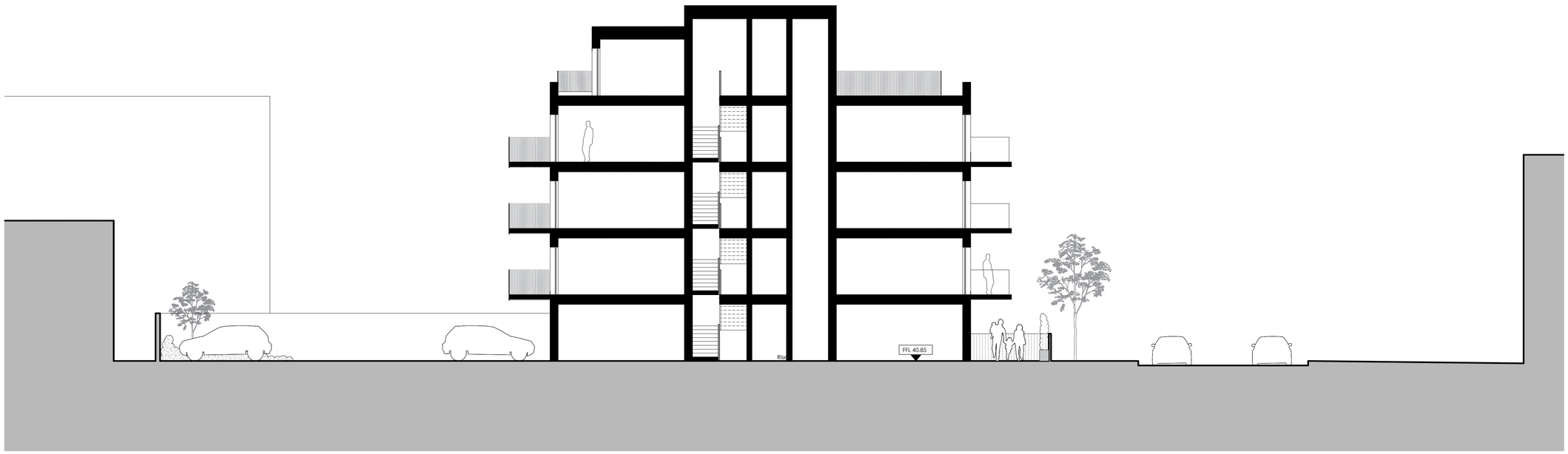

LEGEND

FFL 40.85 Finished floor level - Block 2

NOTES

NB: For detailed existing ground levels please refer to topographical survey drawing produced by Laser Survey Services

Revision Note & Date

Rev	Date	Note	Initial

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Canterbury Studio
Logan House, St Andrews Close
Canterbury,
CT1 2RP

London Studio
Ink Rooms, 28, Easton Street
Clerkenwell
WC1X 0DS

info@onarchitecture.co.uk
onarchitecture.co.uk
01227 634334

Project Title
LAND OFF HAYES END ROAD

Clients Details
BUGLER HOMES

Drawing Title
SECTION 01 & SECTION 02

BIM Number
N/A

Scale	Date	Drawn	Checked
1:100 @ A1	08.06.2020	IR	NL

Drawing Status
PLANNING

Project Number	Drawing Number	Drawing Revision
19.156	0400	P02

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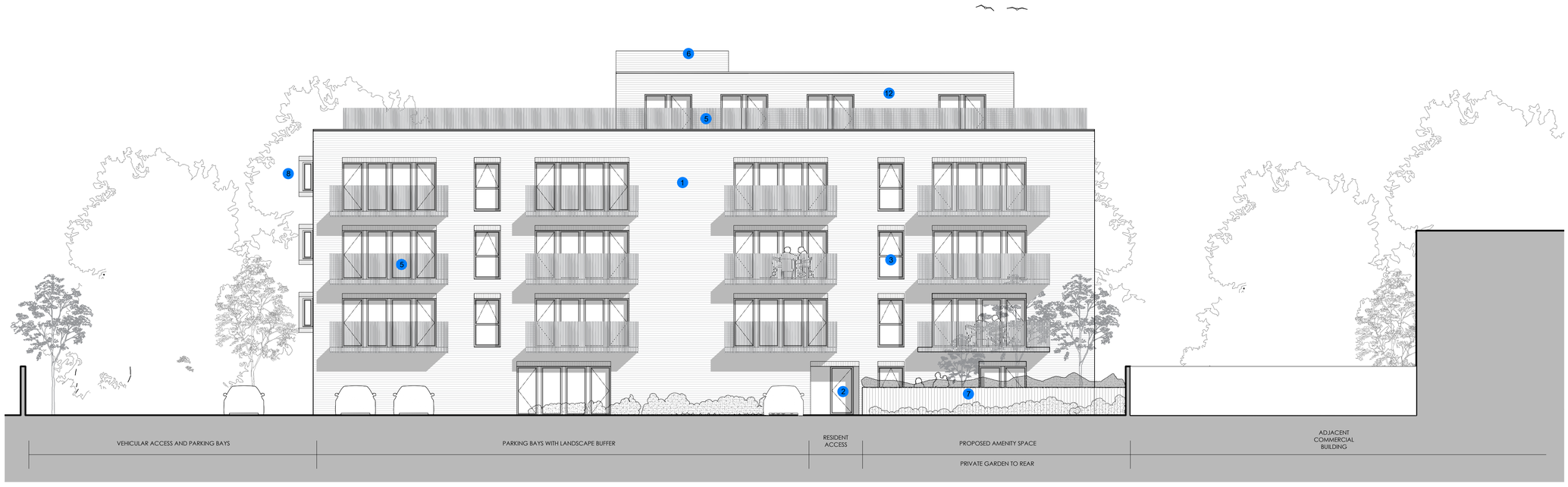
Scale:

0 1 3 5 10m



PROPOSED EAST ELEVATION



PROPOSED WEST ELEVATION

LEGEND

1. Proposed red brickwork
2. Proposed residential entrance
3. Proposed grey window frames
4. Proposed glazed balustrades
5. Proposed metal balustrades
6. Proposed lift overrun
7. Proposed timber and foliage landscape buffer
8. Proposed projected angled window to omit overlooking
9. Proposed commercial entrance
10. Proposed binstore entrance
11. Proposed substation
12. Proposed light colour cladding to upper floor
13. Proposed metal fence with hedging
14. Proposed dark red brick

Revision Note & Date

Rev	Date	Note	Initial

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Canterbury Studio
Logan House, St Andrews Close
Canterbury,
CT1 2RP

info@onarchitecture.co.uk
onarchitecture.co.uk
01227 634334

London Studio
Ink Rooms, 28, Easton Street
Clerkenwell
WC1X 0DS

Project Title
LAND OFF HAYES END ROAD

Client's Details
BUGLER HOMES

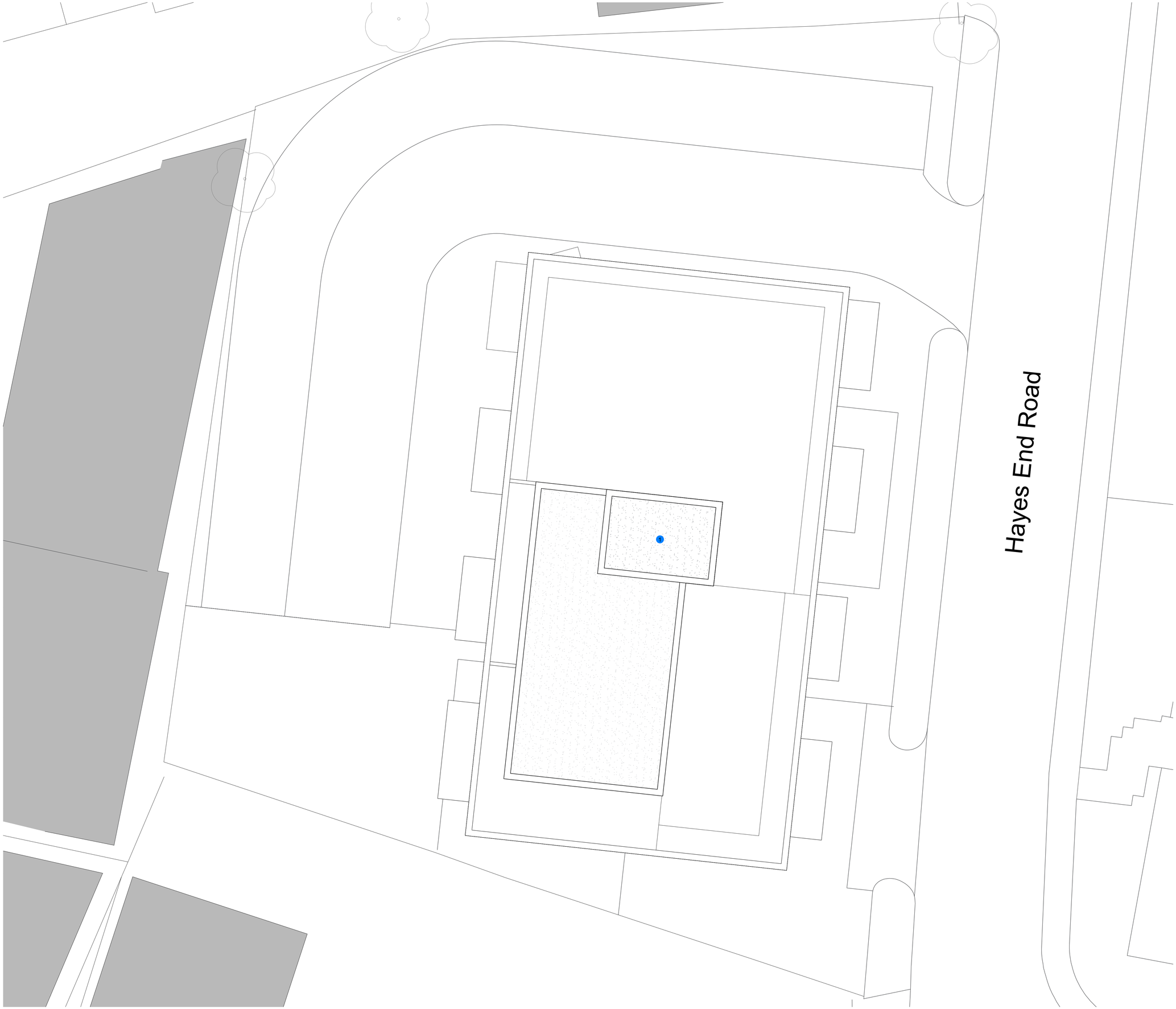
Drawing Title
EAST ELEVATION & WEST ELEVATION

BIM Number
N/A

Scale	Date	Drawn	Checked
1:100 @ A1	29/06/2020	IR	NL

Drawing Status
PLANNING

Project Number	Drawing Number	Drawing Revision
19.156	0300	P07



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Scale:

0 1 3 5 10m

1 Proposed communal amenity space
2 PV panel provision

N

Revision Note & Date

Rev	Date	Note	Initial

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Canterbury Studio
Logan House, St Andrews Close
Canterbury,
CT1 2RP

London Studio
Ink Rooms, 28, Easton Street
Clerkenwell
WC1X 0DS

info@onarchitecture.co.uk
onarchitecture.co.uk
01227 634334

Project Title
LAND OFF HAYES END ROAD

Clients Details
BUGLER HOMES

Drawing Title
ROOF PLAN

BIM Number
N/A

Scale	Date	Drawn	Checked
1:100 @ A1	28/05/2020	IR	NL

Drawing Status
PLANNING

Project Number	Drawing Number	Drawing Revision
19.156	0205	P02

Appendix A.2 – Graphical Model Outputs

Existing Site Scenario
View Looking North



Proposed Site Scenario
View Looking North



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CONSULTING LIMITED

Unit 6 - Barham Business Park
Elham Valley Road
Canterbury
Kent CT4 6DQ

Tel : 01227 833855
enquiries@herringtonconsulting.co.uk
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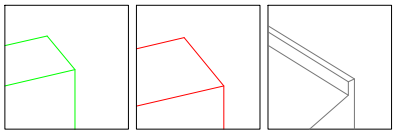
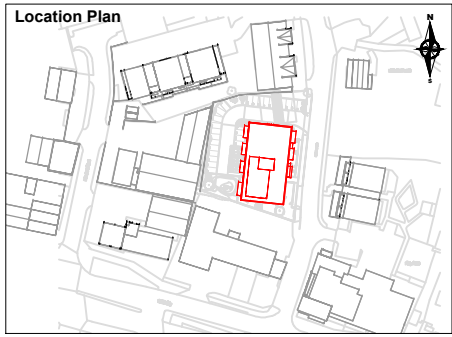
Legend



Existing Buildings | Proposed Buildings | Surrounding Buildings

Location Plan



Rev	Description	Date
00	First issue	24/04/2019

CLIENT: Bugler Homes Limited

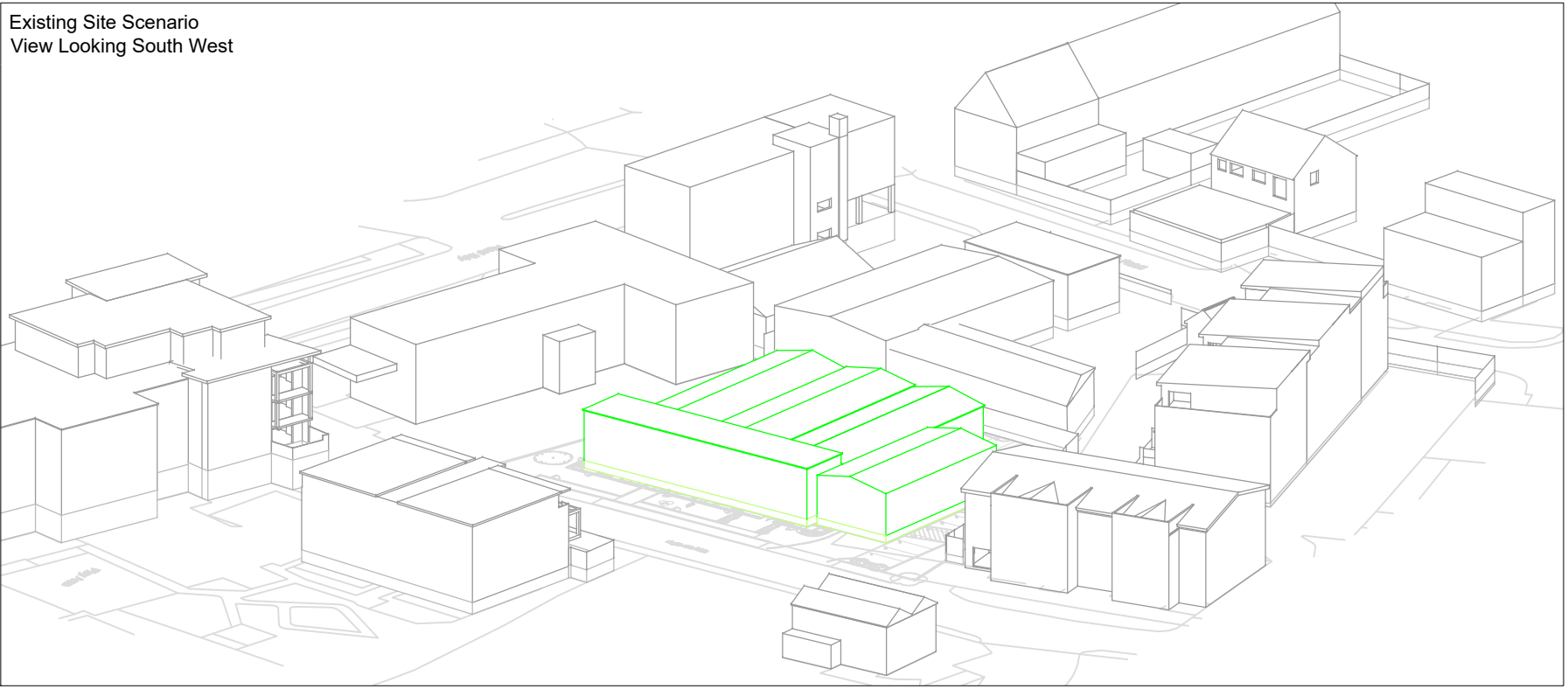
PROJECT: Hayes End Road, Hayes

SCALE	PROJ REF	ANALYST	DRAWN BY
Not to scale	2711	AM	JP

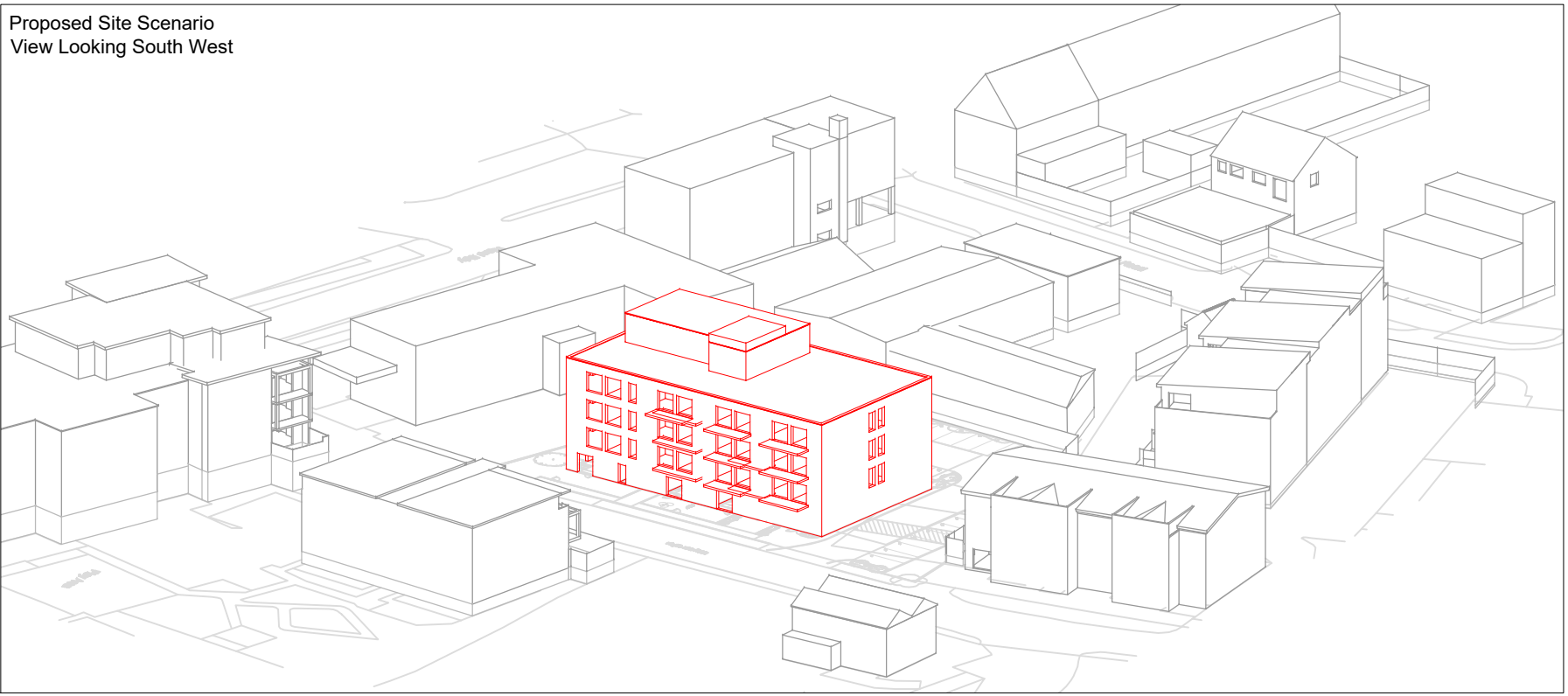
DWG REF.: 3D Model - Existing & Proposed Site Scenarios.

DWG No.: 2711_01

Existing Site Scenario
View Looking South West



Proposed Site Scenario
View Looking South West



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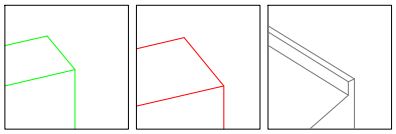
CONSULTING LIMITED

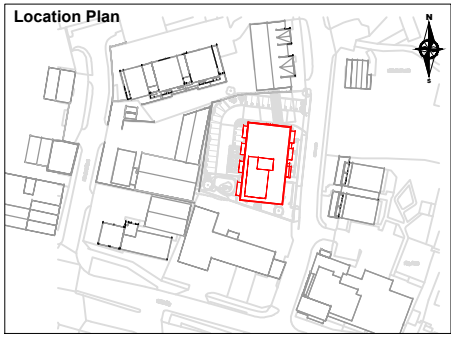
Unit 6 - Barham Business Park
Elham Valley Road
Canterbury
Kent CT4 6DQ

Tel : 01227 833855
enquiries@herringtonconsulting.co.uk
www.herringtonconsulting.co.uk

