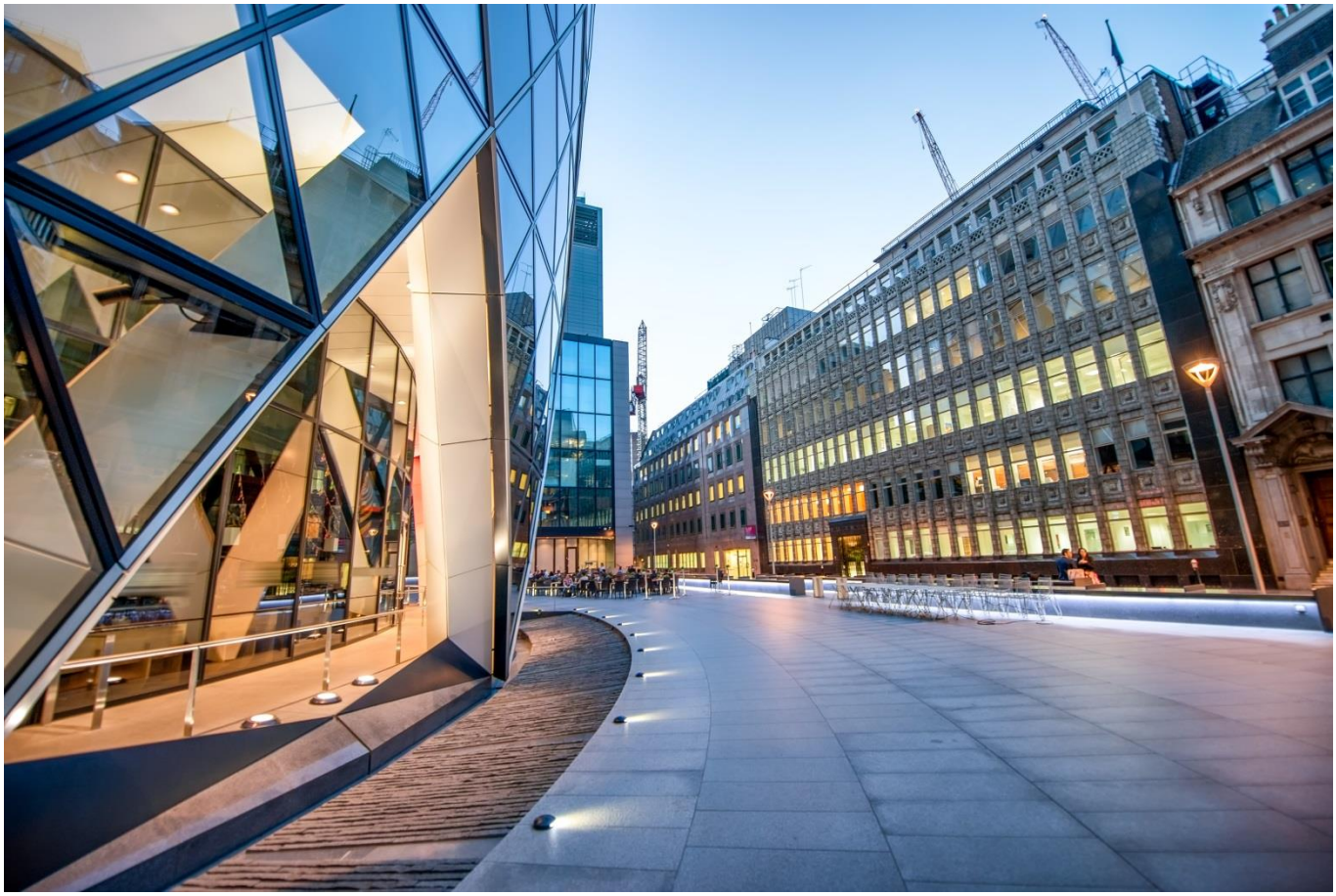
AVISON YOUNG

NHS Property Services



Northwood and Pinner Cottage Hospital, Pinner Road, HA6 1DE

NHS Property Services and NHS Hillingdon CCG

March 2021

Contents

Appendices

Prepared By: Mason Redding
Draft Date: 10 March 2021

For and on behalf of Avison Young (UK) Limited

1. Introduction

1.1 Avison Young ("AY") has been instructed to advise on daylight, sunlight and overshadowing matters in relation to the redevelopment of Northwood and Pinner Cottage Hospital, Pinner Road HA6 1BT (the "Site").

1.2 AY has carried out the following:

- Prepare a 3D computer model of the existing Site, surrounding context and proposed development drawn by Allies and Morrison Architects ("Proposed Development"), as shown in Figures 1 and 2 below and the drawings in Appendix 1;
- Work alongside Allies and Morrison Architects throughout the design process to ensure that the Proposed Development is proportionate in daylight, sunlight and overshadowing terms; and
- Undertake daylight, sunlight and overshadowing technical assessments using the methodologies set out in the Building Research Establishment Guidelines – *Site Layout Planning for Daylight and Sunlight: A Guide To Good Practice (2011) ("BRE Guidelines").*

1.3 This report considers the following:

- Daylight, sunlight and overshadowing to sensitive neighbouring properties; and
- Daylight, sunlight and overshadowing within the Proposed Development.

1.4 The BRE Guidelines are not mandatory and are aimed at helping rather than constraining the designer. Although they give numerical guidelines, they should be interpreted flexibly because natural lighting is only one of many factors in site layout design.

1.5 Policy context is important in establishing acceptable levels of daylight and sunlight. The appropriateness of the Proposed Development should therefore be considered not only against the BRE Guidelines but also key policy documents which seek to encourage more efficient use of land in urban locations.

1.6 As such, consideration has been given to the advice set out in the key policy and guidance documents (see Section 3 below) when reviewing the effects on amenity by reference to the BRE Guidelines.

1.7 The results and conclusions of the daylight, sunlight and overshadowing assessments are confirmed within this report.

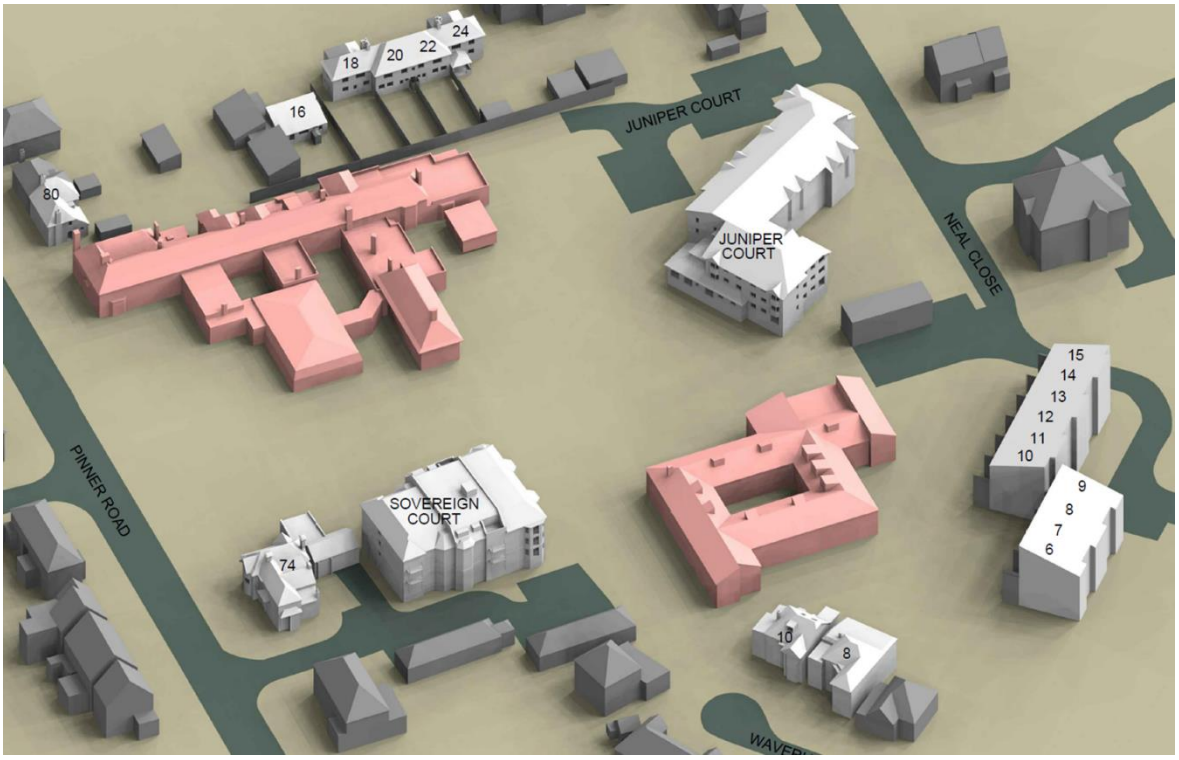


Figure 1: Rendered view of assessment 3D model. The existing Site buildings are shown in red.

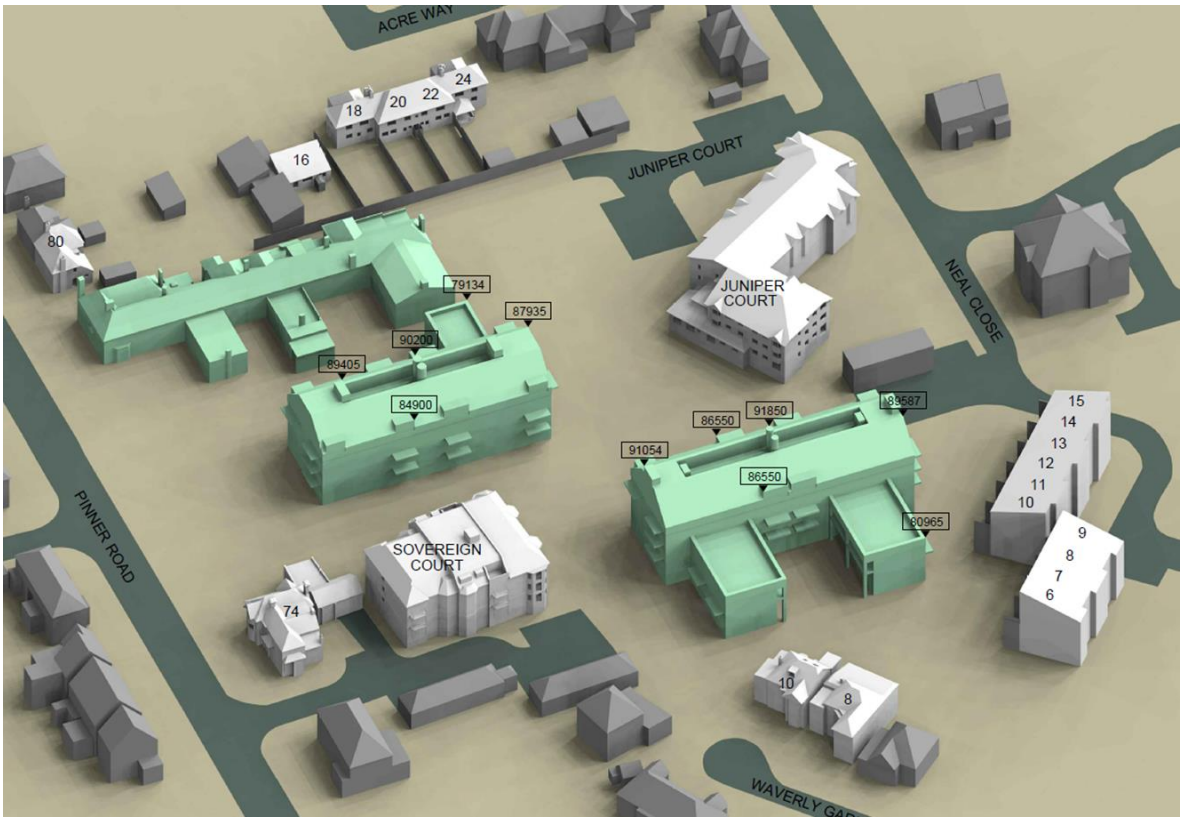


Figure 2: Rendered view of assessment 3D model. The Proposed Development is shown in green.

2. Assumptions and Information Relied Upon

2.1 AY's 3D model and assessment is based on the following information:-

- 3D laser-measured survey received from MBS on 21st January 2020;
- 3D DWG. model and information regarding the Proposed Development received 20th April 2020 and 19th February 2021from Allies and Morrison Architects;
- AY site photographs taken 14th November 2019;
- Ordinance Survey data;
- Land Registry data;
- Valuation Office Agency data;
- Google aerial imagery;
- Bing aerial imagery;
- London Borough of Hillingdon planning documentation.

2.2 The information used to generate the 3D model and analyses described in this report are listed on the drawings in Appendix 1.

2.3 Due diligence, including a VOA search has been carried out to understand the uses of neighbouring properties in order to identify potential sensitive receptors.

2.4 Due diligence undertaken in relation to Juniper Court has identified internal layout information which has been incorporated into the assessment 3D model. AY have not sought access to any neighbouring properties and where reliable information has not been found reasonable assumptions have been applied based on window size.

2.5 Minor architectural alterations have occurred to isolated areas of the Proposed Development since the time of assessment and are not considered to materially affect the technical analysis considered in this report.

3. Policy and Guidance Context

3.1 Policy and guidance context in relation to daylight and sunlight is important in establishing acceptable levels of amenity.

3.2 The appropriateness of the Proposed Development, in daylight and sunlight terms, should therefore be considered against the following key documents:

- National Planning Practice Guidance, October 2019 ("NPPG");
- National Planning Policy Framework, February 2019 ("NPPF");
- London Plan (2021);
- Intend to Publish London Plan (December 2019);
- Housing Supplementary Planning Guidance London Plan March 2016 ("Housing SPG");
- The London Borough of Hillingdon Local Plan (2020); and
- The BRE Guidelines.

NPPG

3.3 The NPPG Paragraph 007 (Reference ID: 66-007-20190722) 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.

NPPF

3.4 The NPPF gives guidance at government level. It seeks to ensure that the planning system encourages more efficient use of land and avoid building low density homes in accessible urban locations. It promotes a flexible approach in adopting and applying policy and guidance that could inhibit these objectives, which specifically includes reference to daylight and sunlight:

"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)(Paragraph 123")."

London Plan

3.5 The London Plan deals with things of strategic importance to Greater London taking account of the principal purposes of the Greater London Authority which are; promoting economic development, social development and environmental improvement.

3.6 Policy D4 (Housing Quality and Standards) states that the design of development should provide sufficient daylight and sunlight to new and surrounding housing that is appropriate for its context, whilst avoiding overheating, minimising overshadowing and maximising the usability of outside amenity space.

3.7 Policy 3.5 (Quality and Design of Housing Development) requires new housing developments to enhance the quality of local places by considering a number of criterion, which include density.

3.8 Policy 7.6 (Architecture) states that buildings and structures should not cause unacceptable harm to the amenity of surrounding land and buildings, particularly residential buildings, in relation to privacy, overshadowing, wind and microclimate, whilst optimising the development potential of new sites.

3.9 *Policy D9 (Tall Buildings) states at 3a; 'Wind, daylight, sunlight penetration and temperature conditions* around the building(s) and neighbourhood must be carefully considered and not compromise comfort and the enjoyment of open spaces, including water spaces, around the building.'

Housing SPG

3.10 The Mayor published supplementary planning guidance (SPG) on housing in March 2016. The Housing SPG predicates the need to move away from applying the same daylight and sunlight values in all locations and promotes a contextual analysis as a pertinent way of assessing acceptable levels of amenity. This aims to ensure that light matters are not limited to an overly simplistic technical exercise against the default BRE Guidelines recommendations without due regard for the current and future physical and planning context.

3.11 The Housing SPG sets out the following:

"Policy 7.6Bd requires new development to avoid causing 'unacceptable harm' to the amenity of surrounding land and buildings, particularly in relation to privacy and overshadowing and where tall buildings are proposed."

3.12 The document goes on to state:

"Whilst taking into account other policy objectives, boroughs should ensure that all opportunities to secure sustainable housing capacity should be fully realised in order to meet London's strategic housing requirements and help close the gap between need and supply across London as a whole (1.1.7")."

3.13 Importantly the Housing SPG acknowledges that effects from proposals should not be assessed via a strict application of national criteria but also with reference to broadly comparable residential typologies:

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

London Borough of Hillingdon Local Plan – Development Management Policies (Adopted Version Jan 2020)

3.14 Policy DMHB 10: High Buildings and Structures states:

"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 London Borough of Hillingdon Local Plan Part 2 - Development Management Policies 49 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 practice"

3.15 The document goes on to state:

"Development proposals should not adversely impact on the amenity, daylight and sunlight of adjacent properties and open space."

3.16 Policy DMHB 17: Residential Density states:

"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"

BRE Guidelines

3.17 The BRE Guidelines are well established and are adopted by most Local Authorities as the appropriate scientific and empirical methods of measuring daylight and sunlight in order to provide objective data upon which to apply their planning policies. The Guidelines are not fixed standards but should be applied flexibly to take account of the specific circumstances of each case.

3.18 The Introduction of the Guidelines states:

"*The guide is intended for building designers and their clients, consultants and planning officials. The advice given here is not mandatory and this document should not be seen as an instrument of planning policy. Its aim is to help rather than constrain the developer. Although it gives numerical guidelines, these should be interpreted flexibly because natural lighting is only one of the many factors in site layout design*."

3.19 The 'flexibility' recommended in the Guidelines should reflect the specific characteristics of each case being considered. For example, as the numerical targets within the Guidelines have been derived on the basis of a low density suburban housing model, it is entirely appropriate to apply a more flexible approach when dealing with higher rise developments in a denser urban environment where the general scale of development is greater. In addition, where existing and proposed buildings have specific design features such as projecting balconies, deep recesses, bay windows etc., it is also equally valid to apply a degree of flexibility to take account of the effect of these particular design features. This does not mean that the recommendations and targets within the Guidelines can be disregarded but, instead, the 'flexibility' that should be applied should be founded on sound scientific principles that can be supported and justified. This requires a certain level of professional value judgement and experience.

Daylight

3.20 In respect of daylighting, the BRE Guidelines adopt different methods of measurement depending on whether the assessment is for the impact on existing neighbouring premises or for measuring the adequacy of proposed new dwellings. For safeguarding the daylight received by existing neighbouring residential buildings around a proposed development, the relevant recommendations are set out in Section 2.2 of the Guidelines.

3.21 The adequacy of daylight received by existing neighbouring dwellings is measured using two methods of measurement. First, it is necessary to measure the Vertical Sky Component ("VSC") followed by the measurement of internal Daylight Distribution by plotting the position of the 'existing' and 'proposed' no sky line contour.

3.22 VSC is measured at the mid-point on the external face of the window serving a habitable room. For the purpose of the Guidelines, a "habitable" room is defined as a Kitchen, Living Room or Bedroom. Bathrooms, hallways and circulation space are excluded from this definition. In addition, many Local Authorities make a further distinction in respect of small kitchens. Where the internal area of a small kitchen limits the use to food preparation and is not of sufficient size to accommodate some other form of "habitable" use such as dining, the kitchen need not be classed as a "habitable" room in its own right.

3.23 VSC is a 'spot' measurement taken on the face of the window and is a measure of the availability of light from the sky from over the "existing" and "proposed" obstruction caused by buildings or structures in front of the window. As it is measured on the outside face of the window, one of the inevitable shortcomings is that it does not take account of the size of the window or the size or use of the room served by the window. For this reason, the BRE Guidelines require internal Daylight Distribution to be measured in addition to VSC.

3.24 The No Sky Line ("NSL") contour plotted for the purpose of measuring internal Daylight Distribution identifies those areas within the room usually measured on a horizontal working plane set at table top level, where there is direct sky visibility. This therefore represents those parts within the room where the sky can be seen through the window. This second measure therefore takes account of the size of the window and the size of the room but is only more reliable than VSC when the actual room uses, layouts and dimensions are known. When interpreted in conjunction with the VSC value, the likely internal lighting conditions, and hence the quality of lighting within the room, can be assessed.

3.25 For VSC, the Guidelines states that:

"*If this Vertical Sky Component is greater than 27% then enough skylight should still be reaching the window of the existing building. Any reduction below this level should be kept to a minimum. If the Vertical Sky Component with the new development in place is both less than 27% and less than 0.8 times its former value, then the occupants of the existing building will notice the reduction in the amount of skylight*."

3.26 To put this in context, the maximum VSC value that can be received for a totally unobstructed vertical window is 40%. There are however circumstances where the VSC value is already below 27%. In such circumstances, it is permissible to reduce the existing VSC value by a factor of 0.2 (i.e. 20%) so that the value on the 'proposed' conditions remains more than 0.8 times its former value. The scientific reasoning for this permissible margin of reduction is that existing daylight (and sunlight) levels can be reduced by a factor of 20% before the loss becomes materially noticeable. This factor of reduction applies to VSC, daylight distribution, sunlight and overshadowing.

3.27 By contrast, the adequacy of daylight for proposed 'New-Build' dwellings is measured using the standards in the British Standard Code of Practice for Daylighting, BS8206 Part 2.

3.28 The British Standard relies upon the use of Average Daylight Factors ("ADF") rather than VSC and NSL. The use of ADF is referred to in the BRE Guidelines (Appendix C) but its use is usually limited as a supplementary 'check' of internal lighting conditions once the VSC and NSL tests have been completed.

3.29 ADF is sometimes seen as a more accurate and representative measure of internal lighting conditions as it comprises a greater number of design factors and input variables/coefficients. That is, the value of ADF is derived from:

- The actual amount of daylight received by the window(s) serving the room expressed as the "angle of visible sky" which is derived from the VSC value and therefore represents the amount of light striking the face of the window.
- The loss of transmittance through the glazing.
- The size of the window (net area of glazing).
- The size of the room served by the window(s) (net internal surface area of the room).
- The internal reflectance values of the internal finishes within the room.
- The specific use of the room.

3.30 One of the main reasons why ADF is more appropriate for New-Build dwellings is that any of the above input variables can be changed during the course of the design process in order to achieve the required internal lighting values. The ability to make such changes is not usually available when dealing with existing neighbouring buildings.

3.31 Unlike the application of VSC and NSL, the British Standard differentiates between different room uses. It places the highest ADF standard on Family Kitchens where the minimum target value is 2% *df*. Living Rooms should achieve 1.5% *df*, and Bedrooms 1.0% *df*.

3.32 Please note that the BRE Guidelines currently refer to the British Standard, *BS 8206-2: 2008 Lighting for Buildings Part 2: Code of Practice for Daylighting* ('*BS 8206-2*'), which has recently been withdrawn and superseded by the new European Standard EN 17037:2018 for daylight. However, the BRE has confirmed use of the current 2011 BRE Guidelines/BS 8206-2 is appropriate until the BRE Guidelines are next updated.

3.33 The assessments undertaken in support of this report have therefore been undertaken in accordance with the BRE Guidelines and the original BS 8206-2.

Sunlight

3.34 The requirements for protecting sunlight to existing residential buildings are set out in section 3.2 of the BRE Guidelines.

3.35 The availability of sunlight varies throughout the year with the maximum amount of sunlight being available on the summer solstice and the minimum on the winter solstice. In view of this, the internationally accepted test date for measuring sunlight is the spring equinox (21 March), on which day the United Kingdom has equal periods of daylight and darkness and sunlight is available from approximately 0830hrs to 1730hrs. In addition, on that date, sunlight received perpendicular to the face of a window would only be received where that window faces within 90º of due south. The BRE Guidelines therefore limit the extent of testing for sunlight where a window faces within 90º of due south.

3.36 The recommendation for sunlight is:

3.37 "If this window reference point can receive more than one quarter of annual probable sunlight hours, including at least 5% of annual probable sunlight hours during the winter months of 21 September and 21 March, then the room should still receive enough sunlight …

3.38 Any reduction in sunlight access below this level should be kept to a minimum. If the availability of sunlight hours are both less than the amounts given and less than 0.8 times their former value, either over the whole year or just during the winter months, then the occupants of the existing building will notice the loss of sunlight."

3.39 A good level of sunlight will therefore be achieved where a window achieves more than 25% APSH, of which 5% should be in the winter months. Where sunlight levels fall below this suggested recommendation, a comparison with the existing condition should be undertaken and if the reduction ratio is less than 0.2, i.e. the window continues to receive more than 0.8 times its existing sunlight levels, the impact on sunlight will be acceptable.

3.40 Requirements for provision of sunlight to new residential buildings are set out in Part 3.1 of the BRE Guidelines. Sunlight is considered important for living rooms and conservatories but is viewed as less important in bedrooms and in kitchens.

3.41 The BRE Guidelines accepts that site layout (i.e. orientation and overshadowing) as the most important factor affecting the duration of sunlight in buildings.

3.42 BS 8206-2 states that:

"The degree of satisfaction is related to the expectation of sunlight. If a room is necessarily north facing or if the building is in a densely-built urban area, the absence of sunlight is more acceptable than when its exclusion seems arbitrary."

3.43 In Part 3.1 of the BRE Guidelines it is stated that the BS 8206-2 criterion applies to rooms of all orientations, although if a room faces significantly north of due east or west it is unlikely to be met. This report considers proposed windows within the Proposed Development which face within 90 degrees of due south only.

3.44 Access to sunlight can be quantified for the interior of rooms. The BRE Guidelines state:

"BS 8206-2 recommends that interiors where the occupants expect sunlight should receive at least one quarter (25%) of APSH, including in the winter months between 21 September and 21 March at least 5% of APSH."

3.45 The BRE Guidelines also state that the above criterion is intended to give good access to sunlight, but that in special circumstances the planning authority may wish to choose a different value.

Overshadowing

3.46 The BRE Guidelines acknowledge that good site layout planning for daylight and sunlight should not be limited to providing good natural lighting within buildings. The BRE Guidelines state that the availability of sunlight should be checked for all open spaces where it will be required.

3.47 Given the diverse nature and usage of amenity spaces, the BRE Guidelines consider it inappropriate to suggest a standard rule for all. They do however recommend checking for adequate sunlight penetration where at least half of the amenity areas should receive at least 2 hours of sunlight on the Vernal Equinox, 21 March (Sun Hours on Ground). This date is chosen as it represents average annual conditions, therefore sunlight amenity within the amenity area is expected to increase after this point, to a maximum on the summer solstice.

3.48 The guidance applies both to new amenity areas as well as existing ones which are affected by new development. If an existing garden or outdoor space is already heavily obstructed then any further loss of sunlight should be kept to a minimum.

3.49 In the case of poorly sunlight spaces (i.e. where a space is already heavily obstructed), if as a result of new development the area which can receive 2 hours of direct sunlight on 21 March is reduced to less than 0.8 times its former value, this further loss of sunlight may be considered significant.

3.50 Further information on Daylight, Sunlight and Overshadowing can be found in AY's Daylight and Sunlight Principles in Appendix 2.

4. Significance criteria

4.1 The BRE Guidelines set out numerical criteria against which the potential effects of a proposed development in terms of daylight, sunlight and overshadowing may be assessed.

4.2 Daylight will be adversely affected if either the VSC measured at the centre of the window is reduced to less than 27% and less than 0.8 times its former value, or the area of the working plane in a room which can receive direct skylight (NSL) is reduced to less than 0.8 times its former value.

4.3 Sunlight will be adversely affected if the centre of the window will receive less than 25% of annual probable sunlight hours (APSH) or less than 5% APSH during the winter months (21st September to 21st March) and less than 0.8 times its former sunlight hours during either period and the reduction in sunlight over the whole year will be greater than 4% APSH.

4.4 Overshadowing to amenity areas may be adversely affected if the area which can receive two hours of direct sunlight on 21st March is reduced to less than 50% of its area and less than 0.8 times its former size.

4.5 Appendix I of the BRE Guidelines provides guidance for use in Environmental Impact Assessments to determine the significance of impact of a development in terms of daylight, sunlight and overshadowing. This takes into account the number of impacts that are outside the BRE Guidelines, the magnitude of the impacts and the margin by which they are outside, the sensitivity of the receptors (in terms of the strength of their requirement for daylight and sunlight), whether the receptors have other sources of light and whether there are particular reasons why an alternative, less stringent, guideline should be applied (as advised in Appendix F of the BRE Guidelines).

4.6 Appendix I of the BRE Guidelines states:

> *'Adverse impacts occur when there is a significant decrease in the amount of skylight and sunlight reaching an existing building where it is required, or in the amount of sunlight reaching an open space.*
>
> *The assessment of impact will depend on a combination of factors, and there is no simple rule of thumb that can be applied.*
>
> *Where the loss of skylight or sunlight fully meets the guidelines, the impact is assessed as negligible or minor adverse. Where the loss of light is well within the guidelines, or only a small number of windows or limited area of open space lose light (within the guidelines), a classification of negligible impact is more appropriate. Where the loss of light is only just within the guidelines and a larger number of windows or open space area are affected, a minor adverse impact would be more appropriate, especially if there is a particularly strong requirement for daylight and sunlight in the affected building or open space.*
>
> *Where the loss of skylight or sunlight does not meet the guidelines, the impact is assessed as minor, moderate or major adverse. Factors tending towards a minor adverse impact include:*

- *only a small number of windows or limited area of open space are affected;*
- *the loss of light is only marginally outside the guidelines;*
- *an affected room has other sources of skylight or sunlight;*
- *the affected building or open space only has a low level requirement for skylight or sunlight; and*
- *there are particular reasons why an alternative, less stringent, guideline should be applied.*

Factors tending towards a major adverse impact include:

- *a large number of windows or large area of open space are affected;*
- *the loss of light is substantially outside the guidelines;*
- *all the windows in a particular property are affected; and*
- *the affected indoor or outdoor spaces have a particularly strong requirement for skylight or sunlight, e.g. a living room in a dwelling or a children's playground.'*

4.7 In relation to beneficial impacts, these occur when there is an increase in the amount of light. Beneficial impacts should be worked out using the same principles as adverse impacts. Thus a tiny increase in light would be classed as a negligible impact, not a minor beneficial impact.

4.8 AY have had regard to the BRE Guideline recommendations when assigning significance to the effects identified in this report.

Flexible Application of the BRE Guidelines

4.9 In addition to the wider context, which policy acknowledges should be considered, there are also specific Site characteristics which have been considered including:

- Reasonableness of retained values in a site's context;
- Architectural features (i.e. recessed windows, balconies, projecting wings and window size); and
- Changes in light which are typical of properties overlooking an underdeveloped existing site.