Legend



Location Plan



Rev	Description	Date
00	First issue	24/04/2019

CLIENT
Bugler Homes Limited

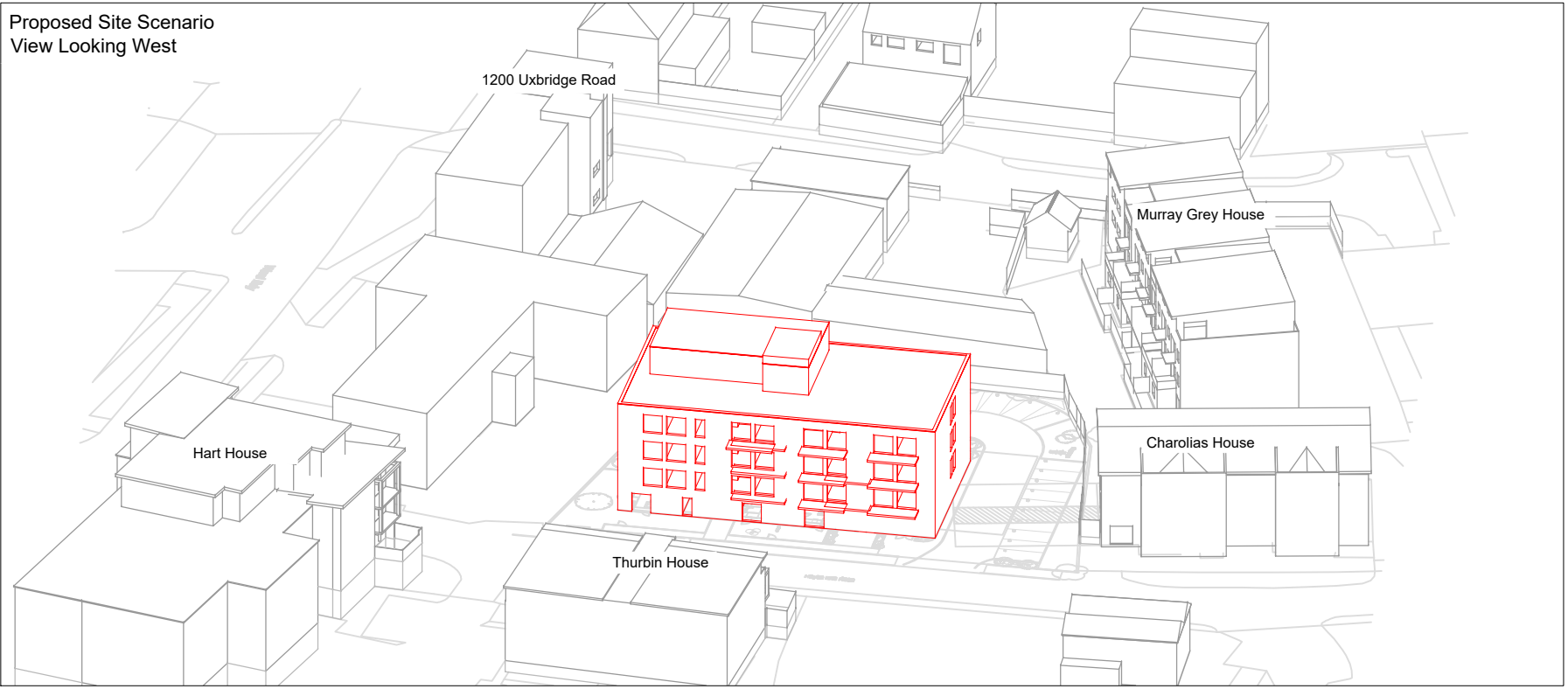
PROJECT
Hayes End Road, Hayes

SCALE	PROJ REF	ANALYST	DRAWN BY
Not to scale	2711	AM	JP

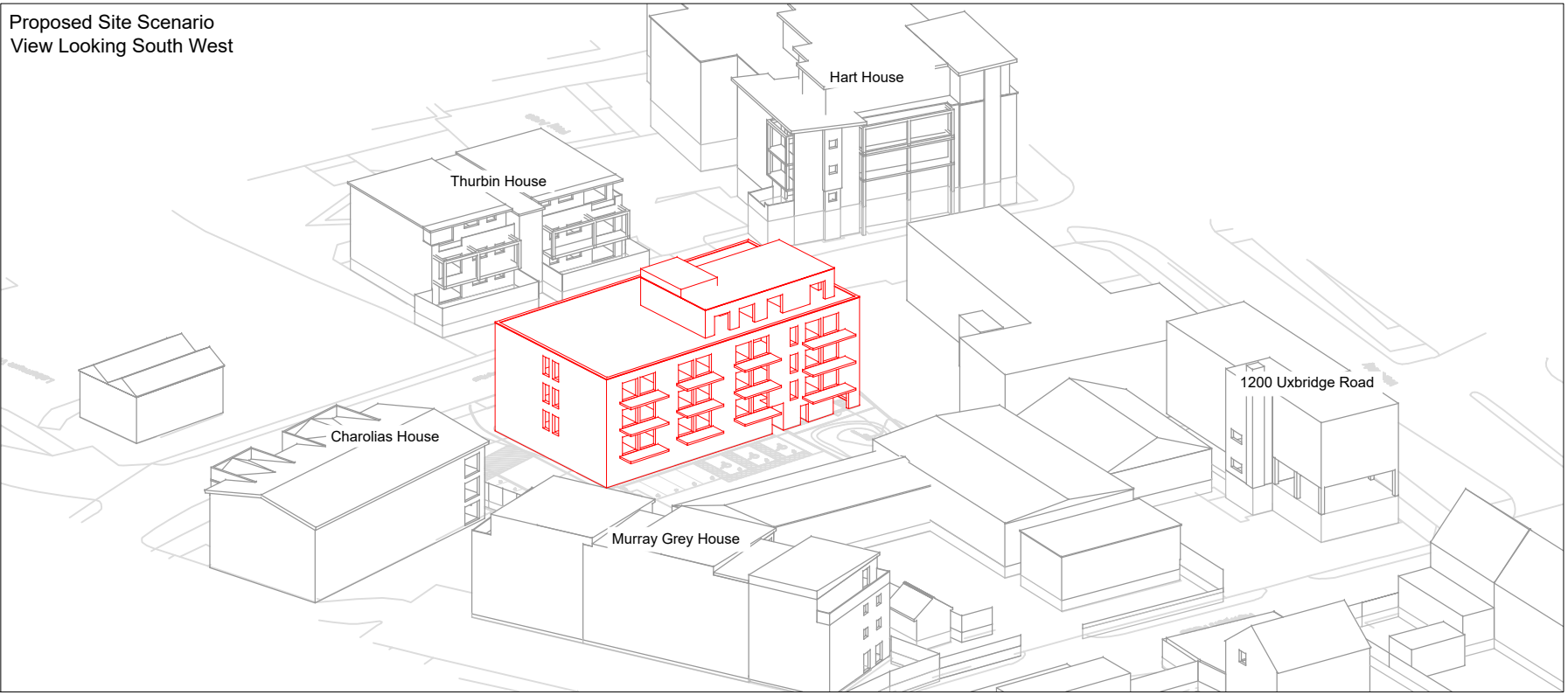
DWG REF.
3D Model - Existing & Proposed Site Scenarios.

DWG No.
2711_02

Proposed Site Scenario
View Looking West



Proposed Site Scenario
View Looking South West



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Unit 6 - Barham Business Park
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Tel : 01227 833855
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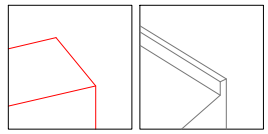
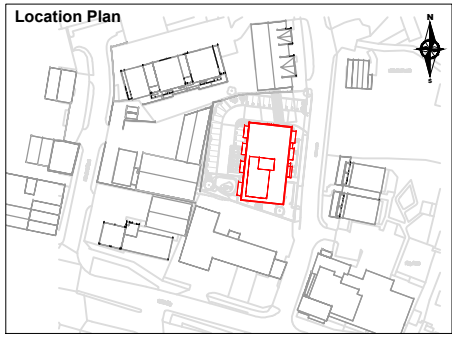


Proposed Buildings | Surrounding Buildings

Location Plan



Rev	Description	Date
00	First issue	24/04/2019

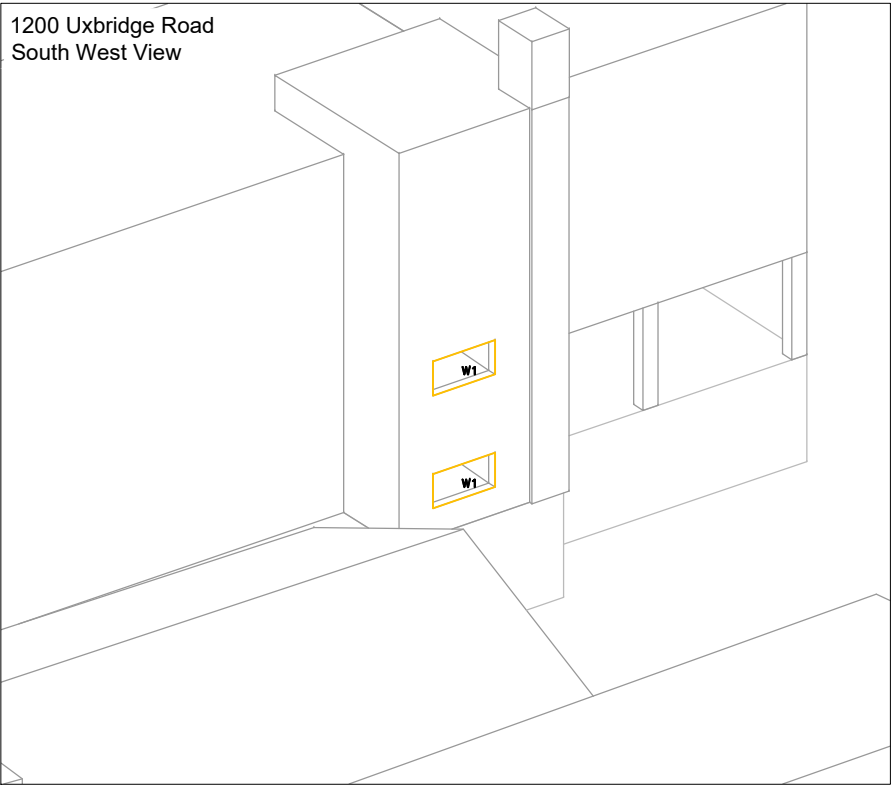
CLIENT
Bugler Homes Limited

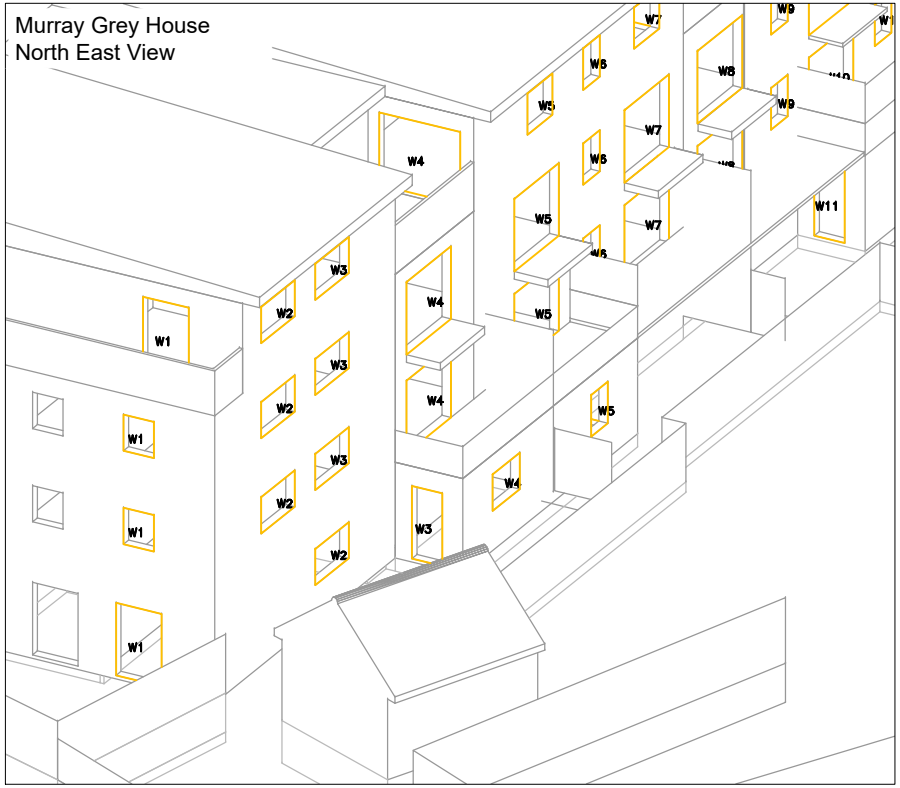
PROJECT
Hayes End Road, Hayes

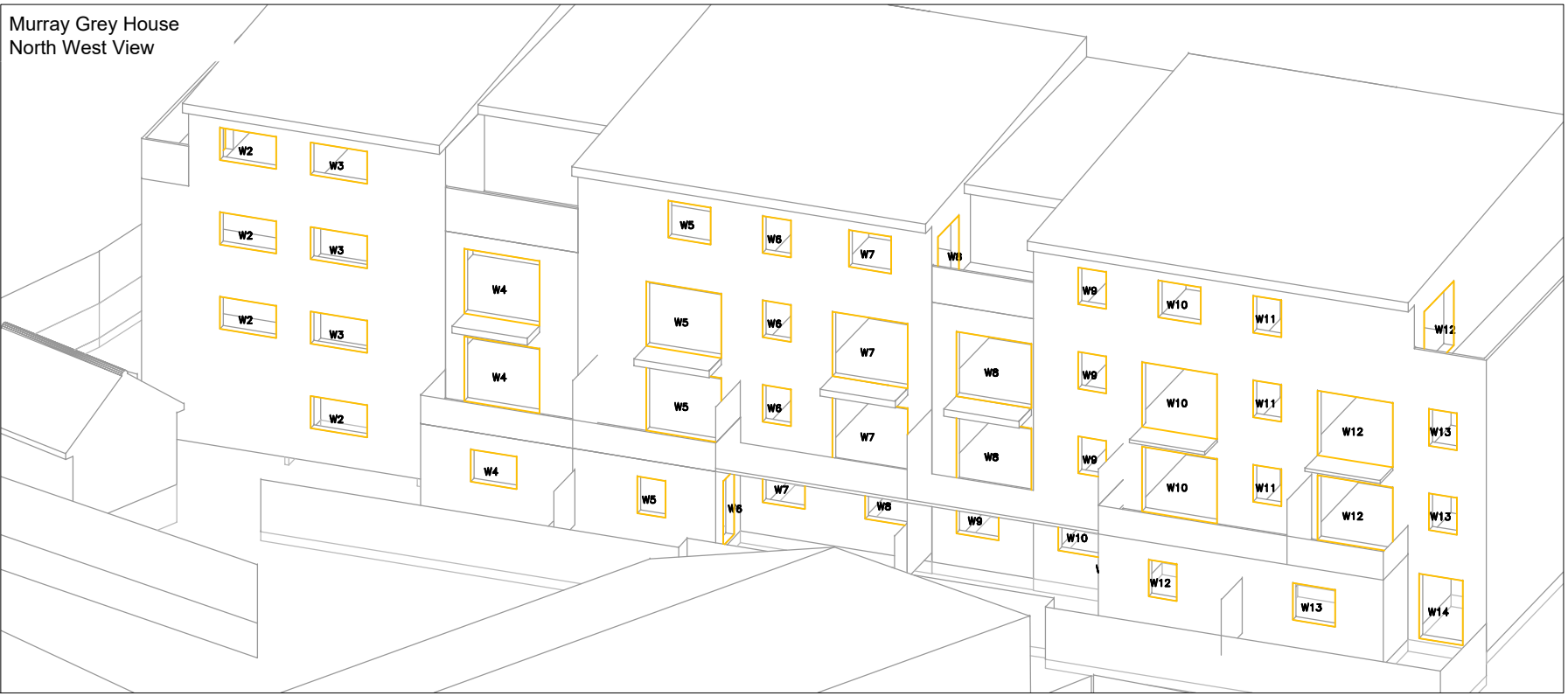
SCALE	PROJ REF	ANALYST	DRAWN BY
Not to scale	2711	AM	JP

DWG REF.
Identification of Neighbouring Properties.

DWG No.
2711_03







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CONSULTING LIMITED
Unit 6 - Barham Business Park
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Canterbury
Kent CT4 6DQ
Tel : 01227 833855
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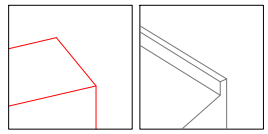
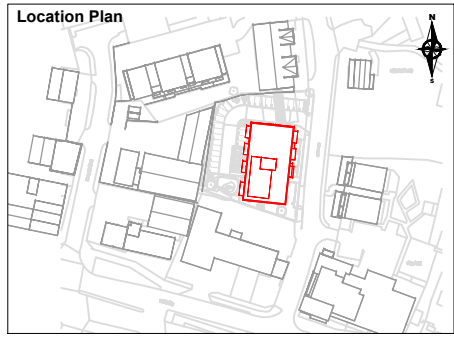
Legend



Location Plan



Rev	Description	Date
00	First issue	24/04/2019

CLIENT: Bugler Homes Limited

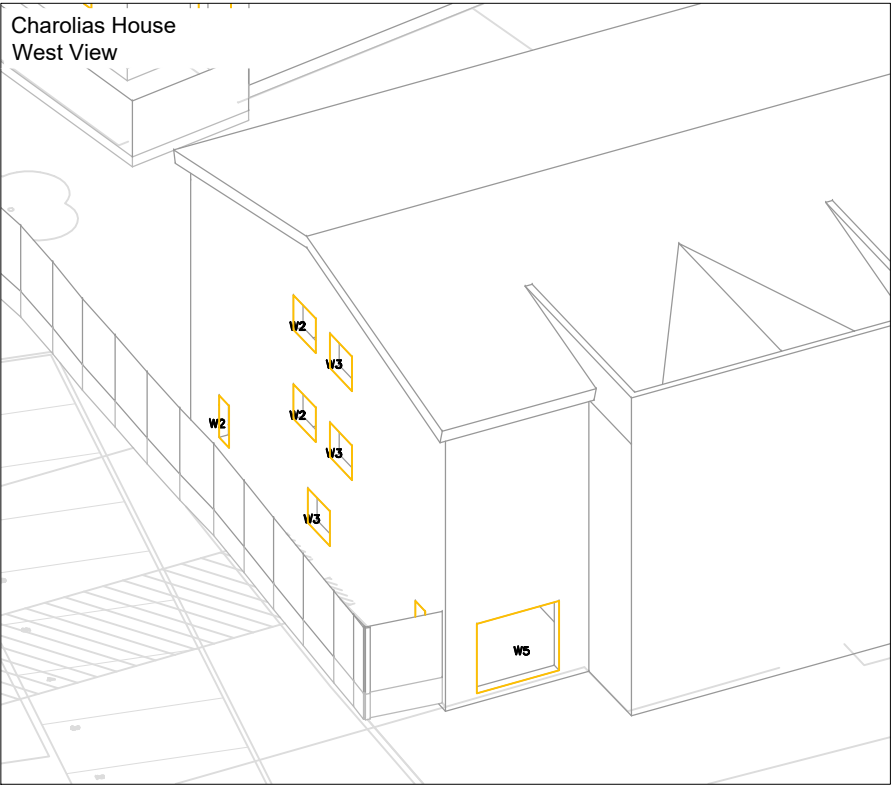
PROJECT: Hayes End Road, Hayes

SCALE	PROJ REF	ANALYST	DRAWN BY
Not to scale	2711	AM	JP

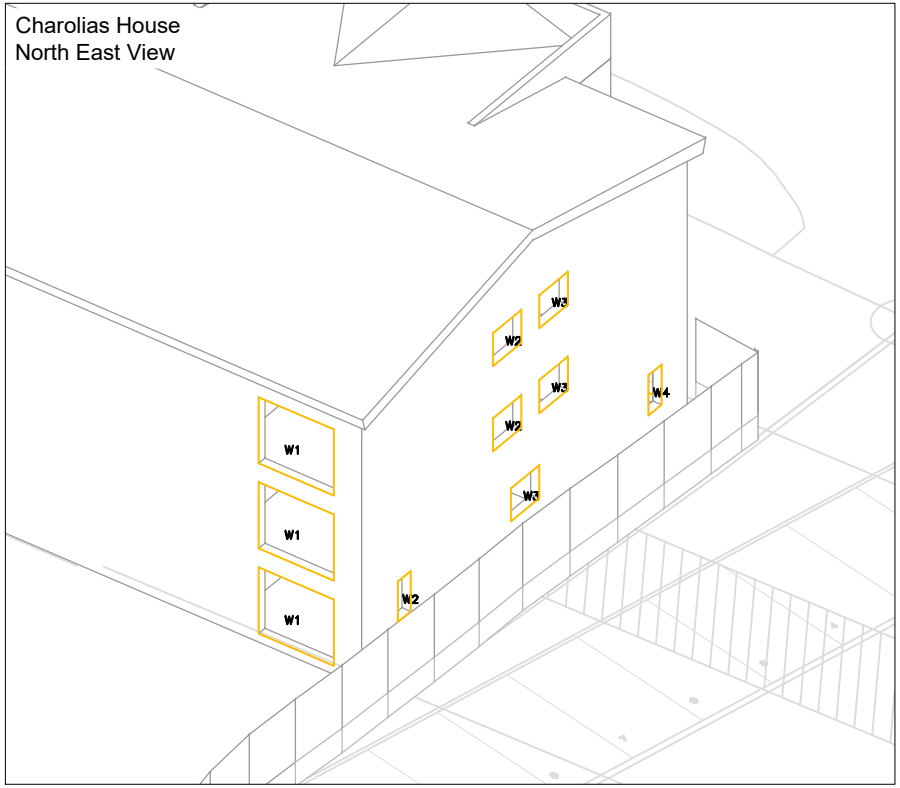
DWG REF.: Location of Window Receptors.

DWG No.: 2711_04

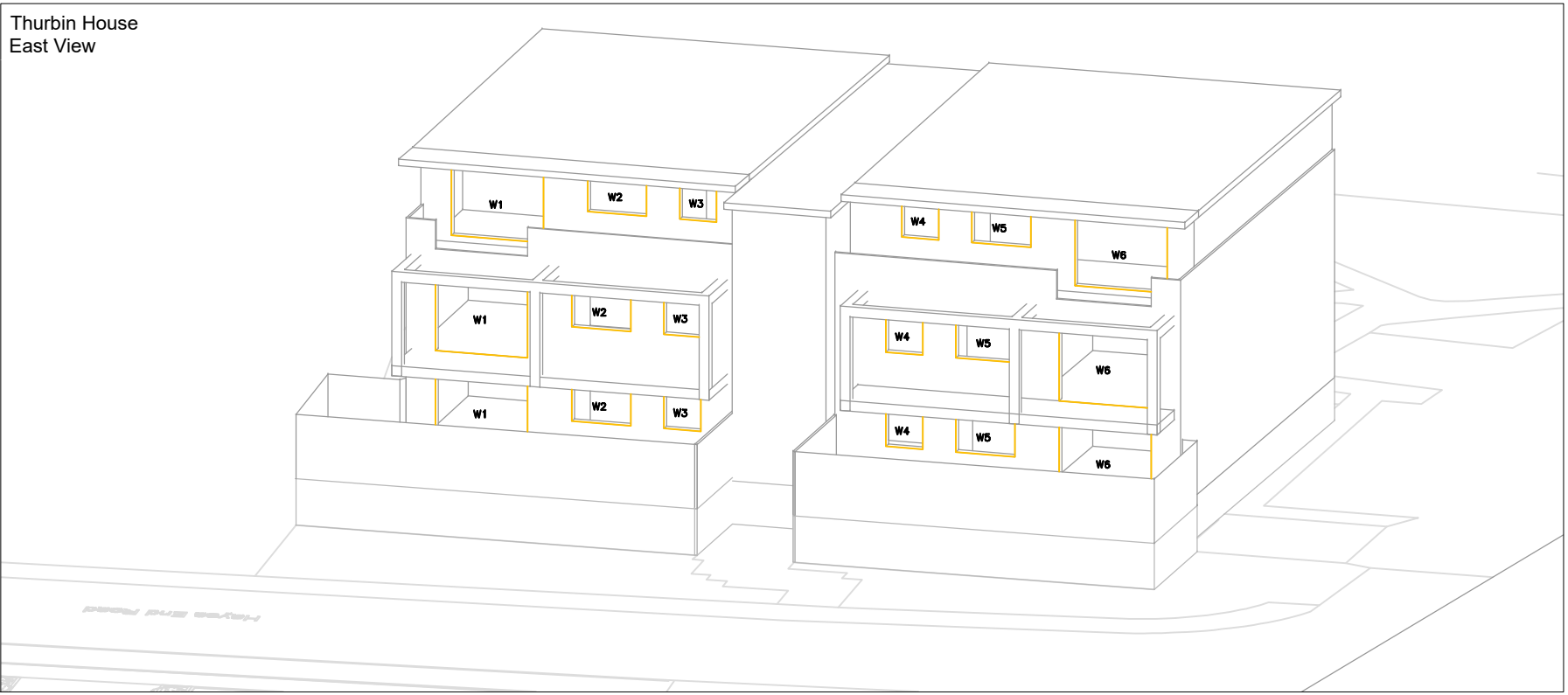
Charolias House
West View



Charolias House
North East View



Thurbin House
East View



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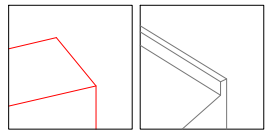
CONSULTING LIMITED

Unit 6 - Barham Business Park
Elham Valley Road
Canterbury
Kent CT4 6DQ

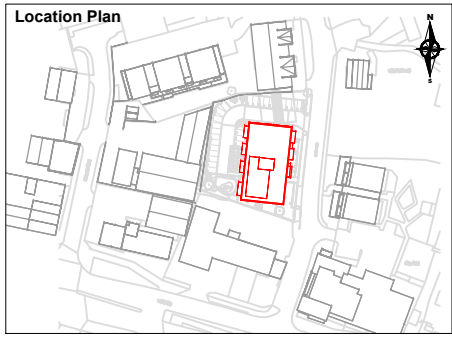
Tel : 01227 833855
enquiries@herringtonconsulting.co.uk
www.herringtonconsulting.co.uk

Legend



Proposed Buildings Surrounding Buildings

Location Plan



Rev	Description	Date
00	First issue	24/04/2019

CLIENT
Bugler Homes Limited

PROJECT
Hayes End Road, Hayes

SCALE	PROJ REF	ANALYST	DRAWN BY
Not to scale	2711	AM	JP

DWG REF.
Location of Window Receptors.

DWG No.
2711_05

Hart House
South View



Hart House
South East View



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Unit 6 - Barham Business Park
Elham Valley Road
Canterbury
Kent CT4 6DQ

Tel : 01227 833855
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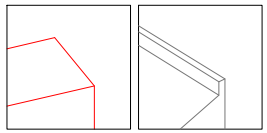
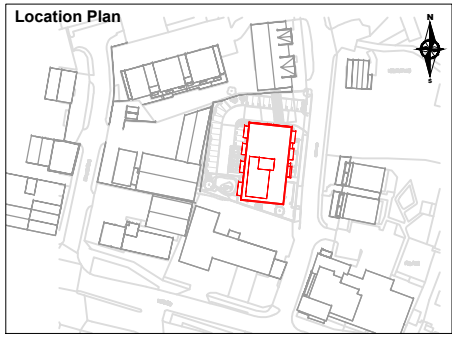
Legend



Proposed Buildings Surrounding Buildings

Location Plan



Rev	Description	Date
00	First issue	24/04/2019

CLIENT
Bugler Homes Limited

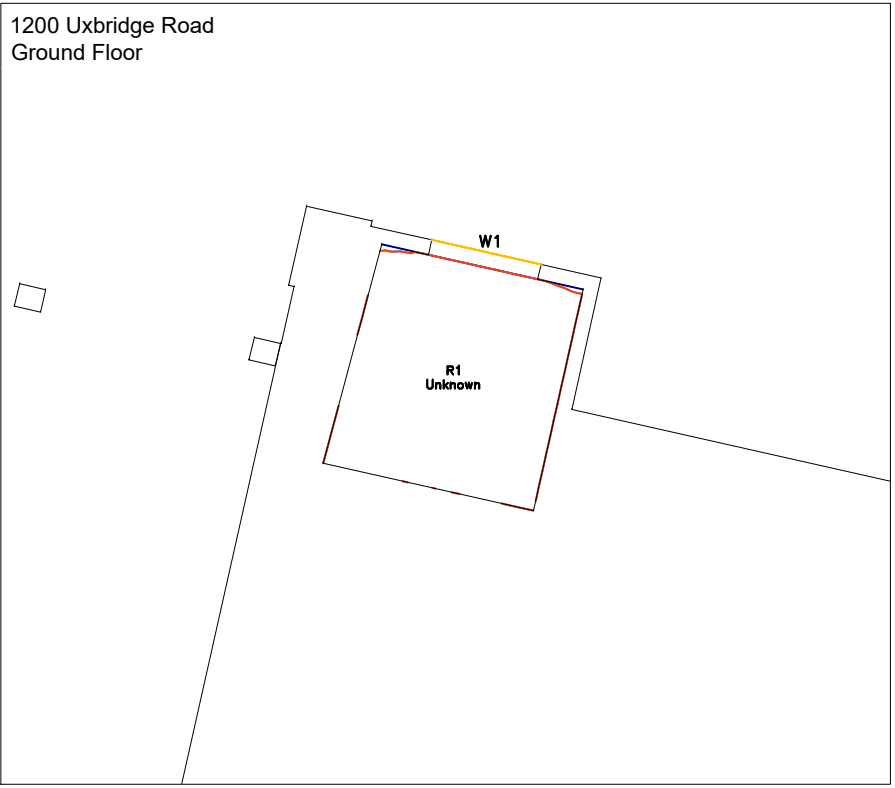
PROJECT
Hayes End Road, Hayes

SCALE	PROJ REF	ANALYST	DRAWN BY
Not to scale	2711	AM	JP

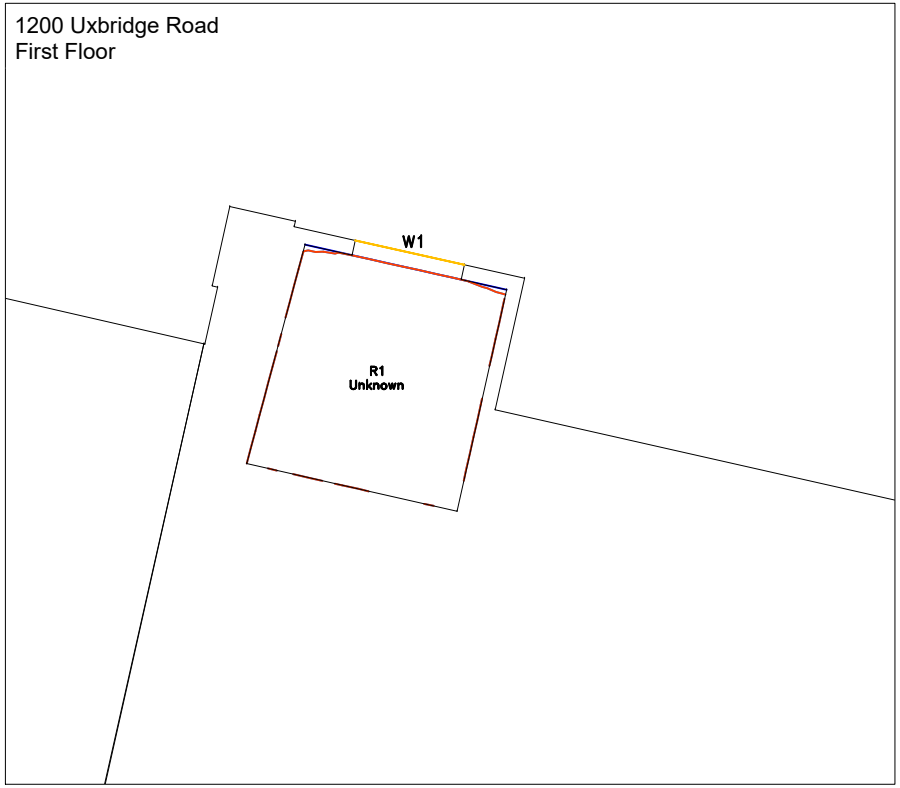
DWG REF.
Location of Window Receptors.

DWG No.
2711_06

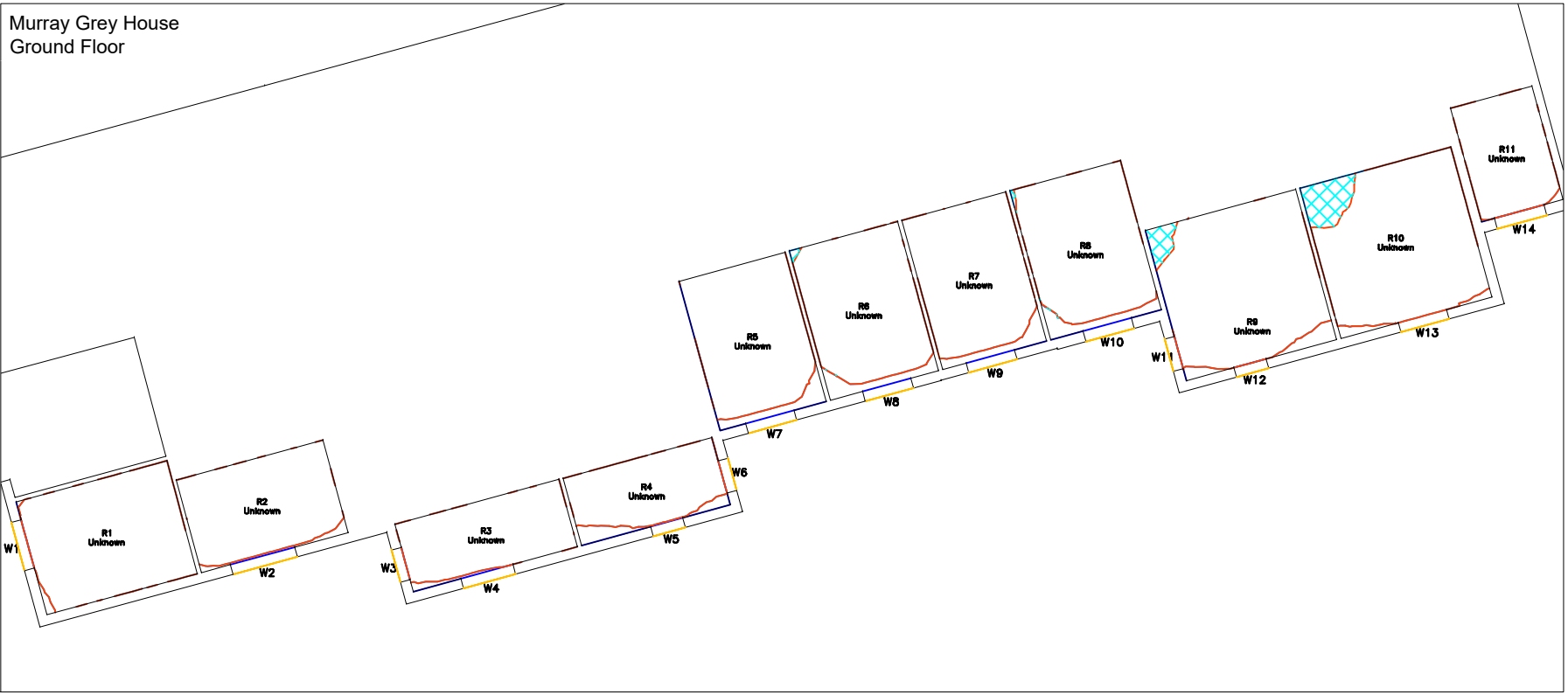
1200 Uxbridge Road
Ground Floor



1200 Uxbridge Road
First Floor



Murray Grey House
Ground Floor



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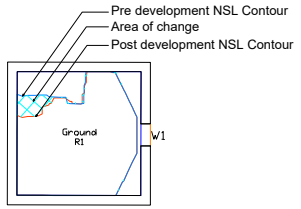
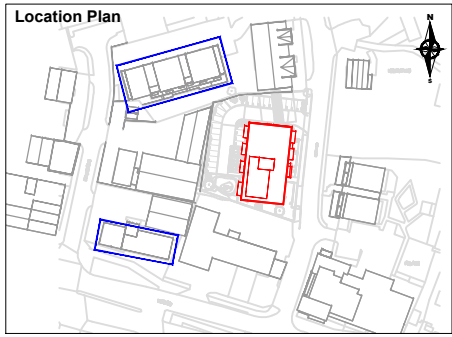
Legend



Location Plan



Rev	Description	Date
00	First issue	24/04/2019

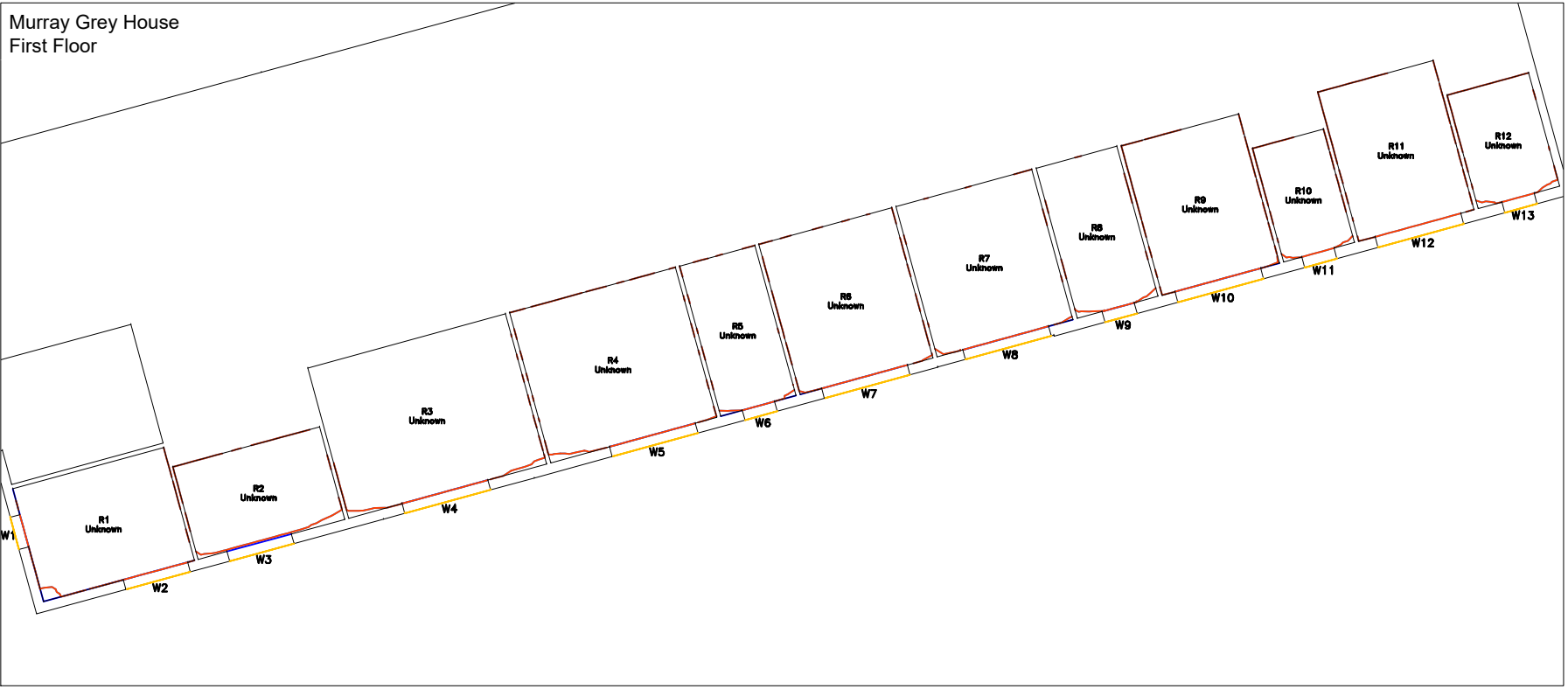
CLIENT
Bugler Homes Limited

PROJECT
Hayes End Road, Hayes

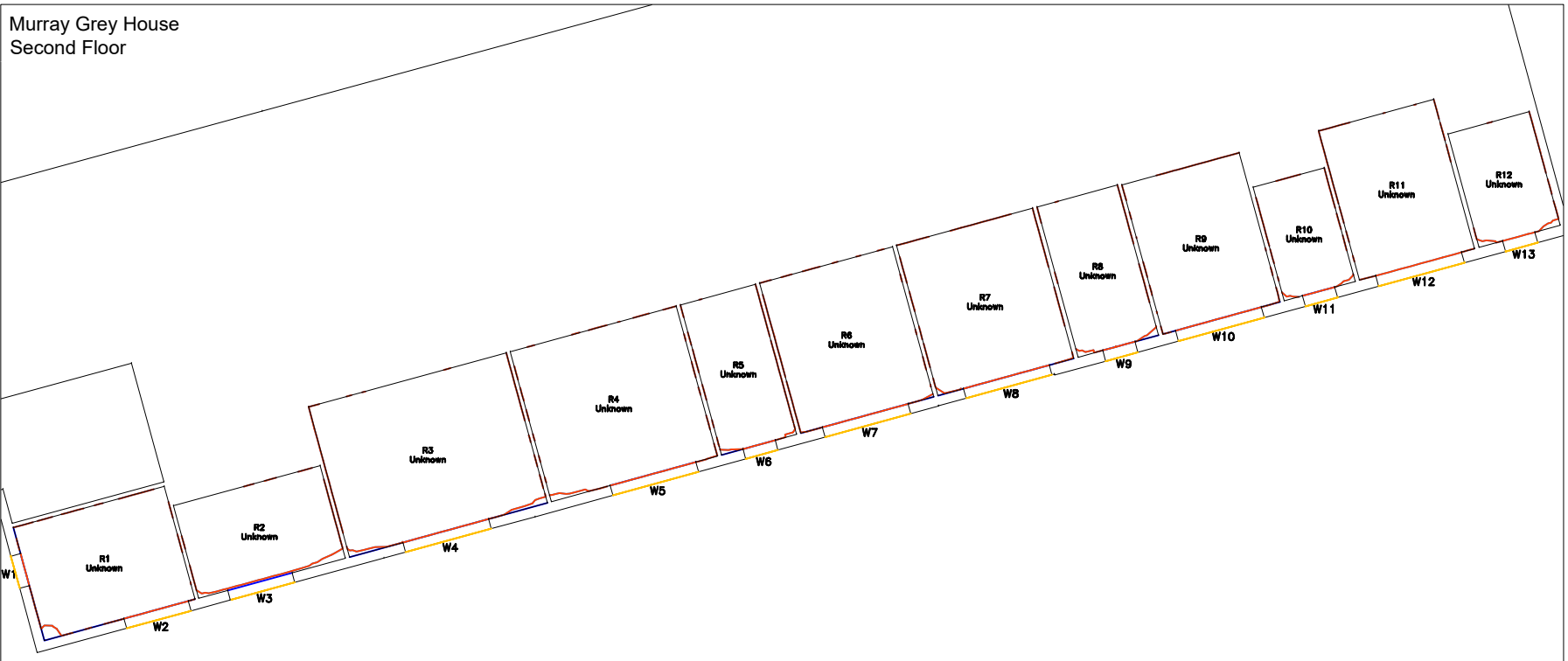
SCALE	PROJ REF	ANALYST	DRAWN BY
Not to scale	2711	AM	JP

DWG REF.	DWG No.
NSL contours.	2711_07

Murray Grey House
First Floor



Murray Grey House
Second Floor



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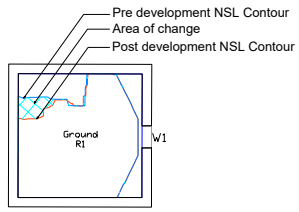
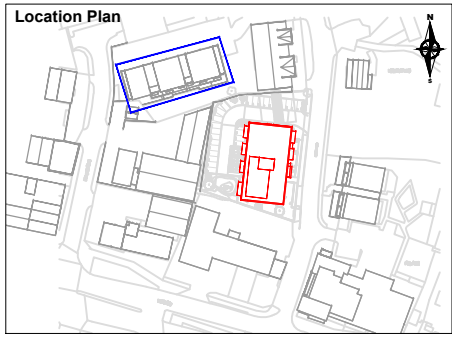


Location Plan



Rev	Description	Date
00	First issue	24/04/2019

CLIENT
Bugler Homes Limited

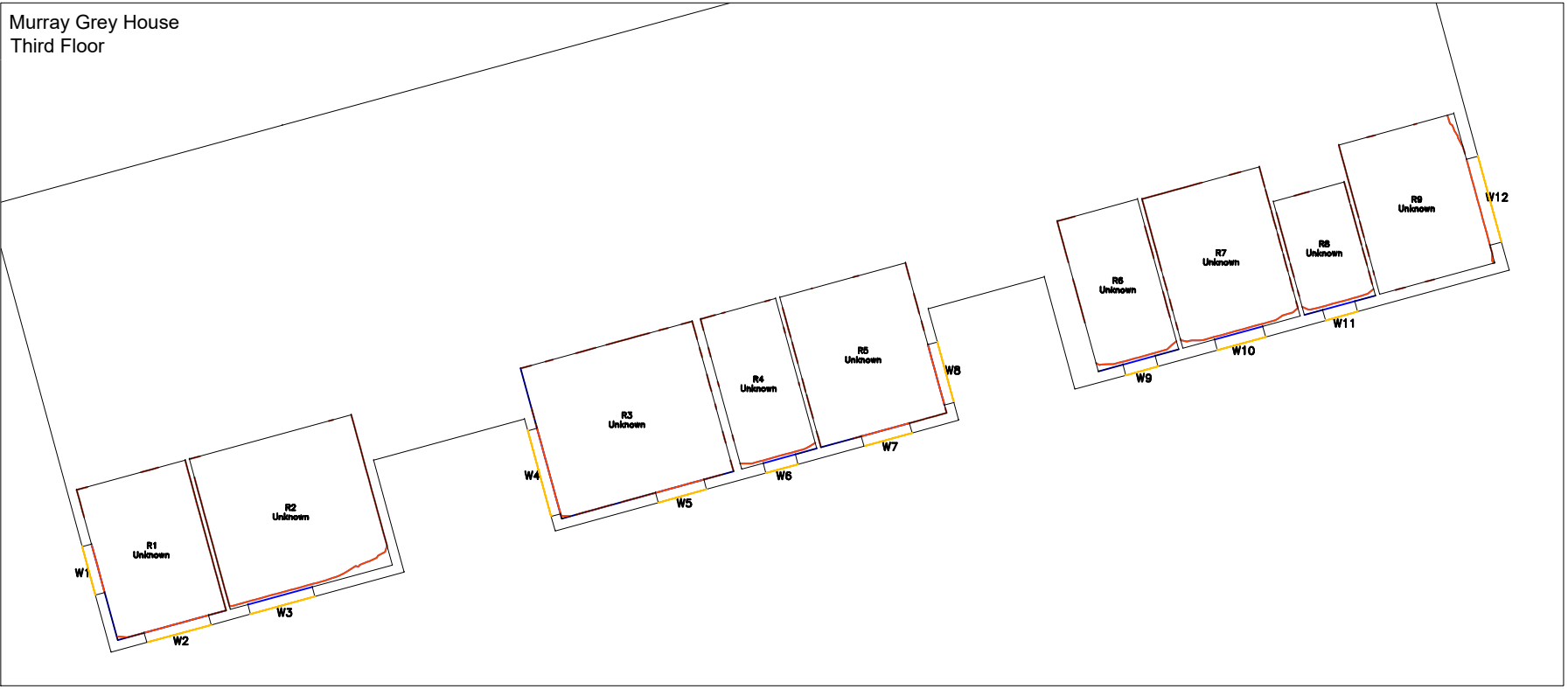
PROJECT
Hayes End Road, Hayes

SCALE	PROJ REF	ANALYST	DRAWN BY
Not to scale	2711	AM	JP

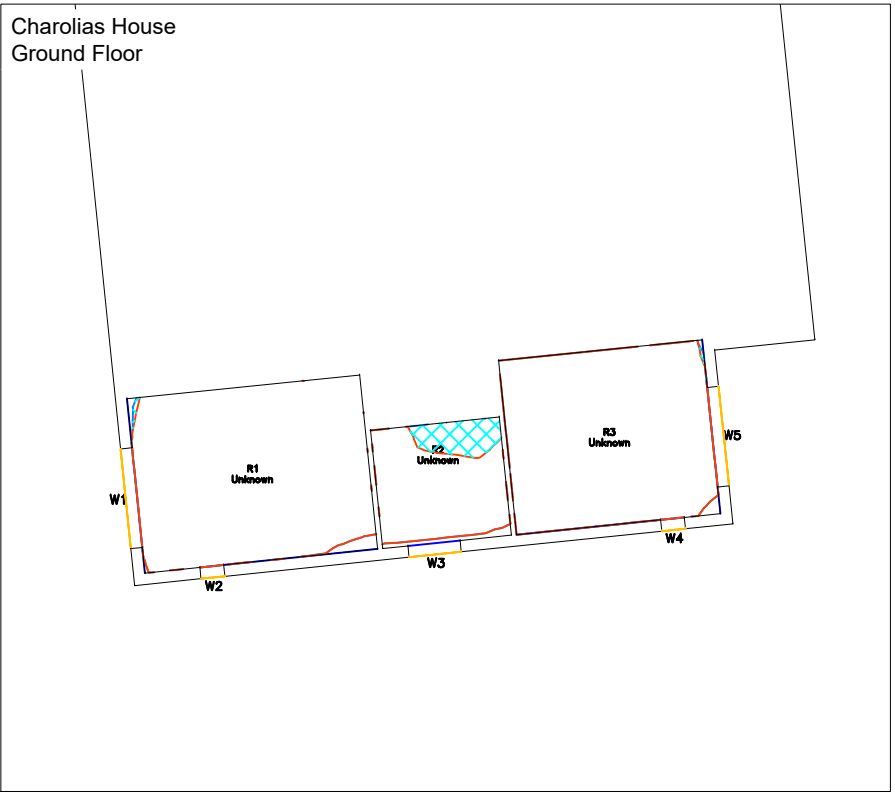
DWG REF.
NSL contours.