4.10 Each is discussed in further detail below.

<u>Reasonableness of retained values in a site's context</u>

4.11 The BRE Guidelines state that the numerical guidelines are not mandatory and must be interpreted flexibly because natural lighting is only one of many factors in site layout design. In certain circumstances, such as city centres, or in an area with modern high-rise buildings, a higher degree of obstruction may be unavoidable if new developments are to match the height and proportions of existing buildings.

4.12 The assessment results must be interpreted carefully, with due consideration given to the site context and whether acceptable amounts of daylight and sunlight will be retained for an urban context. This is further emphasised in policy, as previously explained.

4.13 This does not mean that the recommendations and targets within the BRE Guidelines can be disregarded but, instead, the 'flexibility' that should be applied should be founded on sound scientific principles that can be supported and justified. This requires a certain level of professional value judgement and experience, but also evidence which may be material considerations for the local authority.

4.14 The Housing SPG, for instance, predicates the need to move away from applying the same daylight and sunlight values in all locations and promotes contextual analysis as a pertinent way of assessing acceptable levels of amenity. It is therefore reasonable to consider broadly comparable residential typologies within the area and of a similar nature across London. A proposed scheme may incur transgressions from the BRE Guidelines but be shown to be commensurate with residential typologies in the locality, indicating that the amenity levels are reasonable given the site context and as such the proposal may be considered acceptable.

4.15 An example of this is given in an Inspector's appeal decision in February 2019 (*Appeal Ref: APP/E5900/W/17/3171437 - Whitechapel Estate*). The Inspector stated at paragraphs 108, 109, 112 and 113 respectively:

> *'The BRE document offers guidance on generally acceptable standards of daylight and sunlight but advises that numerical values are not to be rigidly applied and recognises the importance of the specific circumstances of each case. Inner city development is one of the examples where a different approach might be justified. This is specifically endorsed by the [Mayor of London's] Housing SPG, which calls for guidelines to be applied sensitively to higher density developments, especially in (among others) opportunity areas and accessible locations, taking into account local circumstances, the need to optimise housing capacity, and the scope for the character and form of an area to change over time. … I agree with the appellants that blanket application of the BRE guide optimum standards, which are best achieved in relatively low-rise well-spaced layouts, is not appropriate in this instance.'*
>
> *'The SPG advises that the daylight effect on adjacent properties should be assessed drawing on "broadly comparable residential typologies within the area and of a similar nature across London…'*
>
> *'The figures [from comparable typologies from a range of example sites across Central London analysed by the appellants, comprising both traditional urban streets and recently permitted areas of significant development] show that a proportion of residual Vertical Sky Component ('VSC') values in the mid-teens have been found acceptable in Major developments across London. This echoes the Mayor's endorsement in the pre SPG decision at Monmouth House, Islington that VSC values in the mid-teens are acceptable in an inner urban environment. They also show a smaller proportion in the bands below 15%…'*
>
> *'I acknowledge that a focus on overall residual levels could risk losing sight of individual problem areas. It is accepted that light is only one factor in assessing overall levels of amenity, but I consider that the trade-off*

> *with other factors, such as access to public transport or green space, is likely to be of more relevance to an occupier of new development than to an existing neighbour whose long-enjoyed living conditions would be adversely affected by new buildings. However, I also consider that Inner London is an area where there should generally be a high expectation of development taking place. This is particularly so in the case of the appeal site, where the Whitechapel Vision Masterplan and the City Fringe Opportunity Area Planning Framework have flagged the desirability of high density development. Existing residents would in my view be prepared for change* and would not necessarily expect existing standards of daylight and sunlight to persist after development.'

4.16 The interpretation of the daylight and sunlight results should therefore be considered in terms of the quantum of light lost and retained, not purely upon the percentage change. Notwithstanding that a development might result in a noticeable reduction in light, it may be possible to conclude that the effect would nonetheless be acceptable if, the retained daylight levels are reasonable and commensurate with alternative criteria and comparable typologies from a range of example sites across London.

Architectural Features

4.17 Design features such as balconies and projecting wings on existing neighbouring buildings obstruct the available daylight and sunlight amenity and can therefore cause relative reductions in light to be amplified.

4.18 A larger relative reduction in VSC may also be unavoidable if the existing window has projecting wings on one or both sides of it or is recessed into the building so that it is obstructed on both sides as well as above.

4.19 Balconies and overhangs above an existing window tend to block sunlight, especially in summer. Even a modest obstruction opposite may result in a large relative impact on the sunlight received.

4.20 There are properties surrounding the Site which include balconies. AY have considered these architectural features to be a factor when reviewing the impact of the Proposed Development.

Changes in light which are typical of properties overlooking an underdeveloped existing site

4.21 The existing Site is underdeveloped. The neighbouring properties currently look out across the existing low rise Site meaning amenity levels may be higher in the existing condition. The introduction of the Proposed Development to the currently low rise Site may therefore result in larger percentage changes. It would therefore be inappropriate to strictly apply the 0.8 times BRE Guidelines criteria as an appropriate benchmark.

5. Assessment Results

Neighbouring Properties

Daylight and Sunlight

5.1 The numerical VSC, NSL and APSH results are tabulated in Appendix 3 and the loss or gain in light is presented both on an absolute scale and a comparative scale, measuring the light that will be retained.

5.2 The NSL drawings are in Appendix 4. These show the parts within the neighbouring rooms where the sky can be seen through the window both in the existing and proposed conditions. They also show the rooms layouts assumptions.

5.3 In relation to sunlight, in accordance with the BRE Guidelines only windows which are oriented within 90 degrees of due south have been considered within the neighbouring properties.

5.4 AY's research has identified the following neighbouring properties as relevant for daylight and sunlight assessment:

- 16-24 Acre Way (even)
- Juniper Court
- 6-15 Neal Court (Inclusive)
- 8-10 Waverley Gardens (even)
- Sovereign Court
- 80 Pinner Road
- 74 Pinner Road

5.5 The location of these receptors and the Site is shown in Figure 3 below.

5.6 A summary of the assessment results is provided below.

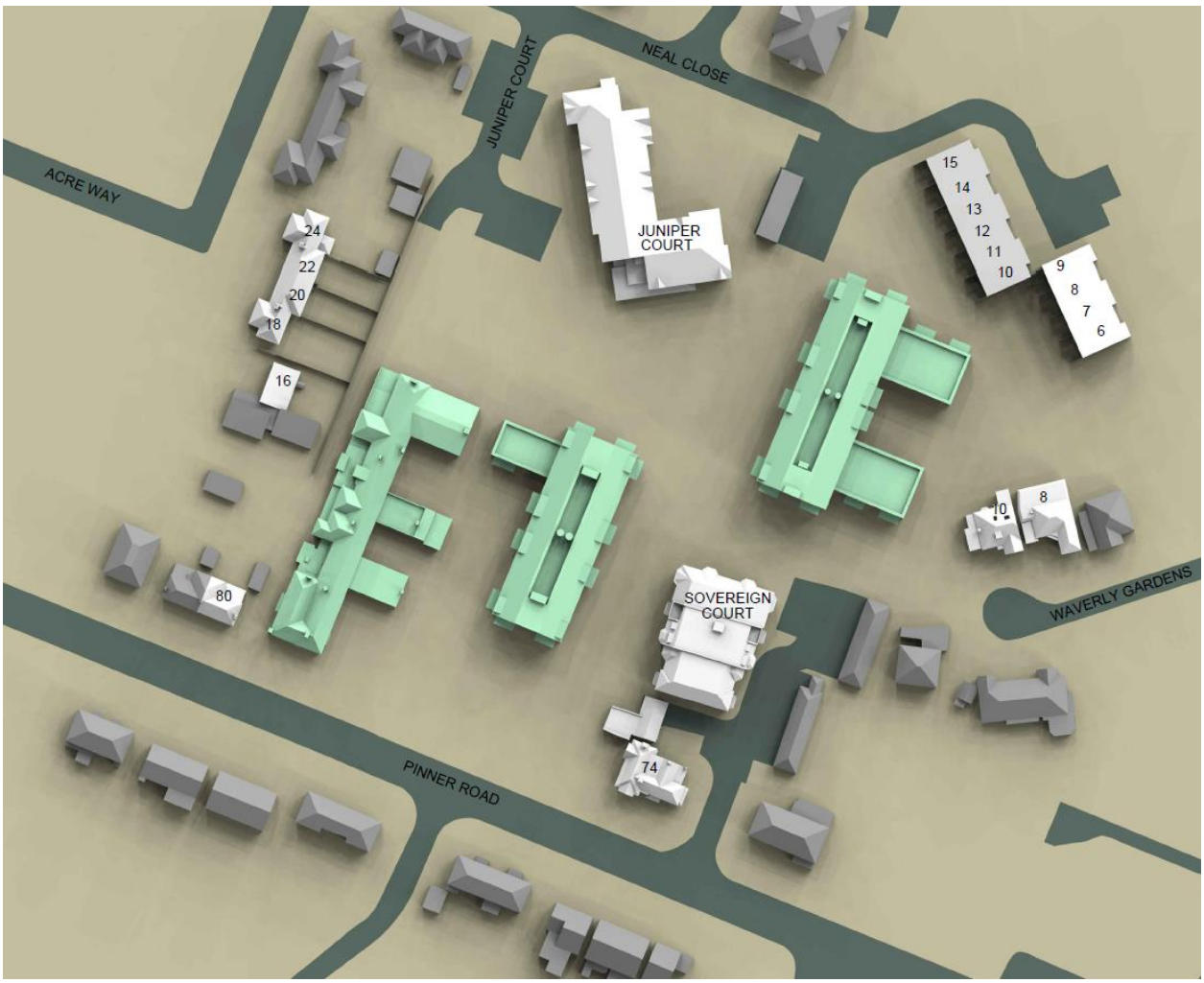


Figure 3: Neighbouring properties labelled and rendered in light grey. The Proposed Development can be seen rendered in green.

16-24 Acre Way (even)

5.7 The technical results demonstrate compliance with the BRE Guidelines for both daylight and sunlight.

Juniper Court

5.8 65 windows and 45 rooms have been assessed for daylight at this residential property.

5.9 For VSC, 60 windows (92%) would meet the BRE guideline and therefore considered to experience a Negligible effect (not significant).

5.10 5 (8%) windows experience an alteration between 20-24% which is considered to be Minor adverse (not significant). 4 of these windows retain VSC values between 20% and 26% which are considered reasonably close to the BRE guideline of 27% VSC. These windows give light to rooms which adhere to the BRE guideline for NSL and retain a view of the sky to >90% of the room area. 1 window retains a VSC value of 18% and give light to a room with an NSL of 94%, meaning the sky will be visible for the majority of the room area.

5.11 With regards to NSL, all rooms (100%) adhere to the BRE guideline for NSL and the sky will be visible to more than 90% of the room area.

5.12 In terms of sunlight (WPSH and APSH), with the exception of one window, there is compliance with the BRE Guidelines. For the one exception, the window retains 0.3 times its former winter value; nonetheless, the retained level (4%) is just 1% short of the BRE Guidelines recommended value (5%). In addition, the window will retain high levels of annual sunlight (36%) which are well in excess of the BRE Guidelines recommendations (25%). Therefore, the property will remain well sunlight.

5.13 In AY's professional opinion the overall effect on this property is considered to be minor adverse. Whilst isolated adverse effects have been identified these are considered to be reasonable in consideration of the retained daylight and sunlight values and general compliance with the BRE guidelines.

6-15 Neal Court (Inclusive)

5.14 The technical results demonstrate full compliance with the BRE Guidelines for both daylight and sunlight.

8-10 Waverley Gardens (even)

5.15 The technical results demonstrate full compliance with the BRE Guidelines for daylight for both 8 and 10 Waverley Gardens.

5.16 In terms of sunlight, the relevant windows at 8 Waverley Gardens do not face within 90 degrees of due south and are therefore not relevant for assessment.

5.17 In relation to 10 Waverley Gardens, 7 (70%) out of 10 windows are compliant with the BRE Guidelines sunlight criteria.

5.18 Three windows do not meet the BRE Guideline for sunlight, these windows serve one of the rooms on the ground floor (see NSL drawing numbered BRE_12, Room Reference R1/90). These three windows form part of a door and retain 0.79, 0.67 and 0.56 of their former annual sunlight values. Winter sunlight is not affected. It is important to note that these windows are located in a location where amenity access is limited. The bay window adjacent to these three windows adhere to the BRE guideline which indicates the restrictive design features contribute to larger percentage changes and transgressions from the BRE guidelines ought to be expected. The remaining rooms and windows adhere to the BRE guideline for daylight and sunlight.

5.19 In AY's professional opinion the overall effect on this property is considered to be minor adverse. Whilst isolated adverse effects have been identified these are considered to be reasonable in consideration general compliance with the BRE guidelines and restrictive design features at the property.

Sovereign Court

5.20 This four storey block of flats is located immediately to the east and currently overlooks a low rise section of the Site.

5.21 In terms of VSC, 61 of the 72 windows (85%) assessed retain at least 0.8 times their former value and adhere to the BRE guideline. The remaining 11 windows retain 0.59 to 0.79 of their former values. 8 of these windows (8 out of 11) retain a VSC which is well in excess of 20% which can be considered reasonably close to the Guideline of 27% VSC and five of which give light to rooms with additional windows which do meet the BRE guideline. One window retains 19.8% VSC and is part of a bay window giving light to a room with additional windows that do meet the BRE guideline. The remaining windows retain VSC values of 15% and 18% respectively and sit beneath balconies which amenity access will partially restrict access and lower amenity levels ought to be anticipated in these locations. Both windows are located in rooms which retain a view of the sky to more than 50% of the room area.

5.22 In relation to NSL, 32 of the 39 rooms (82%) assessed retain at least 0.8 times their former value. The remaining 7 rooms retain 0.53 to 0.73 of their former values. All 7 rooms will retain at least 50% daylight distribution (NSL) within the room. Whilst the BRE Guidelines imply that NSL of at least 80% would be considered sufficiently lit, a daylight distribution of 50% and over could be considered adequate.

5.23 In terms of sunlight, all windows relevant for assessment retain at least 0.8 times their former value and are therefore compliant with the BRE Guidelines.

5.24 In AY's professional opinion the overall effect on this property is considered to be minor. Whilst isolated adverse effects have been identified these are considered to be reasonable in consideration of the retained daylight and sunlight values and general compliance with the BRE guidelines.

80 Pinner Road

5.25 The technical results demonstrate full compliance with the BRE Guidelines for both daylight and sunlight.

74 Pinner Road

5.26 The technical results demonstrate full compliance with the BRE Guidelines for both daylight and sunlight.

Overshadowing (Sun Hours on Ground)

5.27 Neighbouring amenity areas have been assessed in accordance with the BRE Guidelines Sun Hours on Ground test.

5.28 The assessment in Appendix 5 demonstrates that all areas will retain at least two hours of direct sunlight on the 21st March to over 50% of their areas in the proposed context and are therefore compliant with the BRE Guidelines.

Internal Amenity

5.29 AY have worked alongside Allies and Morrison Architects throughout the design process in order to maximise levels of light within the Proposed Development as far as reasonably possible, given the Site context and the

need to make efficient use of the land to provide much needed housing. The need for flexibility in applying the BRE Guidelines applies equally to the consideration of light levels within a proposed scheme.

5.30 Detailed ADF, NSL and APSH assessments have been undertaken for habitable rooms located in proposed residential units within the Proposed Development.

5.31 The technical analysis and associated NSL contour drawings are in Appendix 6 and the results are discussed below.

Daylight

5.32 The BRE Guidelines recommend the following minimum daylighting targets (using the ADF methodology) in new dwellings:

- Kitchen: 2.0%;
- Living room: 1.5%; and
- Bedroom: 1.0%.

5.33 However, when assessing schemes in areas of regeneration, these targets are not always appropriate or achievable.

5.34 In the case of the Proposed Development, the proposed units feature open plan LKDs. In common with many contemporary developments, some of the kitchens/food preparation areas are located at the rear of open plan spaces and are therefore intended to be predominantly artificially lit given their distant location away from the main window wall.

5.35 In such circumstances the standard recommendation of 2.0% ADF for typical kitchens may therefore be considered less appropriate, especially given the site context and other constraints, such as the provision of balconies which reduce the light entering windows below them, and the desire/need to reduce heat gain/loss.

5.36 In respect of internal galley type kitchens, the BRE Guidelines consider that if these are not directly day-lit they should be directly linked to a well day-lit living room (as recommended at paragraph 2.1.14 of the BRE Guidelines). The typical recommendation for a living room being at least 1.5% ADF.

5.37 Where relevant, the area closest to the window where there is a reasonable expectation of daylight has been assessed. These areas comprise living/dining rooms ("LDs") and the kitchen areas to the rear of rooms have been excluded from the ADF and NSL calculations. The living areas closest to the windows have therefore been assessed using an ADF target benchmark of 1.5%, which is the BRE's recommendation for a 'living room'.

5.38 The results demonstrate that the Proposed Development has been optimised in terms of daylight with 97% of all habitable rooms assessed within the Proposed Development (181 of 187 rooms) meeting the minimum recommended ADF for the specific room types.

5.39 The 6 (3%) rooms which do not meet the recommendations are either reasonably near the guideline or are located in units with good amenity available to other habitable areas. One room (R17/400) is an LKD with 1.98%ADF which is marginally below the BRE guideline (2%ADF). 3 of the rooms are bedrooms (R18/403, R14/410 and R19/410) with ADFs of 0.71%, 0.9% and 0.94%ADF which is considered reasonably close to the BRE guideline of 1%ADF. The remaining room is a Kitchen (R10/401) with an ADF of 1.4%, the window to this room has a VSC in excess of the BRE guideline at 36% and the sky is visible for more than 80% of the room area.

5.40 **94%** (175 out of 187) of the rooms will meet the recommended level of NSL.

5.41 These results represent a very high level of daylight compliance. Transgressions from the BRE guideline are isolated with the vast majority of habitable expected to receive good daylight amenity. Overall, the Proposed Development is considered to be acceptable in terms daylight amenity.

Sunlight

5.42 Requirements for provision of sunlight to new residential buildings are set out in Part 3.1 of the BRE Guidelines. Sunlight is considered important for living rooms and conservatories but is viewed as less important in bedrooms and kitchens.

5.43 The BRE Guidelines acknowledge that a site's existing layout (i.e. orientation and overshadowing) is the most important factor affecting the duration of sunlight in buildings.

5.44 BS 8206-2 states that: 'The degree of satisfaction is related to the expectation of sunlight. If a room is necessarily north facing or if the building is in a densely-built urban area, the absence of sunlight is more acceptable than when its exclusion seems arbitrary.'

5.45 In Part 3.1 of the BRE Guidelines it is stated that the BS 8206-2 criterion applies to rooms of all orientations, although if a room faces significantly north of due east or west it is unlikely to be met.

5.46 This report only considers windows which are oriented within 90 degrees of due south and where a room is served by multiple windows, if one or more windows are oriented within 90 degrees of due south the remaining windows serving the room will be considered regardless of orientation.

5.47 Access to sunlight can be quantified for the interior of rooms. The BRE Guidelines state 'BS 8206-2 recommends that interiors where the occupants expect sunlight should receive at least one quarter (25%) of APSH, including in the winter months between 21st September and 21st March at least 5% of APSH.'

5.48 The BRE Guidelines also state that the above criterion is intended to give good access to sunlight, but that in special circumstances the planning authority may wish to choose a different value.

5.49 The BRE Guidelines acknowledge that a site's existing layout and other design constraints, such as the provision of balconies, may impose orientation or sunlight constraints which may not be possible to overcome.

5.50 Whilst it has therefore not been possible to fully meet the BRE Guidelines, **93%** (229 of 247) of windows assessed meet the recommendation for winter sunlight and **89%** (222 of 147) of windows for total sunlight.

5.51 Of the 18 which do not meet the BRE guideline for winter sun, 11 are located in rooms with additional windows which do meet the BRE guideline for sunlight (WPSH). 2 are located in bedrooms which have a lower requirement for amenity compared to other room uses. The remaining 4 windows which do not meet the BRE guideline for sunlight are located in rooms with additional window which retains an APSH of 22-38%.

5.52 Of the 25 which do not meet the BRE guideline for annual sun, 17 are located in rooms with additional windows which do meet the BRE guideline for sunlight (APSH). 4 are located in bedrooms which have a lower requirement for amenity compared to other room uses. The remaining 4 windows represent a very small proportion (<2%) of the overall windows and achieve APSH values of 19-22% which can be considered reasonably close to the BRE guideline, or give light to a room with an additional window and APSH of 22%.

5.53 In addition, all units assessed will have access to sunlight, in addition to likely greater levels at the front face of the balconies where provided. Overall, the Proposed Development is considered to be acceptable in terms sunlight amenity.

Overshadowing

5.54 With regards to sunlight to the proposed outdoor amenity areas, the sun hours on ground assessment in Appendix 7 illustrates excellent access to sunlight in overall terms.

5.55 In total, 30 amenity areas have been assessed. 27 of these areas meet the BRE guideline.

5.56 The 3 areas which do not meet the BRE guideline are located to the north of building structures where lower amenity levels ought to be anticipated represents a small proposition of the outdoor amenity space and are not anticipated to be primary amenity areas. It is anticipated that all occupants will have good access to outdoor amenity.

5.57 Therefore, the Proposed Development is considered to perform well against the recommended guidance and represents an acceptable level of compliance in AY's professional opinion.

6. Conclusion

6.1 This report considers the potential effects of the Proposed Development upon the daylight and sunlight amenity to neighbouring residential properties; the level of sun hours on ground overshadowing to existing neighbouring amenity areas; the provision of daylight and sunlight amenity within newly proposed dwellings; and the level of sun hours on ground overshadowing to proposed amenity areas, in accordance with the recommended BRE Guidelines.

6.2 The Proposed Development is considered to perform very well against the recommended guidance and represents an acceptable level of compliance in relation to neighbouring daylight, sunlight and overshadowing. The vast majority of rooms and windows assessed are expected to adhere to the BRE guidelines. Some isolated transgressions from the BRE guidelines have been identified however these represent a small proportion of the windows assessed and are considered reasonably in the context of retained values, restrictive design features and Proposed Development would lead to isolated breaches to a minority of neighbouring habitable spaces, for the reasons set out in this report AY are of the view that the effects are acceptable.

6.3 In terms of light within the Proposed Development, AY have worked alongside Allies and Morrison Architects throughout the design process in order to maximise levels within the Proposed Development as far as reasonably possible, given the Site context and the need to make efficient use of the land to provide much needed housing. The Proposed Development makes excellent use of the daylight and sunlight amenity available to the Site and represents an acceptable level of compliance in AY's professional opinion.

Appendix 1
Existing and Proposed Drawings

Appendix 2
Daylight and Sunlight Principles

Appendix 3
Technical Results (Neighbours)

Appendix 4
NSL Drawings (Neighbours)

Appendix 5

Sun Hours on Ground Drawings (Neighbours)

Appendix 6

Daylight and Sunlight Amenity Technical Results and NSL Drawings (Internal Amenity)

Appendix 7
Sun Hours on Ground Drawings (Internal Amenity)

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Appendices

Prepared By: Mason Redding
Draft Date: 10 March 2021

For and on behalf of Avison Young (UK) Limited

1. Introduction

1.1 Avison Young ("AY") has been instructed to advise on daylight, sunlight and overshadowing matters in relation to the redevelopment of Northwood and Pinner Cottage Hospital, Pinner Road HA6 1BT (the "Site").

1.2 AY has carried out the following:

- Prepare a 3D computer model of the existing Site, surrounding context and proposed development drawn by Allies and Morrison Architects ("Proposed Development"), as shown in Figures 1 and 2 below and the drawings in Appendix 1;
- Work alongside Allies and Morrison Architects throughout the design process to ensure that the Proposed Development is proportionate in daylight, sunlight and overshadowing terms; and
- Undertake daylight, sunlight and overshadowing technical assessments using the methodologies set out in the Building Research Establishment Guidelines – *Site Layout Planning for Daylight and Sunlight: A Guide To Good Practice (2011) ("BRE Guidelines").*

1.3 This report considers the following:

- Daylight, sunlight and overshadowing to sensitive neighbouring properties; and
- Daylight, sunlight and overshadowing within the Proposed Development.

1.4 The BRE Guidelines are not mandatory and are aimed at helping rather than constraining the designer. Although they give numerical guidelines, they should be interpreted flexibly because natural lighting is only one of many factors in site layout design.

1.5 Policy context is important in establishing acceptable levels of daylight and sunlight. The appropriateness of the Proposed Development should therefore be considered not only against the BRE Guidelines but also key policy documents which seek to encourage more efficient use of land in urban locations.

1.6 As such, consideration has been given to the advice set out in the key policy and guidance documents (see Section 3 below) when reviewing the effects on amenity by reference to the BRE Guidelines.

1.7 The results and conclusions of the daylight, sunlight and overshadowing assessments are confirmed within this report.

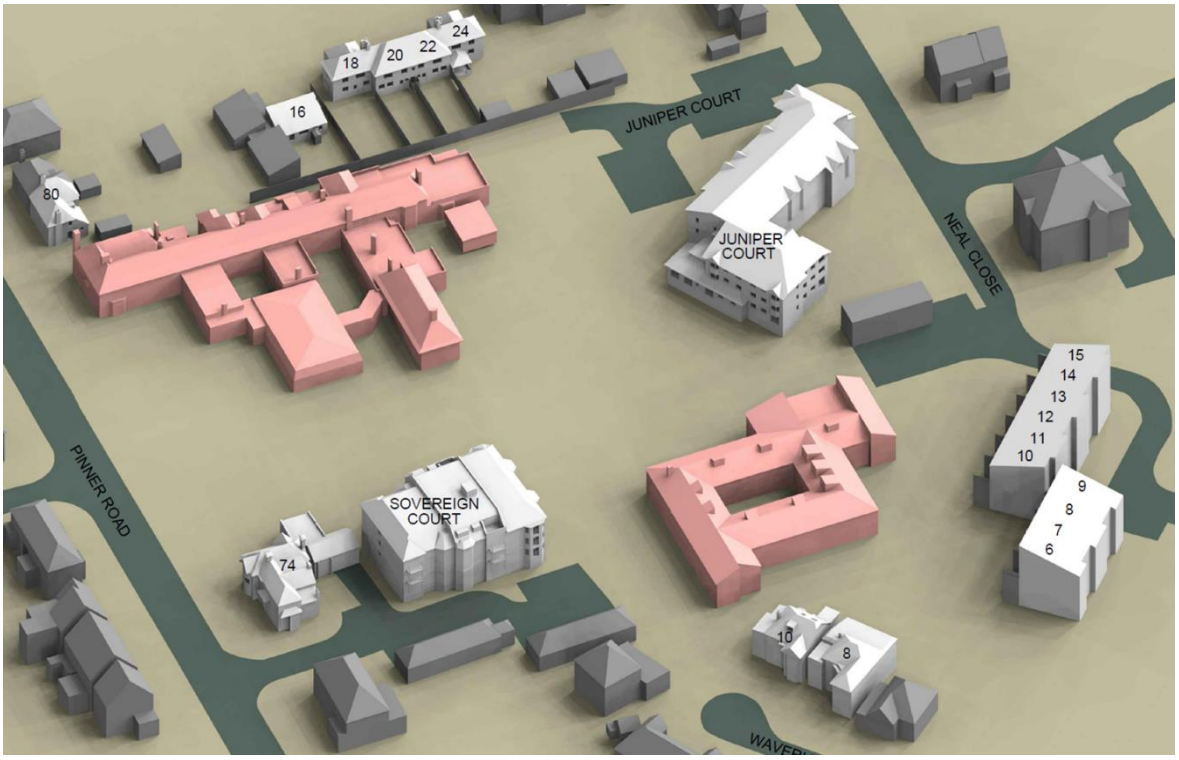


Figure 1: Rendered view of assessment 3D model. The existing Site buildings are shown in red.

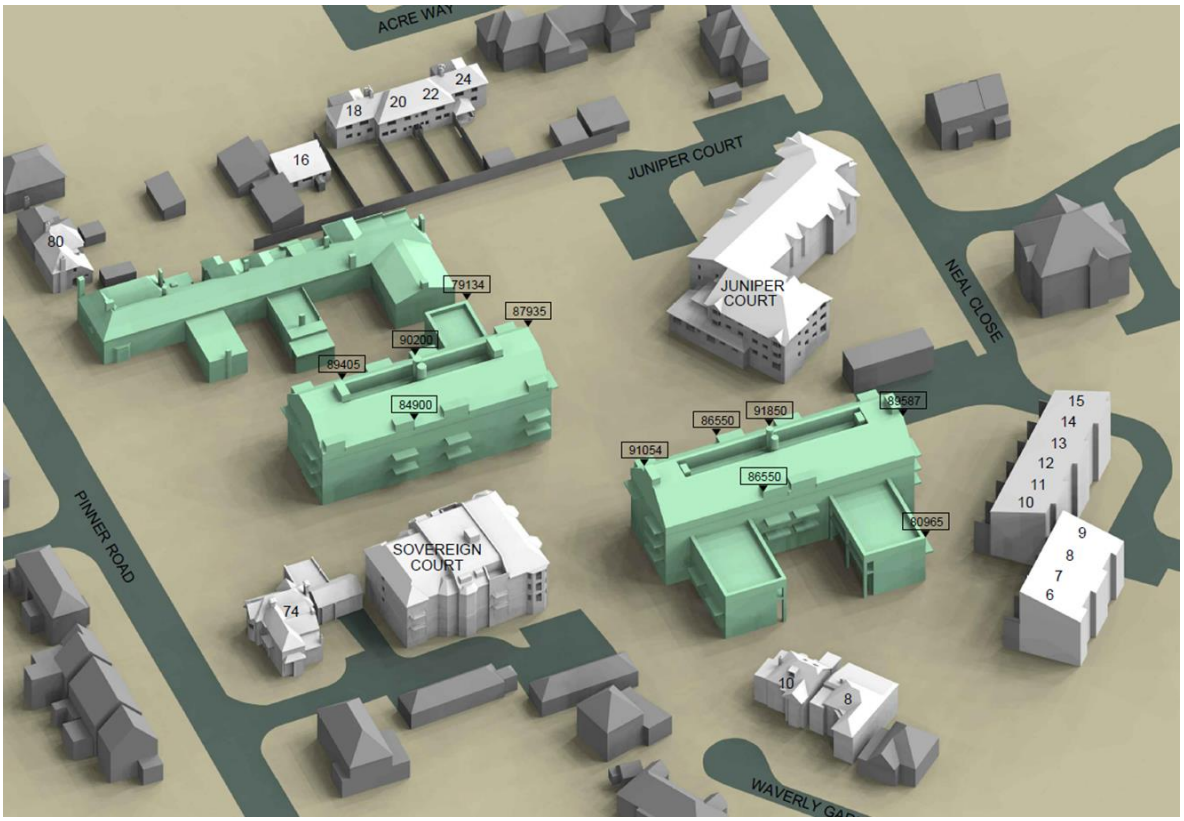


Figure 2: Rendered view of assessment 3D model. The Proposed Development is shown in green.