DWG No.
2711_08

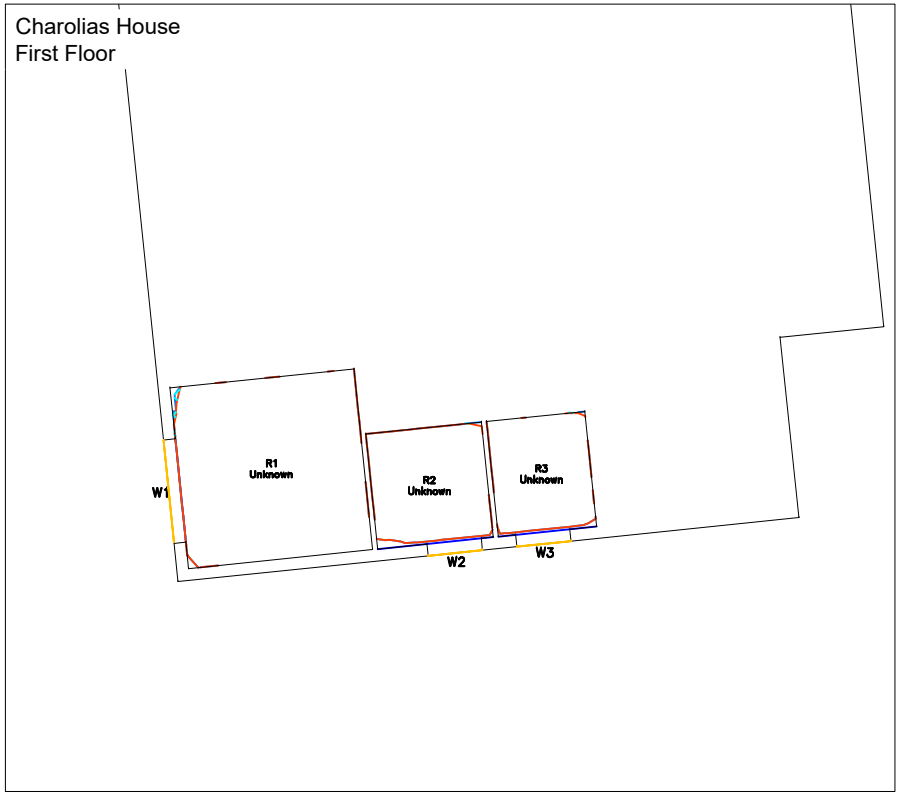
Murray Grey House
Third Floor



Charolias House
Ground Floor



Charolias House
First Floor



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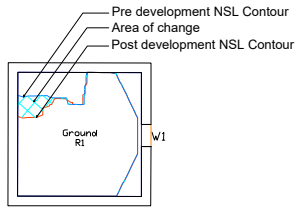
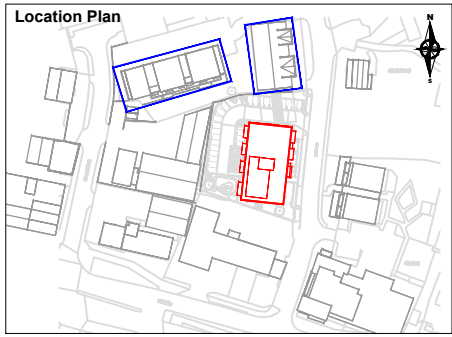
Legend



Location Plan



Rev	Description	Date
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PROJECT
Hayes End Road, Hayes

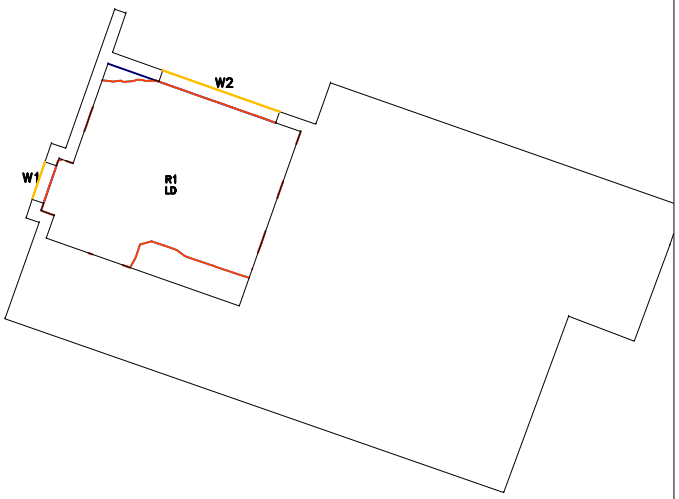
SCALE	PROJ REF	ANALYST	DRAWN BY
Not to scale	2711	AM	JP

DWG REF.	DWG No.
NSL contours.	2711_09

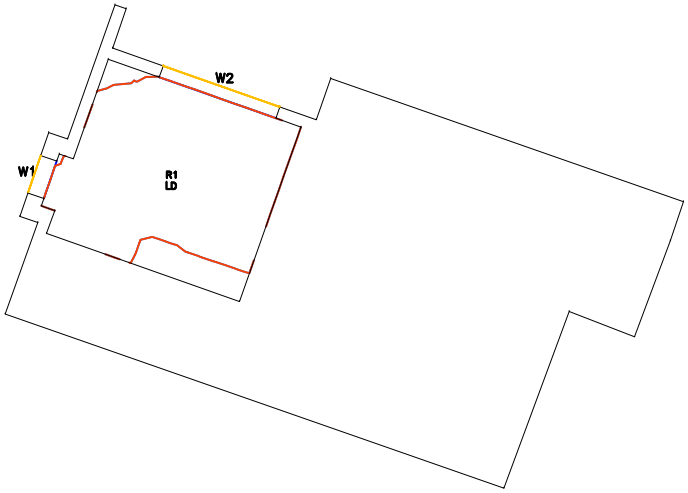
Charolias House
Second Floor



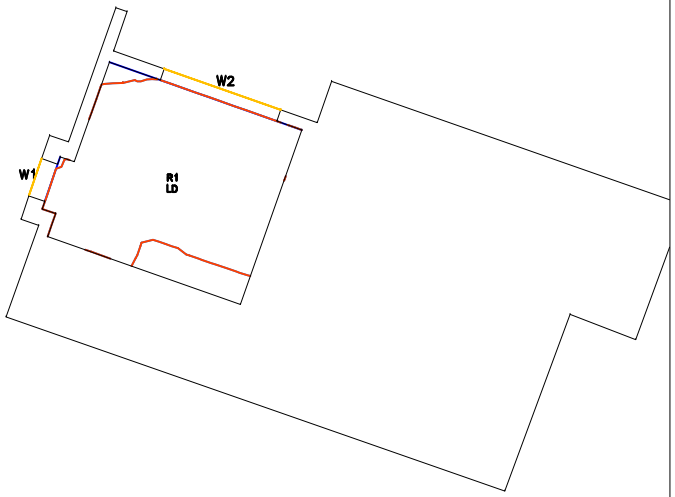
Hart House
Ground Floor



Hart House
First Floor



Hart House
Second Floor



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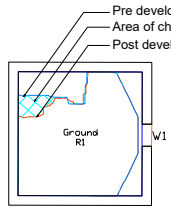
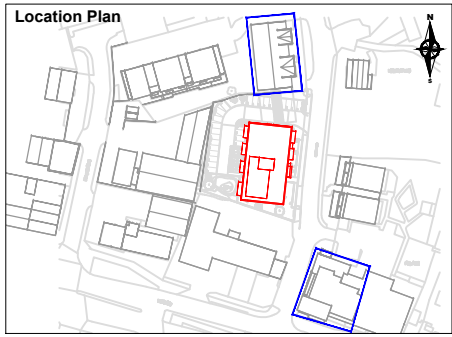


Location Plan



Rev	Description	Date
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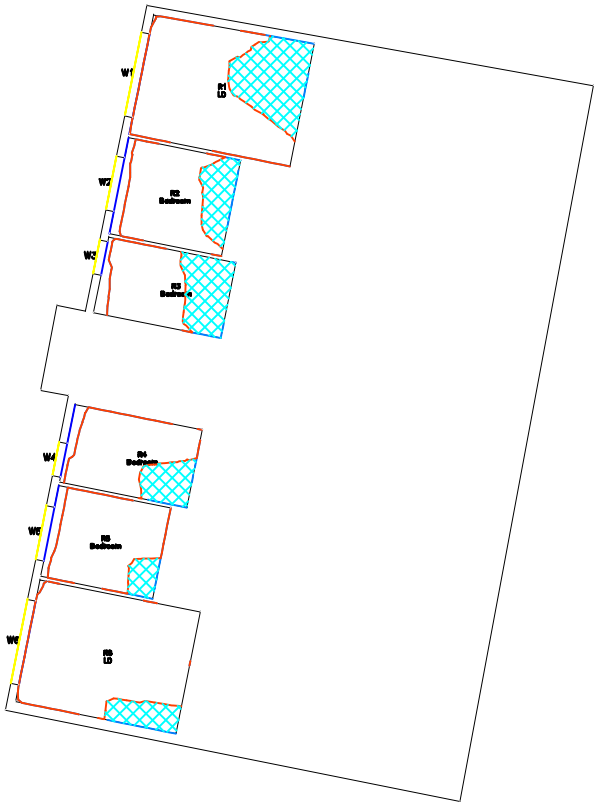
PROJECT
Hayes End Road, Hayes

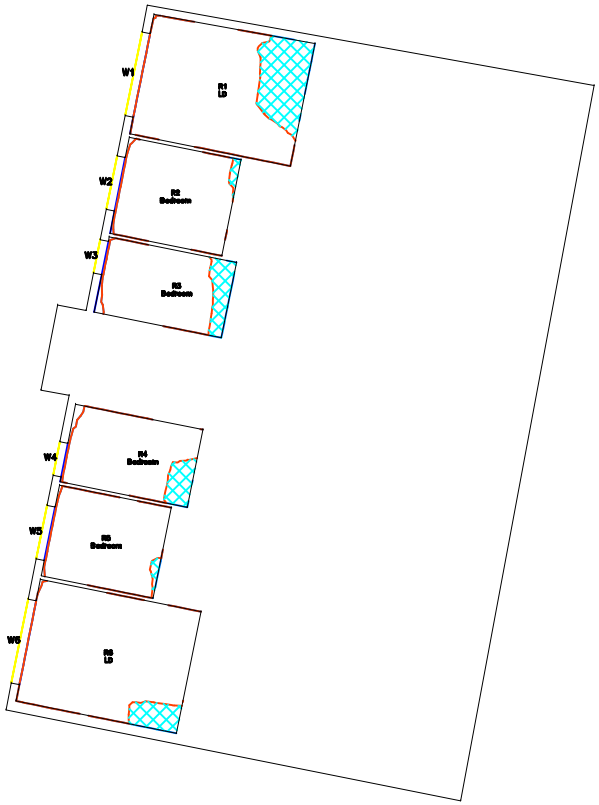
SCALE	PROJ REF	ANALYST	DRAWN BY
Not to scale	2711	AM	JP

DWG REF.	DWG No.
NSL contours.	2711_10

Thurbin House (with balconies)
Ground Floor



Thurbin House (without balconies)
Ground Floor



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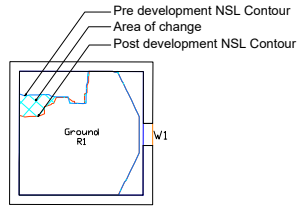
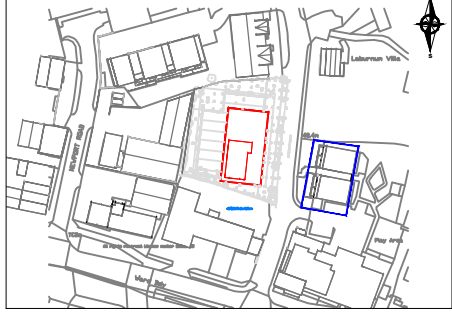


Location Plan



Rev	Description	Date
00	First issue	23/04/2020

CLIENT
Bugler Homes Limited

PROJECT
Hayes End Road, Hayes

SCALE	PROJ REF	ANALYST	DRAWN BY
Not to scale	2711	AM	JP

DWG REF.	DWG No.
NSL contours.	2711_11

Thurbin House
First Floor (with balconies)



Thurbin House
Second Floor (with balconies)



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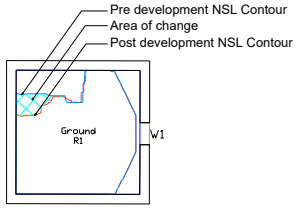
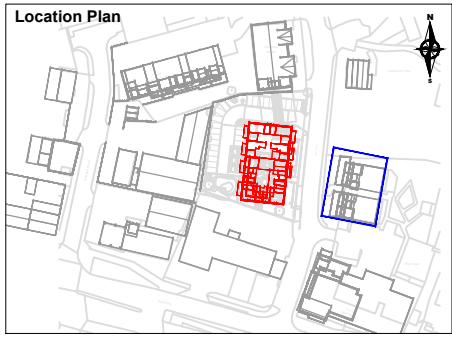


Location Plan



Rev	Description	Date
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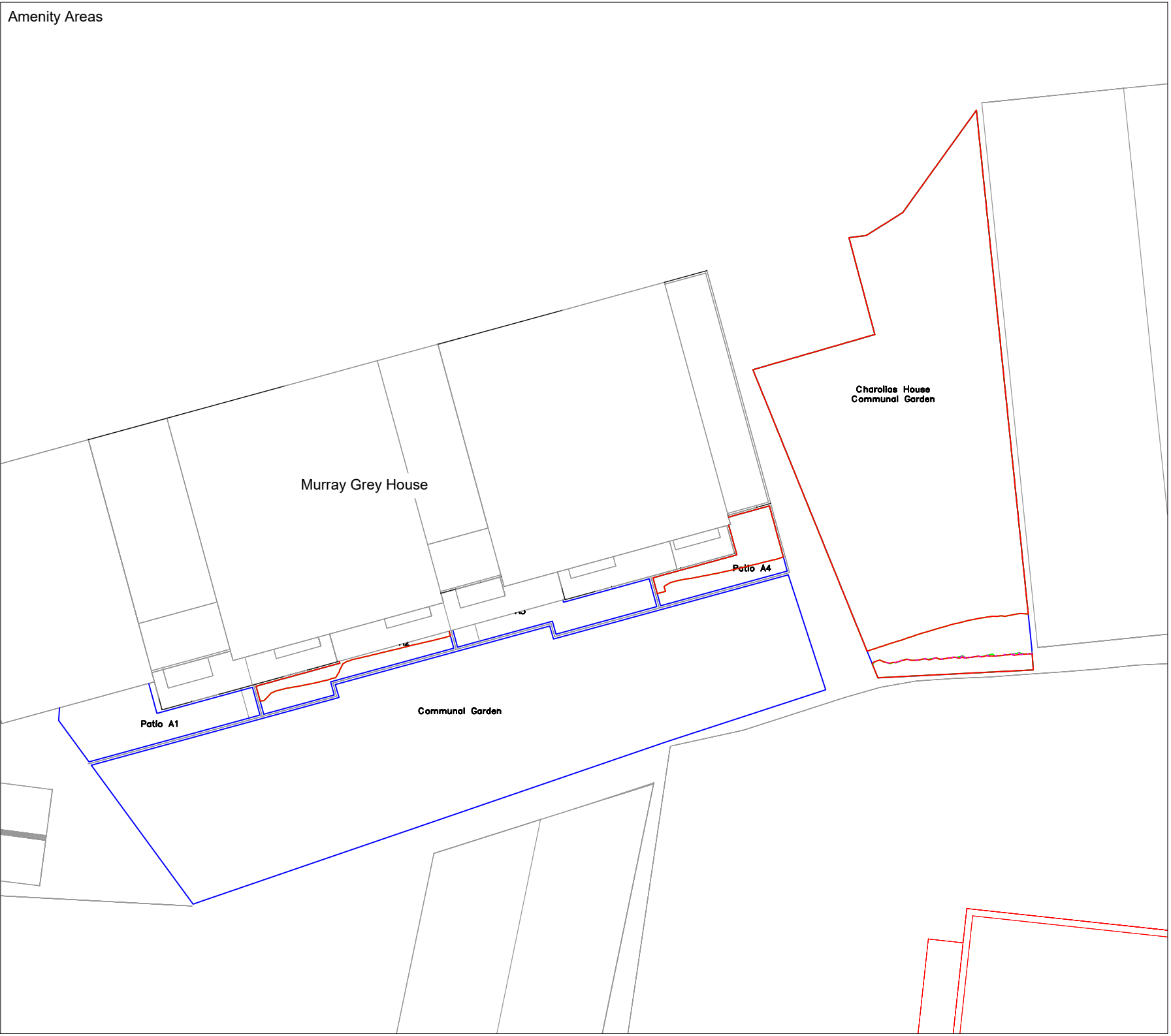
CLIENT
Bugler Homes Limited

PROJECT
Hayes End Road, Hayes

SCALE	PROJ REF	ANALYST	DRAWN BY
Not to scale	2711	AM	JP

DWG REF.	DWG No.
NSL contours.	2711_12

Amenity Areas



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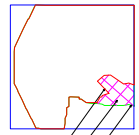
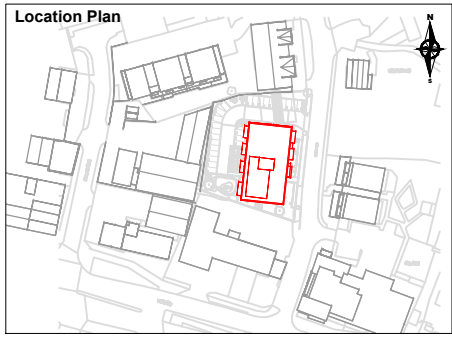


Location Plan



Rev	Description	Date
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CLIENT
Bugler Homes Limited

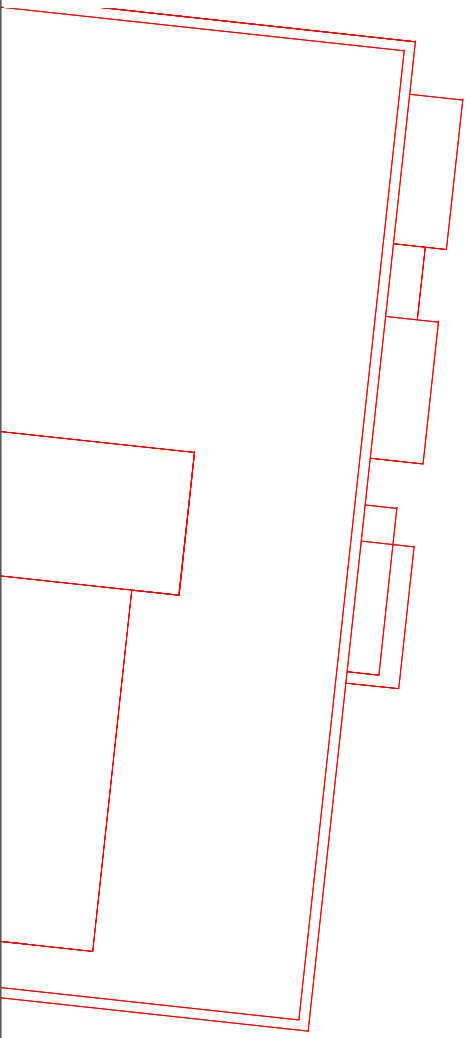
PROJECT
Hayes End Road, Hayes

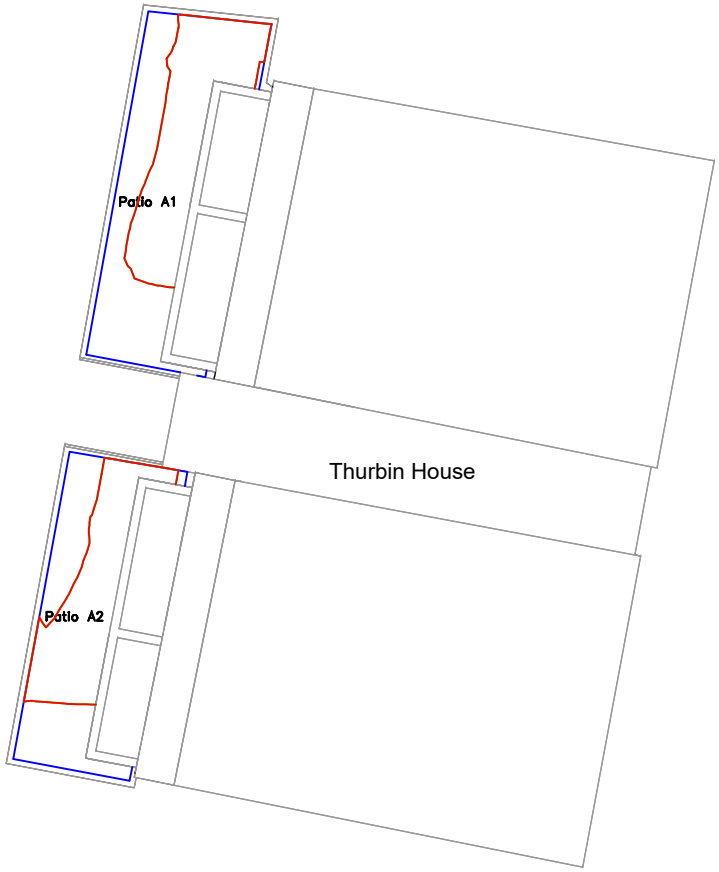
SCALE	PROJ REF	ANALYST	DRAWN BY
Not to scale	2711	AM	JP

DWG REF.
2hr SoG amenity contours.