2. Assumptions and Information Relied Upon

2.1 AY's 3D model and assessment is based on the following information:-

- 3D laser-measured survey received from MBS on 21st January 2020;
- 3D DWG. model and information regarding the Proposed Development received 20th April 2020 and 19th February 2021from Allies and Morrison Architects;
- AY site photographs taken 14th November 2019;
- Ordinance Survey data;
- Land Registry data;
- Valuation Office Agency data;
- Google aerial imagery;
- Bing aerial imagery;
- London Borough of Hillingdon planning documentation.

2.2 The information used to generate the 3D model and analyses described in this report are listed on the drawings in Appendix 1.

2.3 Due diligence, including a VOA search has been carried out to understand the uses of neighbouring properties in order to identify potential sensitive receptors.

2.4 Due diligence undertaken in relation to Juniper Court has identified internal layout information which has been incorporated into the assessment 3D model. AY have not sought access to any neighbouring properties and where reliable information has not been found reasonable assumptions have been applied based on window size.

2.5 Minor architectural alterations have occurred to isolated areas of the Proposed Development since the time of assessment and are not considered to materially affect the technical analysis considered in this report.

3. Policy and Guidance Context

3.1 Policy and guidance context in relation to daylight and sunlight is important in establishing acceptable levels of amenity.

3.2 The appropriateness of the Proposed Development, in daylight and sunlight terms, should therefore be considered against the following key documents:

- National Planning Practice Guidance, October 2019 ("NPPG");
- National Planning Policy Framework, February 2019 ("NPPF");
- London Plan (2021);
- Intend to Publish London Plan (December 2019);
- Housing Supplementary Planning Guidance London Plan March 2016 ("Housing SPG");
- The London Borough of Hillingdon Local Plan (2020); and
- The BRE Guidelines.

NPPG

3.3 The NPPG Paragraph 007 (Reference ID: 66-007-20190722) 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.

NPPF

3.4 The NPPF gives guidance at government level. It seeks to ensure that the planning system encourages more efficient use of land and avoid building low density homes in accessible urban locations. It promotes a flexible approach in adopting and applying policy and guidance that could inhibit these objectives, which specifically includes reference to daylight and sunlight:

"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)(Paragraph 123")."

London Plan

3.5 The London Plan deals with things of strategic importance to Greater London taking account of the principal purposes of the Greater London Authority which are; promoting economic development, social development and environmental improvement.

3.6 Policy D4 (Housing Quality and Standards) states that the design of development should provide sufficient daylight and sunlight to new and surrounding housing that is appropriate for its context, whilst avoiding overheating, minimising overshadowing and maximising the usability of outside amenity space.

3.7 Policy 3.5 (Quality and Design of Housing Development) requires new housing developments to enhance the quality of local places by considering a number of criterion, which include density.

3.8 Policy 7.6 (Architecture) states that buildings and structures should not cause unacceptable harm to the amenity of surrounding land and buildings, particularly residential buildings, in relation to privacy, overshadowing, wind and microclimate, whilst optimising the development potential of new sites.

3.9 *Policy D9 (Tall Buildings) states at 3a; 'Wind, daylight, sunlight penetration and temperature conditions* around the building(s) and neighbourhood must be carefully considered and not compromise comfort and the enjoyment of open spaces, including water spaces, around the building.'

Housing SPG

3.10 The Mayor published supplementary planning guidance (SPG) on housing in March 2016. The Housing SPG predicates the need to move away from applying the same daylight and sunlight values in all locations and promotes a contextual analysis as a pertinent way of assessing acceptable levels of amenity. This aims to ensure that light matters are not limited to an overly simplistic technical exercise against the default BRE Guidelines recommendations without due regard for the current and future physical and planning context.

3.11 The Housing SPG sets out the following:

"Policy 7.6Bd requires new development to avoid causing 'unacceptable harm' to the amenity of surrounding land and buildings, particularly in relation to privacy and overshadowing and where tall buildings are proposed."

3.12 The document goes on to state:

"Whilst taking into account other policy objectives, boroughs should ensure that all opportunities to secure sustainable housing capacity should be fully realised in order to meet London's strategic housing requirements and help close the gap between need and supply across London as a whole (1.1.7")."

3.13 Importantly the Housing SPG acknowledges that effects from proposals should not be assessed via a strict application of national criteria but also with reference to broadly comparable residential typologies:

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

London Borough of Hillingdon Local Plan – Development Management Policies (Adopted Version Jan 2020)

3.14 Policy DMHB 10: High Buildings and Structures states:

"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 London Borough of Hillingdon Local Plan Part 2 - Development Management Policies 49 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 practice"

3.15 The document goes on to state:

"Development proposals should not adversely impact on the amenity, daylight and sunlight of adjacent properties and open space."

3.16 Policy DMHB 17: Residential Density states:

"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"

BRE Guidelines

3.17 The BRE Guidelines are well established and are adopted by most Local Authorities as the appropriate scientific and empirical methods of measuring daylight and sunlight in order to provide objective data upon which to apply their planning policies. The Guidelines are not fixed standards but should be applied flexibly to take account of the specific circumstances of each case.

3.18 The Introduction of the Guidelines states:

"*The guide is intended for building designers and their clients, consultants and planning officials. The advice given here is not mandatory and this document should not be seen as an instrument of planning policy. Its aim is to help rather than constrain the developer. Although it gives numerical guidelines, these should be interpreted flexibly because natural lighting is only one of the many factors in site layout design*."

3.19 The 'flexibility' recommended in the Guidelines should reflect the specific characteristics of each case being considered. For example, as the numerical targets within the Guidelines have been derived on the basis of a low density suburban housing model, it is entirely appropriate to apply a more flexible approach when dealing with higher rise developments in a denser urban environment where the general scale of development is greater. In addition, where existing and proposed buildings have specific design features such as projecting balconies, deep recesses, bay windows etc., it is also equally valid to apply a degree of flexibility to take account of the effect of these particular design features. This does not mean that the recommendations and targets within the Guidelines can be disregarded but, instead, the 'flexibility' that should be applied should be founded on sound scientific principles that can be supported and justified. This requires a certain level of professional value judgement and experience.

Daylight

3.20 In respect of daylighting, the BRE Guidelines adopt different methods of measurement depending on whether the assessment is for the impact on existing neighbouring premises or for measuring the adequacy of proposed new dwellings. For safeguarding the daylight received by existing neighbouring residential buildings around a proposed development, the relevant recommendations are set out in Section 2.2 of the Guidelines.

3.21 The adequacy of daylight received by existing neighbouring dwellings is measured using two methods of measurement. First, it is necessary to measure the Vertical Sky Component ("VSC") followed by the measurement of internal Daylight Distribution by plotting the position of the 'existing' and 'proposed' no sky line contour.

3.22 VSC is measured at the mid-point on the external face of the window serving a habitable room. For the purpose of the Guidelines, a "habitable" room is defined as a Kitchen, Living Room or Bedroom. Bathrooms, hallways and circulation space are excluded from this definition. In addition, many Local Authorities make a further distinction in respect of small kitchens. Where the internal area of a small kitchen limits the use to food preparation and is not of sufficient size to accommodate some other form of "habitable" use such as dining, the kitchen need not be classed as a "habitable" room in its own right.

3.23 VSC is a 'spot' measurement taken on the face of the window and is a measure of the availability of light from the sky from over the "existing" and "proposed" obstruction caused by buildings or structures in front of the window. As it is measured on the outside face of the window, one of the inevitable shortcomings is that it does not take account of the size of the window or the size or use of the room served by the window. For this reason, the BRE Guidelines require internal Daylight Distribution to be measured in addition to VSC.

3.24 The No Sky Line ("NSL") contour plotted for the purpose of measuring internal Daylight Distribution identifies those areas within the room usually measured on a horizontal working plane set at table top level, where there is direct sky visibility. This therefore represents those parts within the room where the sky can be seen through the window. This second measure therefore takes account of the size of the window and the size of the room but is only more reliable than VSC when the actual room uses, layouts and dimensions are known. When interpreted in conjunction with the VSC value, the likely internal lighting conditions, and hence the quality of lighting within the room, can be assessed.

3.25 For VSC, the Guidelines states that:

"*If this Vertical Sky Component is greater than 27% then enough skylight should still be reaching the window of the existing building. Any reduction below this level should be kept to a minimum. If the Vertical Sky Component with the new development in place is both less than 27% and less than 0.8 times its former value, then the occupants of the existing building will notice the reduction in the amount of skylight*."

3.26 To put this in context, the maximum VSC value that can be received for a totally unobstructed vertical window is 40%. There are however circumstances where the VSC value is already below 27%. In such circumstances, it is permissible to reduce the existing VSC value by a factor of 0.2 (i.e. 20%) so that the value on the 'proposed' conditions remains more than 0.8 times its former value. The scientific reasoning for this permissible margin of reduction is that existing daylight (and sunlight) levels can be reduced by a factor of 20% before the loss becomes materially noticeable. This factor of reduction applies to VSC, daylight distribution, sunlight and overshadowing.

3.27 By contrast, the adequacy of daylight for proposed 'New-Build' dwellings is measured using the standards in the British Standard Code of Practice for Daylighting, BS8206 Part 2.

3.28 The British Standard relies upon the use of Average Daylight Factors ("ADF") rather than VSC and NSL. The use of ADF is referred to in the BRE Guidelines (Appendix C) but its use is usually limited as a supplementary 'check' of internal lighting conditions once the VSC and NSL tests have been completed.

3.29 ADF is sometimes seen as a more accurate and representative measure of internal lighting conditions as it comprises a greater number of design factors and input variables/coefficients. That is, the value of ADF is derived from:

- The actual amount of daylight received by the window(s) serving the room expressed as the "angle of visible sky" which is derived from the VSC value and therefore represents the amount of light striking the face of the window.
- The loss of transmittance through the glazing.
- The size of the window (net area of glazing).
- The size of the room served by the window(s) (net internal surface area of the room).
- The internal reflectance values of the internal finishes within the room.
- The specific use of the room.

3.30 One of the main reasons why ADF is more appropriate for New-Build dwellings is that any of the above input variables can be changed during the course of the design process in order to achieve the required internal lighting values. The ability to make such changes is not usually available when dealing with existing neighbouring buildings.

3.31 Unlike the application of VSC and NSL, the British Standard differentiates between different room uses. It places the highest ADF standard on Family Kitchens where the minimum target value is 2% *df*. Living Rooms should achieve 1.5% *df*, and Bedrooms 1.0% *df*.

3.32 Please note that the BRE Guidelines currently refer to the British Standard, *BS 8206-2: 2008 Lighting for Buildings Part 2: Code of Practice for Daylighting* ('*BS 8206-2*'), which has recently been withdrawn and superseded by the new European Standard EN 17037:2018 for daylight. However, the BRE has confirmed use of the current 2011 BRE Guidelines/BS 8206-2 is appropriate until the BRE Guidelines are next updated.

3.33 The assessments undertaken in support of this report have therefore been undertaken in accordance with the BRE Guidelines and the original BS 8206-2.

Sunlight

3.34 The requirements for protecting sunlight to existing residential buildings are set out in section 3.2 of the BRE Guidelines.

3.35 The availability of sunlight varies throughout the year with the maximum amount of sunlight being available on the summer solstice and the minimum on the winter solstice. In view of this, the internationally accepted test date for measuring sunlight is the spring equinox (21 March), on which day the United Kingdom has equal periods of daylight and darkness and sunlight is available from approximately 0830hrs to 1730hrs. In addition, on that date, sunlight received perpendicular to the face of a window would only be received where that window faces within 90º of due south. The BRE Guidelines therefore limit the extent of testing for sunlight where a window faces within 90º of due south.

3.36 The recommendation for sunlight is:

3.37 "If this window reference point can receive more than one quarter of annual probable sunlight hours, including at least 5% of annual probable sunlight hours during the winter months of 21 September and 21 March, then the room should still receive enough sunlight …

3.38 Any reduction in sunlight access below this level should be kept to a minimum. If the availability of sunlight hours are both less than the amounts given and less than 0.8 times their former value, either over the whole year or just during the winter months, then the occupants of the existing building will notice the loss of sunlight."

3.39 A good level of sunlight will therefore be achieved where a window achieves more than 25% APSH, of which 5% should be in the winter months. Where sunlight levels fall below this suggested recommendation, a comparison with the existing condition should be undertaken and if the reduction ratio is less than 0.2, i.e. the window continues to receive more than 0.8 times its existing sunlight levels, the impact on sunlight will be acceptable.

3.40 Requirements for provision of sunlight to new residential buildings are set out in Part 3.1 of the BRE Guidelines. Sunlight is considered important for living rooms and conservatories but is viewed as less important in bedrooms and in kitchens.

3.41 The BRE Guidelines accepts that site layout (i.e. orientation and overshadowing) as the most important factor affecting the duration of sunlight in buildings.

3.42 BS 8206-2 states that:

"The degree of satisfaction is related to the expectation of sunlight. If a room is necessarily north facing or if the building is in a densely-built urban area, the absence of sunlight is more acceptable than when its exclusion seems arbitrary."

3.43 In Part 3.1 of the BRE Guidelines it is stated that the BS 8206-2 criterion applies to rooms of all orientations, although if a room faces significantly north of due east or west it is unlikely to be met. This report considers proposed windows within the Proposed Development which face within 90 degrees of due south only.

3.44 Access to sunlight can be quantified for the interior of rooms. The BRE Guidelines state:

"BS 8206-2 recommends that interiors where the occupants expect sunlight should receive at least one quarter (25%) of APSH, including in the winter months between 21 September and 21 March at least 5% of APSH."

3.45 The BRE Guidelines also state that the above criterion is intended to give good access to sunlight, but that in special circumstances the planning authority may wish to choose a different value.

Overshadowing

3.46 The BRE Guidelines acknowledge that good site layout planning for daylight and sunlight should not be limited to providing good natural lighting within buildings. The BRE Guidelines state that the availability of sunlight should be checked for all open spaces where it will be required.

3.47 Given the diverse nature and usage of amenity spaces, the BRE Guidelines consider it inappropriate to suggest a standard rule for all. They do however recommend checking for adequate sunlight penetration where at least half of the amenity areas should receive at least 2 hours of sunlight on the Vernal Equinox, 21 March (Sun Hours on Ground). This date is chosen as it represents average annual conditions, therefore sunlight amenity within the amenity area is expected to increase after this point, to a maximum on the summer solstice.

3.48 The guidance applies both to new amenity areas as well as existing ones which are affected by new development. If an existing garden or outdoor space is already heavily obstructed then any further loss of sunlight should be kept to a minimum.

3.49 In the case of poorly sunlight spaces (i.e. where a space is already heavily obstructed), if as a result of new development the area which can receive 2 hours of direct sunlight on 21 March is reduced to less than 0.8 times its former value, this further loss of sunlight may be considered significant.

3.50 Further information on Daylight, Sunlight and Overshadowing can be found in AY's Daylight and Sunlight Principles in Appendix 2.

4. Significance criteria

4.1 The BRE Guidelines set out numerical criteria against which the potential effects of a proposed development in terms of daylight, sunlight and overshadowing may be assessed.

4.2 Daylight will be adversely affected if either the VSC measured at the centre of the window is reduced to less than 27% and less than 0.8 times its former value, or the area of the working plane in a room which can receive direct skylight (NSL) is reduced to less than 0.8 times its former value.

4.3 Sunlight will be adversely affected if the centre of the window will receive less than 25% of annual probable sunlight hours (APSH) or less than 5% APSH during the winter months (21st September to 21st March) and less than 0.8 times its former sunlight hours during either period and the reduction in sunlight over the whole year will be greater than 4% APSH.

4.4 Overshadowing to amenity areas may be adversely affected if the area which can receive two hours of direct sunlight on 21st March is reduced to less than 50% of its area and less than 0.8 times its former size.

4.5 Appendix I of the BRE Guidelines provides guidance for use in Environmental Impact Assessments to determine the significance of impact of a development in terms of daylight, sunlight and overshadowing. This takes into account the number of impacts that are outside the BRE Guidelines, the magnitude of the impacts and the margin by which they are outside, the sensitivity of the receptors (in terms of the strength of their requirement for daylight and sunlight), whether the receptors have other sources of light and whether there are particular reasons why an alternative, less stringent, guideline should be applied (as advised in Appendix F of the BRE Guidelines).

4.6 Appendix I of the BRE Guidelines states:

> *'Adverse impacts occur when there is a significant decrease in the amount of skylight and sunlight reaching an existing building where it is required, or in the amount of sunlight reaching an open space.*
>
> *The assessment of impact will depend on a combination of factors, and there is no simple rule of thumb that can be applied.*
>
> *Where the loss of skylight or sunlight fully meets the guidelines, the impact is assessed as negligible or minor adverse. Where the loss of light is well within the guidelines, or only a small number of windows or limited area of open space lose light (within the guidelines), a classification of negligible impact is more appropriate. Where the loss of light is only just within the guidelines and a larger number of windows or open space area are affected, a minor adverse impact would be more appropriate, especially if there is a particularly strong requirement for daylight and sunlight in the affected building or open space.*
>
> *Where the loss of skylight or sunlight does not meet the guidelines, the impact is assessed as minor, moderate or major adverse. Factors tending towards a minor adverse impact include:*

- *only a small number of windows or limited area of open space are affected;*
- *the loss of light is only marginally outside the guidelines;*
- *an affected room has other sources of skylight or sunlight;*
- *the affected building or open space only has a low level requirement for skylight or sunlight; and*
- *there are particular reasons why an alternative, less stringent, guideline should be applied.*

Factors tending towards a major adverse impact include:

- *a large number of windows or large area of open space are affected;*
- *the loss of light is substantially outside the guidelines;*
- *all the windows in a particular property are affected; and*
- *the affected indoor or outdoor spaces have a particularly strong requirement for skylight or sunlight, e.g. a living room in a dwelling or a children's playground.'*

4.7 In relation to beneficial impacts, these occur when there is an increase in the amount of light. Beneficial impacts should be worked out using the same principles as adverse impacts. Thus a tiny increase in light would be classed as a negligible impact, not a minor beneficial impact.

4.8 AY have had regard to the BRE Guideline recommendations when assigning significance to the effects identified in this report.

Flexible Application of the BRE Guidelines

4.9 In addition to the wider context, which policy acknowledges should be considered, there are also specific Site characteristics which have been considered including:

- Reasonableness of retained values in a site's context;
- Architectural features (i.e. recessed windows, balconies, projecting wings and window size); and
- Changes in light which are typical of properties overlooking an underdeveloped existing site.

4.10 Each is discussed in further detail below.

<u>Reasonableness of retained values in a site's context</u>

4.11 The BRE Guidelines state that the numerical guidelines are not mandatory and must be interpreted flexibly because natural lighting is only one of many factors in site layout design. In certain circumstances, such as city centres, or in an area with modern high-rise buildings, a higher degree of obstruction may be unavoidable if new developments are to match the height and proportions of existing buildings.

4.12 The assessment results must be interpreted carefully, with due consideration given to the site context and whether acceptable amounts of daylight and sunlight will be retained for an urban context. This is further emphasised in policy, as previously explained.

4.13 This does not mean that the recommendations and targets within the BRE Guidelines can be disregarded but, instead, the 'flexibility' that should be applied should be founded on sound scientific principles that can be supported and justified. This requires a certain level of professional value judgement and experience, but also evidence which may be material considerations for the local authority.

4.14 The Housing SPG, for instance, predicates the need to move away from applying the same daylight and sunlight values in all locations and promotes contextual analysis as a pertinent way of assessing acceptable levels of amenity. It is therefore reasonable to consider broadly comparable residential typologies within the area and of a similar nature across London. A proposed scheme may incur transgressions from the BRE Guidelines but be shown to be commensurate with residential typologies in the locality, indicating that the amenity levels are reasonable given the site context and as such the proposal may be considered acceptable.

4.15 An example of this is given in an Inspector's appeal decision in February 2019 (*Appeal Ref: APP/E5900/W/17/3171437 - Whitechapel Estate*). The Inspector stated at paragraphs 108, 109, 112 and 113 respectively:

> *'The BRE document offers guidance on generally acceptable standards of daylight and sunlight but advises that numerical values are not to be rigidly applied and recognises the importance of the specific circumstances of each case. Inner city development is one of the examples where a different approach might be justified. This is specifically endorsed by the [Mayor of London's] Housing SPG, which calls for guidelines to be applied sensitively to higher density developments, especially in (among others) opportunity areas and accessible locations, taking into account local circumstances, the need to optimise housing capacity, and the scope for the character and form of an area to change over time. … I agree with the appellants that blanket application of the BRE guide optimum standards, which are best achieved in relatively low-rise well-spaced layouts, is not appropriate in this instance.'*
>
> *'The SPG advises that the daylight effect on adjacent properties should be assessed drawing on "broadly comparable residential typologies within the area and of a similar nature across London…'*
>
> *'The figures [from comparable typologies from a range of example sites across Central London analysed by the appellants, comprising both traditional urban streets and recently permitted areas of significant development] show that a proportion of residual Vertical Sky Component ('VSC') values in the mid-teens have been found acceptable in Major developments across London. This echoes the Mayor's endorsement in the pre SPG decision at Monmouth House, Islington that VSC values in the mid-teens are acceptable in an inner urban environment. They also show a smaller proportion in the bands below 15%…'*
>
> *'I acknowledge that a focus on overall residual levels could risk losing sight of individual problem areas. It is accepted that light is only one factor in assessing overall levels of amenity, but I consider that the trade-off*

> *with other factors, such as access to public transport or green space, is likely to be of more relevance to an occupier of new development than to an existing neighbour whose long-enjoyed living conditions would be adversely affected by new buildings. However, I also consider that Inner London is an area where there should generally be a high expectation of development taking place. This is particularly so in the case of the appeal site, where the Whitechapel Vision Masterplan and the City Fringe Opportunity Area Planning Framework have flagged the desirability of high density development. Existing residents would in my view be prepared for change* and would not necessarily expect existing standards of daylight and sunlight to persist after development.'

4.16 The interpretation of the daylight and sunlight results should therefore be considered in terms of the quantum of light lost and retained, not purely upon the percentage change. Notwithstanding that a development might result in a noticeable reduction in light, it may be possible to conclude that the effect would nonetheless be acceptable if, the retained daylight levels are reasonable and commensurate with alternative criteria and comparable typologies from a range of example sites across London.

Architectural Features

4.17 Design features such as balconies and projecting wings on existing neighbouring buildings obstruct the available daylight and sunlight amenity and can therefore cause relative reductions in light to be amplified.

4.18 A larger relative reduction in VSC may also be unavoidable if the existing window has projecting wings on one or both sides of it or is recessed into the building so that it is obstructed on both sides as well as above.

4.19 Balconies and overhangs above an existing window tend to block sunlight, especially in summer. Even a modest obstruction opposite may result in a large relative impact on the sunlight received.

4.20 There are properties surrounding the Site which include balconies. AY have considered these architectural features to be a factor when reviewing the impact of the Proposed Development.

Changes in light which are typical of properties overlooking an underdeveloped existing site

4.21 The existing Site is underdeveloped. The neighbouring properties currently look out across the existing low rise Site meaning amenity levels may be higher in the existing condition. The introduction of the Proposed Development to the currently low rise Site may therefore result in larger percentage changes. It would therefore be inappropriate to strictly apply the 0.8 times BRE Guidelines criteria as an appropriate benchmark.

5. Assessment Results

Neighbouring Properties

Daylight and Sunlight

5.1 The numerical VSC, NSL and APSH results are tabulated in Appendix 3 and the loss or gain in light is presented both on an absolute scale and a comparative scale, measuring the light that will be retained.

5.2 The NSL drawings are in Appendix 4. These show the parts within the neighbouring rooms where the sky can be seen through the window both in the existing and proposed conditions. They also show the rooms layouts assumptions.

5.3 In relation to sunlight, in accordance with the BRE Guidelines only windows which are oriented within 90 degrees of due south have been considered within the neighbouring properties.

5.4 AY's research has identified the following neighbouring properties as relevant for daylight and sunlight assessment:

- 16-24 Acre Way (even)
- Juniper Court
- 6-15 Neal Court (Inclusive)
- 8-10 Waverley Gardens (even)
- Sovereign Court
- 80 Pinner Road
- 74 Pinner Road

5.5 The location of these receptors and the Site is shown in Figure 3 below.

5.6 A summary of the assessment results is provided below.

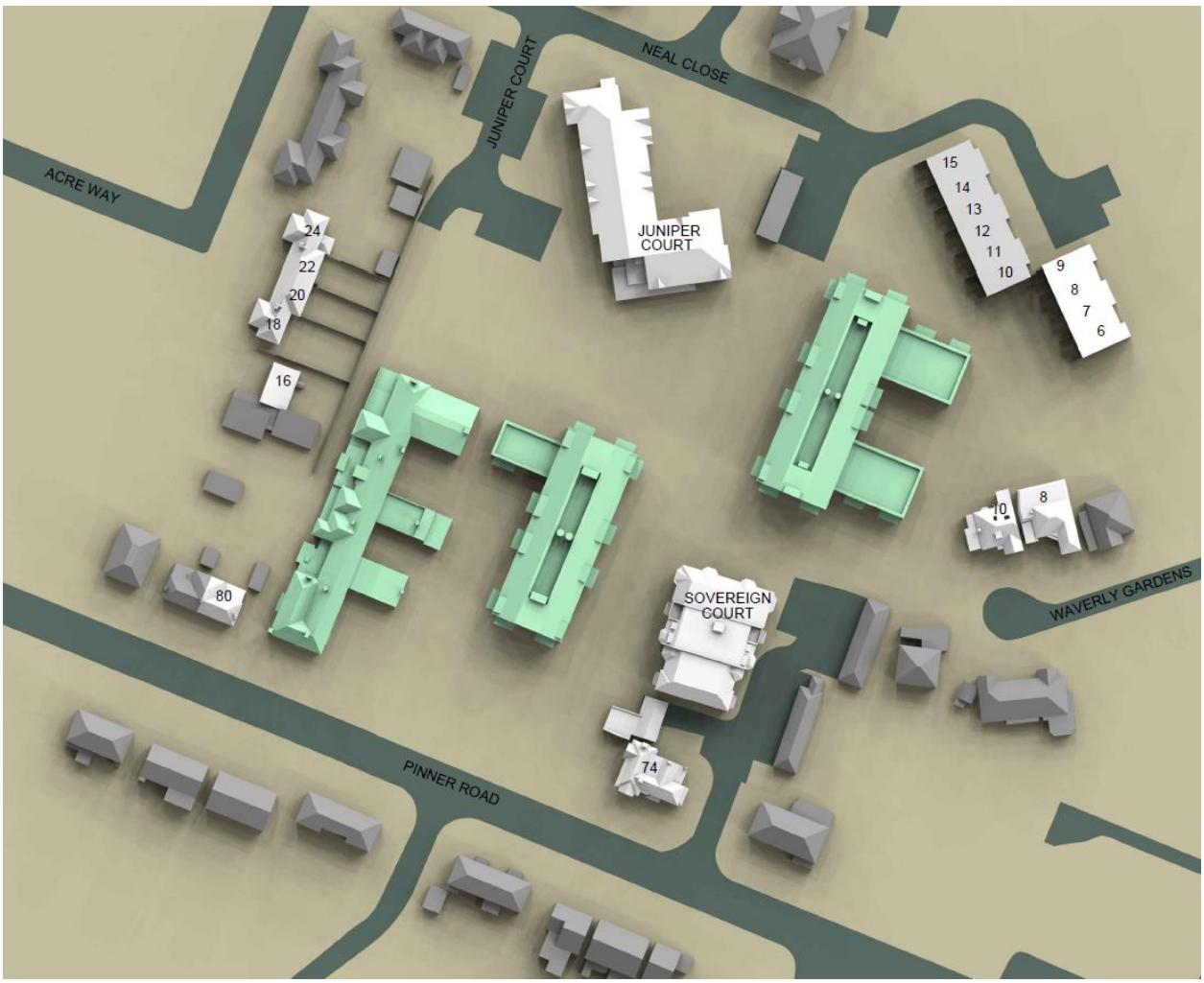


Figure 3: Neighbouring properties labelled and rendered in light grey. The Proposed Development can be seen rendered in green.

16-24 Acre Way (even)

5.7 The technical results demonstrate compliance with the BRE Guidelines for both daylight and sunlight.

Juniper Court

5.8 65 windows and 45 rooms have been assessed for daylight at this residential property.

5.9 For VSC, 60 windows (92%) would meet the BRE guideline and therefore considered to experience a Negligible effect (not significant).

5.10 5 (8%) windows experience an alteration between 20-24% which is considered to be Minor adverse (not significant). 4 of these windows retain VSC values between 20% and 26% which are considered reasonably close to the BRE guideline of 27% VSC. These windows give light to rooms which adhere to the BRE guideline for NSL and retain a view of the sky to >90% of the room area. 1 window retains a VSC value of 18% and give light to a room with an NSL of 94%, meaning the sky will be visible for the majority of the room area.

5.11 With regards to NSL, all rooms (100%) adhere to the BRE guideline for NSL and the sky will be visible to more than 90% of the room area.

5.12 In terms of sunlight (WPSH and APSH), with the exception of one window, there is compliance with the BRE Guidelines. For the one exception, the window retains 0.3 times its former winter value; nonetheless, the retained level (4%) is just 1% short of the BRE Guidelines recommended value (5%). In addition, the window will retain high levels of annual sunlight (36%) which are well in excess of the BRE Guidelines recommendations (25%). Therefore, the property will remain well sunlight.

5.13 In AY's professional opinion the overall effect on this property is considered to be minor adverse. Whilst isolated adverse effects have been identified these are considered to be reasonable in consideration of the retained daylight and sunlight values and general compliance with the BRE guidelines.

6-15 Neal Court (Inclusive)

5.14 The technical results demonstrate full compliance with the BRE Guidelines for both daylight and sunlight.

8-10 Waverley Gardens (even)

5.15 The technical results demonstrate full compliance with the BRE Guidelines for daylight for both 8 and 10 Waverley Gardens.

5.16 In terms of sunlight, the relevant windows at 8 Waverley Gardens do not face within 90 degrees of due south and are therefore not relevant for assessment.

5.17 In relation to 10 Waverley Gardens, 7 (70%) out of 10 windows are compliant with the BRE Guidelines sunlight criteria.

5.18 Three windows do not meet the BRE Guideline for sunlight, these windows serve one of the rooms on the ground floor (see NSL drawing numbered BRE_12, Room Reference R1/90). These three windows form part of a door and retain 0.79, 0.67 and 0.56 of their former annual sunlight values. Winter sunlight is not affected. It is important to note that these windows are located in a location where amenity access is limited. The bay window adjacent to these three windows adhere to the BRE guideline which indicates the restrictive design features contribute to larger percentage changes and transgressions from the BRE guidelines ought to be expected. The remaining rooms and windows adhere to the BRE guideline for daylight and sunlight.

5.19 In AY's professional opinion the overall effect on this property is considered to be minor adverse. Whilst isolated adverse effects have been identified these are considered to be reasonable in consideration general compliance with the BRE guidelines and restrictive design features at the property.

Sovereign Court

5.20 This four storey block of flats is located immediately to the east and currently overlooks a low rise section of the Site.

5.21 In terms of VSC, 61 of the 72 windows (85%) assessed retain at least 0.8 times their former value and adhere to the BRE guideline. The remaining 11 windows retain 0.59 to 0.79 of their former values. 8 of these windows (8 out of 11) retain a VSC which is well in excess of 20% which can be considered reasonably close to the Guideline of 27% VSC and five of which give light to rooms with additional windows which do meet the BRE guideline. One window retains 19.8% VSC and is part of a bay window giving light to a room with additional windows that do meet the BRE guideline. The remaining windows retain VSC values of 15% and 18% respectively and sit beneath balconies which amenity access will partially restrict access and lower amenity levels ought to be anticipated in these locations. Both windows are located in rooms which retain a view of the sky to more than 50% of the room area.

5.22 In relation to NSL, 32 of the 39 rooms (82%) assessed retain at least 0.8 times their former value. The remaining 7 rooms retain 0.53 to 0.73 of their former values. All 7 rooms will retain at least 50% daylight distribution (NSL) within the room. Whilst the BRE Guidelines imply that NSL of at least 80% would be considered sufficiently lit, a daylight distribution of 50% and over could be considered adequate.

5.23 In terms of sunlight, all windows relevant for assessment retain at least 0.8 times their former value and are therefore compliant with the BRE Guidelines.

5.24 In AY's professional opinion the overall effect on this property is considered to be minor. Whilst isolated adverse effects have been identified these are considered to be reasonable in consideration of the retained daylight and sunlight values and general compliance with the BRE guidelines.

80 Pinner Road

5.25 The technical results demonstrate full compliance with the BRE Guidelines for both daylight and sunlight.

74 Pinner Road

5.26 The technical results demonstrate full compliance with the BRE Guidelines for both daylight and sunlight.

Overshadowing (Sun Hours on Ground)

5.27 Neighbouring amenity areas have been assessed in accordance with the BRE Guidelines Sun Hours on Ground test.

5.28 The assessment in Appendix 5 demonstrates that all areas will retain at least two hours of direct sunlight on the 21st March to over 50% of their areas in the proposed context and are therefore compliant with the BRE Guidelines.

Internal Amenity

5.29 AY have worked alongside Allies and Morrison Architects throughout the design process in order to maximise levels of light within the Proposed Development as far as reasonably possible, given the Site context and the

need to make efficient use of the land to provide much needed housing. The need for flexibility in applying the BRE Guidelines applies equally to the consideration of light levels within a proposed scheme.

5.30 Detailed ADF, NSL and APSH assessments have been undertaken for habitable rooms located in proposed residential units within the Proposed Development.

5.31 The technical analysis and associated NSL contour drawings are in Appendix 6 and the results are discussed below.

Daylight

5.32 The BRE Guidelines recommend the following minimum daylighting targets (using the ADF methodology) in new dwellings:

- Kitchen: 2.0%;
- Living room: 1.5%; and
- Bedroom: 1.0%.

5.33 However, when assessing schemes in areas of regeneration, these targets are not always appropriate or achievable.

5.34 In the case of the Proposed Development, the proposed units feature open plan LKDs. In common with many contemporary developments, some of the kitchens/food preparation areas are located at the rear of open plan spaces and are therefore intended to be predominantly artificially lit given their distant location away from the main window wall.

5.35 In such circumstances the standard recommendation of 2.0% ADF for typical kitchens may therefore be considered less appropriate, especially given the site context and other constraints, such as the provision of balconies which reduce the light entering windows below them, and the desire/need to reduce heat gain/loss.

5.36 In respect of internal galley type kitchens, the BRE Guidelines consider that if these are not directly day-lit they should be directly linked to a well day-lit living room (as recommended at paragraph 2.1.14 of the BRE Guidelines). The typical recommendation for a living room being at least 1.5% ADF.

5.37 Where relevant, the area closest to the window where there is a reasonable expectation of daylight has been assessed. These areas comprise living/dining rooms ("LDs") and the kitchen areas to the rear of rooms have been excluded from the ADF and NSL calculations. The living areas closest to the windows have therefore been assessed using an ADF target benchmark of 1.5%, which is the BRE's recommendation for a 'living room'.

5.38 The results demonstrate that the Proposed Development has been optimised in terms of daylight with 97% of all habitable rooms assessed within the Proposed Development (181 of 187 rooms) meeting the minimum recommended ADF for the specific room types.

5.39 The 6 (3%) rooms which do not meet the recommendations are either reasonably near the guideline or are located in units with good amenity available to other habitable areas. One room (R17/400) is an LKD with 1.98%ADF which is marginally below the BRE guideline (2%ADF). 3 of the rooms are bedrooms (R18/403, R14/410 and R19/410) with ADFs of 0.71%, 0.9% and 0.94%ADF which is considered reasonably close to the BRE guideline of 1%ADF. The remaining room is a Kitchen (R10/401) with an ADF of 1.4%, the window to this room has a VSC in excess of the BRE guideline at 36% and the sky is visible for more than 80% of the room area.

5.40 **94%** (175 out of 187) of the rooms will meet the recommended level of NSL.

5.41 These results represent a very high level of daylight compliance. Transgressions from the BRE guideline are isolated with the vast majority of habitable expected to receive good daylight amenity. Overall, the Proposed Development is considered to be acceptable in terms daylight amenity.

Sunlight

5.42 Requirements for provision of sunlight to new residential buildings are set out in Part 3.1 of the BRE Guidelines. Sunlight is considered important for living rooms and conservatories but is viewed as less important in bedrooms and kitchens.

5.43 The BRE Guidelines acknowledge that a site's existing layout (i.e. orientation and overshadowing) is the most important factor affecting the duration of sunlight in buildings.

5.44 BS 8206-2 states that: 'The degree of satisfaction is related to the expectation of sunlight. If a room is necessarily north facing or if the building is in a densely-built urban area, the absence of sunlight is more acceptable than when its exclusion seems arbitrary.'

5.45 In Part 3.1 of the BRE Guidelines it is stated that the BS 8206-2 criterion applies to rooms of all orientations, although if a room faces significantly north of due east or west it is unlikely to be met.

5.46 This report only considers windows which are oriented within 90 degrees of due south and where a room is served by multiple windows, if one or more windows are oriented within 90 degrees of due south the remaining windows serving the room will be considered regardless of orientation.

5.47 Access to sunlight can be quantified for the interior of rooms. The BRE Guidelines state 'BS 8206-2 recommends that interiors where the occupants expect sunlight should receive at least one quarter (25%) of APSH, including in the winter months between 21st September and 21st March at least 5% of APSH.'

5.48 The BRE Guidelines also state that the above criterion is intended to give good access to sunlight, but that in special circumstances the planning authority may wish to choose a different value.

5.49 The BRE Guidelines acknowledge that a site's existing layout and other design constraints, such as the provision of balconies, may impose orientation or sunlight constraints which may not be possible to overcome.

5.50 Whilst it has therefore not been possible to fully meet the BRE Guidelines, **93%** (229 of 247) of windows assessed meet the recommendation for winter sunlight and **89%** (222 of 147) of windows for total sunlight.

5.51 Of the 18 which do not meet the BRE guideline for winter sun, 11 are located in rooms with additional windows which do meet the BRE guideline for sunlight (WPSH). 2 are located in bedrooms which have a lower requirement for amenity compared to other room uses. The remaining 4 windows which do not meet the BRE guideline for sunlight are located in rooms with additional window which retains an APSH of 22-38%.

5.52 Of the 25 which do not meet the BRE guideline for annual sun, 17 are located in rooms with additional windows which do meet the BRE guideline for sunlight (APSH). 4 are located in bedrooms which have a lower requirement for amenity compared to other room uses. The remaining 4 windows represent a very small proportion (<2%) of the overall windows and achieve APSH values of 19-22% which can be considered reasonably close to the BRE guideline, or give light to a room with an additional window and APSH of 22%.

5.53 In addition, all units assessed will have access to sunlight, in addition to likely greater levels at the front face of the balconies where provided. Overall, the Proposed Development is considered to be acceptable in terms sunlight amenity.

Overshadowing

5.54 With regards to sunlight to the proposed outdoor amenity areas, the sun hours on ground assessment in Appendix 7 illustrates excellent access to sunlight in overall terms.

5.55 In total, 30 amenity areas have been assessed. 27 of these areas meet the BRE guideline.

5.56 The 3 areas which do not meet the BRE guideline are located to the north of building structures where lower amenity levels ought to be anticipated represents a small proposition of the outdoor amenity space and are not anticipated to be primary amenity areas. It is anticipated that all occupants will have good access to outdoor amenity.

5.57 Therefore, the Proposed Development is considered to perform well against the recommended guidance and represents an acceptable level of compliance in AY's professional opinion.

6. Conclusion

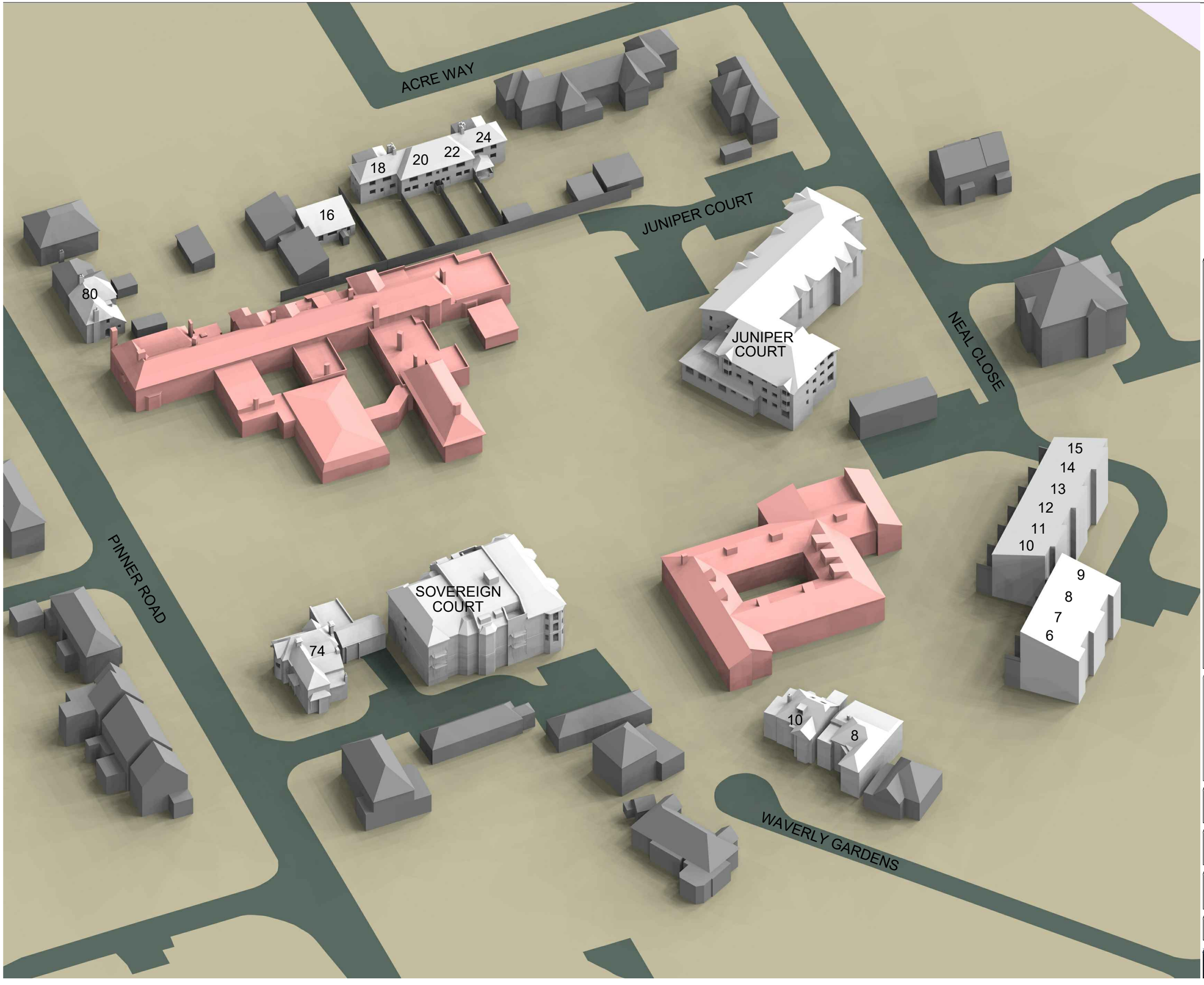
6.1 This report considers the potential effects of the Proposed Development upon the daylight and sunlight amenity to neighbouring residential properties; the level of sun hours on ground overshadowing to existing neighbouring amenity areas; the provision of daylight and sunlight amenity within newly proposed dwellings; and the level of sun hours on ground overshadowing to proposed amenity areas, in accordance with the recommended BRE Guidelines.

6.2 The Proposed Development is considered to perform very well against the recommended guidance and represents an acceptable level of compliance in relation to neighbouring daylight, sunlight and overshadowing. The vast majority of rooms and windows assessed are expected to adhere to the BRE guidelines. Some isolated transgressions from the BRE guidelines have been identified however these represent a small proportion of the windows assessed and are considered reasonably in the context of retained values, restrictive design features and Proposed Development would lead to isolated breaches to a minority of neighbouring habitable spaces, for the reasons set out in this report AY are of the view that the effects are acceptable.

6.3 In terms of light within the Proposed Development, AY have worked alongside Allies and Morrison Architects throughout the design process in order to maximise levels within the Proposed Development as far as reasonably possible, given the Site context and the need to make efficient use of the land to provide much needed housing. The Proposed Development makes excellent use of the daylight and sunlight amenity available to the Site and represents an acceptable level of compliance in AY's professional opinion.

Appendix 1

Existing and Proposed Drawings BRE01-04



Sources of Information

EXISTING BUILDING
MBS 3D SURVEY 21 JANUARY 2020
MBS20_1073 Northwood Health Centre, Pinner.dwg

SURROUNDING BUILDINGS
MBS 3D SURVEY 21 JANUARY 2020
MBS20_1073 Northwood Health Centre, Pinner.dwg

PROPOSED BUILDING
200427 Allies and Morrison - Updated Block A GAs
200430 Allies and Morison - Block B GAs

AVISON YOUNG
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65 Gresham Street, London, EC2V 7NQ
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Project Name
NORTHWOOD PINNER
NHS CENTRE

Client
NHS PROPERTY SERVICE LIMITED

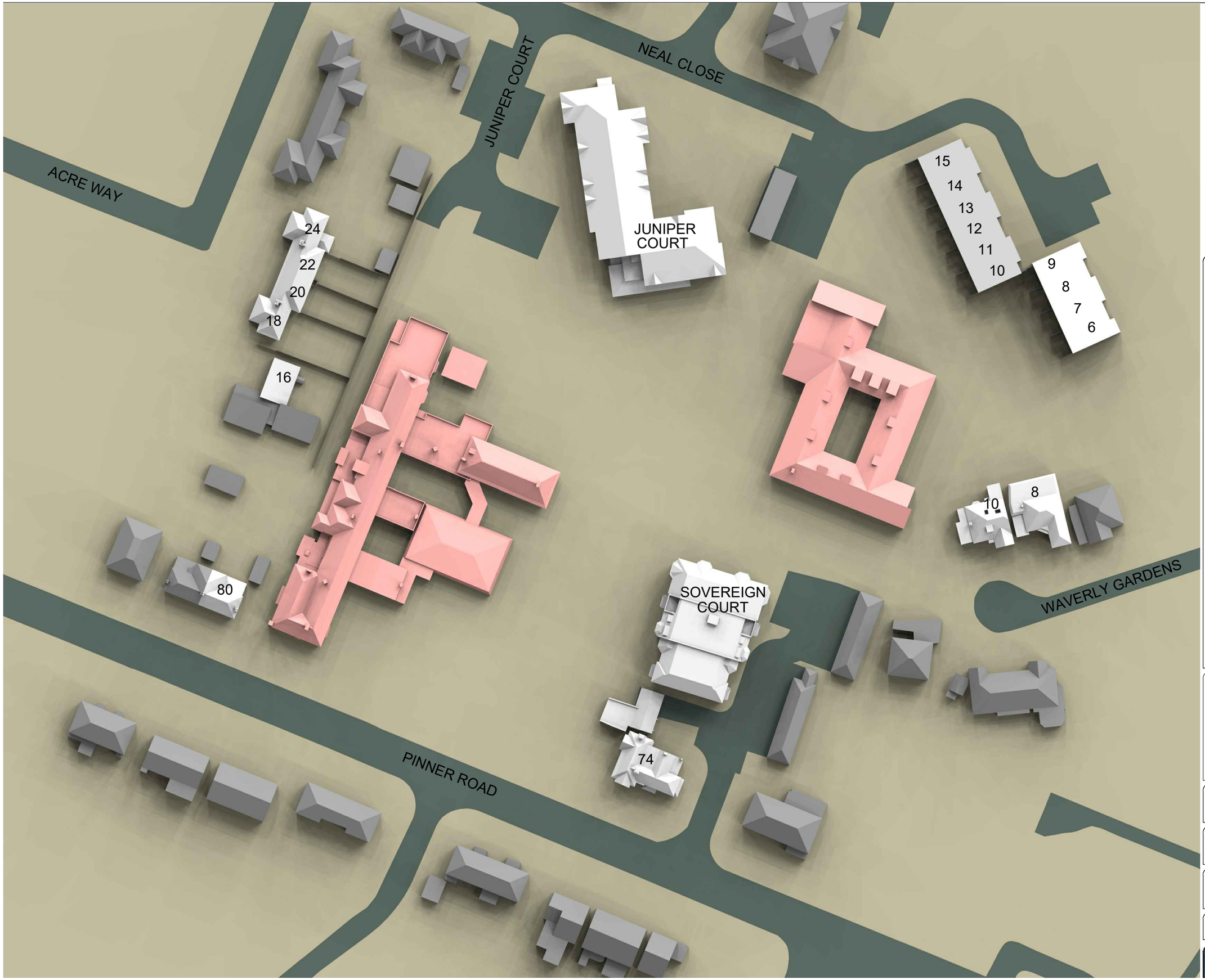
Drawing Title
3D VIEW
EXISTING

Drawn By	Chk'd By	Scale @ A3	Date
CC		NTS	18 MAY 2020

Project No.	Drawing No.	Revision
NO70_01	EX 3D-03	-

A3

Existing 3D View



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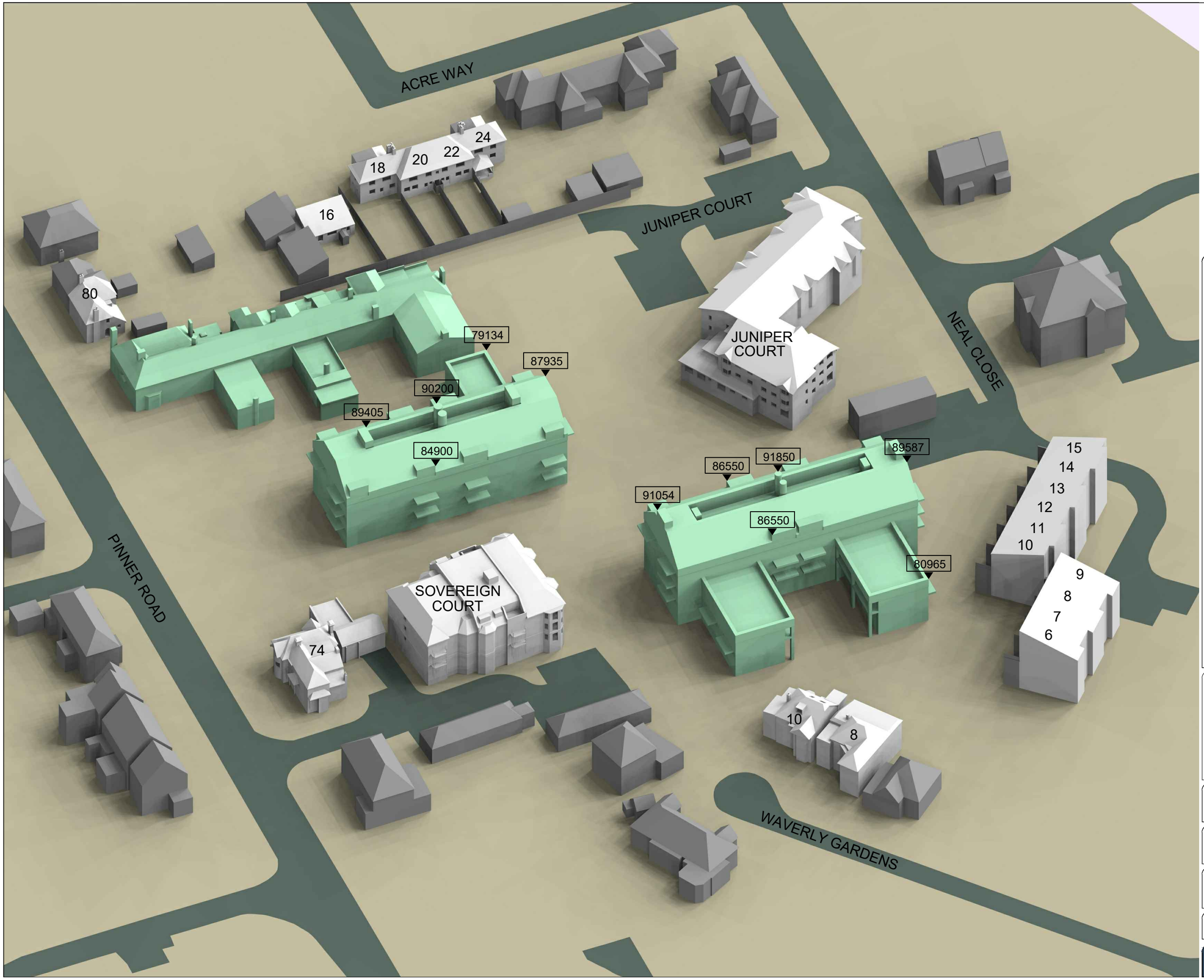
Drawing Title
PLAN VIEW
EXISTING

Drawn By	Chk'd By	Scale @ A3	Date
CC		1/750	18 MAY 2020

Project No.	Drawing No.	Revision
NO70_01	EX PLAN-02	-

Existing Plan View

A3



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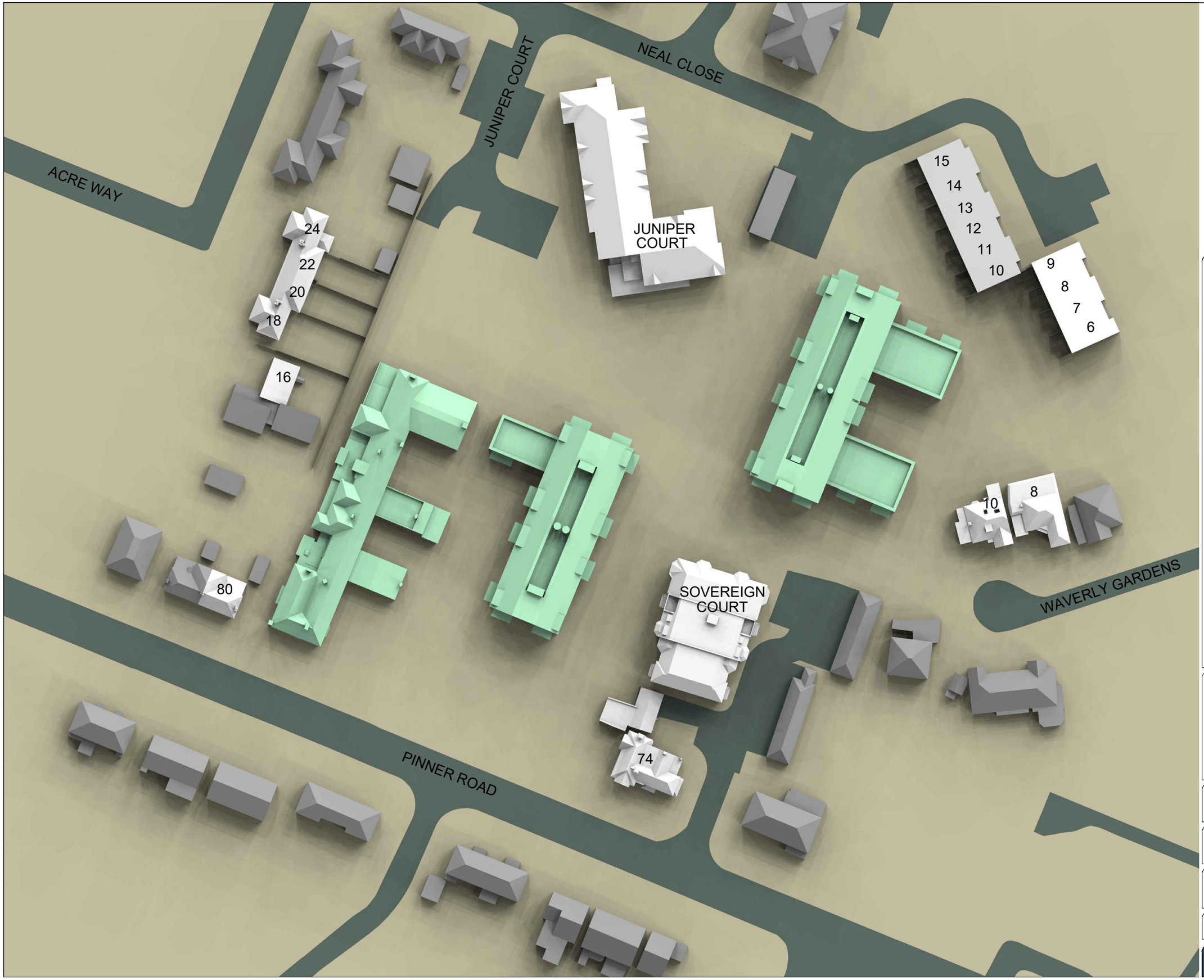
CC		NTS	18 MAY 2020

Project No.	Drawing No.	Revision
NO70_01	PR 3D-04	-

A3

Proposed 3D View



Sources of Information

EXISTING BUILDING
MBS 3D SURVEY 21 JANUARY 2020
MBS20_1073 Northwood Health Centre, Pinner.dwg

SURROUNDING BUILDINGS
MBS 3D SURVEY 21 JANUARY 2020
MBS20_1073 Northwood Health Centre, Pinner.dwg

PROPOSED BUILDING
200427 Allies and Morrison - Updated Block A GAs
200430 Allies and Morison - Block B GAs

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08449 02 03 04
65 Gresham Street, London, EC2V 7NQ
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Project Name
NORTHWOOD PINNER
NHS CENTRE

Client
NHS PROPERTY SERVICE LIMITED

Drawing Title
PLAN VIEW
PROPOSED

Drawn By	Chk'd By	Scale @ A3	Date
CC		1/750	18 MAY 2020

Project No.	Drawing No.	Revision
NO70_01	PR PLAN-02	-

Proposed Plan View

A3

Appendix 2
Daylight and Sunlight Principles

Daylight & Sunlight Principles

The BRE Guidelines – Site Layout Planning for Daylight and Sunlight: A Guide to Good Practice are well established and are adopted by most Local Authorities as the appropriate scientific and empirical methods of measuring daylight and sunlight in order to provide objective data upon which to apply their planning policies. The Guidelines are not fixed standards but should be applied flexibly to take account of the specific circumstances of each case.

The Introduction of the Guidelines states:

"The guide is intended for building designers and their clients, consultants and planning officials. The advice given here is not mandatory and this document should not be seen as an instrument of planning policy. Its aim is to help rather than constrain the developer. Although it gives numerical guidelines, these should be interpreted flexibly because natural lighting is only one of the many factors in site layout design."

The 'flexibility' recommended in the Guidelines should reflect the specific characteristics of each case being considered. For example, as the numerical targets within the Guidelines have been derived on the basis of a low density suburban housing model, it is entirely appropriate to apply a more flexible approach when dealing with higher rise developments in a denser urban environment where the general scale of development is greater. In addition, where existing and proposed buildings have specific design features such as projecting balconies, deep recesses, bay windows etc., it is also equally valid to apply a degree of flexibility to take account of the effect of these particular design features. This does not mean that the recommendations and targets within the Guidelines can be disregarded but, instead, the 'flexibility' that should be applied should be founded on sound scientific principles that can be supported and justified. This requires a certain level of professional value judgement and experience.

Daylighting

In respect of daylighting, the BRE Guidelines adopt different methods of measurement depending on whether the assessment is for the impact on existing neighbouring premises or for measuring the adequacy of proposed new dwellings. For safeguarding the daylight received by existing neighbouring residential buildings around a proposed development, the relevant recommendations are set out in Section 2.2 of the Guidelines.

The adequacy of daylight received by existing neighbouring dwellings is measured using two methods of measurement. First, it is necessary to measure the Vertical Sky Component (VSC) followed by the measurement of internal Daylight Distribution by plotting the position of the 'existing' and 'proposed' no sky line contour.

VSC is measured at the mid-point on the external face of the window serving a habitable room. For the purpose of the Guidelines, a "habitable" room is defined as a Kitchen, Living Room or Bedroom. Bathrooms, hallways and circulation space are excluded from this definition. In addition, many Local Authorities make a further distinction in respect of small kitchens. Where the internal area of a small kitchen limits the use to food preparation and is not of sufficient size to accommodate some other form of "habitable" use such as dining, the kitchen need not be classed as a "habitable" room in its own right.