DWG No.
2711_13

Amenity Areas





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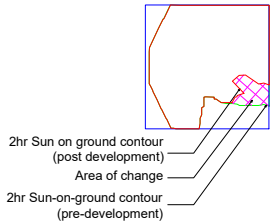
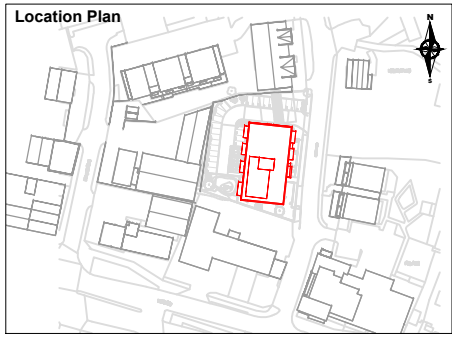


Location Plan



00	First issue	24/04/2019
Rev	**Description**	**Date**

CLIENT
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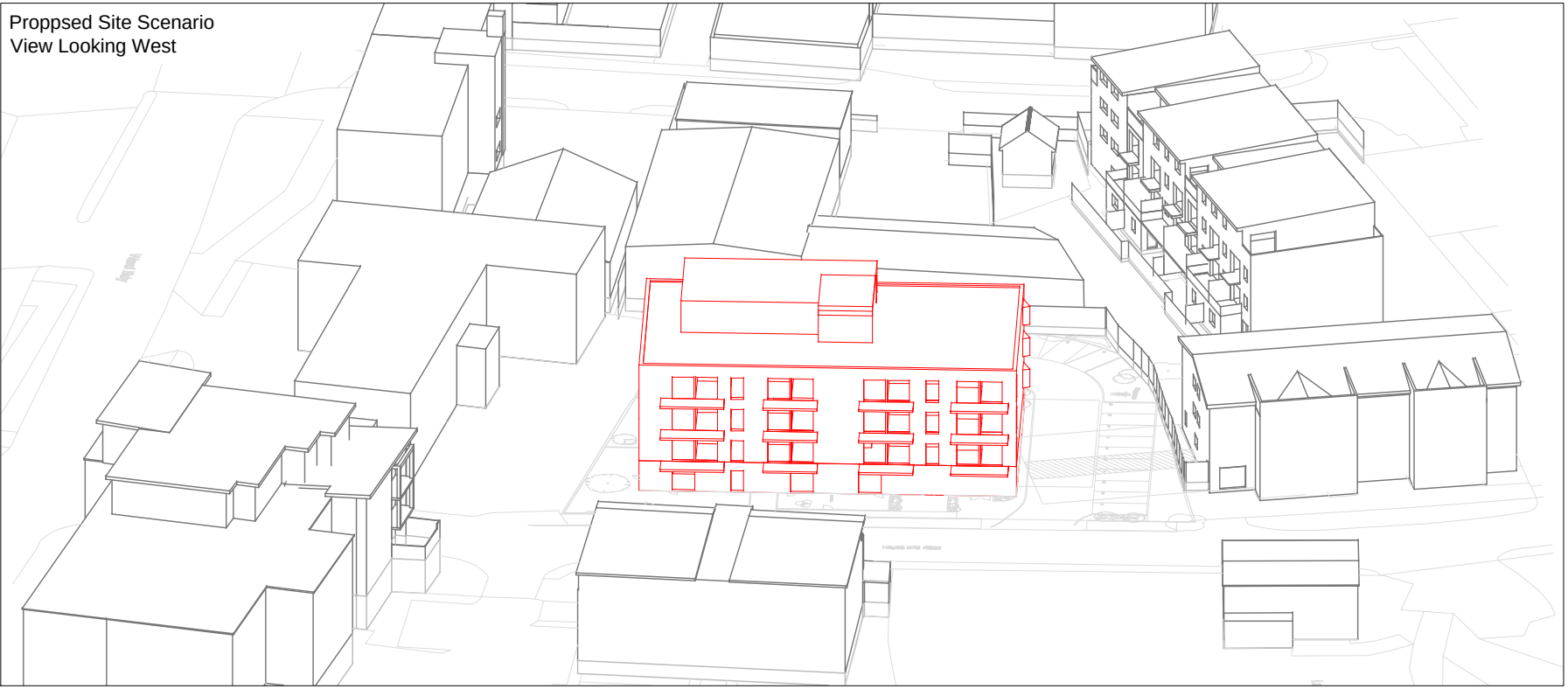
PROJECT
Hayes End Road, Hayes

SCALE	PROJ REF	ANALYST	DRAWN BY
Not to scale	2711	AM	JP

DWG REF.	DWG No.
2hr SoG amenity contours.	2711_14

Proppsed Site Scenario
View Looking West



Proposed Site Scenario
View Looking East



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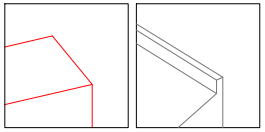
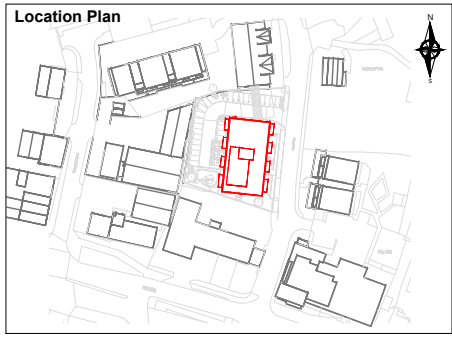


Proposed Buildings | Surrounding Buildings

Location Plan



Rev	Description	Date
00	Amended Scheme	08/07/2020
00	First issue	23/04/2020

CLIENT: Bugler Homes Limited

PROJECT: Hayes End Road, Hayes

SCALE	PROJ REF	ANALYST	DRAWN BY
Not to scale	2711	AM	JP

DWG REF.: 3D Model - Proposed Site Scenarios.

DWG No.: 2711_15

Proppsed Site Scenario
View Looking West



Proposed Site Scenario
View Looking East



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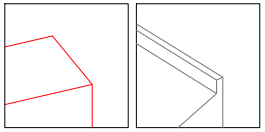
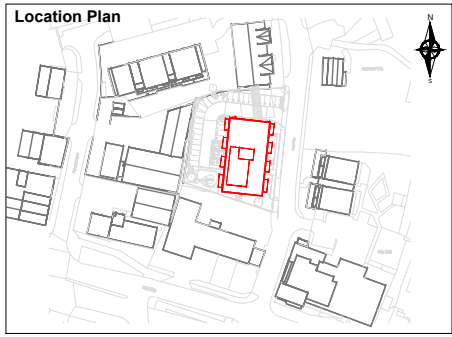


Proposed Buildings | Surrounding Buildings

Location Plan



Rev	Description	Date
00	Amended Scheme	08/07/2020
00	First issue	23/04/2020

CLIENT: Bugler Homes Limited

PROJECT: Hayes End Road, Hayes

SCALE	PROJ REF	ANALYST	DRAWN BY
Not to scale	2711	AM	JP

DWG REF.: Location of Window Receptors.

DWG No.: 2711_16





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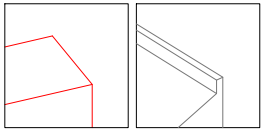
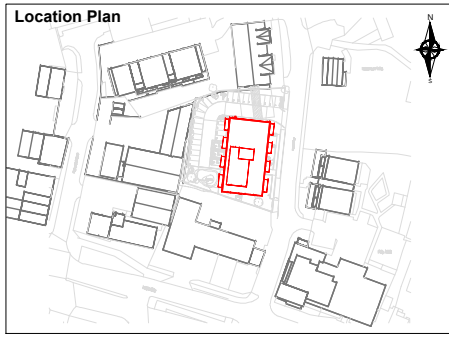


Location Plan



Rev	Description	Date
00	Amended Scheme	08/07/2020
00	First issue	23/04/2020

CLIENT
Bugler Homes Limited

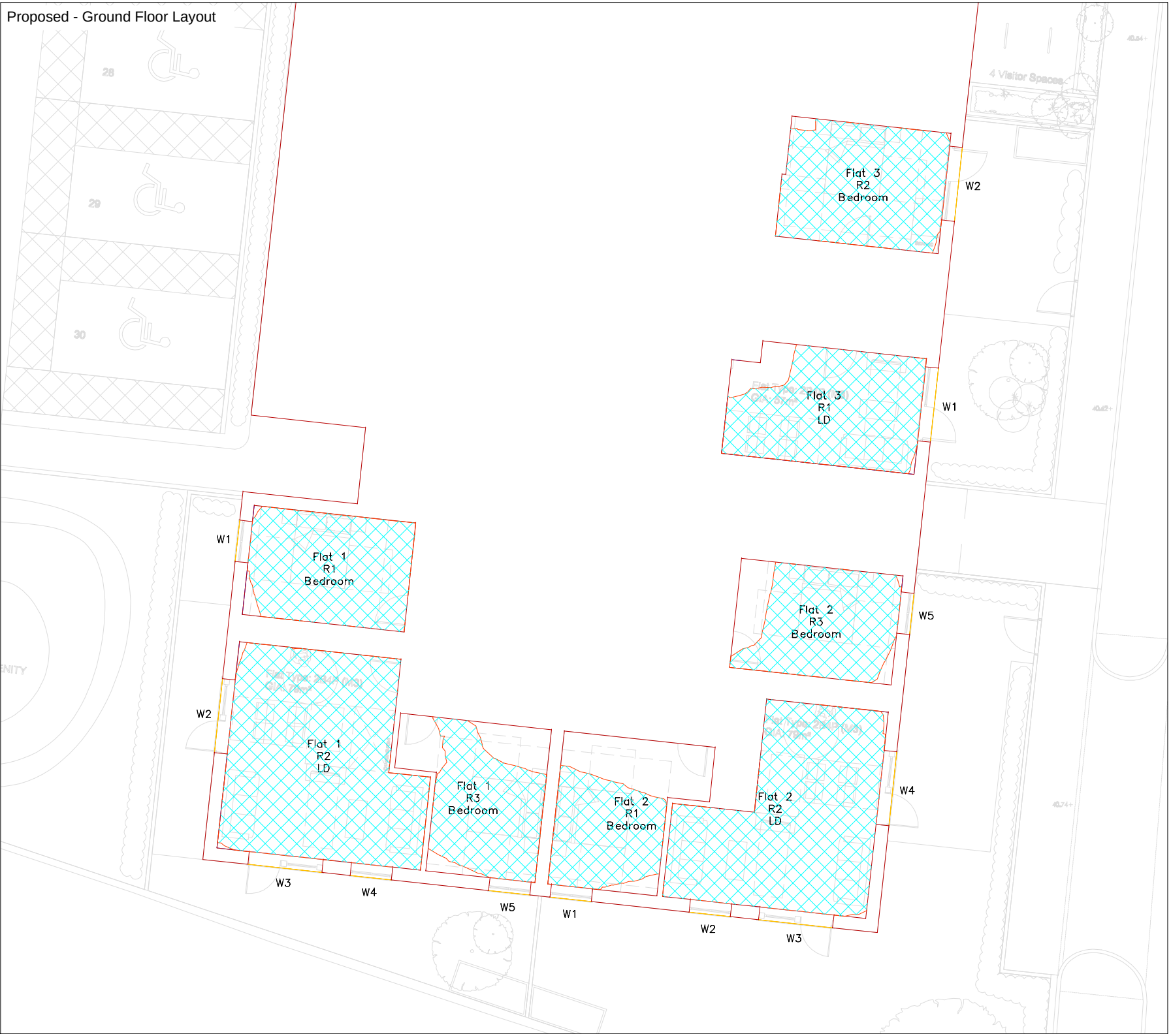
PROJECT
Hayes End Road, Hayes

SCALE	PROJ REF	ANALYST	DRAWN BY
Not to scale	2711	AM	JP

DWG REF.
Location of Window Receptors.

DWG No.
2711_17

Proposed - Ground Floor Layout



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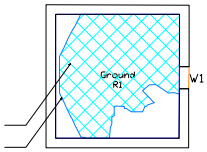
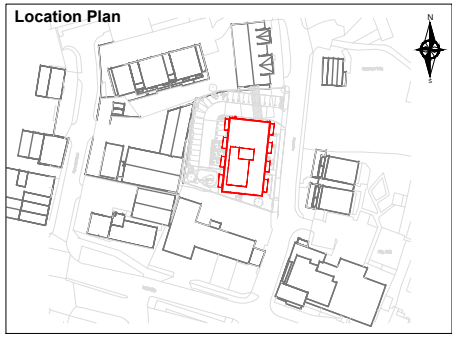


Location Plan



Rev	Description	Date
00	Amended Scheme	08/07/2020
00	First issue	23/04/2020

CLIENT
Bugler Homes Limited

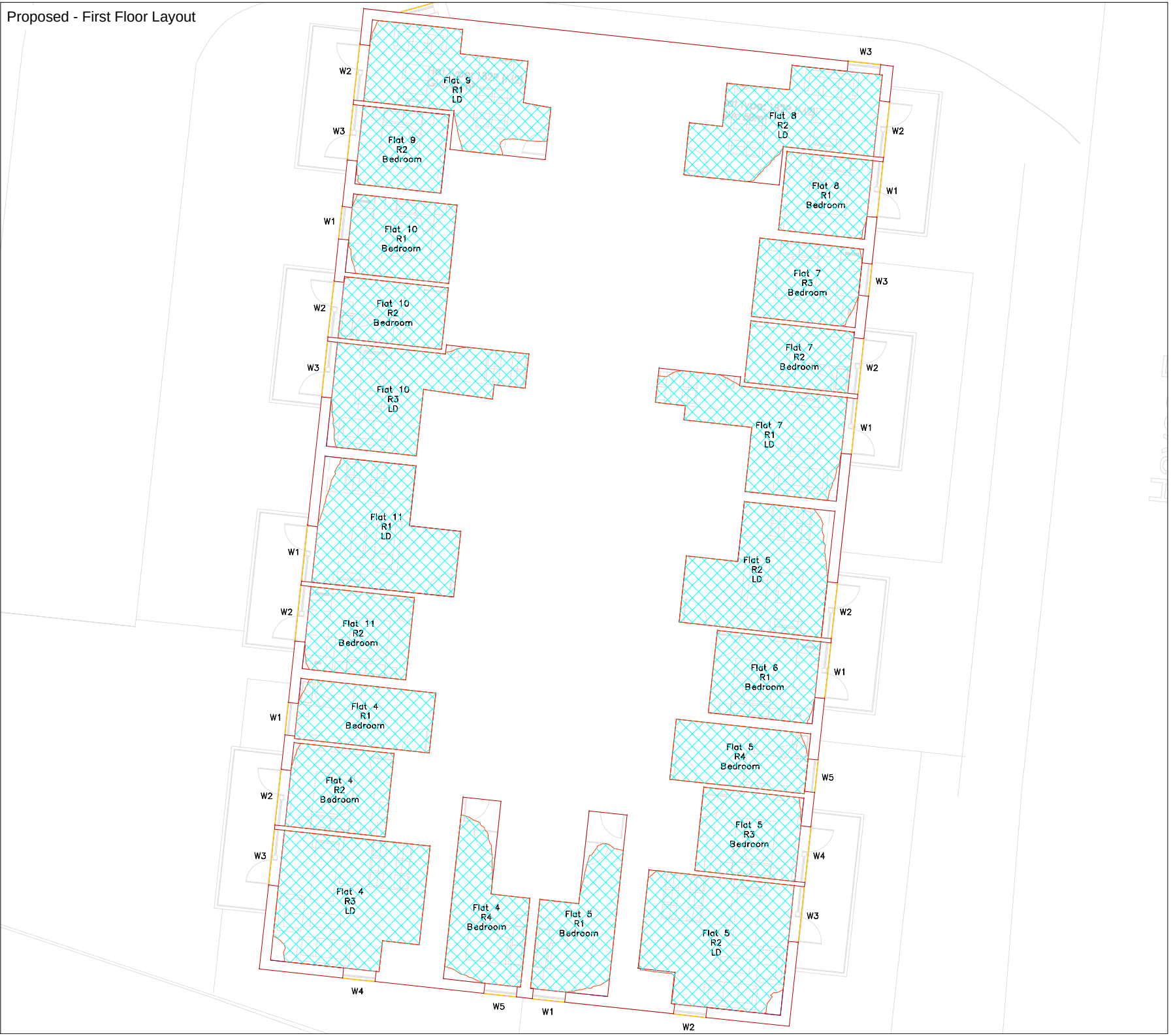
PROJECT
Hayes End Road, Hayes

SCALE	PROJ REF	ANALYST	DRAWN BY
Not to scale	2711	AM	JP

DWG REF.
NSL contours.

DWG No.
2711_18

Proposed - First Floor Layout

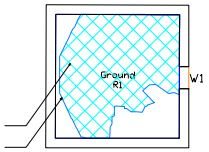


herrington CONSULTING LIMITED

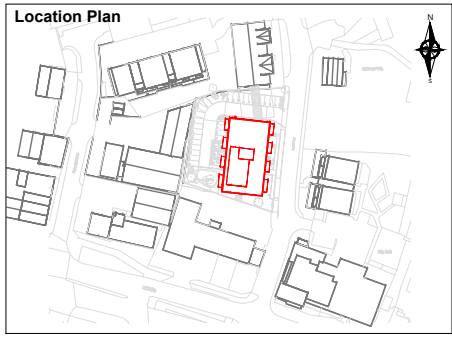
Unit 6 - Barham Business Park
Elham Valley Road
Canterbury
Kent CT4 6DQ

Tel : 01227 833855
enquiries@herringtonconsulting.co.uk
www.herringtonconsulting.co.uk

Legend



Location Plan



Rev	Description	Date
00	Amended Scheme	08/07/2020
00	First issue	23/04/2020

CLIENT: Bugler Homes Limited

PROJECT: Hayes End Road, Hayes

SCALE	PROJ REF	ANALYST	DRAWN BY
Not to scale	2711	AM	JP

DWG REF.: NSL contours.

DWG No.: 2711_19

Proposed - Second Floor Layout



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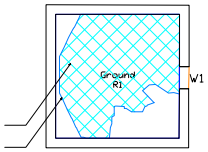
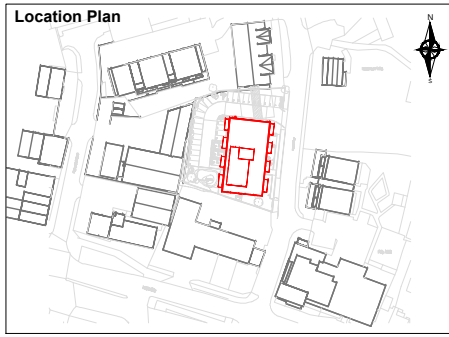
Unit 6 - Barham Business Park
Elham Valley Road
Canterbury
Kent CT4 6DQ

Tel : 01227 833855
enquiries@herringtonconsulting.co.uk
www.herringtonconsulting.co.uk

Legend



Location Plan



Rev	Description	Date
00	Amended Scheme	08/07/2020
00	First issue	23/04/2020

CLIENT: Bugler Homes Limited

PROJECT: Hayes End Road, Hayes

SCALE	PROJ REF	ANALYST	DRAWN BY
Not to scale	2711	AM	JP

DWG REF.: NSL contours.

DWG No.: 2711_20

Proposed - Third Floor Layout



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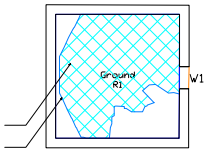
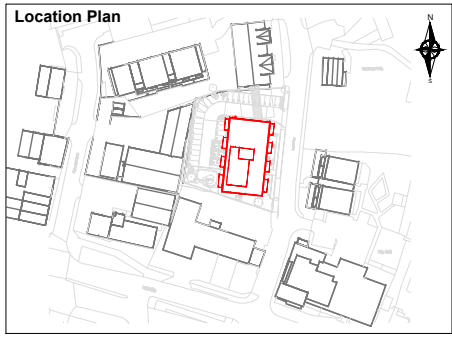
Elham Valley Road
Canterbury
Kent CT4 6DQ

Tel : 01227 833855
enquiries@herringtonconsulting.co.uk
www.herringtonconsulting.co.uk

Legend



Location Plan



Rev	Description	Date
00	Amended Scheme	08/07/2020
00	First issue	23/04/2020

CLIENT: Bugler Homes Limited

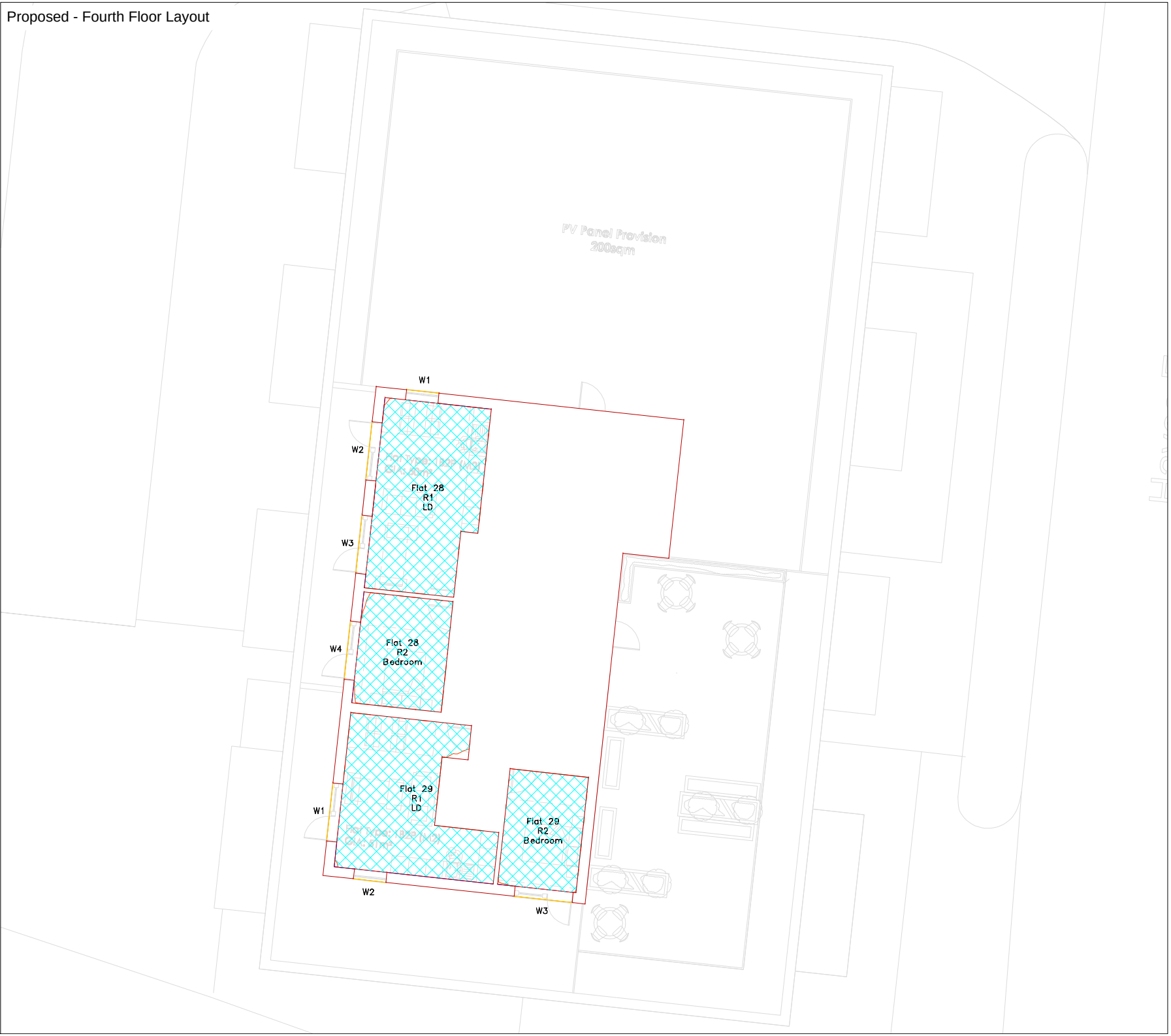
PROJECT: Hayes End Road, Hayes

SCALE	PROJ REF	ANALYST	DRAWN BY
Not to scale	2711	AM	JP

DWG REF.: NSL contours.