VSC is a 'spot' measurement taken on the face of the window and is a measure of the availability of light from the sky from over the "existing" and "proposed" obstruction caused by buildings or structures in front of the window. As it is measured on the outside face of the window, one of the inevitable shortcomings is that it does not take account of the size of the window or the size or use of the room served by the window. For this reason, the BRE Guidelines require internal Daylight Distribution to be measured in addition to VSC.

The 'No Sky Line' contour plotted for the purpose of measuring internal Daylight Distribution identifies those areas within the room usually measured on a horizontal working plane set at table top level, where there is direct sky visibility. This therefore represents those parts within the room where the sky can be seen through the window. This second measure therefore takes account of the size of the window and the size of the room but is only more reliable than VSC when the actual room uses, layouts and dimensions are known. When interpreted in conjunction with the VSC value, the likely internal lighting conditions, and hence the quality of lighting within the room, can be assessed.

For VSC, the Guidelines states that:

"If this Vertical Sky Component is greater than 27% then enough skylight should still be reaching the window of the existing building. Any reduction below this level should be kept to a minimum. If the Vertical Sky Component with the new development in place is both less than 27% and less than 0.8 times its former value, then the occupants of the existing building will notice the reduction in the amount of skylight."

To put this in context, the maximum VSC value that can be received for a totally unobstructed vertical window is 40%. There are however circumstances where the VSC value is already below 27%. In such circumstances, it is permissible to reduce the existing VSC value by a factor of 0.2 (i.e. 20%) so that the value on the 'proposed' conditions remains more than 0.8 times its former value. The scientific reasoning for this permissible margin of reduction is that existing daylight (and sunlight) levels can be reduced by a factor of 20% before the loss becomes materially noticeable. This factor of reduction applies to VSC, daylight distribution, sunlight and overshadowing.

By contrast, the adequacy of daylight for proposed 'New-Build' dwellings is measured using the standards in the British Standard Code of Practice for Daylighting, BS8206 Part 2.

The British Standard relies upon the use of Average Daylight Factors (ADF) rather than VSC and Daylight Distribution. The use of ADF is referred to in the BRE Guidelines (Appendix C) but its use is usually limited as a supplementary 'check' of internal lighting conditions once the VSC and Daylight Distribution tests have been completed.

ADF is sometimes seen as a more accurate and representative measure of internal lighting conditions as it comprises a greater number of design factors and input variables/coefficients. That is, the value of ADF is derived from:

- The actual amount of daylight received by the window(s) serving the room expressed as the "angle of visible sky" which is derived from the VSC value and therefore represents the amount of light striking the face of the window.
- The loss of transmittance through the glazing.
- The size of the window (net area of glazing).
- The size of the room served by the window(s) (net internal surface area of the room).
- The internal reflectance values of the internal finishes within the room.
- The specific use of the room.

One of the main reasons why ADF is more appropriate for New-Build dwellings is that any of the above input variables can be changed during the course of the design process in order to achieve the required internal lighting values. The ability to make such changes is not usually available when dealing with existing neighbouring buildings.

Unlike the application of VSC and daylight distribution, the British Standard differentiates between different room uses. It places the highest ADF standard on Family Kitchens where the minimum target value is 2% df. Living Rooms should achieve 1.5% df, and Bedrooms 1.0% df.

Sunlighting

The requirements for protecting sunlight to existing residential buildings are set out in section 3.2 of the BRE Guidelines.

The availability of sunlight varies throughout the year with the maximum amount of sunlight being available on the summer solstice and the minimum on the winter solstice. In view of this, the internationally accepted test date for measuring sunlight is the spring equinox (21 March), on which day the United Kingdom has equal periods of daylight and darkness and sunlight is available from approximately 08:30hrs to 17:30hrs. In addition, on that date, sunlight received perpendicular to the face of a window would only be received where that window faces within 90º of due south. The BRE Guidelines therefore limit the extent of testing for sunlight where a window faces within 90º of due south.

The sunlight standards are normally applied to the principal Living Room within each dwelling rather than to kitchens and bedrooms.

The recommendation for sunlight is:

"If this window reference point can receive more than one quarter of annual probable sunlight hours, including at least 5% of annual probable sunlight hours during the winter months of 21 September and 21 March, then the room should still receive enough sunlight .

Any reduction in sunlight access below this level should be kept to a minimum. If the availability of sunlight hours are both less than the amounts given and less than 0.8 times their former value, either over the whole year or just during the winter months, then the occupants of the existing building will notice the loss of sunlight."

A good level of sunlight will therefore be achieved where a window achieves more than 25% APSH, of which 5% should be in the winter months. Where sunlight levels fall below this suggested recommendation, a comparison with the existing condition should be undertaken and if the reduction ratio is less than 0.2, i.e. the window continues to receive more than 0.8 times its existing sunlight levels, the impact on sunlight will be acceptable.

Appendix 3

External amenity: Daylight and Sunlight analysis spreadsheets (VSC, NSL and APS

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NORTHWOOD AND PINNER
18-May-20
JOB 02 - SUNLIGHT RESULTS

Available sunlight as a percentage of annual unobstructed total (1486.0 Hrs)

		Existing %			Proposed %					
Room use	Window Ref	Summer	Winter	Total	Summer	Winter	Total	% Loss of Summer	% Loss of Winter	% Loss of Total
80 Pinner Road - BRE_05										
Gnd Floor										
UNKNOWN	W2/10	25.00	14.00	39.00	25.00	14.00	39.00	0.00%	0.00%	0.00%
1st Floor										
UNKNOWN	W1/11	27.00	14.00	41.00	27.00	14.00	41.00	0.00%	0.00%	0.00%
16 Acre Way - BRE_06										
Gnd Floor										
UNKNOWN	W1/20	27.00	0.00	27.00	27.00	0.00	27.00	0.00%	0.00%	0.00%
UNKNOWN	W2/20	35.00	7.00	42.00	35.00	7.00	42.00	0.00%	0.00%	0.00%
UNKNOWN	W3/20	33.00	10.00	43.00	33.00	10.00	43.00	0.00%	0.00%	0.00%
UNKNOWN	W4/20	33.00	12.00	45.00	33.00	12.00	45.00	0.00%	0.00%	0.00%
18 Acre Way - BRE_06										
Gnd Floor										
UNKNOWN	W1/30	53.00	25.00	78.00	53.00	25.00	78.00	0.00%	0.00%	0.00%
UNKNOWN	W2/30	54.00	24.00	78.00	54.00	24.00	78.00	0.00%	0.00%	0.00%
UNKNOWN	W3/30	39.00	16.00	55.00	39.00	16.00	55.00	0.00%	0.00%	0.00%
UNKNOWN	W4/30	39.00	17.00	56.00	39.00	17.00	56.00	0.00%	0.00%	0.00%
UNKNOWN	W5/30	35.00	19.00	54.00	35.00	18.00	53.00	0.00%	5.26%	1.85%
1st Floor										
UNKNOWN	W1/31	44.00	29.00	73.00	44.00	28.00	72.00	0.00%	3.45%	1.37%
UNKNOWN	W2/31	32.00	16.00	48.00	32.00	15.00	47.00	0.00%	6.25%	2.08%
UNKNOWN	W3/31	32.00	16.00	48.00	32.00	15.00	47.00	0.00%	6.25%	2.08%
20 Acre Way - BRE_06										
Gnd Floor										
UNKNOWN	W6/30	41.00	19.00	60.00	41.00	18.00	59.00	0.00%	5.26%	1.67%
UNKNOWN	W7/30	39.00	19.00	58.00	39.00	19.00	58.00	0.00%	0.00%	0.00%
UNKNOWN	W8/30	39.00	19.00	58.00	39.00	19.00	58.00	0.00%	0.00%	0.00%
UNKNOWN	W9/30	38.00	19.00	57.00	38.00	19.00	57.00	0.00%	0.00%	0.00%
1st Floor										
UNKNOWN	W4/31	32.00	16.00	48.00	32.00	16.00	48.00	0.00%	0.00%	0.00%
UNKNOWN	W5/31	32.00	17.00	49.00	32.00	16.00	48.00	0.00%	5.88%	2.04%
22 Acre Way - BRE_06										
Gnd Floor										
UNKNOWN	W10/30	39.00	11.00	50.00	39.00	10.00	49.00	0.00%	9.09%	2.00%
UNKNOWN	W11/30	39.00	19.00	58.00	39.00	18.00	57.00	0.00%	5.26%	1.72%
UNKNOWN	W12/30	39.00	19.00	58.00	39.00	19.00	58.00	0.00%	0.00%	0.00%
UNKNOWN	W13/30	39.00	19.00	58.00	39.00	19.00	58.00	0.00%	0.00%	0.00%
1st Floor										
UNKNOWN	W6/31	34.00	19.00	53.00	34.00	18.00	52.00	0.00%	5.26%	1.89%
UNKNOWN	W7/31	32.00	17.00	49.00	32.00	16.00	48.00	0.00%	5.88%	2.04%
UNKNOWN	W8/31	33.00	17.00	50.00	33.00	16.00	49.00	0.00%	5.88%	2.00%

		Existing %			Proposed %					
Room use	Window Ref	Summer	Winter	Total	Summer	Winter	Total	% Loss of Summer	% Loss of Winter	% Loss of Total
24 Acre Way - BRE_06										
Gnd Floor										
UNKNOWN	W14/30	41.00	7.00	48.00	41.00	6.00	47.00	0.00%	14.29%	2.08%
UNKNOWN	W15/30	41.00	14.00	55.00	41.00	13.00	54.00	0.00%	7.14%	1.82%
UNKNOWN	W16/30	41.00	20.00	61.00	41.00	19.00	60.00	0.00%	5.00%	1.64%
UNKNOWN	W17/30	13.00	0.00	13.00	13.00	0.00	13.00	0.00%	0.00%	0.00%
UNKNOWN	W18/30	40.00	10.00	50.00	40.00	10.00	50.00	0.00%	0.00%	0.00%
1st Floor										
UNKNOWN	W9/31	33.00	10.00	43.00	33.00	9.00	42.00	0.00%	10.00%	2.33%
UNKNOWN	W10/31	33.00	16.00	49.00	33.00	16.00	49.00	0.00%	0.00%	0.00%
Juniper Court - BRE_07-09										
Gnd Floor										
UNKNOWN	W1/50	35.00	16.00	51.00	35.00	16.00	51.00	0.00%	0.00%	0.00%
UNKNOWN	W2/50	36.00	16.00	52.00	36.00	15.00	51.00	0.00%	6.25%	1.92%
UNKNOWN	W3/50	15.00	4.00	19.00	15.00	4.00	19.00	0.00%	0.00%	0.00%
UNKNOWN	W4/50	24.00	6.00	30.00	24.00	6.00	30.00	0.00%	0.00%	0.00%
UNKNOWN	W5/50	35.00	16.00	51.00	35.00	14.00	49.00	0.00%	12.50%	3.92%
UNKNOWN	W6/50	31.00	15.00	46.00	31.00	13.00	44.00	0.00%	13.33%	4.35%
UNKNOWN	W7/50	24.00	6.00	30.00	24.00	6.00	30.00	0.00%	0.00%	0.00%
UNKNOWN	W8/50	35.00	17.00	52.00	35.00	15.00	50.00	0.00%	11.76%	3.85%
UNKNOWN	W9/50	31.00	21.00	52.00	31.00	19.00	50.00	0.00%	9.52%	3.85%
UNKNOWN	W10/50	52.00	29.00	81.00	51.00	22.00	73.00	1.92%	24.14%	9.88%
UNKNOWN	W11/50	51.00	29.00	80.00	49.00	21.00	70.00	3.92%	27.59%	12.50%
UNKNOWN	W12/50	30.00	29.00	59.00	28.00	23.00	51.00	6.67%	20.69%	13.56%
UNKNOWN	W13/50	51.00	28.00	79.00	49.00	23.00	72.00	3.92%	17.86%	8.86%
UNKNOWN	W14/50	26.00	28.00	54.00	24.00	21.00	45.00	7.69%	25.00%	16.67%
UNKNOWN	W15/50	26.00	29.00	55.00	24.00	21.00	45.00	7.69%	27.59%	18.18%
UNKNOWN	W16/50	49.00	22.00	71.00	47.00	14.00	61.00	4.08%	36.36%	14.08%
UNKNOWN	W17/50	55.00	27.00	82.00	52.00	20.00	72.00	5.45%	25.93%	12.20%
UNKNOWN	W18/50	57.00	27.00	84.00	52.00	17.00	69.00	8.77%	37.04%	17.86%
UNKNOWN	W19/50	33.00	11.00	44.00	32.00	4.00	36.00	3.03%	63.64%	18.18%
1st Floor										
UNKNOWN	W1/51	34.00	17.00	51.00	34.00	17.00	51.00	0.00%	0.00%	0.00%
UNKNOWN	W2/51	35.00	17.00	52.00	35.00	17.00	52.00	0.00%	0.00%	0.00%
UNKNOWN	W3/51	47.00	27.00	74.00	47.00	27.00	74.00	0.00%	0.00%	0.00%
UNKNOWN	W4/51	17.00	13.00	30.00	17.00	13.00	30.00	0.00%	0.00%	0.00%
UNKNOWN	W5/51	0.00	25.00	25.00	0.00	23.00	23.00	0.00%	8.00%	8.00%
UNKNOWN	W6/51	0.00	20.00	20.00	0.00	19.00	19.00	0.00%	5.00%	5.00%
UNKNOWN	W7/51	43.00	27.00	70.00	43.00	26.00	69.00	0.00%	3.70%	1.43%
UNKNOWN	W8/51	58.00	30.00	88.00	57.00	26.00	83.00	1.72%	13.33%	5.68%
UNKNOWN	W9/51	40.00	24.00	64.00	39.00	21.00	60.00	2.50%	12.50%	6.25%
UNKNOWN	W10/51	52.00	29.00	81.00	51.00	26.00	77.00	1.92%	10.34%	4.94%
UNKNOWN	W11/51	55.00	30.00	85.00	54.00	26.00	80.00	1.82%	13.33%	5.88%
UNKNOWN	W12/51	55.00	30.00	85.00	53.00	25.00	78.00	3.64%	16.67%	8.24%
UNKNOWN	W13/51	54.00	30.00	84.00	52.00	24.00	76.00	3.70%	20.00%	9.52%
UNKNOWN	W14/51	40.00	27.00	67.00	40.00	22.00	62.00	0.00%	18.52%	7.46%
UNKNOWN	W15/51	58.00	30.00	88.00	56.00	22.00	78.00	3.45%	26.67%	11.36%
UNKNOWN	W16/51	44.00	24.00	68.00	42.00	16.00	58.00	4.55%	33.33%	14.71%
UNKNOWN	W17/51	31.00	12.00	43.00	30.00	5.00	35.00	3.23%	58.33%	18.60%

		Existing %			Proposed %					
Room use	Window Ref	Summer	Winter	Total	Summer	Winter	Total	% Loss of Summer	% Loss of Winter	% Loss of Total
2nd Floor										
UNKNOWN	W1/52	28.00	14.00	42.00	28.00	14.00	42.00	0.00%	0.00%	0.00%
UNKNOWN	W2/52	28.00	16.00	44.00	28.00	16.00	44.00	0.00%	0.00%	0.00%
UNKNOWN	W3/52	51.00	27.00	78.00	51.00	27.00	78.00	0.00%	0.00%	0.00%
UNKNOWN	W4/52	37.00	24.00	61.00	37.00	24.00	61.00	0.00%	0.00%	0.00%
UNKNOWN	W5/52	7.00	10.00	17.00	7.00	10.00	17.00	0.00%	0.00%	0.00%
UNKNOWN	W6/52	29.00	15.00	44.00	29.00	15.00	44.00	0.00%	0.00%	0.00%
UNKNOWN	W7/52	36.00	27.00	63.00	36.00	27.00	63.00	0.00%	0.00%	0.00%
UNKNOWN	W8/52	56.00	30.00	86.00	56.00	28.00	84.00	0.00%	6.67%	2.33%
UNKNOWN	W9/52	36.00	24.00	60.00	36.00	22.00	58.00	0.00%	8.33%	3.33%
UNKNOWN	W10/52	9.00	29.00	38.00	9.00	27.00	36.00	0.00%	6.90%	5.26%
UNKNOWN	W11/52	12.00	30.00	42.00	12.00	27.00	39.00	0.00%	10.00%	7.14%
UNKNOWN	W12/52	12.00	30.00	42.00	11.00	26.00	37.00	8.33%	13.33%	11.90%
UNKNOWN	W13/52	7.00	29.00	36.00	6.00	25.00	31.00	14.29%	13.79%	13.89%
UNKNOWN	W14/52	35.00	27.00	62.00	35.00	26.00	61.00	0.00%	3.70%	1.61%
UNKNOWN	W15/52	56.00	30.00	86.00	55.00	26.00	81.00	1.79%	13.33%	5.81%
UNKNOWN	W16/52	40.00	24.00	64.00	38.00	20.00	58.00	5.00%	16.67%	9.38%
UNKNOWN	W17/52	28.00	10.00	38.00	27.00	6.00	33.00	3.57%	40.00%	13.16%
15 Neal Court - BRE_10										
Gnd Floor										
UNKNOWN	W1/60	37.00	20.00	57.00	37.00	16.00	53.00	0.00%	20.00%	7.02%
UNKNOWN	W2/60	39.00	20.00	59.00	39.00	16.00	55.00	0.00%	20.00%	6.78%
UNKNOWN	W3/60	39.00	20.00	59.00	39.00	15.00	54.00	0.00%	25.00%	8.47%
1st Floor										
UNKNOWN	W1/61	38.00	21.00	59.00	38.00	19.00	57.00	0.00%	9.52%	3.39%
UNKNOWN	W2/61	38.00	21.00	59.00	38.00	19.00	57.00	0.00%	9.52%	3.39%
14 Neal Court - BRE_10										
Gnd Floor										
UNKNOWN	W4/60	38.00	21.00	59.00	38.00	17.00	55.00	0.00%	19.05%	6.78%
UNKNOWN	W5/60	39.00	21.00	60.00	39.00	16.00	55.00	0.00%	23.81%	8.33%
UNKNOWN	W6/60	38.00	20.00	58.00	38.00	15.00	53.00	0.00%	25.00%	8.62%
1st Floor										
UNKNOWN	W3/61	38.00	21.00	59.00	38.00	17.00	55.00	0.00%	19.05%	6.78%
UNKNOWN	W4/61	38.00	21.00	59.00	38.00	18.00	56.00	0.00%	14.29%	5.08%
13 Neal Court - BRE_10										
Gnd Floor										
UNKNOWN	W7/60	37.00	21.00	58.00	37.00	15.00	52.00	0.00%	28.57%	10.34%
UNKNOWN	W8/60	39.00	21.00	60.00	39.00	16.00	55.00	0.00%	23.81%	8.33%
UNKNOWN	W9/60	39.00	21.00	60.00	39.00	16.00	55.00	0.00%	23.81%	8.33%
1st Floor										
UNKNOWN	W5/61	38.00	21.00	59.00	38.00	17.00	55.00	0.00%	19.05%	6.78%
UNKNOWN	W6/61	38.00	21.00	59.00	38.00	16.00	54.00	0.00%	23.81%	8.47%
12 Neal Court - BRE_10										
Gnd Floor										
UNKNOWN	W10/60	38.00	21.00	59.00	37.00	15.00	52.00	2.63%	28.57%	11.86%
UNKNOWN	W11/60	39.00	21.00	60.00	37.00	14.00	51.00	5.13%	33.33%	15.00%
UNKNOWN	W12/60	38.00	21.00	59.00	35.00	14.00	49.00	7.89%	33.33%	16.95%
1st Floor										
UNKNOWN	W7/61	38.00	21.00	59.00	38.00	16.00	54.00	0.00%	23.81%	8.47%
UNKNOWN	W8/61	38.00	21.00	59.00	38.00	15.00	53.00	0.00%	28.57%	10.17%

		Existing %			Proposed %					
Room use	Window Ref	Summer	Winter	Total	Summer	Winter	Total	% Loss of Summer	% Loss of Winter	% Loss of Total
11 Neal Court - BRE_10										
Gnd Floor										
UNKNOWN	W13/60	33.00	18.00	51.00	30.00	12.00	42.00	9.09%	33.33%	17.65%
UNKNOWN	W14/60	37.00	21.00	58.00	35.00	15.00	50.00	5.41%	28.57%	13.79%
UNKNOWN	W15/60	39.00	21.00	60.00	37.00	17.00	54.00	5.13%	19.05%	10.00%
UNKNOWN	W16/60	39.00	21.00	60.00	36.00	17.00	53.00	7.69%	19.05%	11.67%
1st Floor										
UNKNOWN	W9/61	38.00	21.00	59.00	36.00	17.00	53.00	5.26%	19.05%	10.17%
UNKNOWN	W10/61	38.00	21.00	59.00	37.00	18.00	55.00	2.63%	14.29%	6.78%
10 Neal Court - BRE_10										
Gnd Floor										
UNKNOWN	W17/60	38.00	21.00	59.00	34.00	17.00	51.00	10.53%	19.05%	13.56%
UNKNOWN	W18/60	41.00	21.00	62.00	38.00	17.00	55.00	7.32%	19.05%	11.29%
UNKNOWN	W19/60	38.00	20.00	58.00	34.00	16.00	50.00	10.53%	20.00%	13.79%
1st Floor										
UNKNOWN	W11/61	38.00	21.00	59.00	36.00	18.00	54.00	5.26%	14.29%	8.47%
UNKNOWN	W12/61	38.00	21.00	59.00	36.00	18.00	54.00	5.26%	14.29%	8.47%
9 Neal Court - BRE_11										
Gnd Floor										
UNKNOWN	W1/70	28.00	19.00	47.00	28.00	18.00	46.00	0.00%	5.26%	2.13%
UNKNOWN	W2/70	32.00	21.00	53.00	32.00	18.00	50.00	0.00%	14.29%	5.66%
UNKNOWN	W3/70	30.00	13.00	43.00	30.00	10.00	40.00	0.00%	23.08%	6.98%
1st Floor										
UNKNOWN	W1/71	29.00	20.00	49.00	29.00	18.00	47.00	0.00%	10.00%	4.08%
UNKNOWN	W2/71	34.00	21.00	55.00	34.00	19.00	53.00	0.00%	9.52%	3.64%
8 Neal Court - BRE_11										
Gnd Floor										
UNKNOWN	W4/70	32.00	21.00	53.00	32.00	18.00	50.00	0.00%	14.29%	5.66%
UNKNOWN	W5/70	37.00	21.00	58.00	37.00	18.00	55.00	0.00%	14.29%	5.17%
UNKNOWN	W6/70	39.00	21.00	60.00	37.00	18.00	55.00	5.13%	14.29%	8.33%
1st Floor										
UNKNOWN	W3/71	39.00	21.00	60.00	38.00	19.00	57.00	2.56%	9.52%	5.00%
UNKNOWN	W4/71	40.00	21.00	61.00	39.00	19.00	58.00	2.50%	9.52%	4.92%
7 Neal Court - BRE_11										
Gnd Floor										
UNKNOWN	W7/70	40.00	21.00	61.00	37.00	19.00	56.00	7.50%	9.52%	8.20%
UNKNOWN	W8/70	40.00	21.00	61.00	38.00	20.00	58.00	5.00%	4.76%	4.92%
UNKNOWN	W9/70	37.00	20.00	57.00	35.00	19.00	54.00	5.41%	5.00%	5.26%
1st Floor										
UNKNOWN	W5/71	41.00	21.00	62.00	39.00	20.00	59.00	4.88%	4.76%	4.84%
UNKNOWN	W6/71	41.00	21.00	62.00	40.00	20.00	60.00	2.44%	4.76%	3.23%
6 Neal Court - BRE_11										
Gnd Floor										
UNKNOWN	W10/70	37.00	21.00	58.00	35.00	20.00	55.00	5.41%	4.76%	5.17%
UNKNOWN	W11/70	41.00	21.00	62.00	39.00	20.00	59.00	4.88%	4.76%	4.84%
UNKNOWN	W12/70	41.00	21.00	62.00	39.00	20.00	59.00	4.88%	4.76%	4.84%
1st Floor										
UNKNOWN	W7/71	41.00	21.00	62.00	40.00	20.00	60.00	2.44%	4.76%	3.23%
UNKNOWN	W8/71	41.00	21.00	62.00	40.00	20.00	60.00	2.44%	4.76%	3.23%

		Existing %			Proposed %					
Room use	Window Ref	Summer	Winter	Total	Summer	Winter	Total	% Loss of Summer	% Loss of Winter	% Loss of Total
10 Waverley Gardens - BRE_12										
Gnd Floor										
UNKNOWN	W1/90	9.00	0.00	9.00	4.00	0.00	4.00	55.56%	0.00%	55.56%
UNKNOWN	W2/90	37.00	3.00	40.00	32.00	3.00	35.00	13.51%	0.00%	12.50%
UNKNOWN	W3/90	23.00	1.00	24.00	18.00	1.00	19.00	21.74%	0.00%	20.83%
UNKNOWN	W4/90	14.00	1.00	15.00	9.00	1.00	10.00	35.71%	0.00%	33.33%
1st Floor										
UNKNOWN	W1/91	66.00	4.00	70.00	63.00	4.00	67.00	4.55%	0.00%	4.29%
UNKNOWN	W2/91	66.00	4.00	70.00	62.00	4.00	66.00	6.06%	0.00%	5.71%
UNKNOWN	W3/91	59.00	30.00	89.00	59.00	30.00	89.00	0.00%	0.00%	0.00%
Sovereign Court - BRE_13-16										
Gnd Floor										
UNKNOWN	W1/100	39.00	16.00	55.00	39.00	16.00	55.00	0.00%	0.00%	0.00%
UNKNOWN	W2/100	39.00	18.00	57.00	40.00	18.00	58.00	-2.56%	0.00%	-1.75%
UNKNOWN	W3/100	27.00	4.00	31.00	28.00	4.00	32.00	-3.70%	0.00%	-3.23%
UNKNOWN	W4/100	11.00	0.00	11.00	11.00	0.00	11.00	0.00%	0.00%	0.00%
UNKNOWN	W9/100	6.00	0.00	6.00	4.00	0.00	4.00	33.33%	0.00%	33.33%
UNKNOWN	W10/100	15.00	2.00	17.00	6.00	0.00	6.00	60.00%	100.00%	64.71%
UNKNOWN	W11/100	30.00	10.00	40.00	21.00	8.00	29.00	30.00%	20.00%	27.50%
UNKNOWN	W12/100	30.00	10.00	40.00	22.00	8.00	30.00	26.67%	20.00%	25.00%
BEDROOM	W16/100	15.00	2.00	17.00	8.00	2.00	10.00	46.67%	0.00%	41.18%
BEDROOM	W17/100	30.00	10.00	40.00	23.00	10.00	33.00	23.33%	0.00%	17.50%
BEDROOM	W18/100	36.00	13.00	49.00	30.00	13.00	43.00	16.67%	0.00%	12.24%
BEDROOM	W19/100	30.00	10.00	40.00	25.00	10.00	35.00	16.67%	0.00%	12.50%
BEDROOM	W20/100	27.00	9.00	36.00	24.00	9.00	33.00	11.11%	0.00%	8.33%
LKD	W22/100	20.00	7.00	27.00	19.00	7.00	26.00	5.00%	0.00%	3.70%
LKD	W23/100	55.00	24.00	79.00	55.00	24.00	79.00	0.00%	0.00%	0.00%
1st Floor										
UNKNOWN	W1/101	39.00	19.00	58.00	39.00	19.00	58.00	0.00%	0.00%	0.00%
UNKNOWN	W2/101	40.00	20.00	60.00	40.00	20.00	60.00	0.00%	0.00%	0.00%
UNKNOWN	W3/101	29.00	7.00	36.00	29.00	7.00	36.00	0.00%	0.00%	0.00%
UNKNOWN	W4/101	12.00	0.00	12.00	11.00	0.00	11.00	8.33%	0.00%	8.33%
UNKNOWN	W9/101	7.00	0.00	7.00	4.00	0.00	4.00	42.86%	0.00%	42.86%
UNKNOWN	W10/101	15.00	2.00	17.00	8.00	0.00	8.00	46.67%	100.00%	52.94%
UNKNOWN	W11/101	30.00	10.00	40.00	23.00	8.00	31.00	23.33%	20.00%	22.50%
UNKNOWN	W12/101	30.00	9.00	39.00	24.00	7.00	31.00	20.00%	22.22%	20.51%
BEDROOM	W16/101	15.00	2.00	17.00	9.00	2.00	11.00	40.00%	0.00%	35.29%
BEDROOM	W17/101	30.00	10.00	40.00	24.00	10.00	34.00	20.00%	0.00%	15.00%
BEDROOM	W18/101	36.00	15.00	51.00	30.00	15.00	45.00	16.67%	0.00%	11.76%
BEDROOM	W19/101	30.00	10.00	40.00	24.00	10.00	34.00	20.00%	0.00%	15.00%
BEDROOM	W20/101	30.00	9.00	39.00	27.00	9.00	36.00	10.00%	0.00%	7.69%
LKD	W22/101	20.00	10.00	30.00	19.00	10.00	29.00	5.00%	0.00%	3.33%
LKD	W23/101	54.00	30.00	84.00	54.00	30.00	84.00	0.00%	0.00%	0.00%

		Existing %			Proposed %					
Room use	Window Ref	Summer	Winter	Total	Summer	Winter	Total	% Loss of Summer	% Loss of Winter	% Loss of Total
2nd Floor										
UNKNOWN	W1/102	42.00	20.00	62.00	42.00	20.00	62.00	0.00%	0.00%	0.00%
UNKNOWN	W2/102	36.00	20.00	56.00	36.00	20.00	56.00	0.00%	0.00%	0.00%
UNKNOWN	W3/102	25.00	7.00	32.00	25.00	7.00	32.00	0.00%	0.00%	0.00%
UNKNOWN	W4/102	9.00	0.00	9.00	9.00	0.00	9.00	0.00%	0.00%	0.00%
UNKNOWN	W9/102	7.00	0.00	7.00	4.00	0.00	4.00	42.86%	0.00%	42.86%
UNKNOWN	W10/102	15.00	2.00	17.00	10.00	0.00	10.00	33.33%	100.00%	41.18%
UNKNOWN	W11/102	27.00	10.00	37.00	22.00	8.00	30.00	18.52%	20.00%	18.92%
UNKNOWN	W12/102	30.00	10.00	40.00	25.00	8.00	33.00	16.67%	20.00%	17.50%
BEDROOM	W16/102	15.00	2.00	17.00	11.00	2.00	13.00	26.67%	0.00%	23.53%
BEDROOM	W17/102	27.00	10.00	37.00	23.00	10.00	33.00	14.81%	0.00%	10.81%
BEDROOM	W18/102	36.00	17.00	53.00	32.00	17.00	49.00	11.11%	0.00%	7.55%
BEDROOM	W19/102	23.00	10.00	33.00	21.00	10.00	31.00	8.70%	0.00%	6.06%
BEDROOM	W20/102	35.00	12.00	47.00	33.00	12.00	45.00	5.71%	0.00%	4.26%
LKD	W22/102	25.00	10.00	35.00	24.00	10.00	34.00	4.00%	0.00%	2.86%
LKD	W23/102	47.00	30.00	77.00	47.00	30.00	77.00	0.00%	0.00%	0.00%
74 Pinner Road - BRE_17										
Gnd Floor										
UNKNOWN	W4/110	15.00	2.00	17.00	15.00	2.00	17.00	0.00%	0.00%	0.00%
UNKNOWN	W5/110	23.00	4.00	27.00	23.00	4.00	27.00	0.00%	0.00%	0.00%
UNKNOWN	W6/110	27.00	8.00	35.00	27.00	8.00	35.00	0.00%	0.00%	0.00%
UNKNOWN	W7/110	30.00	9.00	39.00	30.00	9.00	39.00	0.00%	0.00%	0.00%
UNKNOWN	W8/110	28.00	9.00	37.00	28.00	9.00	37.00	0.00%	0.00%	0.00%
UNKNOWN	W9/110	27.00	9.00	36.00	27.00	9.00	36.00	0.00%	0.00%	0.00%
UNKNOWN	W10/110	41.00	22.00	63.00	41.00	22.00	63.00	0.00%	0.00%	0.00%
UNKNOWN	W11/110	47.00	25.00	72.00	47.00	25.00	72.00	0.00%	0.00%	0.00%
UNKNOWN	W12/110	53.00	28.00	81.00	53.00	28.00	81.00	0.00%	0.00%	0.00%
UNKNOWN	W13/110	57.00	28.00	85.00	57.00	28.00	85.00	0.00%	0.00%	0.00%
UNKNOWN	W14/110	50.00	28.00	78.00	50.00	28.00	78.00	0.00%	0.00%	0.00%
1st Floor										
UNKNOWN	W1/111	15.00	2.00	17.00	15.00	2.00	17.00	0.00%	0.00%	0.00%
UNKNOWN	W2/111	23.00	5.00	28.00	23.00	5.00	28.00	0.00%	0.00%	0.00%
UNKNOWN	W3/111	24.00	7.00	31.00	24.00	7.00	31.00	0.00%	0.00%	0.00%
UNKNOWN	W4/111	20.00	5.00	25.00	20.00	5.00	25.00	0.00%	0.00%	0.00%
UNKNOWN	W5/111	9.00	3.00	12.00	9.00	3.00	12.00	0.00%	0.00%	0.00%
UNKNOWN	W6/111	17.00	6.00	23.00	17.00	6.00	23.00	0.00%	0.00%	0.00%
UNKNOWN	W7/111	19.00	22.00	41.00	19.00	22.00	41.00	0.00%	0.00%	0.00%
UNKNOWN	W8/111	45.00	25.00	70.00	45.00	25.00	70.00	0.00%	0.00%	0.00%
UNKNOWN	W9/111	48.00	27.00	75.00	48.00	27.00	75.00	0.00%	0.00%	0.00%
UNKNOWN	W10/111	41.00	28.00	69.00	41.00	28.00	69.00	0.00%	0.00%	0.00%
UNKNOWN	W11/111	22.00	21.00	43.00	22.00	21.00	43.00	0.00%	0.00%	0.00%

AVISON YOUNG

NORTHWOOD AND PINNER
18-May-20
JOB 02 - STANDARD DAYLIGHT RESULTS

Room/Floor	Room Use	Window	%VSC			% Daylight Factor			Proposed No Sky	
			Exist	Prop	% Loss	Exist	Prop	% Loss	% of Room Area	% Loss of Existing
80 Pinner Road - BRE_05										
Gnd Floor										
R2/10	UNKNOWN	W2/10	23.73	23.73	0.00%	0.56	0.56	0.00%	61.03%	0.00%
R3/10	UNKNOWN	W3/10	29.81	29.81	>27	1.81	1.81	0.00%	97.46%	0.00%
		W4/10	31.10	31.10	>27					
		W5/10	32.44	32.44	>27					
R4/10	UNKNOWN	W6/10	34.41	34.41	>27	0.96	0.96	0.00%	96.42%	0.00%
1st Floor										
R1/11	UNKNOWN	W1/11	25.95	25.95	0.00%	0.84	0.84	0.00%	94.15%	0.00%
R2/11	UNKNOWN	W2/11	27.40	27.40	>27	0.74	0.74	0.00%	90.54%	0.00%
R3/11	UNKNOWN	W3/11	34.24	34.23	>27	1.74	1.74	0.00%	98.44%	0.00%
16 Acre Way - BRE_06										
Gnd Floor										
R1/20	UNKNOWN	W1/20	23.63	23.63	0.00%	1.23	1.23	-0.08%	96.83%	0.00%
		W2/20	28.10	28.11	>27					
R2/20	UNKNOWN	W3/20	28.12	28.15	>27	0.74	0.74	-0.27%	96.87%	0.00%
		W4/20	29.41	29.47	>27					
18 Acre Way - BRE_06										
Gnd Floor										
R1/30	UNKNOWN	W1/30	34.79	34.79	>27	0.46	0.46	0.00%	65.44%	0.00%
R2/30	UNKNOWN	W2/30	33.56	33.55	>27	1.72	1.70	0.99%	97.71%	0.00%
		W3/30	33.37	33.01	>27					
		W4/30	31.59	31.18	>27					
R3/30	UNKNOWN	W5/30	24.30	23.78	2.14%	0.95	0.93	1.58%	91.36%	0.00%
1st Floor										
R1/31	UNKNOWN	W1/31	33.47	33.42	>27	1.44	1.44	0.00%	69.96%	0.00%
R2/31	UNKNOWN	W2/31	31.81	30.92	>27	1.81	1.76	2.65%	93.98%	0.00%
R3/31	UNKNOWN	W3/31	30.02	28.97	>27	1.43	1.39	3.21%	98.93%	0.00%

Room/Floor	Room Use	Window	%VSC			% Daylight Factor			Proposed No Sky	
			Exist	Prop	% Loss	Exist	Prop	% Loss	% of Room Area	% Loss of Existing
20 Acre Way - BRE_06										
Gnd Floor										
R4/30	UNKNOWN	W6/30	34.77	34.18	>27	2.28	2.24	1.71%	96.45%	0.00%
		W7/30	34.88	34.18	>27					
R5/30	UNKNOWN	W8/30	33.99	33.37	>27	0.91	0.89	1.87%	97.44%	0.00%
		W9/30	32.74	32.05	>27					
1st Floor										
R4/31	UNKNOWN	W4/31	32.33	31.19	>27	1.90	1.84	3.31%	98.50%	0.00%
R5/31	UNKNOWN	W5/31	32.42	31.21	>27	1.43	1.38	3.57%	97.33%	0.00%
22 Acre Way - BRE_06										
Gnd Floor										
R6/30	UNKNOWN	W10/30	32.75	31.87	>27	1.01	0.99	2.57%	97.41%	0.00%
		W11/30	34.60	33.59	>27					
R7/30	UNKNOWN	W12/30	35.36	34.22	>27	2.13	2.06	2.96%	96.22%	0.00%
		W13/30	33.82	32.76	>27					
1st Floor										
R6/31	UNKNOWN	W6/31	34.54	33.33	>27	1.46	1.40	3.64%	98.41%	0.00%
		W7/31	32.50	31.29	>27					
R7/31	UNKNOWN	W8/31	32.56	31.33	>27	1.86	1.79	3.61%	98.33%	0.00%
24 Acre Way - BRE_06										
Gnd Floor										
R8/30	UNKNOWN	W14/30	31.45	30.96	>27	9.62	9.50	1.22%	100.00%	0.00%
		W15/30	33.41	32.96	>27					
		W16/30	35.51	34.50	>27					
		W17/30	24.89	24.85	0.16%					
R9/30	UNKNOWN	W18/30	32.86	32.02	>27	0.90	0.88	2.12%	95.43%	0.00%
1st Floor										
R8/31	UNKNOWN	W9/31	30.58	29.39	>27	1.73	1.67	3.59%	98.28%	0.00%
R9/31	UNKNOWN	W10/31	32.48	31.28	>27	1.05	1.02	3.43%	97.26%	0.00%

Room/Floor	Room Use	Window	%VSC			% Daylight Factor			Proposed No Sky	
			Exist	Prop	% Loss	Exist	Prop	% Loss	% of Room Area	% Loss of Existing
Juniper Court - BRE_07-09										
Gnd Floor										
R1/50	UNKNOWN	W1/50	33.97	33.66	>27	1.15	1.15	0.09%	97.48%	0.00%
R2/50	UNKNOWN	W2/50	36.81	36.44	>27	2.76	2.75	0.33%	99.05%	0.00%
R3/50	UNKNOWN	W3/50	12.11	12.14	-0.25%	1.27	1.27	-0.31%	99.88%	0.00%
R4/50	UNKNOWN	W4/50	23.21	23.22	-0.04%	1.79	1.77	1.01%	98.69%	0.08%
		W5/50	36.17	35.57	>27					
		W6/50	27.42	25.65	6.46%					
R5/50	UNKNOWN	W7/50	27.17	27.19	>27	4.42	3.94	10.73%	99.95%	0.00%
		W8/50	37.11	36.33	>27					
		W9/50	30.40	27.71	>27					
		W10/50	33.07	27.92	>27					
		W11/50	33.03	27.79	>27					
		W12/50	28.26	23.08	18.33%					
R6/50	UNKNOWN	W13/50	33.04	27.55	>27	2.23	1.91	14.61%	99.55%	0.00%
R7/50	UNKNOWN	W14/50	27.06	21.61	20.14%	0.90	0.75	16.93%	95.49%	0.00%
R8/50	UNKNOWN	W15/50	27.01	21.37	20.88%	0.86	0.71	17.60%	95.42%	0.00%
R9/50	UNKNOWN	W16/50	32.47	27.02	>27	1.17	1.03	12.23%	98.24%	0.00%
R10/50	UNKNOWN	W17/50	35.95	29.80	>27	1.16	1.00	14.27%	97.19%	0.00%
R11/50	UNKNOWN	W18/50	33.80	27.14	>27	2.40	2.03	15.30%	99.76%	0.00%
		W19/50	34.33	30.17	>27					
R12/50	UNKNOWN	W20/50	32.49	29.54	>27	1.16	1.09	6.53%	97.99%	0.00%
R13/50	UNKNOWN	W21/50	34.44	31.49	>27	1.20	1.12	6.74%	97.28%	0.00%
R14/50	UNKNOWN	W22/50	33.87	31.29	>27	2.70	2.56	5.04%	99.74%	0.00%
		W23/50	32.09	32.09	>27					
1st Floor										
R1/51	UNKNOWN	W1/51	34.31	34.07	>27	1.20	1.20	0.08%	97.56%	0.00%
R2/51	UNKNOWN	W2/51	37.75	37.46	>27	2.62	2.59	1.14%	99.12%	0.00%
		W3/51	34.64	32.94	>27					
R3/51	UNKNOWN	W4/51	16.47	16.02	2.73%	0.95	0.87	8.21%	85.16%	0.00%
		W5/51	17.52	14.18	19.06%					
		W6/51	13.00	11.38	12.46%					
R4/51	UNKNOWN	W7/51	34.54	32.30	>27	2.09	1.88	9.74%	99.63%	0.00%
		W8/51	38.24	33.70	>27					
		W9/51	31.17	25.98	16.65%					
R5/51	UNKNOWN	W10/51	37.39	32.75	>27	1.06	0.95	10.60%	97.12%	0.00%
R6/51	UNKNOWN	W11/51	37.59	32.63	>27	1.13	1.01	11.03%	97.89%	0.00%
R7/51	UNKNOWN	W12/51	37.56	32.22	>27	1.29	1.14	11.85%	98.24%	0.00%
R8/51	UNKNOWN	W13/51	37.23	31.65	>27	1.18	1.03	12.84%	97.19%	0.00%

Room/Floor	Room Use	Window	%VSC			% Daylight Factor			Proposed No Sky	
			Exist	Prop	% Loss	Exist	Prop	% Loss	% of Room Area	% Loss of Existing
R9/51	UNKNOWN	W14/51	31.66	29.19	>27	2.18	1.92	11.75%	99.89%	0.00%
		W15/51	38.10	31.90	>27					
		W16/51	33.95	26.36	22.36%					
		W17/51	37.10	33.05	>27					
R10/51	UNKNOWN	W18/51	34.91	32.06	>27	1.24	1.17	6.03%	97.99%	0.00%
R11/51	UNKNOWN	W19/51	36.87	34.09	>27	1.28	1.20	6.08%	98.69%	0.00%
R12/51	UNKNOWN	W20/51	37.09	34.69	>27	2.16	2.07	4.40%	99.23%	0.00%
		W21/51	34.21	34.21	>27					
2nd Floor										
R1/52	UNKNOWN	W1/52	31.21	31.03	>27	1.11	1.11	0.00%	97.87%	0.00%
R2/52	UNKNOWN	W2/52	35.11	34.90	>27	2.44	2.41	1.27%	99.42%	0.00%
		W3/52	37.26	35.36	>27					
R3/52	UNKNOWN	W4/52	29.66	28.64	>27	0.72	0.70	3.04%	92.06%	0.00%
R4/52	UNKNOWN	W5/52	10.55	10.22	3.13%	0.31	0.31	0.00%	66.54%	0.00%
R5/52	UNKNOWN	W6/52	30.77	30.29	>27	2.38	2.21	7.06%	99.55%	0.08%
		W7/52	28.44	26.79	5.80%					
		W8/52	39.03	35.32	>27					
		W9/52	26.82	22.38	16.55%					
R6/52	UNKNOWN	W10/52	23.83	20.06	15.82%	0.69	0.60	13.29%	95.50%	0.00%
R7/52	UNKNOWN	W11/52	25.52	21.45	15.95%	0.73	0.63	13.36%	96.83%	0.00%
R8/52	UNKNOWN	W12/52	25.53	21.11	17.31%	0.83	0.71	14.49%	96.94%	0.00%
R9/52	UNKNOWN	W13/52	23.33	18.66	20.02%	0.74	0.61	17.26%	93.83%	0.00%
R10/52	UNKNOWN	W14/52	27.32	25.37	7.14%	2.01	1.78	11.12%	99.89%	0.00%
		W15/52	39.10	33.81	>27					
		W16/52	28.50	21.86	23.30%					
		W17/52	33.96	30.45	>27					
R11/52	UNKNOWN	W18/52	32.31	29.87	>27	1.20	1.14	5.25%	97.99%	0.00%
R12/52	UNKNOWN	W19/52	35.57	33.19	>27	1.31	1.24	5.19%	98.89%	0.00%
R13/52	UNKNOWN	W20/52	34.70	32.63	>27	1.76	1.68	4.43%	99.74%	0.00%
		W21/52	18.25	18.25	0.00%					

Room/Floor	Room Use	Window	%VSC			% Daylight Factor			Proposed No Sky	
			Exist	Prop	% Loss	Exist	Prop	% Loss	% of Room Area	% Loss of Existing
15 Neal Court - BRE_10										
Gnd Floor										
R1/60	UNKNOWN	W1/60	36.66	34.07	>27	2.41	2.26	6.38%	99.48%	0.00%
		W2/60	37.16	34.55	>27					
		W3/60	36.81	34.36	>27					
1st Floor										
R1/61	UNKNOWN	W1/61	38.45	36.24	>27	2.74	2.59	5.58%	99.56%	0.00%
		W2/61	38.50	36.04	>27					
14 Neal Court - BRE_10										
Gnd Floor										
R2/60	UNKNOWN	W4/60	36.74	33.28	>27	2.47	2.26	8.58%	99.73%	0.00%
		W5/60	37.24	33.71	>27					
		W6/60	36.77	33.32	>27					
1st Floor										
R2/61	UNKNOWN	W3/61	38.56	35.75	>27	2.82	2.61	7.25%	99.69%	0.00%
		W4/61	38.60	35.55	>27					
13 Neal Court - BRE_10										
Gnd Floor										
R3/60	UNKNOWN	W7/60	36.76	32.37	>27	2.40	2.14	10.95%	99.53%	0.00%
		W8/60	37.36	32.78	>27					
		W9/60	36.88	32.45	>27					
1st Floor										
R3/61	UNKNOWN	W5/61	38.67	35.05	>27	2.72	2.48	8.88%	99.48%	0.00%
		W6/61	38.70	34.76	>27					
12 Neal Court - BRE_10										
Gnd Floor										
R4/60	UNKNOWN	W10/60	36.84	31.21	>27	2.52	2.18	13.48%	99.68%	0.00%
		W11/60	37.32	31.66	>27					
		W12/60	36.65	31.34	>27					
1st Floor										
R4/61	UNKNOWN	W7/61	38.74	34.35	>27	2.86	2.55	10.78%	99.68%	0.00%
		W8/61	38.77	34.14	>27					
11 Neal Court - BRE_10										
Gnd Floor										
R5/60	UNKNOWN	W13/60	30.78	24.23	21.28%	2.55	2.16	15.25%	99.65%	0.00%
		W14/60	36.89	30.46	>27					
		W15/60	37.45	30.98	>27					
		W16/60	36.80	30.69	>27					
1st Floor										
R5/61	UNKNOWN	W9/61	38.81	33.63	>27	2.79	2.45	12.32%	99.69%	0.00%
		W10/61	38.82	33.48	>27					

Room/Floor	Room Use	Window	%VSC			% Daylight Factor			Proposed No Sky	
			Exist	Prop	% Loss	Exist	Prop	% Loss	% of Room Area	% Loss of Existing
10 Neal Court - BRE_10										
Gnd Floor										
R6/60	UNKNOWN	W17/60	37.01	29.88	>27	2.45	2.05	16.63%	99.03%	0.62%
		W18/60	37.35	30.30	>27					
		W19/60	36.45	29.82	>27					
1st Floor										
R6/61	UNKNOWN	W11/61	38.84	33.34	>27	2.79	2.43	13.06%	99.69%	0.00%
		W12/61	38.85	33.29	>27					
9 Neal Court - BRE_11										
Gnd Floor										
R1/70	UNKNOWN	W1/70	22.19	20.75	6.49%	1.90	1.79	5.33%	96.17%	2.15%
		W2/70	25.59	23.81	6.96%					
		W3/70	24.70	22.70	8.10%					
1st Floor										
R1/71	UNKNOWN	W1/71	25.61	24.48	4.41%	2.18	2.09	4.17%	99.60%	0.00%
		W2/71	30.90	29.22	>27					
8 Neal Court - BRE_11										
Gnd Floor										
R2/70	UNKNOWN	W4/70	32.24	29.60	>27	2.23	2.06	7.33%	99.69%	0.00%
		W5/70	33.68	30.79	>27					
		W6/70	33.94	31.01	>27					
1st Floor										
R2/71	UNKNOWN	W3/71	36.45	34.00	>27	2.66	2.49	6.06%	99.56%	0.00%
		W4/71	37.47	34.99	>27					
7 Neal Court - BRE_11										
Gnd Floor										
R3/70	UNKNOWN	W7/70	36.03	33.35	>27	2.37	2.21	6.82%	99.69%	0.00%
		W8/70	36.50	33.69	>27					
		W9/70	35.77	33.01	>27					
1st Floor										
R3/71	UNKNOWN	W5/71	38.28	35.86	>27	2.79	2.63	5.95%	99.60%	0.00%
		W6/71	38.57	36.18	>27					
6 Neal Court - BRE_11										
Gnd Floor										
R4/70	UNKNOWN	W10/70	36.59	34.28	>27	2.45	2.30	6.32%	99.69%	0.00%
		W11/70	37.27	34.65	>27					
		W12/70	36.41	33.84	>27					
1st Floor										
R4/71	UNKNOWN	W7/71	38.90	36.64	>27	2.84	2.68	5.53%	99.69%	0.00%
		W8/71	38.99	36.79	>27					

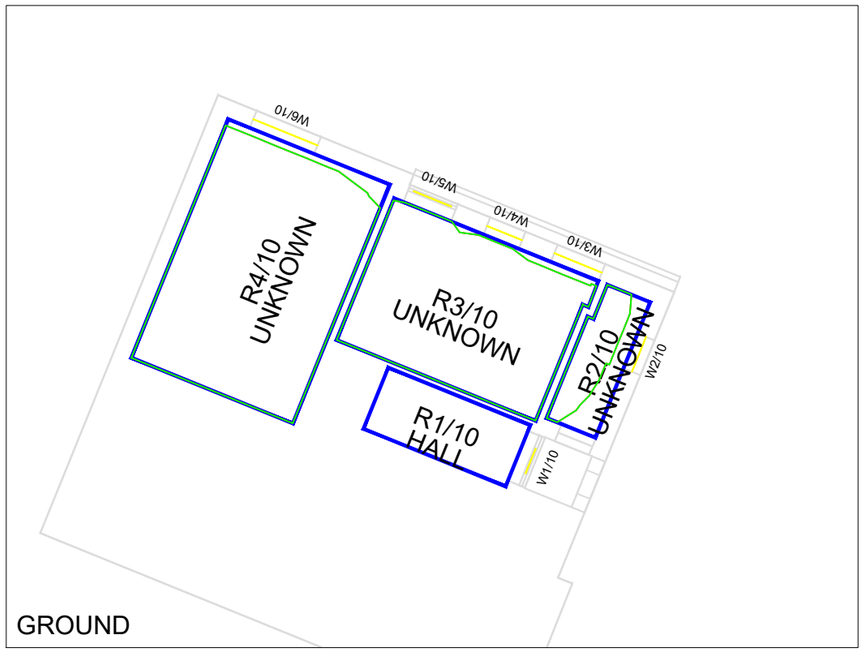
Room/Floor	Room Use	Window	%VSC			% Daylight Factor			Proposed No Sky	
			Exist	Prop	% Loss	Exist	Prop	% Loss	% of Room Area	% Loss of Existing
8 Waverley Gardens - BRE_12										
Gnd Floor										
R1/80	UNKNOWN	W1/80	35.92	33.91	>27	2.75	2.60	5.31%	98.27%	0.00%
		W2/80	36.14	33.72	>27					
R2/80	UNKNOWN	W3/80	36.01	33.30	>27	1.52	1.42	6.60%	97.40%	0.00%
10 Waverley Gardens - BRE_12										
Gnd Floor										
R1/90	UNKNOWN	W1/90	31.97	28.48	>27	4.49	4.10	8.81%	100.00%	0.00%
		W2/90	31.32	27.85	>27					
		W3/90	25.96	22.62	12.87%					
		W4/90	22.37	19.18	14.26%					
R2/90	UNKNOWN	W5/90	27.76	26.74	3.67%	2.37	2.18	7.94%	99.03%	0.00%
		W6/90	34.79	30.87	>27					
		W7/90	32.77	27.62	>27					
1st Floor										
R1/91	UNKNOWN	W1/91	83.45	81.36	>27	2.43	2.37	2.27%	100.00%	0.00%
		W2/91	83.48	81.09	>27					
		W3/91	39.35	39.35	>27					
Sovereign Court - BRE_13-16										
Gnd Floor										
R1/100	UNKNOWN	W1/100	30.43	30.43	>27	3.44	3.26	5.37%	100.00%	0.00%
		W2/100	36.33	36.05	>27					
		W3/100	35.66	31.68	>27					
		W4/100	35.25	28.34	>27					
R2/100	UNKNOWN	W5/100	36.60	29.06	>27	0.73	0.60	17.67%	72.13%	24.71%
R3/100	UNKNOWN	W6/100	34.27	27.44	>27	1.73	1.47	14.60%	96.82%	0.00%
		W7/100	34.62	28.79	>27					
R4/100	UNKNOWN	W8/100	37.10	30.70	>27	0.74	0.64	13.40%	81.71%	14.78%
R5/100	UNKNOWN	W9/100	35.92	29.73	>27	3.54	2.81	20.72%	99.94%	0.00%
		W10/100	36.97	27.10	>27					
		W11/100	37.52	24.82	33.85%					
		W12/100	30.98	23.59	23.85%					
R6/100	UNKNOWN	W13/100	35.61	24.26	31.87%	1.16	0.84	27.25%	54.93%	43.28%
R7/100	UNKNOWN	W14/100	26.20	15.44	41.07%	1.74	1.11	36.33%	52.29%	47.35%
R8/100	UNKNOWN	W15/100	33.14	23.56	28.91%	1.22	0.94	22.82%	52.87%	45.86%
R9/100	BEDROOM	W16/100	28.56	19.83	30.57%	2.03	1.68	17.60%	84.98%	15.02%
		W17/100	37.60	28.16	>27					
		W18/100	34.69	30.42	>27					
R10/100	BEDROOM	W19/100	32.98	26.05	21.01%	1.56	1.38	11.11%	85.15%	13.69%
		W20/100	30.28	27.38	>27					
R11/100	BEDROOM	W21/100	32.31	26.18	18.97%	1.18	1.00	15.08%	84.94%	12.46%
R12/100	LKD	W22/100	25.72	20.38	20.76%	1.75	1.54	11.83%	96.90%	2.84%
		W23/100	33.66	33.66	>27					

Room/Floor	Room Use	Window	%VSC			% Daylight Factor			Proposed No Sky	
			Exist	Prop	% Loss	Exist	Prop	% Loss	% of Room Area	% Loss of Existing
1st Floor										
R1/101	UNKNOWN	W1/101	32.80	32.80	>27	3.66	3.48	4.79%	100.00%	0.00%
		W2/101	38.46	38.20	>27					
		W3/101	37.75	34.18	>27					
		W4/101	36.78	30.57	>27					
R2/101	UNKNOWN	W5/101	38.09	31.34	>27	0.76	0.64	15.46%	79.02%	17.59%
R3/101	UNKNOWN	W6/101	35.47	29.48	>27	1.80	1.57	12.56%	96.82%	0.00%
		W7/101	35.71	30.61	>27					
R4/101	UNKNOWN	W8/101	38.15	32.66	>27	0.76	0.67	11.35%	87.49%	8.75%
R5/101	UNKNOWN	W9/101	36.80	31.56	>27	3.66	3.03	17.14%	99.94%	0.00%
		W10/101	37.95	29.66	>27					
		W11/101	38.43	27.75	>27					
		W12/101	32.57	26.37	19.04%					
R6/101	UNKNOWN	W13/101	36.90	27.42	>27	1.19	0.92	22.53%	72.73%	24.90%
R7/101	UNKNOWN	W14/101	27.24	18.15	33.37%	1.87	1.34	28.15%	64.05%	35.58%
R8/101	UNKNOWN	W15/101	34.46	26.38	23.45%	1.27	1.03	19.09%	68.67%	29.69%
R9/101	BEDROOM	W16/101	30.86	23.56	23.66%	2.23	1.91	14.46%	91.78%	8.22%
		W17/101	38.55	30.63	>27					
		W18/101	36.30	32.73	>27					
R10/101	BEDROOM	W19/101	33.84	27.95	>27	1.66	1.51	9.14%	89.77%	9.14%
		W20/101	32.19	29.77	>27					
R11/101	BEDROOM	W21/101	33.51	28.38	>27	1.25	1.10	12.44%	91.49%	5.78%
R12/101	LKD	W22/101	27.16	22.66	16.57%	1.87	1.70	9.03%	98.21%	1.52%
		W23/101	37.51	37.51	>27					
2nd Floor										
R1/102	UNKNOWN	W1/102	32.72	32.72	>27	3.45	3.32	3.65%	100.00%	0.00%
		W2/102	37.99	37.88	>27					
		W3/102	36.08	33.45	>27					
		W4/102	35.53	30.78	>27					
R2/102	UNKNOWN	W5/102	35.50	30.30	>27	0.71	0.62	12.59%	89.63%	5.67%
R3/102	UNKNOWN	W6/102	34.33	29.75	>27	1.67	1.50	10.13%	97.31%	0.00%
		W7/102	34.64	30.74	>27					
R4/102	UNKNOWN	W8/102	35.50	31.30	>27	0.71	0.64	9.05%	93.27%	1.83%
R5/102	UNKNOWN	W9/102	35.17	31.16	>27	3.44	2.96	14.00%	99.94%	0.00%
		W10/102	36.14	29.71	>27					
		W11/102	37.98	29.54	>27					
		W12/102	32.55	27.69	>27					
R6/102	UNKNOWN	W13/102	35.86	28.47	>27	1.11	0.91	18.44%	93.68%	3.34%
R7/102	UNKNOWN	W14/102	39.22	31.86	>27	2.64	2.20	16.74%	87.24%	12.25%
R8/102	UNKNOWN	W15/102	34.17	27.77	>27	1.27	1.07	15.47%	93.99%	3.77%