DWG No.: 2711_21

Proposed - Fourth Floor Layout



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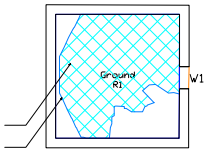
CONSULTING LIMITED

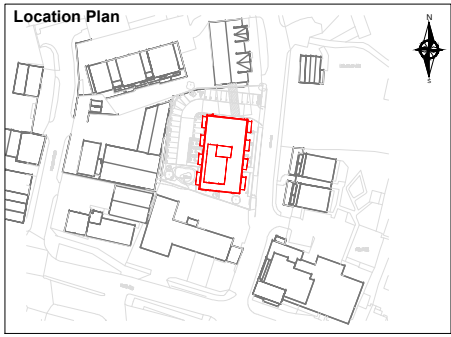
Unit 6 - Barham Business Park
Elham Valley Road
Canterbury
Kent CT4 6DQ

Tel : 01227 833855
enquiries@herringtonconsulting.co.uk
www.herringtonconsulting.co.uk

Legend



Location Plan



Rev	Description	Date
00	Amended Scheme	08/07/2020
00	First issue	23/04/2020

CLIENT
Bugler Homes Limited

PROJECT
Hayes End Road, Hayes

SCALE	PROJ REF	ANALYST	DRAWN BY
Not to scale	2711	AM	JP

DWG REF.	DWG No.
NSL contours.	2711_22

Appendix A.3 – Tabulated Results for Daylight and Sunlight Calculations (Impacts on Neighbours)

Project Name: Hayes End Road
Project No.: 2711
Report Title: Daylight & Sunlight Assessment Test
Date of Analysis: 22/04/2020
VSC & APSH Analysis

herrington CONSULTING LIMITED

Floor Ref.	Room Ref.	Property Type	Room Use.	Window Ref.		VSC	Pr/Ex	Meets BRE Criteria	Window Orientation	Annual	Pr/Ex	Meets BRE Criteria	Winter	Pr/Ex	Meets BRE Criteria	Total Suns per Room Annual	Meets BRE Criteria	Total Suns per Room Winter	Meets BRE Criteria
1200 Uxbridge Road																			
Ground	R1	Residential	Unknown	W1	Existing	34.94	1.00	YES	13°N		*North*			*North*					
					Proposed	34.93										*North*	*North*	*North*	*North*
First	R1	Commercial	Unknown	W1				N/A	13°N		*North*			*North*					
																North	*North*	*North*	*North*
Murray Grey House																			
Ground	R1	Residential	Unknown	W1	Existing	32.19	1.00	YES	255°	46	1.00	YES	11	1.00	YES				
					Proposed	32.19				46			11						
																46		11	
																46	YES	11	YES
	R2	Residential	Unknown	W2	Existing	31.20	0.99	YES	165°	74	1.00	YES	23	1.00	YES				
					Proposed	30.81				74			23						
																74		23	
																74	YES	23	YES
	R3	Residential	Unknown	W3	Existing	17.39	1.00	YES	255°	45	1.00	YES	15	1.00	YES				
					Proposed	17.39				45			15						
				W4	Existing	33.60	0.99	YES	165°	83	1.00	YES	26	1.00	YES				
					Proposed	33.30				83			26						
																85		26	
																85	YES	26	YES
	R4	Residential	Unknown	W5	Existing	33.04	1.00	YES	165°	85	0.99	YES	26	0.96	YES				
					Proposed	32.96				84			25						
				W6	Existing	7.88	0.97	YES	75°N		*North*			*North*					
					Proposed	7.68													
																85		26	
																84	YES	25	YES
	R5	Residential	Unknown	W7	Existing	7.21	0.94	YES	165°	14	0.86	YES	14	0.86	YES				
					Proposed	6.77				12			12						
																14		14	
																12	YES	12	YES
	R6	Residential	Unknown	W8	Existing	6.82	0.97	YES	165°	12	1.00	YES	12	1.00	YES				
					Proposed	6.64				12			12						
																12		12	
																12	YES	12	YES
	R7	Residential	Unknown	W9	Existing	6.93	0.85	YES	165°	10	0.80	YES	10	0.80	YES				
					Proposed	5.86				8			8						

Project Name: Hayes End Road
Project No.: 2711
Report Title: Daylight & Sunlight Assessment Test
Date of Analysis: 22/04/2020
VSC & APSH Analysis

herrington CONSULTING LIMITED

Floor Ref.	Room Ref.	Property Type	Room Use.	Window Ref.		VSC	Pr/Ex	Meets BRE Criteria	Window Orientation	Annual	Pr/Ex	Meets BRE Criteria	Winter	Pr/Ex	Meets BRE Criteria	Total Suns per Room Annual	Meets BRE Criteria	Total Suns per Room Winter	Meets BRE Criteria
																10		10	
	R8	Residential	Unknown	W10	Existing	7.05	0.84	YES	165°	13	0.92	YES	13	0.92	YES	8	YES	8	YES
					Proposed	5.94				12			12						
																13		13	
																12	YES	12	YES
	R9	Residential	Unknown	W11	Existing	8.14	1.00	YES	255°	24	1.00	YES	13	1.00	YES				
					Proposed	8.14				24			13						
				W12	Existing	32.43	0.94	YES	165°	82	0.98	YES	24	0.92	YES				
					Proposed	30.43				80			22						
																82		24	
																80	YES	22	YES
	R11	Residential	Unknown	W14	Existing	24.93	0.92	YES	165°	50	0.92	YES	17	0.76	YES				
					Proposed	22.94				46			13						
																50		17	
																46	YES	13	YES
First	R1	Residential	Unknown	W1	Existing	37.18	1.00	YES	255°	57	1.00	YES	20	1.00	YES				
					Proposed	37.18				57			20						
				W2	Existing	36.24	0.98	YES	165°	88	0.98	YES	30	0.93	YES				
					Proposed	35.60				86			28						
																97		30	
																95	YES	28	YES
	R2	Residential	Unknown	W3	Existing	36.29	0.98	YES	165°	85	0.99	YES	30	0.97	YES				
					Proposed	35.61				84			29						
																85		30	
																84	YES	29	YES
	R3	Residential	Unknown	W4	Existing	29.29	0.98	YES	165°	74	0.99	YES	28	0.96	YES				
					Proposed	28.60				73			27						
																74		28	
																73	YES	27	YES
	R4	Residential	Unknown	W5	Existing	25.95	0.98	YES	165°	62	1.00	YES	23	1.00	YES				
					Proposed	25.39				62			23						
																62		23	
																62	YES	23	YES
	R5	Residential	Unknown	W6	Existing	33.05	0.97	YES	165°	72	0.97	YES	23	0.91	YES				
					Proposed	31.94				70			21						
																72		23	
																70	YES	21	YES
	R6	Residential	Unknown	W7	Existing	26.62	0.96	YES	165°	64	0.98	YES	25	0.96	YES				
					Proposed	25.66				63			24						
																64		25	
																63	YES	24	YES
	R7	Residential	Unknown	W8	Existing	26.59	0.94	YES	165°	64	0.97	YES	23	0.91	YES				
					Proposed	25.02				62			21						

Project Name: Hayes End Road
Project No.: 2711
Report Title: Daylight & Sunlight Assessment Test
Date of Analysis: 22/04/2020
VSC & APSH Analysis

herrington CONSULTING LIMITED

Floor Ref.	Room Ref.	Property Type	Room Use.	Window Ref.		VSC	Pr/Ex	Meets BRE Criteria	Window Orientation	Annual	Pr/Ex	Meets BRE Criteria	Winter	Pr/Ex	Meets BRE Criteria	Total Suns per Room Annual	Meets BRE Criteria	Total Suns per Room Winter	Meets BRE Criteria
																64		23	
																62	YES	21	YES
	R8	Residential	Unknown	W9	Existing	32.07	0.97	YES	165°	69	1.00	YES	26	1.00	YES				
					Proposed	31.22				69			26						
																69		26	
																69	YES	26	YES
	R9	Residential	Unknown	W10	Existing	27.81	0.93	YES	165°	68	0.99	YES	23	0.96	YES				
					Proposed	25.89				67			22						
																68		23	
																67	YES	22	YES
Second	R1	Residential	Unknown	W1	Existing	38.45	1.00	YES	255°	58	1.00	YES	20	1.00	YES				
					Proposed	38.45				58			20						
				W2	Existing	37.63	0.99	YES	165°	87	0.99	YES	30	0.97	YES				
					Proposed	37.07				86			29						
																97		30	
																96	YES	29	YES
	R2	Residential	Unknown	W3	Existing	37.59	0.98	YES	165°	86	0.99	YES	30	0.97	YES				
					Proposed	36.99				85			29						
																86		30	
																85	YES	29	YES
	R3	Residential	Unknown	W4	Existing	37.82	0.98	YES	165°	86	0.99	YES	30	0.97	YES				
					Proposed	37.07				85			29						
																86		30	
																85	YES	29	YES
	R4	Residential	Unknown	W5	Existing	37.61	0.98	YES	165°	87	0.99	YES	30	0.97	YES				
					Proposed	36.71				86			29						
																87		30	
																86	YES	29	YES
	R5	Residential	Unknown	W6	Existing	37.69	0.98	YES	165°	85	0.99	YES	30	0.97	YES				
					Proposed	36.77				84			29						
																85		30	
																84	YES	29	YES
	R6	Residential	Unknown	W7	Existing	37.68	0.97	YES	165°	85	0.99	YES	30	0.97	YES				
					Proposed	36.61				84			29						
																85		30	
																84	YES	29	YES
	R7	Residential	Unknown	W8	Existing	37.84	0.97	YES	165°	85	0.99	YES	30	0.97	YES				
					Proposed	36.61				84			29						
																85		30	
																84	YES	29	YES
	R8	Residential	Unknown	W9	Existing	37.81	0.97	YES	165°	88	0.99	YES	30	0.97	YES				
					Proposed	36.54				87			29						
																88		30	
																87	YES	29	YES

Project Name: Hayes End Road
Project No.: 2711
Report Title: Daylight & Sunlight Assessment Test
Date of Analysis: 22/04/2020
VSC & APSH Analysis

herrington CONSULTING LIMITED

Floor Ref.	Room Ref.	Property Type	Room Use.	Window Ref.		VSC	Pr/Ex	Meets BRE Criteria	Window Orientation	Annual	Pr/Ex	Meets BRE Criteria	Winter	Pr/Ex	Meets BRE Criteria	Total Suns per Room Annual	Meets BRE Criteria	Total Suns per Room Winter	Meets BRE Criteria
	R9	Residential	Unknown	W10	Existing	37.65	0.96	YES	165°	88	0.99	YES	30	0.97	YES				
					Proposed	36.19				87			29						
																88		30	
																87	YES	29	YES
	R10	Residential	Unknown	W11	Existing	37.72	0.96	YES	165°	87	0.99	YES	30	0.97	YES				
					Proposed	36.25				86			29						
																87		30	
																86	YES	29	YES
Third	R1	Residential	Unknown	W1	Existing	35.19	1.00	YES	255°	55	1.00	YES	18	1.00	YES				
					Proposed	35.19				55			18						
				W2	Existing	33.54	0.99	YES	165°	79	1.00	YES	30	1.00	YES				
					Proposed	33.17				79			30						
																95		30	
																95	YES	30	YES
	R2	Residential	Unknown	W3	Existing	33.46	0.99	YES	165°	78	1.00	YES	30	1.00	YES				
					Proposed	33.07				78			30						
																78		30	
																78	YES	30	YES
	R3	Residential	Unknown	W4	Existing	22.59	1.00	YES	255°	48	1.00	YES	18	1.00	YES				
					Proposed	22.59				48			18						
				W5	Existing	34.13	0.98	YES	165°	77	0.99	YES	30	0.97	YES				
					Proposed	33.60				76			29						
																88		30	
																87	YES	29	YES
	R4	Residential	Unknown	W6	Existing	34.14	0.98	YES	165°	77	1.00	YES	30	1.00	YES				
					Proposed	33.57				77			30						
																77		30	
																77	YES	30	YES
	R5	Residential	Unknown	W7	Existing	34.25	0.98	YES	165°	80	1.00	YES	30	1.00	YES				
					Proposed	33.63				80			30						
																80		30	
																80	YES	30	YES
	R6	Residential	Unknown	W9	Existing	34.30	0.98	YES	165°	79	1.00	YES	30	1.00	YES				
					Proposed	33.54				79			30						
																79		30	
																79	YES	30	YES
	R7	Residential	Unknown	W10	Existing	34.20	0.98	YES	165°	77	1.00	YES	30	1.00	YES				
					Proposed	33.40				77			30						
																77		30	
																77	YES	30	YES
	R8	Residential	Unknown	W11	Existing	34.22	0.97	YES	165°	77	1.00	YES	30	1.00	YES				
					Proposed	33.36				77			30						
																77		30	
																77	YES	30	YES

Project Name: Hayes End Road
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Date of Analysis: 22/04/2020
VSC & APSH Analysis

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Floor Ref.	Room Ref.	Property Type	Room Use.	Window Ref.		VSC	Pr/Ex	Meets BRE Criteria	Window Orientation	Annual	Pr/Ex	Meets BRE Criteria	Winter	Pr/Ex	Meets BRE Criteria	Total Suns per Room Annual	Meets BRE Criteria	Total Suns per Room Winter	Meets BRE Criteria
Hart House																			
Ground	R1	Residential	LD	W1	Existing	36.14	0.96	YES	289°N		*North*			*North*					
					Proposed	34.62													
				W2	Existing	15.41	0.99	YES	19°N		*North*			*North*					
					Proposed	15.30													
																North	*North*	*North*	*North*
First	R1	Residential	LD	W1	Existing	38.45	0.97	YES	289°N		*North*			*North*					
					Proposed	37.36													
				W2	Existing	13.84	1.00	YES	19°N		*North*			*North*					
					Proposed	13.84													
																North	*North*	*North*	*North*
Second	R1	Residential	LD	W1	Existing	38.41	0.98	YES	289°N		*North*			*North*					
					Proposed	37.76													
				W2	Existing	21.93	0.99	YES	19°N		*North*			*North*					
					Proposed	21.71													
																North	*North*	*North*	*North*
Charolias House																			
Ground	R1	Residential	Unknown	W1	Existing	28.82	0.99	YES	264°	37	0.95	YES	8	0.75	YES				
					Proposed	28.66				35			6						
				W2	Existing	18.43	1.00	YES	174°	55	1.00	YES	0	1.00	YES				
					Proposed	18.43				55			0						
																65		8	
																63	YES	6	YES
	R2	Residential	Unknown	W3	Existing	21.45	0.99	YES	174°	60	0.98	YES	3	0.67	YES				
					Proposed	21.22				59			2						
																60		3	
																59	YES	2	YES
	R3	Residential	Unknown	W4	Existing	19.96	0.97	YES	174°	51	1.00	YES	6	1.00	YES				
					Proposed	19.44				51			6						
				W5	Existing	30.43	1.00	YES	84°N		*North*			*North*					
					Proposed	30.43													
																79		17	
																79	YES	17	YES
First	R1	Residential	Unknown	W1	Existing	33.03	0.99	YES	264°	45	0.93	YES	16	0.81	YES				
					Proposed	32.81				42			13						
																45		16	
																42	YES	13	YES

Project Name: Hayes End Road
Project No.: 2711
Report Title: Daylight & Sunlight Assessment Test
Date of Analysis: 22/04/2020
VSC & APSH Analysis

herrington CONSULTING LIMITED

Floor Ref.	Room Ref.	Property Type	Room Use.	Window Ref.		VSC	Pr/Ex	Meets BRE Criteria	Window Orientation	Annual	Pr/Ex	Meets BRE Criteria	Winter	Pr/Ex	Meets BRE Criteria	Total Suns per Room Annual	Meets BRE Criteria	Total Suns per Room Winter	Meets BRE Criteria
	R2	Residential	Unknown	W2	Existing	35.85	0.83	YES	174°	86	0.88	YES	29	0.66	YES				
					Proposed	29.70				76			19						
																86		29	
																76	YES	19	YES
	R3	Residential	Unknown	W3	Existing	35.98	0.84	YES	174°	86	0.90	YES	29	0.69	YES				
					Proposed	30.19				77			20						
																86		29	
																77	YES	20	YES
Second	R1	Residential	Unknown	W1	Existing	34.92	0.99	YES	264°	46	0.96	YES	16	0.88	YES				
					Proposed	34.58				44			14						
																46		16	
																44	YES	14	YES
	R2	Residential	Unknown	W2	Existing	37.64	0.87	YES	174°	86	0.93	YES	30	0.80	YES				
					Proposed	32.76				80			24						
																86		30	
																80	YES	24	YES
	R3	Residential	Unknown	W3	Existing	37.62	0.88	YES	174°	87	0.93	YES	30	0.80	YES				
					Proposed	33.08				81			24						
																87		30	
																81	YES	24	YES

Thurbin House (with balconies)

Project Name: Hayes End Road
Project No.: 2711
Report Title: Daylight Assessment Test
Date of Analysis: 22/04/2020
No Sky Line (Daylight Distribution Analysis)

herrington CONSULTING LIMITED

Floor Ref.	Room Ref.	Property Type	Room Use.		Room Area	Lit Area Existing	Lit Area Proposed	Pr/Ex	Meets BRE Criteria
1200 Uxbridge Road									
Ground	R1	Residential	Unknown	Area m2	15.26	15.18	15.18		
				% of room		99%	99%	1.00	YES
First	R1	Commercial	Unknown	Area m2	15.26				
				% of room					N/A
Murray Grey House									
Ground	R1	Residential	Unknown	Area m2	13.29	13.13	13.13		
				% of room		99%	99%	1.00	YES
	R2	Residential	Unknown	Area m2	10.62	10.25	10.25		
				% of room		97%	97%	1.00	YES
	R3	Residential	Unknown	Area m2	8.66	8.43	8.43		
				% of room		97%	97%	1.00	YES
	R4	Residential	Unknown	Area m2	7.83	7.02	7.02		
				% of room		90%	90%	1.00	YES
	R5	Residential	Unknown	Area m2	12.40	11.48	11.48		
				% of room		93%	93%	1.00	YES
	R6	Residential	Unknown	Area m2	12.64	11.69	11.63		
				% of room		92%	92%	0.99	YES
	R7	Residential	Unknown	Area m2	12.15	11.26	11.26		
				% of room		93%	93%	1.00	YES

Project Name: Hayes End Road
Project No.: 2711
Report Title: Daylight Assessment Test
Date of Analysis: 22/04/2020
No Sky Line (Daylight Distribution Analysis)

herrington CONSULTING LIMITED

Floor Ref.	Room Ref.	Property Type	Room Use.		Room Area	Lit Area Existing	Lit Area Proposed	Pr/Ex	Meets BRE Criteria
	R8	Residential	Unknown	Area m2	12.90	11.94	11.89		
				% of room		93%	92%	1.00	YES
	R9	Residential	Unknown	Area m2	17.65	16.86	16.24		
				% of room		96%	92%	0.96	YES
	R11	Residential	Unknown	Area m2	7.23	7.15	7.15		
				% of room		99%	99%	1.00	YES
First	R1	Residential	Unknown	Area m2	13.32	13.18	13.18		
				% of room		99%	99%	1.00	YES
	R2	Residential	Unknown	Area m2	10.61	10.28	10.28		
				% of room		97%	97%	1.00	YES
	R3	Residential	Unknown	Area m2	23.23	23.00	23.00		
				% of room		99%	99%	1.00	YES
	R4	Residential	Unknown	Area m2	19.50	19.35	19.35		
				% of room		99%	99%	1.00	YES
	R5	Residential	Unknown	Area m2	8.83	8.75	8.75		
				% of room		99%	99%	1.00	YES
	R6	Residential	Unknown	Area m2	15.62	15.60	15.60		
				% of room		100%	100%	1.00	YES
	R7	Residential	Unknown	Area m2	15.96	15.92	15.92		
				% of room		100%	100%	1.00	YES
	R8	Residential	Unknown	Area m2	9.45	9.32	9.32		
				% of room		99%	99%	1.00	YES
	R9	Residential	Unknown	Area m2	13.69	13.68	13.68		
				% of room		100%	100%	1.00	YES

Project Name: Hayes End Road
Project No.: 2711
Report Title: Daylight Assessment Test
Date of Analysis: 22/04/2020
No Sky Line (Daylight Distribution Analysis)

herrington CONSULTING LIMITED

Floor Ref.	Room Ref.	Property Type	Room Use.		Room Area	Lit Area Existing	Lit Area Proposed	Pr/Ex	Meets BRE Criteria
Second	R1	Residential	Unknown	Area m2	13.32	13.18	13.18		
				% of room		99%	99%	1.00	YES
	R2	Residential	Unknown	Area m2	10.61	10.28	10.28		
				% of room		97%	97%	1.00	YES
	R3	Residential	Unknown	Area m2	23.23	23.02	23.02		
				% of room		99%	99%	1.00	YES
	R4	Residential	Unknown	Area m2	19.50	19.38	19.38		
				% of room		99%	99%	1.00	YES
	R5	Residential	Unknown	Area m2	8.83	8.76	8.76		
				% of room		99%	99%	1.00	YES
	R6	Residential	Unknown	Area m2	15.62	15.60	15.60		
				% of room		100%	100%	1.00	YES
	R7	Residential	Unknown	Area m2	15.96	15.93	15.93		
				% of room		100%	100%	1.00	YES
	R8	Residential	Unknown	Area m2	9.45	9.34	9.34		
				% of room		99%	99%	1.00	YES
	R9	Residential	Unknown	Area m2	13.69	13.68	13.68		
				% of room		100%	100%	1.00	YES
	R10	Residential	Unknown	Area m2	6.30	6.22	6.22		
				% of room		99%	99%	1.00	YES
Third	R1	Residential	Unknown	Area m2	12.73	12.72	12.72		
				% of room		100%	100%	1.00	YES
	R2	Residential	Unknown	Area m2	19.02	18.41	18.41		
				% of room		97%	97%	1.00	YES

Project Name: Hayes End Road
Project No.: 2711
Report Title: Daylight Assessment Test
Date of Analysis: 22/04/2020
No Sky Line (Daylight Distribution Analysis)

herrington CONSULTING LIMITED

Floor Ref.	Room Ref.	Property Type	Room Use.		Room Area	Lit Area Existing	Lit Area Proposed	Pr/Ex	Meets BRE Criteria
	R3	Residential	Unknown	Area m2	20.18	20.17	20.17		
				% of room		100%	100%	1.00	YES
	R4	Residential	Unknown	Area m2	8.83	8.65	8.65		
				% of room		98%	98%	1.00	YES
	R5	Residential	Unknown	Area m2	14.77	14.77	14.77		
				% of room		100%	100%	1.00	YES
	R6	Residential	Unknown	Area m2	9.45	9.23	9.23		
				% of room		98%	98%	1.00	YES
	R7	Residential	Unknown	Area m2	13.69	13.37	13.37		
				% of room		98%	98%	1.00	YES
	R8	Residential	Unknown	Area m2	6.30	6.10	6.10		
				% of room		97%	97%	1.00	YES
Hart House									
Ground	R1	Residential	LD	Area m2	19.95	17.93	17.93		
				% of room		90%	90%	1.00	YES
First	R1	Residential	LD	Area m2	19.95	17.72	17.72		
				% of room		89%	89%	1.00	YES
Second	R1	Residential	LD	Area m2	19.95	17.84	17.84		
				% of room		89%	89%	1.00	YES
Charolias House									

Project Name: Hayes End Road
Project No.: 2711
Report Title: Daylight Assessment Test
Date of Analysis: 22/04/2020
No Sky Line (Daylight Distribution Analysis)