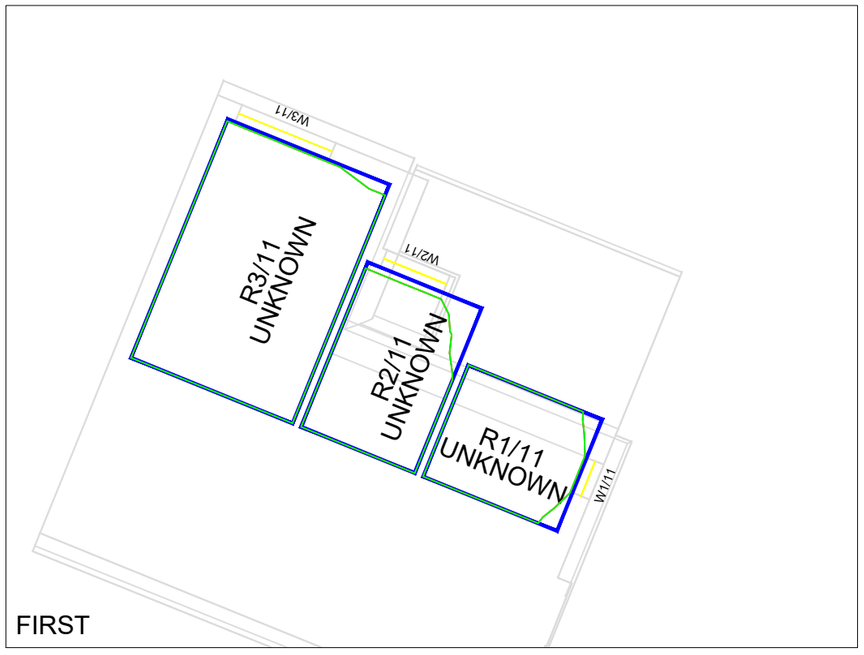
Room/Floor	Room Use	Window	%VSC			% Daylight Factor			Proposed No Sky	
			Exist	Prop	% Loss	Exist	Prop	% Loss	% of Room Area	% Loss of Existing
R9/102	BEDROOM	W16/102	31.55	25.85	18.07%	2.24	1.98	11.44%	98.87%	1.13%
		W17/102	37.70	31.49	>27					
		W18/102	36.71	33.91	>27					
R10/102	BEDROOM	W19/102	32.14	27.47	>27	1.59	1.47	7.56%	97.44%	1.79%
		W20/102	33.14	31.22	>27					
R11/102	BEDROOM	W21/102	32.92	28.87	>27	1.16	1.04	10.51%	97.11%	0.00%
R12/102	LKD	W22/102	37.70	33.97	>27	2.25	2.10	6.58%	99.46%	0.41%
		W23/102	36.33	36.33	>27					
3rd Floor										
R1/103	UNKNOWN	W1/103	34.30	30.48	>27	2.92	2.71	7.27%	99.45%	0.00%
R2/103	UNKNOWN	W2/103	39.46	35.66	>27	1.11	1.01	9.52%	98.39%	0.00%
R3/103	UNKNOWN	W3/103	39.47	35.93	>27	1.58	1.44	8.68%	98.93%	0.00%
74 Pinner Road - BRE_17										
Gnd Floor										
R1/110	UNKNOWN	W1/110	29.11	24.87	14.57%	0.56	0.49	12.70%	84.29%	3.09%
R3/110	UNKNOWN	W4/110	22.42	22.42	0.00%	1.71	1.71	0.41%	99.35%	0.00%
		W5/110	28.57	28.56	>27					
		W6/110	32.99	32.75	>27					
		W7/110	35.08	34.69	>27					
		W8/110	32.76	32.46	>27					
R4/110	UNKNOWN	W9/110	36.00	34.50	>27	2.73	2.69	1.54%	99.61%	0.00%
		W10/110	33.42	33.42	>27					
		W11/110	34.83	34.83	>27					
		W12/110	34.76	34.76	>27					
		W13/110	34.74	34.74	>27					
		W14/110	33.07	33.07	>27					
1st Floor										
R1/111	UNKNOWN	W1/111	16.00	12.90	19.38%	1.20	1.13	5.66%	99.35%	0.00%
		W2/111	33.06	30.05	>27					
		W3/111	37.18	34.76	>27					
		W4/111	33.07	31.58	>27					
		W5/111	15.96	15.44	3.26%					
R2/111	UNKNOWN	W6/111	28.30	26.50	6.36%	1.61	1.58	2.04%	99.77%	0.00%
		W7/111	16.23	16.23	0.00%					
		W8/111	32.06	32.06	>27					
		W9/111	35.55	35.55	>27					
		W10/111	32.23	32.23	>27					
		W11/111	16.46	16.46	0.00%					

Appendix 4

External amenity: NSL contour drawings BRE121/



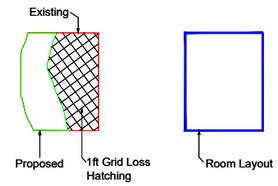
GROUND



FIRST

Legend

Daylight



Existing No-Sky Line Contour

Proposed No-Sky Line Contour

Sources of Information

EXISTING BUILDING
MBS 3D SURVEY 21 JANUARY 2020
MBS20_1073 Northwood Health Centre, Pinner.dwg

SURROUNDING BUILDINGS
MBS 3D SURVEY 21 JANUARY 2020
MBS20_1073 Northwood Health Centre, Pinner.dwg

PROPOSED BUILDING
200427 Allies and Morrison - Updated Block A GAs
200430 Allies and Morison - Block B GAs

N

AVISON YOUNG
08449 02 03 04
65 Gresham Street, London, EC2V 7NQ
www.gva.co.uk

Project Name
NORTHWOOD PINNER
NHS CENTRE

Client
NHS PROPERTY SERVICE LIMITED

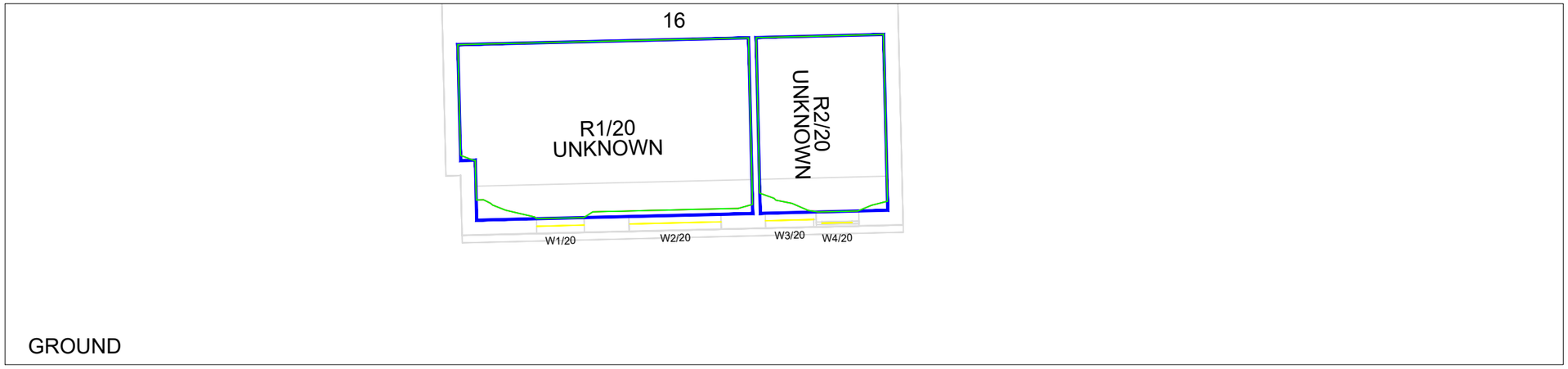
Drawing Title
NO SKYLINE CONTOURS
80 PINNER ROAD

Drawn By	Chk'd By	Scale @ A3	Date
CC		1/100	18 MAY 2020

Project No.	Drawing No.	Revision
NO70_02	BRE_05	-

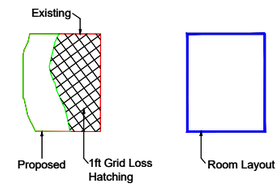
Daylight

A3



Legend

Daylight



Existing No-Sky Line Contour

Proposed No-Sky Line Contour

Sources of Information

EXISTING BUILDING
MBS 3D SURVEY 21 JANUARY 2020
MBS20_1073 Northwood Health Centre, Pinner.dwg

SURROUNDING BUILDINGS
MBS 3D SURVEY 21 JANUARY 2020
MBS20_1073 Northwood Health Centre, Pinner.dwg

PROPOSED BUILDING
200427 Allies and Morrison - Updated Block A GAs
200430 Allies and Morison - Block B GAs

N

AVISON YOUNG
08449 02 03 04
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www.gva.co.uk

Project Name
NORTHWOOD PINNER
NHS CENTRE

Client
NHS PROPERTY SERVICE LIMITED

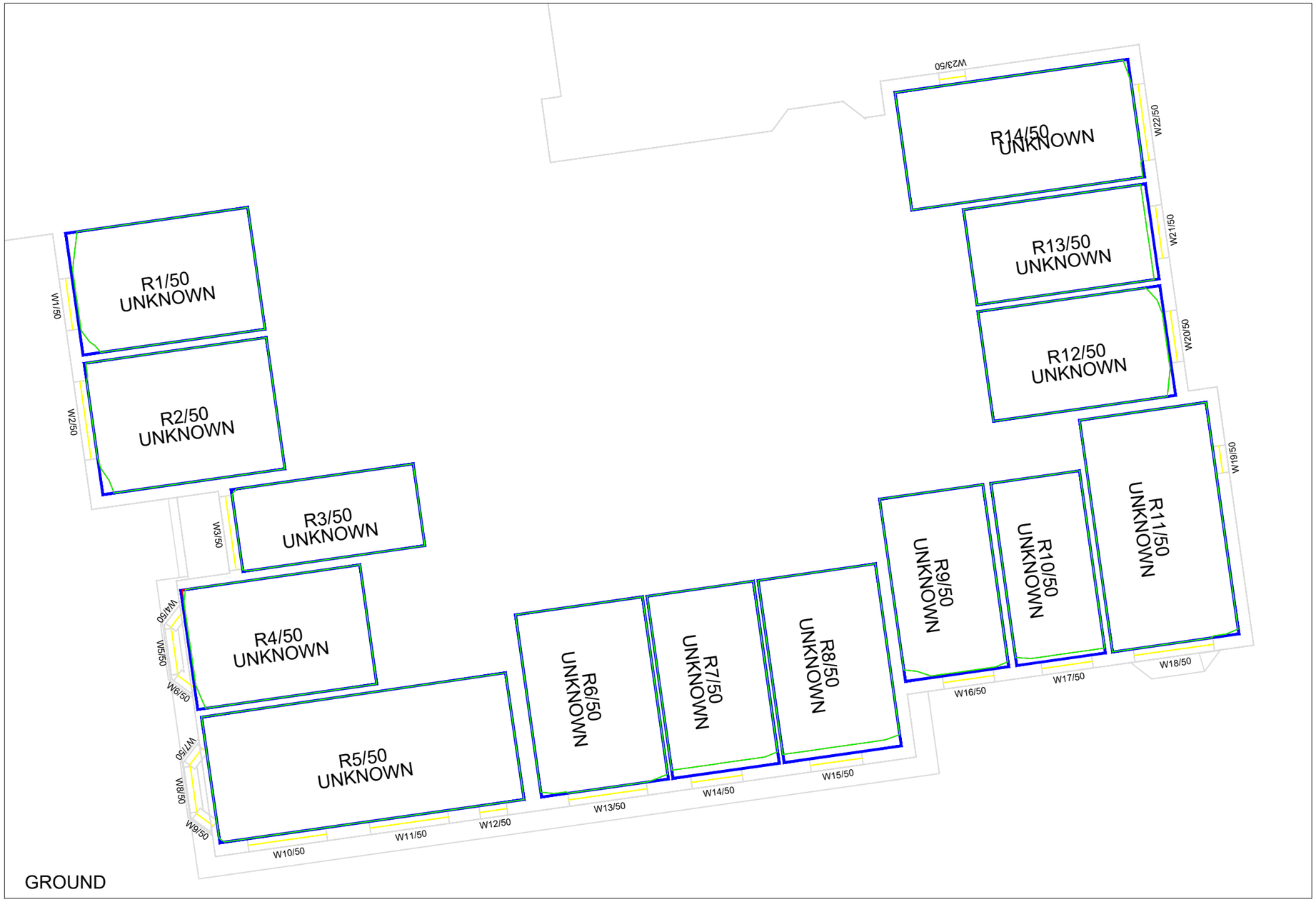
Drawing Title
NO SKYLINECONTOURS
I6-24 ACRE WAY

Drawn By	Chk'd By	Scale @ A3	Date
CC		1/100	18 MAY 2020

Project No.	Drawing No.	Revision
NO70_02	BRE_06	-

Daylight

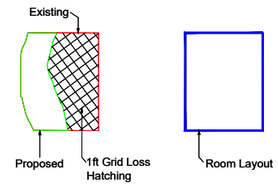
A3



GROUND

Legend

Daylight



Existing No-Sky Line Contour

Proposed No-Sky Line Contour

Sources of Information

EXISTING BUILDING
MBS 3D SURVEY 21 JANUARY 2020
MBS20_1073 Northwood Health Centre, Pinner.dwg

SURROUNDING BUILDINGS
MBS 3D SURVEY 21 JANUARY 2020
MBS20_1073 Northwood Health Centre, Pinner.dwg

PROPOSED BUILDING
200427 Allies and Morrison - Updated Block A GAs
200430 Allies and Morison - Block B GAs

N

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Project Name
NORTHWOOD PINNER
NHS CENTRE

Client
NHS PROPERTY SERVICE LIMITED

Drawing Title
NO SKYLINE CONTOURS
JUNIPER COURT

Drawn By	Chk'd By	Scale @ A3	Date
CC		1/100	18 MAY 2020

Project No.	Drawing No.	Revision
NO70_02	BRE_07	-

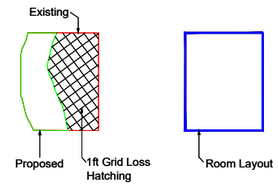
Daylight

A3

FIRST

Legend

Daylight



Existing No-Sky Line Contour

Proposed No-Sky Line Contour

Sources of Information

EXISTING BUILDING
MBS 3D SURVEY 21 JANUARY 2020
MBS20_1073 Northwood Health Centre, Pinner.dwg

SURROUNDING BUILDINGS
MBS 3D SURVEY 21 JANUARY 2020
MBS20_1073 Northwood Health Centre, Pinner.dwg

PROPOSED BUILDING
200427 Allies and Morrison - Updated Block A GAs
200430 Allies and Morison - Block B GAs

N

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Project Name
NORTHWOOD PINNER
NHS CENTRE

Client
NHS PROPERTY SERVICE LIMITED

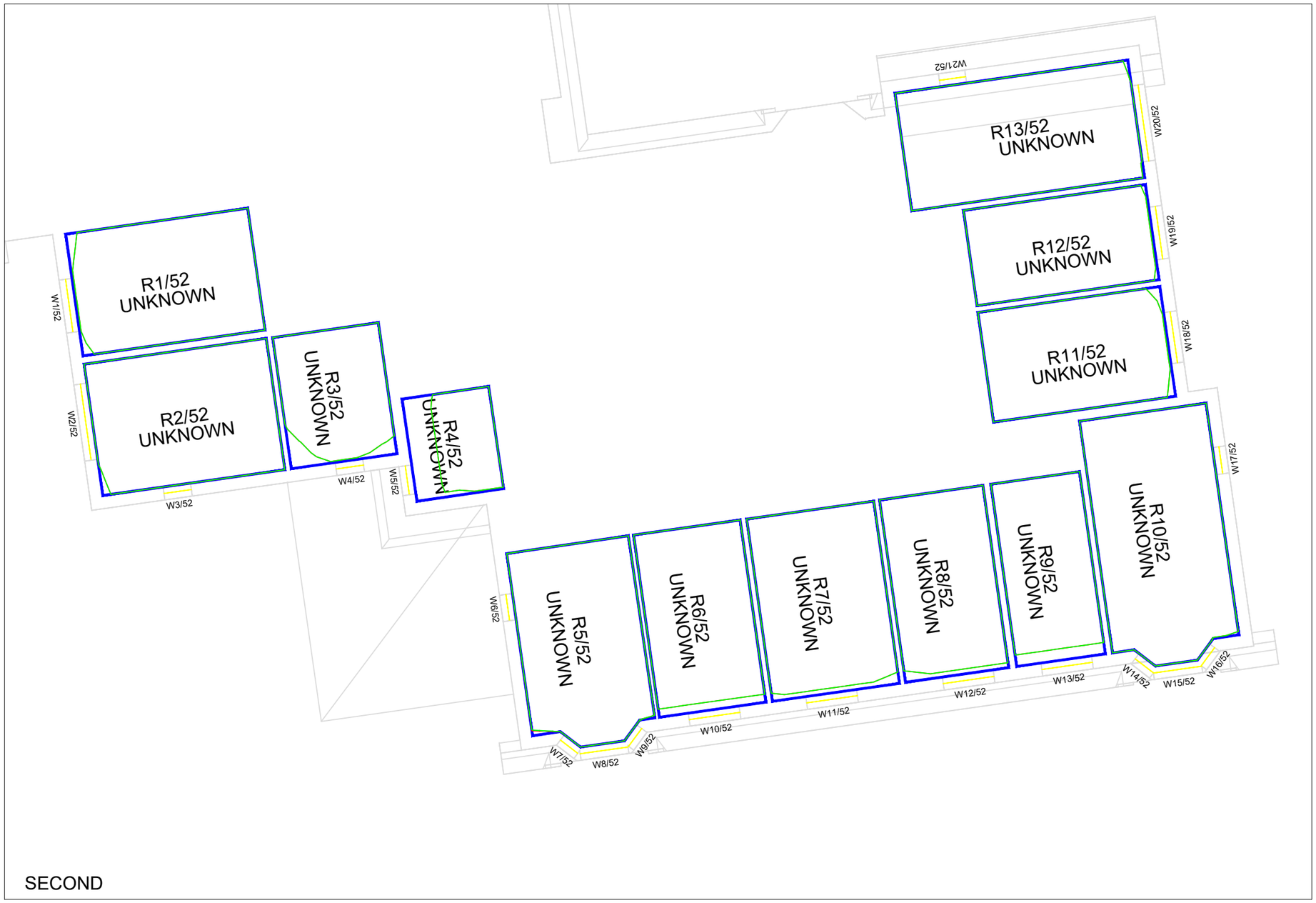
Drawing Title
NO SKYLINE CONTOURS
JUNIPER COURT

Drawn By	Chk'd By	Scale @ A3	Date
CC		1/100	18 MAY 2020

Project No.	Drawing No.	Revision
NO70_02	BRE_08	-

Daylight

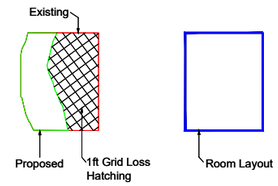
A3



SECOND

Legend

Daylight



Existing No-Sky Line Contour

Proposed No-Sky Line Contour

Sources of Information

EXISTING BUILDING
MBS 3D SURVEY 21 JANUARY 2020
MBS20_1073 Northwood Health Centre, Pinner.dwg

SURROUNDING BUILDINGS
MBS 3D SURVEY 21 JANUARY 2020
MBS20_1073 Northwood Health Centre, Pinner.dwg

PROPOSED BUILDING
200427 Allies and Morrison - Updated Block A GAs
200430 Allies and Morison - Block B GAs

N

AVISON YOUNG
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Project Name
NORTHWOOD PINNER
NHS CENTRE

Client
NHS PROPERTY SERVICE LIMITED

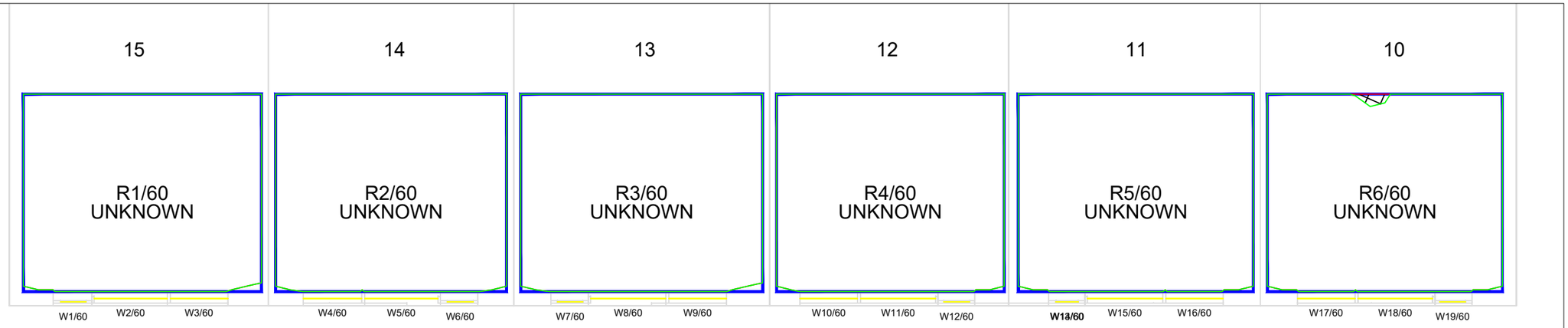
Drawing Title
NO SKYLINE CONTOURS
JUNIPER COURT

Drawn By	Chk'd By	Scale @ A3	Date
CC		1/100	18 MAY 2020

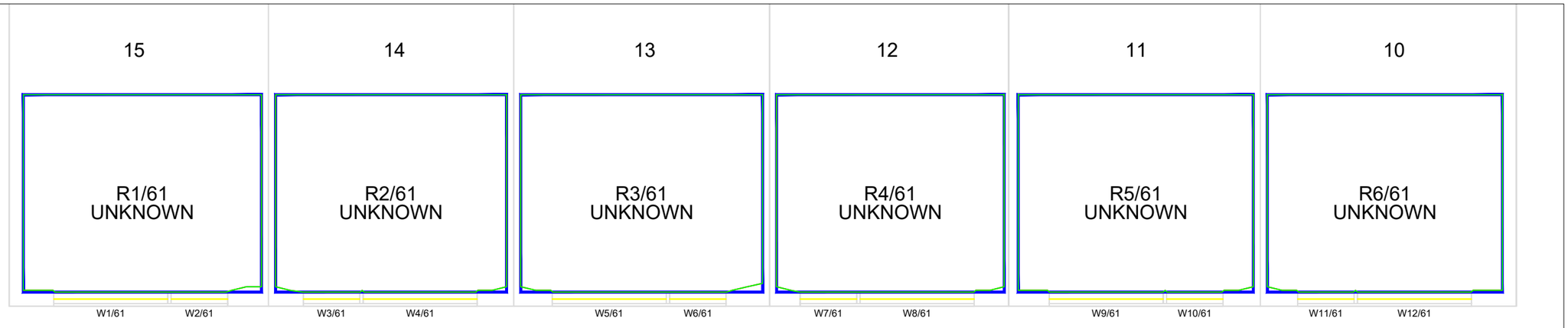
Project No.	Drawing No.	Revision
NO70_02	BRE_09	-

Daylight

A3



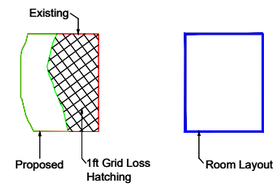
GROUND



FIRST

Legend

Daylight



Existing No-Sky Line Contour

Proposed No-Sky Line Contour

Sources of Information

EXISTING BUILDING

MBS 3D SURVEY 21 JANUARY 2020
MBS20_1073 Northwood Health Centre, Pinner.dwg

SURROUNDING BUILDINGS

MBS 3D SURVEY 21 JANUARY 2020
MBS20_1073 Northwood Health Centre, Pinner.dwg

PROPOSED BUILDING

200427 Allies and Morrison - Updated Block A GAs
200430 Allies and Morison - Block B GAs

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Project Name
NORTHWOOD PINNER
NHS CENTRE

Client
NHS PROPERTY SERVICE LIMITED

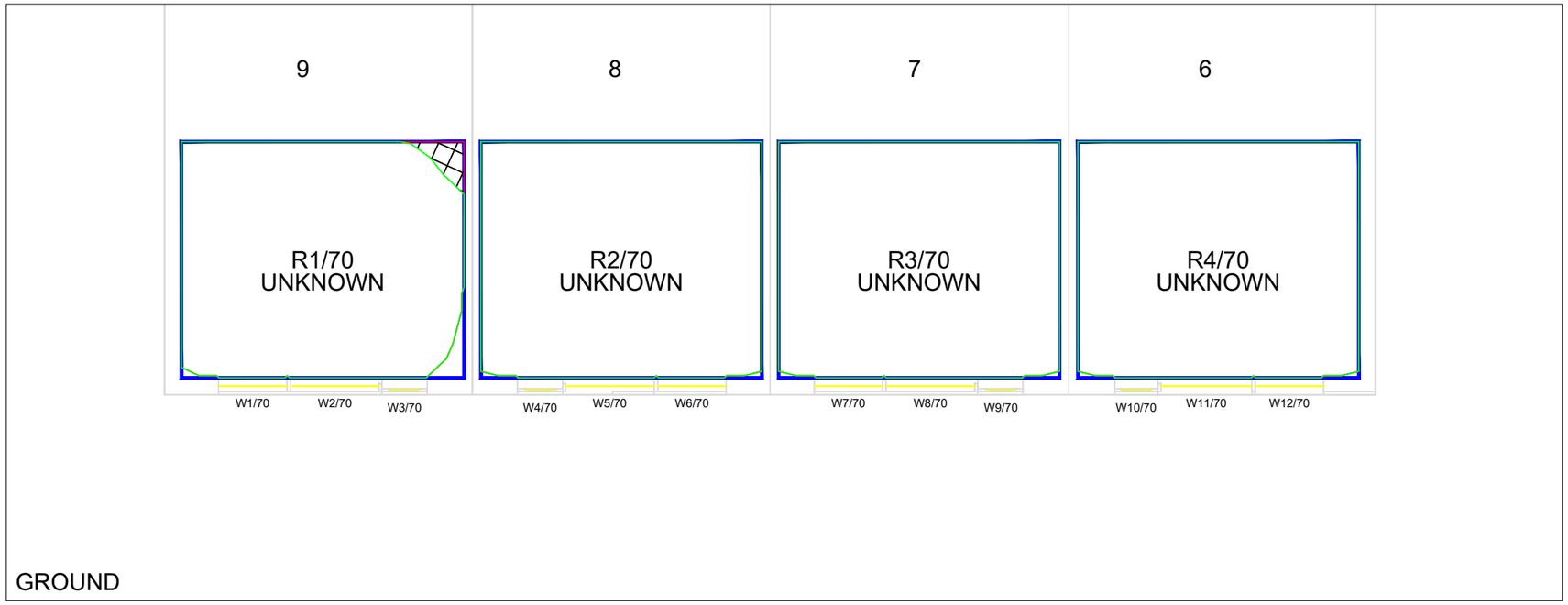
Drawing Title
NO SKYLINE CONTOURS
10-15 NEAL CLOSE

Drawn By	Chk'd By	Scale @ A3	Date
CC		1/100	18 MAY 2020

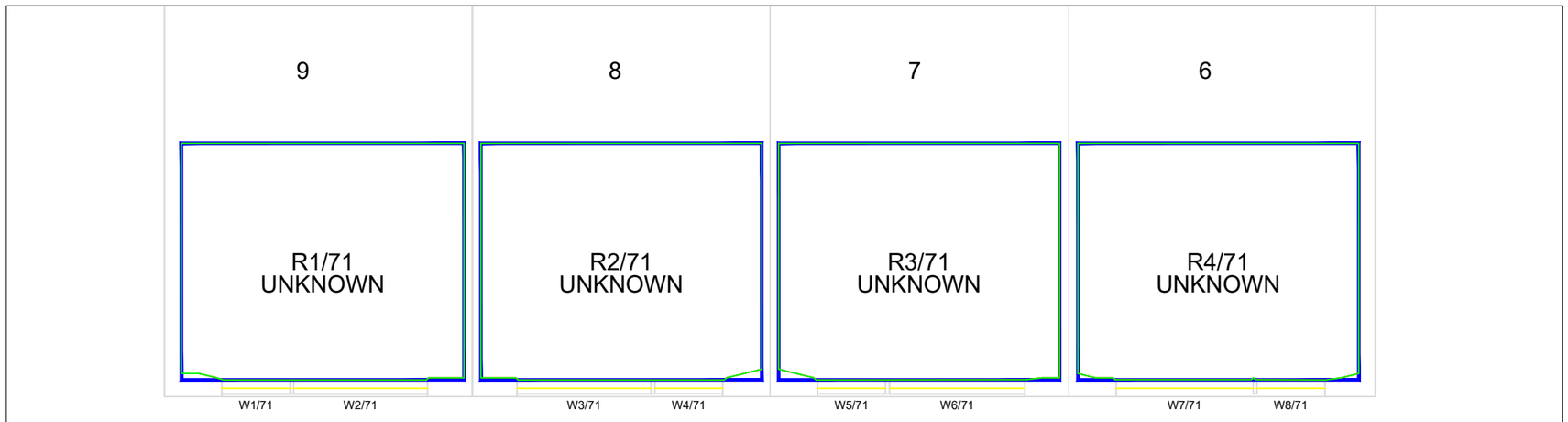
Project No.	Drawing No.	Revision
NO70_02	BRE_10	-

Daylight

A3



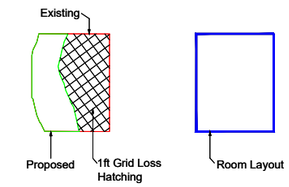
GROUND



FIRST

Legend

Daylight



Existing No-Sky Line Contour

Proposed No-Sky Line Contour

Sources of Information

EXISTING BUILDING
MBS 3D SURVEY 21 JANUARY 2020
MBS20_1073 Northwood Health Centre, Pinner.dwg

SURROUNDING BUILDINGS
MBS 3D SURVEY 21 JANUARY 2020
MBS20_1073 Northwood Health Centre, Pinner.dwg

PROPOSED BUILDING
200427 Allies and Morrison - Updated Block A GAs
200430 Allies and Morison - Block B GAs

N

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Project Name
NORTHWOOD PINNER
NHS CENTRE

Client
NHS PROPERTY SERVICE LIMITED

Drawing Title
NO SKYLINE CONTOURS
6-9 NEAL CLOSE

Drawn By	Chk'd By	Scale @ A3	Date
CC		1/100	18 MAY 2020

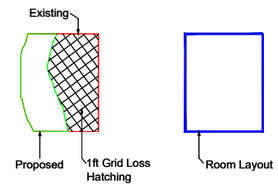
Project No.	Drawing No.	Revision
NO70_02	BRE_11	-

Daylight

A3

Legend

Daylight



Existing No-Sky Line Contour

Proposed No-Sky Line Contour

Sources of Information

EXISTING BUILDING
MBS 3D SURVEY 21 JANUARY 2020
MBS20_1073 Northwood Health Centre, Pinner.dwg

SURROUNDING BUILDINGS
MBS 3D SURVEY 21 JANUARY 2020
MBS20_1073 Northwood Health Centre, Pinner.dwg

PROPOSED BUILDING
200427 Allies and Morrison - Updated Block A GAs
200430 Allies and Morison - Block B GAs

N

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Project Name
NORTHWOOD PINNER
NHS CENTRE