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Floor Ref.	Room Ref.	Property Type	Room Use.		Room Area	Lit Area Existing	Lit Area Proposed	Pr/Ex	Meets BRE Criteria
Ground	R1	Residential	Unknown	Area m2	22.80	22.39	22.34		
				% of room		98%	98%	1.00	YES
	R2	Residential	Unknown	Area m2	8.55	8.19	6.69		
				% of room		96%	78%	0.82	YES
	R3	Residential	Unknown	Area m2	19.91	19.76	19.74		
				% of room		99%	99%	1.00	YES
First	R1	Residential	Unknown	Area m2	17.35	17.26	17.22		
				% of room		99%	99%	1.00	YES
	R2	Residential	Unknown	Area m2	6.94	6.71	6.70		
				% of room		97%	97%	1.00	YES
	R3	Residential	Unknown	Area m2	5.89	5.74	5.73		
				% of room		97%	97%	1.00	YES
Second	R1	Residential	Unknown	Area m2	17.36	17.27	17.26		
				% of room		99%	99%	1.00	YES
	R2	Residential	Unknown	Area m2	6.94	6.71	6.71		
				% of room		97%	97%	1.00	YES
	R3	Residential	Unknown	Area m2	5.89	5.74	5.74		
				% of room		97%	97%	1.00	YES

Project Name: Hayes End Road
Project No.: 2711
Report Title: Sunlight Assessment Test
Date of Analysis: 22/04/2020
Two Hour Sun on the Ground Amenity Analysis

Floor Ref.	Amenity Ref.		Amenity Area	Lit Area Existing	Lit Area Proposed	Pr/Ex	Meets BRE Criteria
Murray Grey House							
Ground	mmunal Gard	Area m2	270.16	270.16	270.16	1.00	YES
		Percentage		100%	100%		
Ground	Patio A1	Area m2	23.81	23.81	23.81	1.00	YES
		Percentage		100%	100%		
Ground	Patio A2	Area m2	22.81	14.95	14.95	1.00	YES
		Percentage		66%	66%		
Ground	Patio A3	Area m2	23.97	23.97	23.97	1.00	YES
		Percentage		100%	100%		
Ground	Patio A4	Area m2	14.76	9.05	9.05	1.00	YES
		Percentage		61%	61%		
Thurbin House							
Ground	Patio A1	Area m2	49.46	27.83	27.83	1.00	YES
		Percentage		56%	56%		
Ground	Patio A2	Area m2	42.62	25.00	25.00	1.00	YES
		Percentage		59%	59%		
Charolias House							
Ground	mmunal Gard	Area m2	237.22	224.13	224.02	1.00	YES
		Percentage		94%	94%		

Appendix A.4 – Tabulated Results for Daylight and Sunlight Calculations (Provision to New Development)

Project Name: Hayes End Road
Project No.: 2711
Report Title: Daylight Assessment Test
Date: 07/07/2020
Average Daylight Factor Analysis

herrington CONSULTING LIMITED

Floor Ref.	Room Ref.	Property Type	Room Use.	Window Ref.	Glass Transmittance	Maintenance Factor	Glazed Area	Clear Sky Angle Proposed	Room Surface Area	Average Surface Reflectance	Below Working Plane Factor	ADF Proposed	Req'd Value	Meets BRE Criteria
						Flat 1								
Ground	R1	Residential	Bedroom	W1-L	0.78	0.96	0.71	59.56	65.41	0.65	0.30	0.26		
				W1-U	0.78	0.96	1.12	59.44	65.41	0.65	1.00	1.33		
												1.59	1.00	YES
Ground	R2	Residential	LD	W2-L	0.78	0.96	1.38	48.46	115.06	0.65	0.30	0.23		
				W2-U	0.78	0.96	2.02	32.72	115.06	0.65	1.00	0.75		
				W3-L	0.78	0.96	1.32	60.46	115.06	0.65	0.30	0.27		
				W3-U	0.78	0.96	2.02	61.27	115.06	0.65	1.00	1.40		
				W4-L	0.78	0.96	0.71	60.31	115.06	0.65	0.30	0.15		
				W4-U	0.78	0.96	1.13	61.37	115.06	0.65	1.00	0.78		
												3.58	1.50	YES
Ground	R3	Residential	Bedroom	W5-L	0.78	0.96	0.12	62.38	72.25	0.65	0.30	0.04		
				W5-U	0.78	0.96	1.13	62.57	72.25	0.65	1.00	1.27		
												1.31	1.00	YES
						Flat 2								
Ground	R1	Residential	Bedroom	W1-L	0.78	0.96	0.12	63.05	72.25	0.65	0.30	0.04		
				W1-U	0.78	0.96	1.13	63.17	72.25	0.65	1.00	1.29		
												1.33	1.00	YES
Ground	R2	Residential	LD	W2-L	0.78	0.96	0.71	63.93	108.20	0.65	0.30	0.17		
				W2-U	0.78	0.96	1.13	64.48	108.20	0.65	1.00	0.88		
				W3-L	0.78	0.96	1.38	66.10	108.20	0.65	0.30	0.33		
				W3-U	0.78	0.96	2.02	66.14	108.20	0.65	1.00	1.61		
				W4-L	0.78	0.96	1.38	53.30	108.20	0.65	0.30	0.27		
				W4-U	0.78	0.96	2.02	36.91	108.20	0.65	1.00	0.90		
												4.15	1.50	YES
Ground	R3	Residential	Bedroom	W5-L	0.78	0.96	0.76	62.48	65.41	0.65	0.30	0.28		
				W5-U	0.78	0.96	1.12	61.57	65.41	0.65	1.00	1.38		
												1.67	1.00	YES
						Flat 3								

Project Name: Hayes End Road
Project No.: 2711
Report Title: Daylight Assessment Test
Date: 07/07/2020
Average Daylight Factor Analysis

herrington CONSULTING LIMITED

Floor Ref.	Room Ref.	Property Type	Room Use.	Window Ref.	Glass Transmittance	Maintenance Factor	Glazed Area	Clear Sky Angle Proposed	Room Surface Area	Average Surface Reflectance	Below Working Plane Factor	ADF Proposed	Req'd Value	Meets BRE Criteria
Ground	R1	Residential	LD	W1-L	0.78	0.96	1.38	55.69	76.83	0.65	0.30	0.39		
				W1-U	0.78	0.96	2.02	40.08	76.83	0.65	1.00	1.37		
												1.77	1.50	YES
Ground	R2	Residential	Bedroom	W2-L	0.78	0.96	1.38	59.23	69.81	0.65	0.30	0.46		
				W2-U	0.78	0.96	2.02	44.82	69.81	0.65	1.00	1.69		
												2.15	1.00	YES
						Flat 4								
First	R1	Residential	Bedroom	W1-L	0.78	0.96	0.77	66.78	55.26	0.65	0.30	0.37		
				W1-U	0.78	0.96	1.14	65.72	55.26	0.65	1.00	1.76		
												2.13	1.00	YES
First	R2	Residential	Bedroom	W2-L	0.78	0.96	1.33	58.36	53.89	0.65	0.30	0.56		
				W2-U	0.78	0.96	1.95	45.32	53.89	0.65	1.00	2.14		
												2.71	1.00	YES
First	R3	Residential	LD	W3-L	0.78	0.96	1.33	57.45	93.61	0.65	0.30	0.32		
				W3-U	0.78	0.96	1.95	44.26	93.61	0.65	1.00	1.20		
				W4-L	0.78	0.96	0.77	67.76	93.61	0.65	0.30	0.22		
				W4-U	0.78	0.96	1.14	69.19	93.61	0.65	1.00	1.10		
												2.84	1.50	YES
First	R4	Residential	Bedroom	W5-L	0.78	0.96	0.77	68.92	72.66	0.65	0.30	0.29		
				W5-U	0.78	0.96	1.14	69.99	72.66	0.65	1.00	1.43		
												1.72	1.00	YES
						Flat 5								
First	R1	Residential	Bedroom	W1-L	0.78	0.96	0.77	69.35	72.66	0.65	0.30	0.29		
				W1-U	0.78	0.96	1.14	70.26	72.66	0.65	1.00	1.43		
												1.72	1.00	YES
First	R2	Residential	LKD	W2-L	0.78	0.96	0.77	70.44	93.59	0.65	0.15	0.11		
				W2-U	0.78	0.96	1.14	71.00	93.59	0.65	1.00	1.13		
				W3-L	0.78	0.96	1.33	59.19	93.59	0.65	0.15	0.16		
				W3-U	0.78	0.96	1.95	44.75	93.59	0.65	1.00	1.22		

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Project No.: 2711
Report Title: Daylight Assessment Test
Date: 07/07/2020
Average Daylight Factor Analysis

herrington CONSULTING LIMITED

Floor Ref.	Room Ref.	Property Type	Room Use.	Window Ref.	Glass Transmittance	Maintenance Factor	Glazed Area	Clear Sky Angle Proposed	Room Surface Area	Average Surface Reflectance	Below Working Plane Factor	ADF Proposed	Req'd Value	Meets BRE Criteria
												2.62	2.00	YES
First	R3	Residential	Bedroom	W4-L	0.78	0.96	1.33	59.60	53.89	0.65	0.30	0.57		
				W4-U	0.78	0.96	1.95	45.47	53.89	0.65	1.00	2.15		
												2.72	1.00	YES
First	R4	Residential	Bedroom	W5-L	0.78	0.96	0.77	67.65	55.25	0.65	0.30	0.37		
				W5-U	0.78	0.96	1.13	65.79	55.25	0.65	1.00	1.76		
												2.14	1.00	YES
Flat 6														
First	R1	Residential	Bedroom	W1-L	0.78	0.96	1.33	61.09	54.66	0.65	0.30	0.58		
				W1-U	0.78	0.96	1.95	47.19	54.66	0.65	1.00	2.20		
												2.78	1.00	YES
First	R2	Residential	LD	W2-L	0.78	0.96	1.33	61.53	85.30	0.65	0.30	0.38		
				W2-U	0.78	0.96	1.95	47.53	85.30	0.65	1.00	1.42		
												1.79	1.50	YES
Flat 7														
First	R1	Residential	LD	W1-L	0.78	0.96	1.33	63.14	88.47	0.65	0.30	0.37		
				W1-U	0.78	0.96	1.95	48.93	88.47	0.65	1.00	1.41		
												1.78	1.50	YES
First	R2	Residential	Bedroom	W2-L	0.78	0.96	1.33	63.52	45.63	0.65	0.30	0.72		
				W2-U	0.78	0.96	1.95	49.22	45.63	0.65	1.00	2.75		
												3.47	1.00	YES
First	R3	Residential	Bedroom	W3-L	0.78	0.96	0.77	71.65	53.10	0.65	0.30	0.41		
				W3-U	0.78	0.96	1.13	69.70	53.10	0.65	1.00	1.94		
												2.35	1.00	YES
Flat 8														
First	R1	Residential	Bedroom	W1-L	0.78	0.96	1.32	64.38	46.50	0.65	0.30	0.72		
				W1-U	0.78	0.96	1.95	49.78	46.50	0.65	1.00	2.73		
												3.44	1.00	YES

Project Name: Hayes End Road
Project No.: 2711
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Date: 07/07/2020
Average Daylight Factor Analysis

herrington CONSULTING LIMITED

Floor Ref.	Room Ref.	Property Type	Room Use.	Window Ref.	Glass Transmittance	Maintenance Factor	Glazed Area	Clear Sky Angle Proposed	Room Surface Area	Average Surface Reflectance	Below Working Plane Factor	ADF Proposed	Req'd Value	Meets BRE Criteria
First	R2	Residential	LD	W2-L	0.78	0.96	1.33	65.06	92.47	0.65	0.30	0.37		
				W2-U	0.78	0.96	1.95	50.29	92.47	0.65	1.00	1.39		
				W3-L	0.78	0.96	0.77	75.19	92.47	0.65	0.30	0.25		
				W3-U	0.78	0.96	1.14	75.36	92.47	0.65	1.00	1.21		
												3.21	1.50	YES
							Flat 9							
First	R1	Residential	LD	W1-L	0.78	0.96	0.03	71.87	92.96	0.65	0.30	0.01		
				W1-U	0.78	0.96	1.14	71.77	92.96	0.65	1.00	1.14		
				W2-L	0.78	0.96	1.33	60.29	92.96	0.65	0.30	0.34		
				W2-U	0.78	0.96	1.95	46.59	92.96	0.65	1.00	1.28		
												2.77	1.50	YES
First	R2	Residential	Bedroom	W3-L	0.78	0.96	1.32	60.20	46.45	0.65	0.30	0.67		
				W3-U	0.78	0.96	1.94	46.60	46.45	0.65	1.00	2.54		
												3.21	1.00	YES
							Flat 10							
First	R1	Residential	Bedroom	W1-L	0.78	0.96	0.77	67.95	53.10	0.65	0.30	0.39		
				W1-U	0.78	0.96	1.14	66.94	53.10	0.65	1.00	1.87		
												2.26	1.00	YES
First	R2	Residential	Bedroom	W2-L	0.78	0.96	1.33	60.80	45.63	0.65	0.30	0.69		
				W2-U	0.78	0.96	1.95	47.38	45.63	0.65	1.00	2.65		
												3.34	1.00	YES
First	R3	Residential	LD	W3-L	0.78	0.96	1.33	60.95	88.60	0.65	0.30	0.36		
				W3-U	0.78	0.96	1.95	47.55	88.60	0.65	1.00	1.37		
												1.72	1.50	YES
							Flat 11							
First	R1	Residential	LD	W1-L	0.78	0.96	1.33	60.60	85.13	0.65	0.30	0.37		
				W1-U	0.78	0.96	1.95	47.31	85.13	0.65	1.00	1.42		
												1.79	1.50	YES

Project Name: Hayes End Road
Project No.: 2711
Report Title: Daylight Assessment Test
Date: 07/07/2020
Average Daylight Factor Analysis

herrington CONSULTING LIMITED

Floor Ref.	Room Ref.	Property Type	Room Use.	Window Ref.	Glass Transmittance	Maintenance Factor	Glazed Area	Clear Sky Angle Proposed	Room Surface Area	Average Surface Reflectance	Below Working Plane Factor	ADF Proposed	Req'd Value	Meets BRE Criteria
First	R2	Residential	Bedroom	W2-L	0.78	0.96	1.33	60.31	54.66	0.65	0.30	0.57		
				W2-U	0.78	0.96	1.95	47.11	54.66	0.65	1.00	2.20		
												2.77	1.00	YES
							Flat 12							
Second	R1	Residential	Bedroom	W1-L	0.78	0.96	0.77	73.99	55.26	0.65	0.30	0.41		
				W1-U	0.78	0.96	1.13	72.23	55.26	0.65	1.00	1.94		
												2.34	1.00	YES
Second	R2	Residential	Bedroom	W2-L	0.78	0.96	1.33	64.60	53.89	0.65	0.30	0.62		
				W2-U	0.78	0.96	1.95	50.19	53.89	0.65	1.00	2.37		
												3.00	1.00	YES
Second	R3	Residential	LD	W3-L	0.78	0.96	1.33	63.95	93.61	0.65	0.30	0.36		
				W3-U	0.78	0.96	1.95	49.33	93.61	0.65	1.00	1.34		
				W4-L	0.78	0.96	0.77	76.70	93.61	0.65	0.30	0.25		
				W4-U	0.78	0.96	1.13	77.65	93.61	0.65	1.00	1.23		
												3.18	1.50	YES
Second	R4	Residential	Bedroom	W5-L	0.78	0.96	0.77	76.86	72.66	0.65	0.30	0.32		
				W5-U	0.78	0.96	1.13	77.61	72.66	0.65	1.00	1.58		
												1.90	1.00	YES
							Flat 13							
Second	R1	Residential	Bedroom	W1-L	0.78	0.96	0.77	76.95	72.66	0.65	0.30	0.32		
				W1-U	0.78	0.96	1.13	77.59	72.66	0.65	1.00	1.58		
												1.90	1.00	YES
Second	R2	Residential	LD	W2-L	0.78	0.96	0.77	77.17	93.59	0.65	0.30	0.25		
				W2-U	0.78	0.96	1.13	77.48	93.59	0.65	1.00	1.23		
				W3-L	0.78	0.96	1.33	63.22	93.59	0.65	0.30	0.35		
				W3-U	0.78	0.96	1.95	48.69	93.59	0.65	1.00	1.33		
												3.15	1.50	YES
Second	R3	Residential	Bedroom	W4-L	0.78	0.96	1.33	63.89	53.89	0.65	0.30	0.62		
				W4-U	0.78	0.96	1.95	49.64	53.89	0.65	1.00	2.35		
												2.96	1.00	YES

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Second	R4	Residential	Bedroom	W5-L	0.78	0.96	0.77	73.27	55.25	0.65	0.30	0.40		
				W5-U	0.78	0.96	1.13	71.77	55.25	0.65	1.00	1.93		
												2.33	1.00	YES
							Flat 14							
Second	R1	Residential	Bedroom	W1-L	0.78	0.96	1.33	65.31	54.66	0.65	0.30	0.62		
				W1-U	0.78	0.96	1.95	51.15	54.66	0.65	1.00	2.38		
												3.00	1.00	YES
Second	R2	Residential	LD	W2-L	0.78	0.96	1.33	65.56	82.57	0.65	0.30	0.41		
				W2-U	0.78	0.96	1.95	51.32	82.57	0.65	1.00	1.58		
												2.00	1.50	YES
							Flat 15							
Second	R1	Residential	LD	W1-L	0.78	0.96	1.33	66.50	87.75	0.65	0.30	0.39		
				W1-U	0.78	0.96	1.95	52.01	87.75	0.65	1.00	1.51		
												1.90	1.50	YES
Second	R2	Residential	Bedroom	W2-L	0.78	0.96	1.33	66.72	45.63	0.65	0.30	0.76		
				W2-U	0.78	0.96	1.95	52.15	45.63	0.65	1.00	2.91		
												3.67	1.00	YES
Second	R3	Residential	Bedroom	W3-L	0.78	0.96	0.77	76.10	53.10	0.65	0.30	0.43		
				W3-U	0.78	0.96	1.13	74.61	53.10	0.65	1.00	2.08		
												2.52	1.00	YES
							Flat 16							
Second	R1	Residential	Bedroom	W1-L	0.78	0.96	1.33	67.16	46.50	0.65	0.30	0.75		
				W1-U	0.78	0.96	1.95	52.28	46.50	0.65	1.00	2.86		
												3.61	1.00	YES
Second	R2	Residential	LD	W2-L	0.78	0.96	1.33	67.46	92.47	0.65	0.30	0.38		
				W2-U	0.78	0.96	1.95	52.39	92.47	0.65	1.00	1.44		
				W3-L	0.78	0.96	0.77	81.06	92.47	0.65	0.30	0.27		
				W3-U	0.78	0.96	1.13	80.85	92.47	0.65	1.00	1.30		

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												3.38	1.50	YES
						Flat 17								
Second	R1	Residential	LD	W1-L	0.78	0.96	0.03	78.52	92.96	0.65	0.30	0.01		
				W1-U	0.78	0.96	1.14	78.25	92.96	0.65	1.00	1.25		
				W2-L	0.78	0.96	1.33	64.86	92.96	0.65	0.30	0.36		
				W2-U	0.78	0.96	1.95	50.36	92.96	0.65	1.00	1.38		
												3.00	1.50	YES
Second	R2	Residential	Bedroom	W3-L	0.78	0.96	1.32	64.96	46.45	0.65	0.30	0.72		
				W3-U	0.78	0.96	1.94	50.56	46.45	0.65	1.00	2.76		
												3.48	1.00	YES
						Flat 18								
Second	R1	Residential	Bedroom	W1-L	0.78	0.96	0.77	74.21	53.10	0.65	0.30	0.42		
				W1-U	0.78	0.96	1.14	73.06	53.10	0.65	1.00	2.05		
												2.47	1.00	YES
Second	R2	Residential	Bedroom	W2-L	0.78	0.96	1.33	65.60	45.63	0.65	0.30	0.75		
				W2-U	0.78	0.96	1.95	51.20	45.63	0.65	1.00	2.86		
												3.61	1.00	YES
Second	R3	Residential	LD	W3-L	0.78	0.96	1.33	65.73	88.17	0.65	0.30	0.39		
				W3-U	0.78	0.96	1.95	51.32	88.17	0.65	1.00	1.48		
												1.87	1.50	YES
						Flat 19								
Second	R1	Residential	LD	W1-L	0.78	0.96	1.33	65.78	82.47	0.65	0.30	0.41		
				W1-U	0.78	0.96	1.95	51.36	82.47	0.65	1.00	1.59		
												2.00	1.50	YES
Second	R2	Residential	Bedroom	W2-L	0.78	0.96	1.33	65.72	54.66	0.65	0.30	0.63		
				W2-U	0.78	0.96	1.95	51.35	54.66	0.65	1.00	2.39		
												3.02	1.00	YES

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						Flat 20								
Third	R1	Residential	Bedroom	W1-L	0.78	0.96	0.77	83.98	55.26	0.65	0.30	0.46		
				W1-U	0.78	0.96	1.13	82.62	55.26	0.65	1.00	2.22		
												2.68	1.00	YES
Third	R2	Residential	Bedroom	W2-L	0.78	0.96	1.33	85.66	53.89	0.65	0.30	0.83		
				W2-U	0.78	0.96	1.95	83.77	53.89	0.65	1.00	3.96		
												4.79	1.00	YES
Third	R3	Residential	LD	W3-L	0.78	0.96	1.33	85.62	93.61	0.65	0.30	0.48		
				W3-U	0.78	0.96	1.95	83.73	93.61	0.65	1.00	2.28		
				W4-L	0.78	0.96	0.77	83.37	93.61	0.65	0.30	0.27		
				W4-U	0.78	0.96	1.13	81.89	93.61	0.65	1.00	1.30		
												4.32	1.50	YES
Third	R4	Residential	Bedroom	W5-L	0.78	0.96	0.77	83.13	72.66	0.65	0.30	0.35		
				W5-U	0.78	0.96	1.13	81.69	72.66	0.65	1.00	1.67		
												2.01	1.00	YES
						Flat 21								
Third	R1	Residential	Bedroom	W1-L	0.78	0.96	0.77	83.01	72.66	0.65	0.30	0.35		
				W1-U	0.78	0.96	1.13	81.59	72.66	0.65	1.00	1.67		
												2.01	1.00	YES
Third	R2	Residential	LD	W2-L	0.78	0.96	0.77	82.56	93.59	0.65	0.30	0.27		
				W2-U	0.78	0.96	1.13	81.21	93.59	0.65	1.00	1.29		
				W3-L	0.78	0.96	1.33	85.42	93.59	0.65	0.30	0.47		
				W3-U	0.78	0.96	1.95	83.64	93.59	0.65	1.00	2.28		
												4.30	1.50	YES
Third	R3	Residential	Bedroom	W4-L	0.78	0.96	1.33	85.64	53.89	0.65	0.30	0.83		
				W4-U	0.78	0.96	1.95	83.82	53.89	0.65	1.00	3.96		
												4.79	1.00	YES
Third	R4	Residential	Bedroom	W5-L	0.78	0.96	0.77	84.18	55.25	0.65	0.30	0.46		
				W5-U	0.78	0.96	1.13	82.85	55.25	0.65	1.00	2.22		
												2.68	1.00	YES

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						Flat 22								
Third	R1	Residential	Bedroom	W1-L	0.78	0.96	1.33	86.19	54.66	0.65	0.30	0.82		
				W1-U	0.78	0.96	1.95	84.23	54.66	0.65	1.00	3.92		
												4.74	1.00	YES
Third	R2	Residential	LD	W2-L	0.78	0.96	1.33	86.33	85.30	0.65	0.30	0.53		
				W2-U	0.78	0.96	1.95	84.33	85.30	0.65	1.00	2.52		
												3.04	1.50	YES
						Flat 23								
Third	R1	Residential	LD	W1-L	0.78	0.96	1.33	86.73	88.47	0.65	0.30	0.51		
				W1-U	0.78	0.96	1.95	84.57	88.47	0.65	1.00	2.44		
												2.94	1.50	YES
Third	R2	Residential	Bedroom	W2-L	0.78	0.96	1.33	86.85	45.63	0.65	0.30	0.99		
				W2-U	0.78	0.96	1.95	84.63	45.63	0.65	1.00	4.72		
												5.71	1.00	YES
Third	R3	Residential	Bedroom	W3-L	0.78	0.96	0.77	85.24	53.10	0.65	0.30	0.49		
				W3-U	0.78	0.96	1.13	83.55	53.10	0.65	1.00	2.33		
												2.82	1.00	YES
						Flat 24								
Third	R1	Residential	Bedroom	W1-L	0.78	0.96	1.33	87.10	46.50	0.65	0.30	0.97		
				W1-U	0.78	0.96	1.95	84.77	46.50	0.65	1.00	4.64		
												5.61	1.00	YES
Third	R2	Residential	LD	W2-L	0.78	0.96	1.33	87.18	92.47	0.65	0.30	0.49		
				W2-U	0.78	0.96	1.95	84.81	92.47	0.65	1.00	2.34		
				W3-L	0.78	0.96	0.77	85.66	92.47	0.65	0.30	0.28		
				W3-U	0.78	0.96	1.13	83.87	92.47	0.65	1.00	1.34		
												4.45	1.50	YES
						Flat 25								

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Third	R1	Residential	LD	W1-L	0.78	0.96	0.03	83.86	92.96	0.65	0.30	0.01		
				W1-U	0.78	0.96	1.14	82.58	92.96	0.65	1.00	1.32		
				W2-L	0.78	0.96	1.33	85.47	92.96	0.65	0.30	0.48		
				W2-U	0.78	0.96	1.95	83.91	92.96	0.65	1.00	2.30		
												4.10	1.50	YES
Third	R2	Residential	Bedroom	W3-L	0.78	0.96	1.32	85.56	46.45	0.65	0.30	0.95		
				W3-U	0.78	0.96	1.94	83.92	46.45	0.65	1.00	4.58		
												5.53	1.00	YES
						Flat 26								
Third	R1	Residential	Bedroom	W1-L	0.78	0.96	0.77	83.91	53.10	0.65	0.30	0.48		
				W1-U	0.78	0.96	1.13	82.73	53.10	0.65	1.00	2.31		
												2.79	1.00	YES
Third	R2	Residential	Bedroom	W2-L	0.78	0.96	1.33	85.74	45.63	0.65	0.30	0.98		
				W2-U	0.78	0.96	1.95	83.94	45.63	0.65	1.00	4.69		
												5.66	1.00	YES
Third	R3	Residential	LD	W3-L	0.78	0.96	1.33	85.76	88.60	0.65	0.30	0.50		
				W3-U	0.78	0.96	1.95	83.94	88.60	0.65	1.00	2.41		
												2.92	1.50	YES
						Flat 27								
Third	R1	Residential	LD	W1-L	0.78	0.96	1.33	85.81	85.13	0.65	0.30	0.52		
				W1-U	0.78	0.96	1.95	83.90	85.13	0.65	1.00	2.51		
												3.03	1.50	YES
Third	R2	Residential	Bedroom	W2-L	0.78	0.96	1.33	85.78	54.66	0.65	0.30	0.82		
				W2-U	0.78	0.96	1.95	83.87	54.66	0.65	1.00	3.91		
												4.72	1.00	YES
						Flat 28								
Fourth	R1	Residential	LD	W1-L	0.78	0.96	0.77	86.21	100.88	0.65	0.30	0.26		
				W1-U	0.78	0.96	1.14	84.07	100.88	0.65	1.00	1.24		

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				W2-L	0.78	0.96	1.38	87.98	100.88	0.65	0.30	0.47		
				W2-U	0.78	0.96	2.03	85.31	100.88	0.65	1.00	2.25		
				W3-L	0.78	0.96	1.38	87.95	100.88	0.65	0.30	0.47		
				W3-U	0.78	0.96	2.04	85.31	100.88	0.65	1.00	2.25		
												6.94	1.50	YES
Fourth	R2	Residential	Bedroom	W4-L	0.78	0.96	1.38	87.89	60.70	0.65	0.30	0.79		
				W4-U	0.78	0.96	2.04	85.29	60.70	0.65	1.00	3.74		
												4.52	1.00	YES
						Flat 29								
Fourth	R1	Residential	LD	W1-L	0.78	0.96	1.38	87.81	107.89	0.65	0.30	0.44		
				W1-U	0.78	0.96	2.04	85.27	107.89	0.65	1.00	2.10		
				W2-L	0.78	0.96	0.77	85.02	107.89	0.65	0.30	0.24		
				W2-U	0.78	0.96	1.14	83.39	107.89	0.65	1.00	1.15		
												3.93	1.50	YES
Fourth	R2	Residential	Bedroom	W3-L	0.78	0.96	1.38	86.87	57.62	0.65	0.30	0.82		
				W3-U	0.78	0.96	2.04	84.58	57.62	0.65	1.00	3.90		
												4.72	1.00	YES

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Flat 1							
Ground	R1		Residential	Bedroom	Area m2	13.34	12.98
					% of room		97%
	R2		Residential	LD	Area m2	28.21	28.08
					% of room		100%
	R3		Residential	Bedroom	Area m2	14.38	10.02
					% of room		70%
Flat 2							
Ground	R1		Residential	Bedroom	Area m2	14.38	8.39
					% of room		58%
	R2		Residential	LD	Area m2	24.78	24.66
					% of room		100%
	R3		Residential	Bedroom	Area m2	13.34	10.93
					% of room		82%
Flat 3							
Ground	R1		Residential	LD	Area m2	16.37	14.57
					% of room		89%
	R2		Residential	Bedroom	Area m2	14.66	14.36
					% of room		98%

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Flat 4							
First	R1		Residential	Bedroom	Area m2	9.91	9.79
					% of room		99%
	R2		Residential	Bedroom	Area m2	10.24	10.15
					% of room		99%
	R3		Residential	LD	Area m2	21.74	21.42
					% of room		98%
	R4		Residential	Bedroom	Area m2	12.76	11.05
					% of room		87%
Flat 5							
First	R1		Residential	Bedroom	Area m2	12.76	10.62
					% of room		83%
	R2		Residential	LKD	Area m2	21.74	21.41
					% of room		99%
	R3		Residential	Bedroom	Area m2	10.24	10.17
					% of room		99%
	R4		Residential	Bedroom	Area m2	9.90	9.76
					% of room		99%
Flat 6							

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First	R1		Residential	Bedroom	Area m2	10.43	10.37
					% of room		99%
	R2		Residential	LD	Area m2	18.22	17.59
					% of room		97%
			Flat 7				
First	R1		Residential	LD	Area m2	16.74	16.26
					% of room		97%
	R2		Residential	Bedroom	Area m2	7.80	7.79
					% of room		100%
	R3		Residential	Bedroom	Area m2	9.97	9.74
					% of room		98%
			Flat 8				
First	R1		Residential	Bedroom	Area m2	8.27	8.22
					% of room		99%
	R2		Residential	LD	Area m2	18.41	17.80
					% of room		97%
			Flat 9				
First	R1		Residential	LD	Area m2	18.75	17.47
					% of room		93%

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	R2		Residential	Bedroom	Area m2	8.26	8.22
					% of room		99%
			Flat 10				
First	R1		Residential	Bedroom	Area m2	9.97	9.75
					% of room		98%
	R2		Residential	Bedroom	Area m2	7.80	7.79
					% of room		100%
	R3		Residential	LD	Area m2	16.61	16.26
					% of room		98%
			Flat 11				
First	R1		Residential	LD	Area m2	18.16	17.53
					% of room		97%
	R2		Residential	Bedroom	Area m2	10.43	10.35
					% of room		99%
			Flat 12				
Second	R1		Residential	Bedroom	Area m2	9.91	9.79
					% of room		99%
	R2		Residential	Bedroom	Area m2	10.24	10.16
					% of room		99%

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Floor Ref.	Room Ref.	Room Attribute	Property Type	Room Use.		Room Area	Lit Area Proposed
	R3		Residential	LD	Area m2	21.74	21.42
					% of room		98%
	R4		Residential	Bedroom	Area m2	12.76	12.11
					% of room		95%
			Flat 13				
Second	R1		Residential	Bedroom	Area m2	12.76	12.08
					% of room		95%
	R2		Residential	LD	Area m2	21.74	21.38
					% of room		98%
	R3		Residential	Bedroom	Area m2	10.24	10.17
					% of room		99%
	R4		Residential	Bedroom	Area m2	9.90	9.79
					% of room		99%
			Flat 14				
Second	R1		Residential	Bedroom	Area m2	10.43	10.37
					% of room		99%
	R2		Residential	LD	Area m2	17.28	16.66
					% of room		96%
			Flat 15				

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Floor Ref.	Room Ref.	Room Attribute	Property Type	Room Use.		Room Area	Lit Area Proposed
Second	R1		Residential	LD	Area m2	16.38	16.04
					% of room		98%
	R2		Residential	Bedroom	Area m2	7.80	7.79
					% of room		100%
	R3		Residential	Bedroom	Area m2	9.97	9.75
					% of room		98%
			Flat 16				
Second	R1		Residential	Bedroom	Area m2	8.27	8.22
					% of room		99%
	R2		Residential	LD	Area m2	18.41	17.80
					% of room		97%
			Flat 17				
Second	R1		Residential	LD	Area m2	18.75	18.41
					% of room		98%
	R2		Residential	Bedroom	Area m2	8.26	8.20
					% of room		99%
			Flat 18				
Second	R1		Residential	Bedroom	Area m2	9.97	9.75
					% of room		98%

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Floor Ref.	Room Ref.	Room Attribute	Property Type	Room Use.		Room Area	Lit Area Proposed
	R2		Residential	Bedroom	Area m2	7.80	7.79
					% of room		100%
	R3		Residential	LD	Area m2	16.39	16.13
					% of room		98%
			Flat 19				
Second	R1		Residential	LD	Area m2	17.26	16.69
					% of room		97%
	R2		Residential	Bedroom	Area m2	10.43	10.35
					% of room		99%
			Flat 20				
Third	R1		Residential	Bedroom	Area m2	9.91	9.80
					% of room		99%
	R2		Residential	Bedroom	Area m2	10.24	10.16
					% of room		99%
	R3		Residential	LD	Area m2	21.74	21.43
					% of room		99%
	R4		Residential	Bedroom	Area m2	12.76	12.13
					% of room		95%
			Flat 21				

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Floor Ref.	Room Ref.	Room Attribute	Property Type	Room Use.		Room Area	Lit Area Proposed
Third	R1		Residential	Bedroom	Area m2	12.76	12.10
					% of room		95%
	R2		Residential	LD	Area m2	21.74	21.39
					% of room		98%
	R3		Residential	Bedroom	Area m2	10.24	10.17
					% of room		99%
	R4		Residential	Bedroom	Area m2	9.90	9.80
					% of room		99%
			Flat 22				
Third	R1		Residential	Bedroom	Area m2	10.43	10.37
					% of room		99%
	R2		Residential	LD	Area m2	18.22	17.65
					% of room		97%
			Flat 23				
Third	R1		Residential	LD	Area m2	16.74	16.41
					% of room		98%
	R2		Residential	Bedroom	Area m2	7.80	7.79
					% of room		100%
	R3		Residential	Bedroom	Area m2	9.97	9.76
					% of room		98%

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Floor Ref.	Room Ref.	Room Attribute	Property Type	Room Use.		Room Area	Lit Area Proposed
Flat 24							
Third	R1		Residential	Bedroom	Area m2	8.27	8.22
					% of room		99%
	R2		Residential	LD	Area m2	18.41	17.80
					% of room		97%
Flat 25							
Third	R1		Residential	LD	Area m2	18.75	18.41
					% of room		98%
	R2		Residential	Bedroom	Area m2	8.26	8.20
					% of room		99%
Flat 26							
Third	R1		Residential	Bedroom	Area m2	9.97	9.76
					% of room		98%
	R2		Residential	Bedroom	Area m2	7.80	7.79
					% of room		100%
	R3		Residential	LD	Area m2	16.61	16.27
					% of room		98%
Flat 27							

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Floor Ref.	Room Ref.	Room Attribute	Property Type	Room Use.		Room Area	Lit Area Proposed
Third	R1		Residential	LD	Area m2	18.16	17.57
					% of room		97%
	R2		Residential	Bedroom	Area m2	10.43	10.35
					% of room		99%
			Flat 28				
Fourth	R1		Residential	LD	Area m2	23.43	23.41
					% of room		100%
	R2		Residential	Bedroom	Area m2	12.13	11.99
					% of room		99%
			Flat 29				
Fourth	R1		Residential	LD	Area m2	23.06	22.89
					% of room		99%
	R2		Residential	Bedroom	Area m2	11.14	11.11
					% of room		100%

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Floor Ref.	Room Ref.	Property Type	Room Use.	Window Ref.	Window Orientation	Annual	Meets BRE Criteria	Winter	Meets BRE Criteria	Total Suns per Room Annual	Meets BRE Criteria	Total Suns per Room Winter	Meets BRE Criteria
Flat 1													
Ground	R1	Residential	Bedroom	W1	276°N	15	NO	1	NO	15	NO	1	NO
	R2	Residential	LD	W2	276°N	16	NO	5	YES				
				W3	186°	70	YES	14	YES				
				W4	186°	70	YES	14	YES	74	YES	15	YES
	R3	Residential	Bedroom	W5	186°	73	YES	16	YES	73	YES	16	YES
Flat 2													
Ground	R1	Residential	Bedroom	W1	186°	73	YES	16	YES	73	YES	16	YES
	R2	Residential	LD	W2	186°	76	YES	17	YES				
				W3	186°	76	YES	17	YES				
				W4	96°	26	YES	11	YES	82	YES	19	YES
	R3	Residential	Bedroom	W5	96°	24	NO	4	NO	24	NO	4	NO
Flat 3													
Ground	R1	Residential	LD	W1	96°	24	NO	6	YES	24	NO	6	YES
	R2	Residential	Bedroom	W2	96°	38	YES	9	YES	38	YES	9	YES
Flat 4													

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Floor Ref.	Room Ref.	Property Type	Room Use.	Window Ref.	Window Orientation	Annual	Meets BRE Criteria	Winter	Meets BRE Criteria	Total Suns per Room Annual	Meets BRE Criteria	Total Suns per Room Winter	Meets BRE Criteria
First	R1	Residential	Bedroom	W1	276°N	20	NO	4	NO				
										20	NO	4	NO
	R2	Residential	Bedroom	W2	276°N	22	NO	7	YES				
										22	NO	7	YES
	R3	Residential	LD	W3	276°N	28	YES	10	YES				
				W4	186°	83	YES	24	YES				
										88	YES	25	YES
	R4	Residential	Bedroom	W5	186°	82	YES	23	YES				
										82	YES	23	YES
Flat 5													
First	R1	Residential	Bedroom	W1	186°	81	YES	22	YES				
										81	YES	22	YES
	R2	Residential	LKD	W2	186°	82	YES	23	YES				
				W3	96°	34	YES	12	YES				
										90	YES	25	YES
	R3	Residential	Bedroom	W4	96°	27	YES	6	YES				
										27	YES	6	YES
	R4	Residential	Bedroom	W5	96°	31	YES	7	YES				
										31	YES	7	YES
Flat 6													
First	R1	Residential	Bedroom	W1	96°	38	YES	11	YES				
										38	YES	11	YES
	R2	Residential	LD	W2	96°	29	YES	8	YES				
										29	YES	8	YES
Flat 7													
First	R1	Residential	LD	W1	96°	39	YES	12	YES				

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	R2	Residential	Bedroom	W2	96°	30	YES	9	YES	39	YES	12	YES
	R3	Residential	Bedroom	W3	96°	35	YES	7	YES	30	YES	9	YES
										35	YES	7	YES
Flat 8													
First	R1	Residential	Bedroom	W1	96°	37	YES	12	YES	37	YES	12	YES
	R2	Residential	LD	W2	96°	30	YES	9	YES				
				W3	6°N	10	NO	0	NO				
										33	YES	9	YES
Flat 9													
First	R1	Residential	LD	W1	345°N	8	NO	0	NO				
				W2	276°N	21	NO	7	YES	22	NO	7	YES
	R2	Residential	Bedroom	W3	276°N	29	YES	8	YES	29	YES	8	YES
Flat 10													
First	R1	Residential	Bedroom	W1	276°N	27	YES	6	YES	27	YES	6	YES
	R2	Residential	Bedroom	W2	276°N	21	NO	6	YES	21	NO	6	YES
	R3	Residential	LD	W3	276°N	34	YES	8	YES	34	YES	8	YES
Flat 11													

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Floor Ref.	Room Ref.	Property Type	Room Use.	Window Ref.	Window Orientation	Annual	Meets BRE Criteria	Winter	Meets BRE Criteria	Total Suns per Room Annual	Meets BRE Criteria	Total Suns per Room Winter	Meets BRE Criteria
First	R1	Residential	LD	W1	276°N	21	NO	6	YES	21	NO	6	YES
	R2	Residential	Bedroom	W2	276°N	33	YES	7	YES	33	YES	7	YES
Flat 12													
Second	R1	Residential	Bedroom	W1	276°N	22	NO	6	YES	22	NO	6	YES
	R2	Residential	Bedroom	W2	276°N	24	NO	9	YES	24	NO	9	YES
	R3	Residential	LD	W3	276°N	31	YES	13	YES				
				W4	186°	87	YES	28	YES	91	YES	28	YES
	R4	Residential	Bedroom	W5	186°	87	YES	28	YES	87	YES	28	YES
Flat 13													
Second	R1	Residential	Bedroom	W1	186°	87	YES	28	YES	87	YES	28	YES
	R2	Residential	LD	W2	186°	87	YES	28	YES				
				W3	96°	38	YES	15	YES	95	YES	29	YES
	R3	Residential	Bedroom	W4	96°	31	YES	10	YES	31	YES	10	YES
	R4	Residential	Bedroom	W5	96°	33	YES	9	YES	33	YES	9	YES
Flat 14													

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Floor Ref.	Room Ref.	Property Type	Room Use.	Window Ref.	Window Orientation	Annual	Meets BRE Criteria	Winter	Meets BRE Criteria	Total Suns per Room Annual	Meets BRE Criteria	Total Suns per Room Winter	Meets BRE Criteria
Second	R1	Residential	Bedroom	W1	96°	42	YES	13	YES				
										42	YES	13	YES
	R2	Residential	LD	W2	96°	31	YES	10	YES				
										31	YES	10	YES
Flat 15													
Second	R1	Residential	LD	W1	96°	43	YES	14	YES				
										43	YES	14	YES
	R2	Residential	Bedroom	W2	96°	32	YES	11	YES				
										32	YES	11	YES
	R3	Residential	Bedroom	W3	96°	41	YES	9	YES				
										41	YES	9	YES
Flat 16													
Second	R1	Residential	Bedroom	W1	96°	41	YES	14	YES				
										41	YES	14	YES
	R2	Residential	LD	W2	96°	32	YES	11	YES				
				W3	6°N	11	NO	0	NO				
										36	YES	11	YES
Flat 17													
Second	R1	Residential	LD	W1	345°N	9	NO	0	NO				
				W2	276°N	24	NO	9	YES				
										25	YES	9	YES
	R2	Residential	Bedroom	W3	276°N	34	YES	11	YES				
										34	YES	11	YES
Flat 18													

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Floor Ref.	Room Ref.	Property Type	Room Use.	Window Ref.	Window Orientation	Annual	Meets BRE Criteria	Winter	Meets BRE Criteria	Total Suns per Room Annual	Meets BRE Criteria	Total Suns per Room Winter	Meets BRE Criteria
Second	R1	Residential	Bedroom	W1	276°N	32	YES	7	YES	32	YES	7	YES
	R2	Residential	Bedroom	W2	276°N	24	NO	9	YES	24	NO	9	YES
	R3	Residential	LD	W3	276°N	38	YES	11	YES	38	YES	11	YES
Flat 19													
Second	R1	Residential	LD	W1	276°N	24	NO	9	YES	24	NO	9	YES
	R2	Residential	Bedroom	W2	276°N	38	YES	11	YES	38	YES	11	YES
Flat 20													
Third	R1	Residential	Bedroom	W1	276°N	48	YES	15	YES	48	YES	15	YES
	R2	Residential	Bedroom	W2	276°N	48	YES	15	YES	48	YES	15	YES
	R3	Residential	LD	W3	276°N	48	YES	15	YES				
				W4	186°	89	YES	30	YES	93	YES	30	YES
	R4	Residential	Bedroom	W5	186°	89	YES	30	YES	89	YES	30	YES
Flat 21													
Third	R1	Residential	Bedroom	W1	186°	89	YES	30	YES	89	YES	30	YES
	R2	Residential	LD	W2	186°	89	YES	30	YES				
				W3	96°	52	YES	15	YES				

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	R3	Residential	Bedroom	W4	96°	52	YES	15	YES	96	YES	30	YES
	R4	Residential	Bedroom	W5	96°	52	YES	15	YES	52	YES	15	YES
										52	YES	15	YES
Flat 22													
Third	R1	Residential	Bedroom	W1	96°	52	YES	15	YES				
	R2	Residential	LD	W2	96°	52	YES	15	YES	52	YES	15	YES
										52	YES	15	YES
Flat 23													
Third	R1	Residential	LD	W1	96°	52	YES	15	YES				
	R2	Residential	Bedroom	W2	96°	52	YES	15	YES	52	YES	15	YES
	R3	Residential	Bedroom	W3	96°	52	YES	15	YES	52	YES	15	YES
										52	YES	15	YES
Flat 24													
Third	R1	Residential	Bedroom	W1	96°	52	YES	15	YES				
	R2	Residential	LD	W2	96°	52	YES	15	YES	52	YES	15	YES
				W3	6°N	11	NO	0	NO				
										56	YES	15	YES
Flat 25													

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Third	R1	Residential	LD	W1	345°N	9	NO	0	NO				
				W2	276°N	48	YES	15	YES				
										49	YES	15	YES
	R2	Residential	Bedroom	W3	276°N	48	YES	15	YES				
										48	YES	15	YES
Flat 26													
Third	R1	Residential	Bedroom	W1	276°N	48	YES	15	YES				
										48	YES	15	YES
	R2	Residential	Bedroom	W2	276°N	48	YES	15	YES				
										48	YES	15	YES
	R3	Residential	LD	W3	276°N	48	YES	15	YES				
										48	YES	15	YES
Flat 27													
Third	R1	Residential	LD	W1	276°N	48	YES	15	YES				
										48	YES	15	YES
	R2	Residential	Bedroom	W2	276°N	48	YES	15	YES				
										48	YES	15	YES
Flat 28													
Fourth	R1	Residential	LD	W1	6°N	11	NO	0	NO				
				W2	276°N	48	YES	15	YES				
				W3	276°N	48	YES	15	YES				
										55	YES	15	YES
	R2	Residential	Bedroom	W4	276°N	48	YES	15	YES				
										48	YES	15	YES
Flat 29													

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Fourth	R1	Residential	LD	W1	276°N	48	YES	15	YES				
				W2	186°	89	YES	30	YES				
										93	YES	30	YES
	R2	Residential	Bedroom	W3	186°	89	YES	30	YES				
										89	YES	30	YES