Client
NHS PROPERTY SERVICE LIMITED

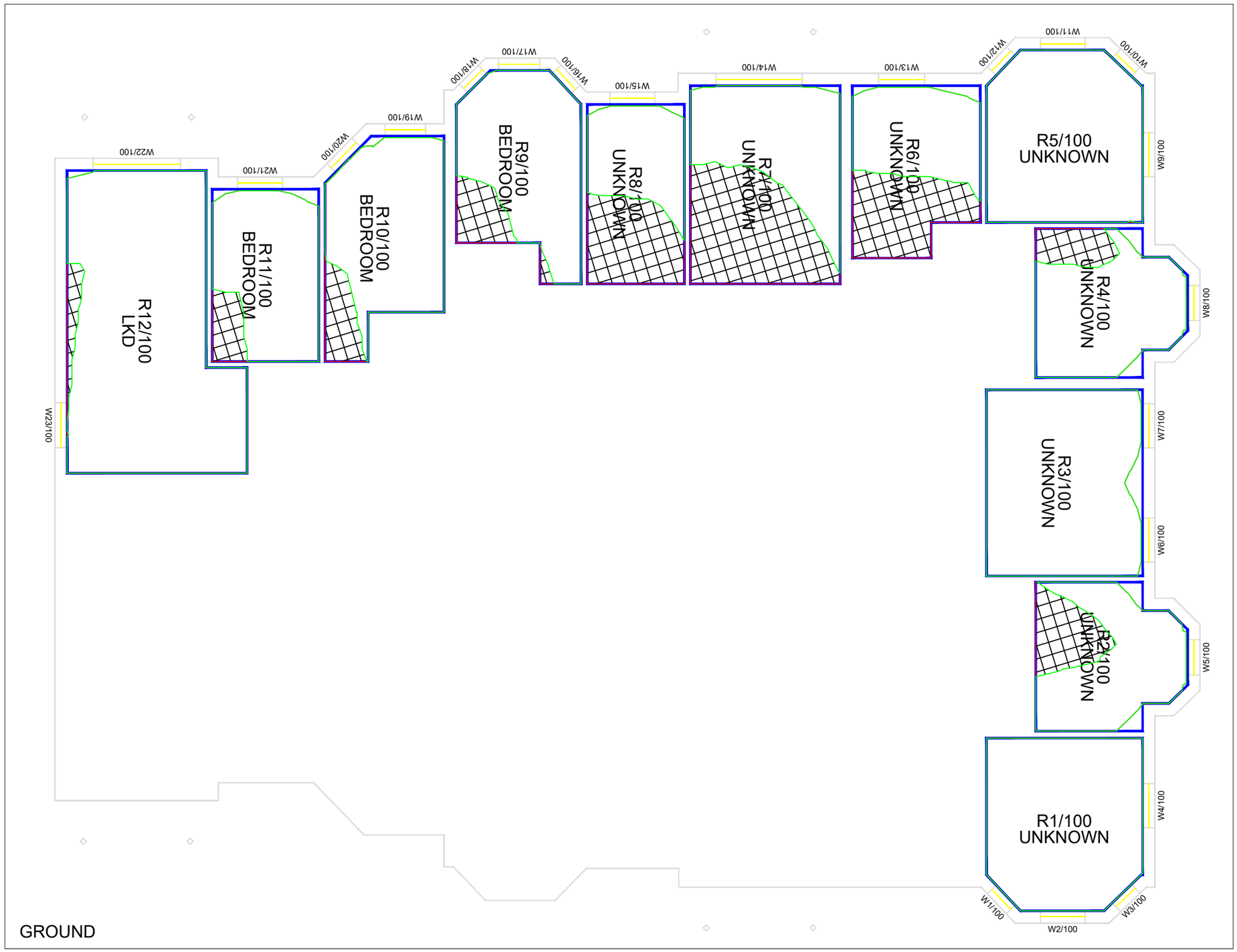
Drawing Title
NO SKYLINE CONTOURS
8-10 WAVERLEY GARDENS

Drawn By	Chk'd By	Scale @ A3	Date
CC		1/100	18 MAY 2020

Project No.	Drawing No.	Revision
NO70_02	BRE_12	-

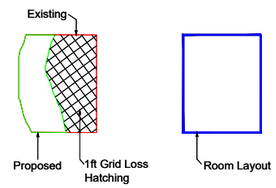
Daylight

A3



Legend

Daylight



Existing No-Sky Line Contour

Proposed No-Sky Line Contour

Sources of Information

EXISTING BUILDING
MBS 3D SURVEY 21 JANUARY 2020
MBS20_1073 Northwood Health Centre, Pinner.dwg

SURROUNDING BUILDINGS
MBS 3D SURVEY 21 JANUARY 2020
MBS20_1073 Northwood Health Centre, Pinner.dwg

PROPOSED BUILDING
200427 Allies and Morrison - Updated Block A GAs
200430 Allies and Morison - Block B GAs

N

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Project Name
NORTHWOOD PINNER
NHS CENTRE

Client
NHS PROPERTY SERVICE LIMITED

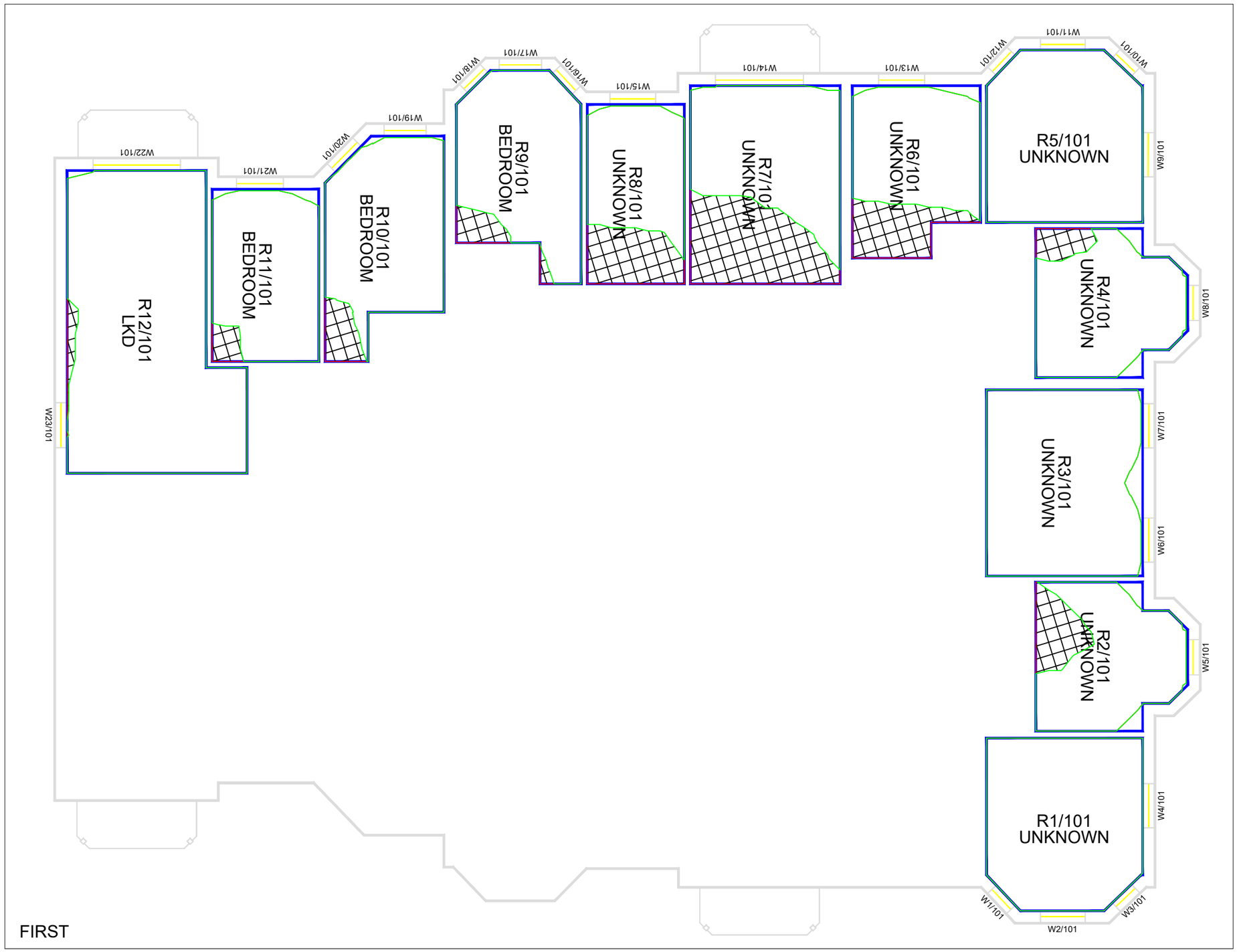
Drawing Title
NO SKYLINE CONTOURS
SOVEREIGN COURT

Drawn By	Chk'd By	Scale @ A3	Date
CC		1/100	18 MAY 2020

Project No.	Drawing No.	Revision
NO70_02	BRE_13	-

Daylight

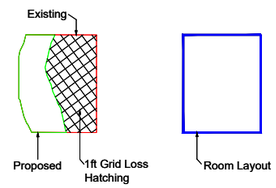
A3



FIRST

Legend

Daylight



Existing No-Sky Line Contour

Proposed No-Sky Line Contour

Sources of Information

EXISTING BUILDING
MBS 3D SURVEY 21 JANUARY 2020
MBS20_1073 Northwood Health Centre, Pinner.dwg

SURROUNDING BUILDINGS
MBS 3D SURVEY 21 JANUARY 2020
MBS20_1073 Northwood Health Centre, Pinner.dwg

PROPOSED BUILDING
200427 Allies and Morrison - Updated Block A GAs
200430 Allies and Morison - Block B GAs

N

AVISON YOUNG
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Project Name
NORTHWOOD PINNER
NHS CENTRE

Client
NHS PROPERTY SERVICE LIMITED

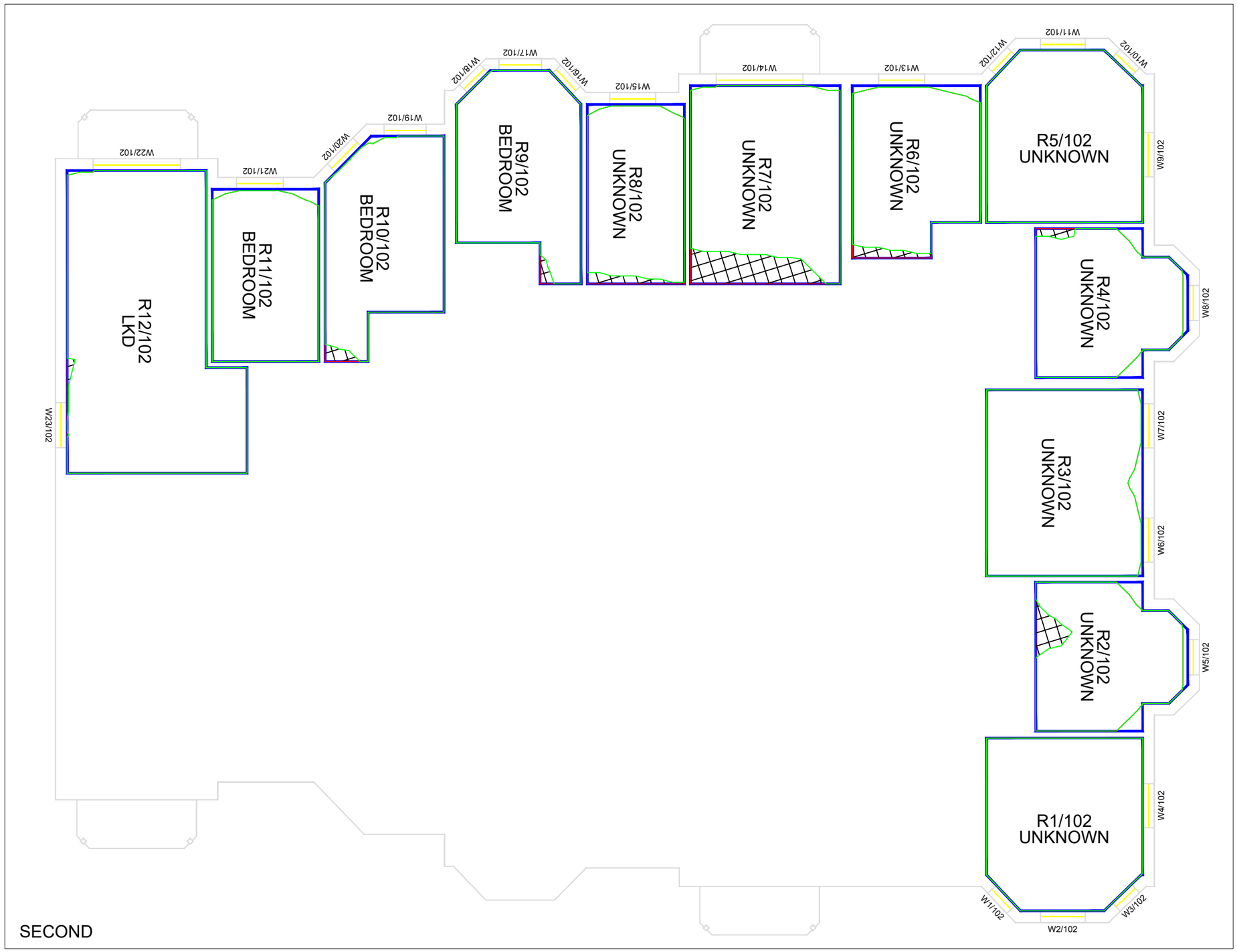
Drawing Title
NO SKYLINE CONTOURS
SOVEREIGN COURT

Drawn By	Chk'd By	Scale @ A3	Date
CC		1/100	18 MAY 2020

Project No.	Drawing No.	Revision
NO70_02	BRE_14	-

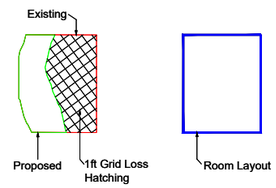
Daylight

A3



Legend

Daylight



Existing No-Sky Line Contour

Proposed No-Sky Line Contour

Sources of Information

EXISTING BUILDING
MBS 3D SURVEY 21 JANUARY 2020
MBS20_1073 Northwood Health Centre, Pinner.dwg

SURROUNDING BUILDINGS
MBS 3D SURVEY 21 JANUARY 2020
MBS20_1073 Northwood Health Centre, Pinner.dwg

PROPOSED BUILDING
200427 Allies and Morrison - Updated Block A GAs
200430 Allies and Morison - Block B GAs

N

AVISON YOUNG
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65 Gresham Street, London, EC2V 7NQ
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Project Name
NORTHWOOD PINNER
NHS CENTRE

Client
NHS PROPERTY SERVICE LIMITED

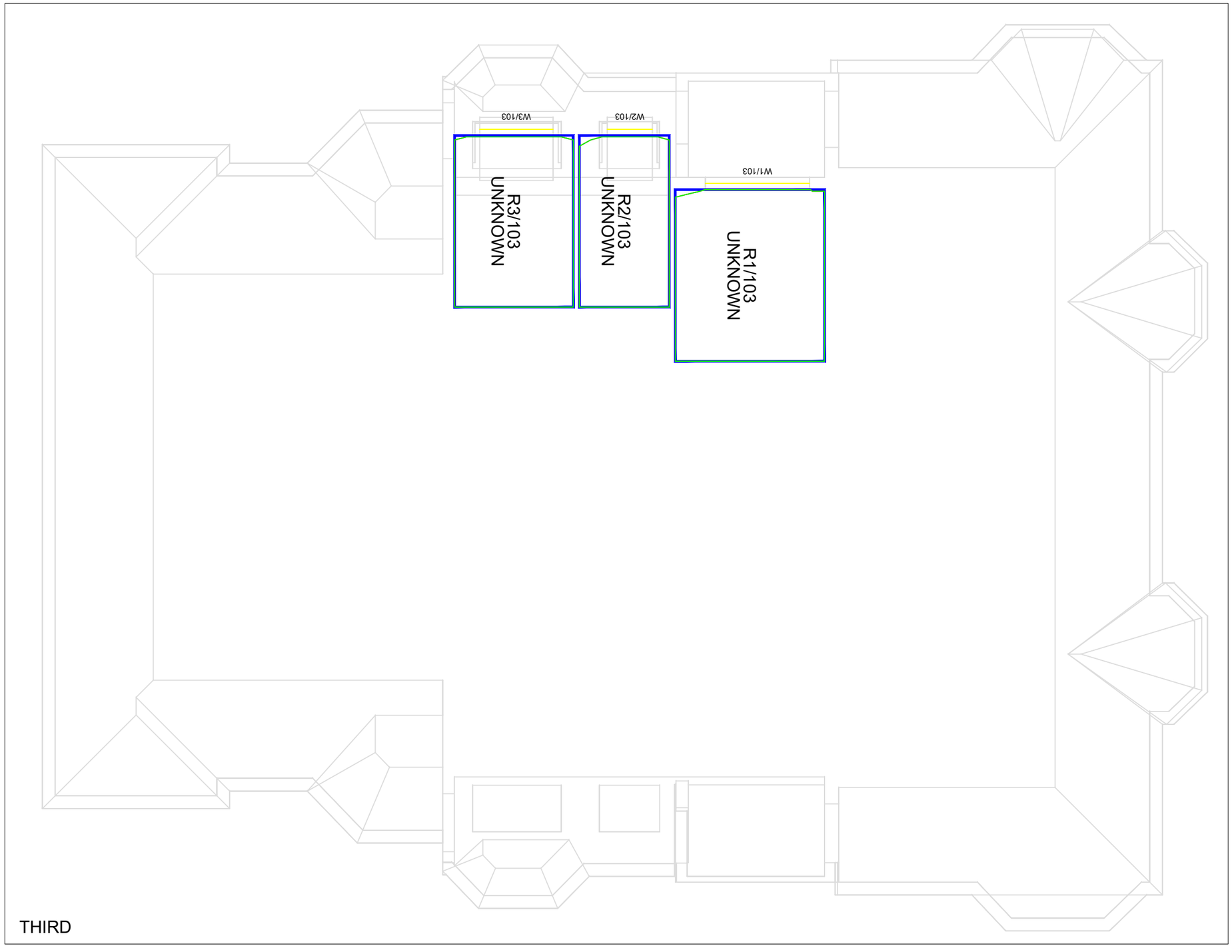
Drawing Title
NO SKYLINE CONTOURS
SOVEREIGN COURT

Drawn By	Chk'd By	Scale @ A3	Date
CC		1/100	18 MAY 2020

Project No.	Drawing No.	Revision
NO70_02	BRE_15	-

Daylight

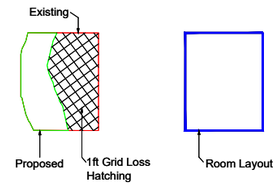
A3



THIRD

Legend

Daylight



Existing No-Sky Line Contour

Proposed No-Sky Line Contour

Sources of Information

EXISTING BUILDING
MBS 3D SURVEY 21 JANUARY 2020
MBS20_1073 Northwood Health Centre, Pinner.dwg

SURROUNDING BUILDINGS
MBS 3D SURVEY 21 JANUARY 2020
MBS20_1073 Northwood Health Centre, Pinner.dwg

PROPOSED BUILDING
200427 Allies and Morrison - Updated Block A GAs
200430 Allies and Morison - Block B GAs

N

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Project Name
NORTHWOOD PINNER
NHS CENTRE

Client
NHS PROPERTY SERVICE LIMITED

Drawing Title
NO SKYLINE CONTOURS
SOVEREIGN COURT

Drawn By	Chk'd By	Scale @ A3	Date
CC		1/100	18 MAY 2020

Project No.	Drawing No.	Revision
NO70_02	BRE_16	-

Daylight

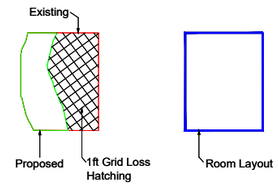
A3

GROUND

FIRST

Legend

Daylight



Existing No-Sky Line Contour

Proposed No-Sky Line Contour

Sources of Information

EXISTING BUILDING
MBS 3D SURVEY 21 JANUARY 2020
MBS20_1073 Northwood Health Centre, Pinner.dwg

SURROUNDING BUILDINGS
MBS 3D SURVEY 21 JANUARY 2020
MBS20_1073 Northwood Health Centre, Pinner.dwg

PROPOSED BUILDING
200427 Allies and Morrison - Updated Block A GAs
200430 Allies and Morison - Block B GAs

N

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Project Name
NORTHWOOD PINNER
NHS CENTRE

Client
NHS PROPERTY SERVICE LIMITED

Drawing Title
NO SKYLINE CONTOURS
76 PINNER ROAD

Drawn By	Chk'd By	Scale @ A3	Date
CC		1/100	18 MAY 2020

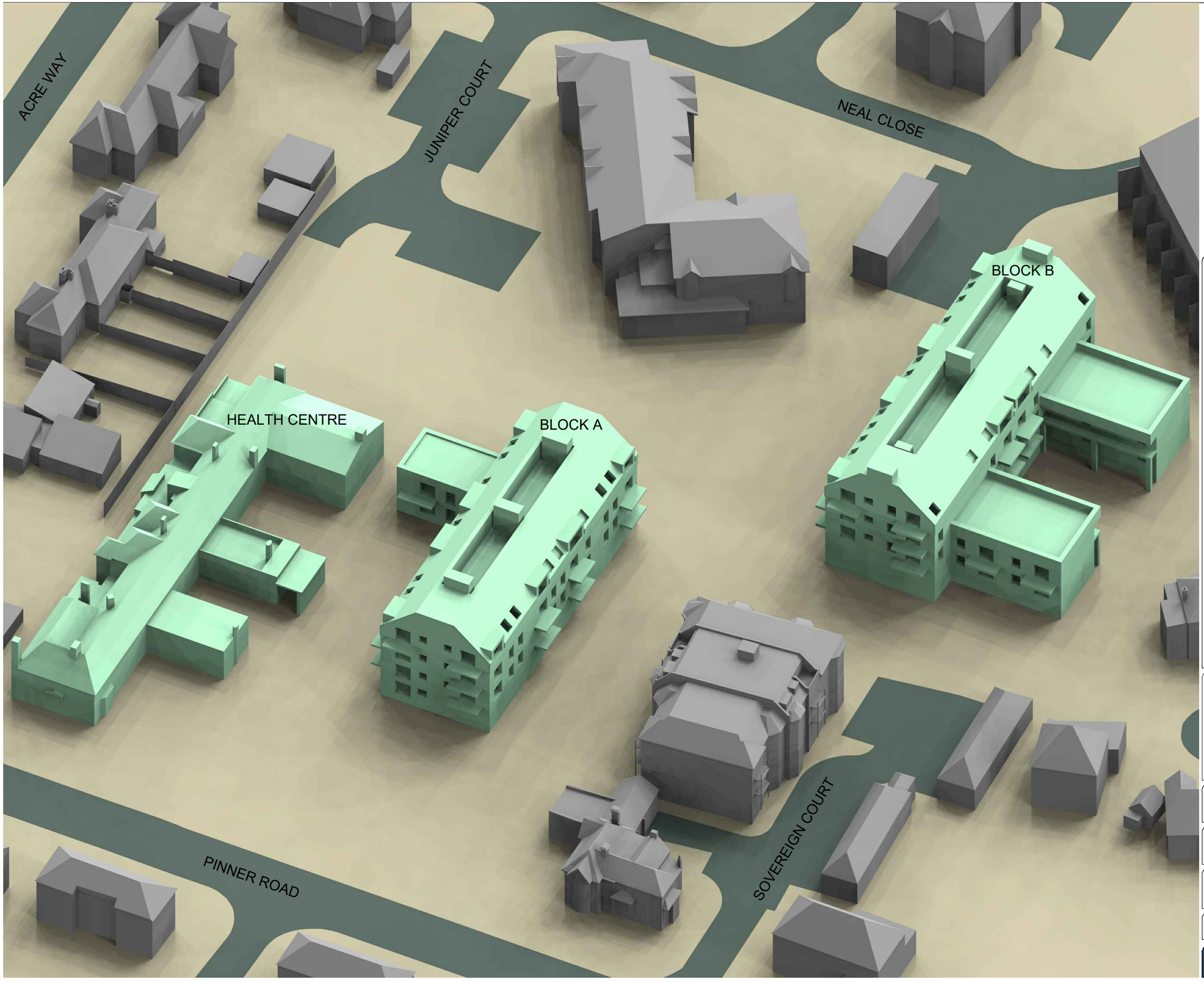
Project No.	Drawing No.	Revision
NO70_02	BRE_17	-

Daylight

A3

Appendix 5

Internal amenity: Daylight and Sunlight analysis and internal NSL contours



Sources of Information

EXISTING BUILDING
MBS 3D SURVEY 21 JANUARY 2020
MBS20_1073 Northwood Health Centre, Pinner.dwg

SURROUNDING BUILDINGS
MBS 3D SURVEY 21 JANUARY 2020
MBS20_1073 Northwood Health Centre, Pinner.dwg

PROPOSED BUILDING
200427 Allies and Morrison - Updated Block A GAs
200430 Allies and Morison - Block B GAs

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65 Gresham Street, London, EC2V 7NQ
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Project Name
NORTHWOOD PINNER
NHS CENTRE

Client
NHS PROPERTY SERVICE LIMITED

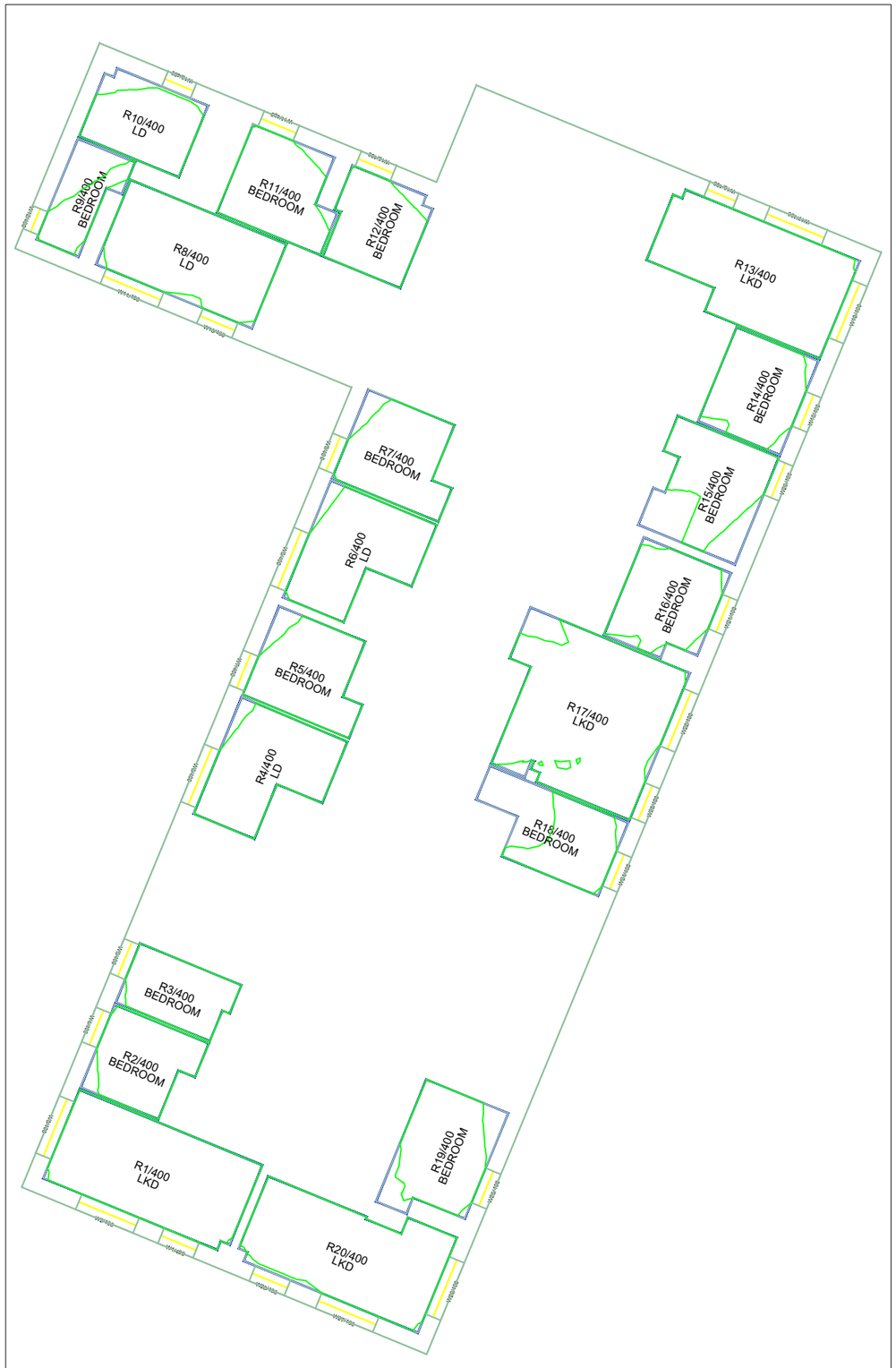
Drawing Title
3D VIEW
PROPOSED

Drawn By	Chk'd By	Scale @ A3	Date
CC		NTS	14 MAY 2020

Project No.	Drawing No.	Revision
NO70_03	BRE_24	-

Proposed 3D View

A3

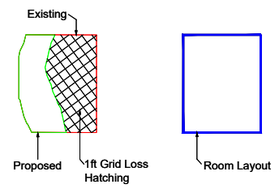


GROUND

FIRST

Legend

Daylight



Existing No-Sky Line Contour

Proposed No-Sky Line Contour

Sources of Information

EXISTING BUILDING

MBS 3D SURVEY 21 JANUARY 2020
MBS20_1073 Northwood Health Centre, Pinner.dwg

SURROUNDING BUILDINGS

MBS 3D SURVEY 21 JANUARY 2020
MBS20_1073 Northwood Health Centre, Pinner.dwg

PROPOSED BUILDING

200427 Allies and Morrison - Updated Block A GAs
200430 Allies and Morison - Block B GAs

AVISON YOUNG
08449 02 03 04
65 Gresham Street, London, EC2V 7NQ
www.gva.co.uk

Project Name
NORTHWOOD PINNER
NHS CENTRE

Client
NHS PROPERTY SERVICE LIMITED

Drawing Title
NO SKYLINE CONTOURS
BLOCK A

Drawn By	Chk'd By	Scale @ A3	Date
CC		1/150	14 MAY 2020

Project No.	Drawing No.	Revision
NO70_03	BRE_18	-

Daylight

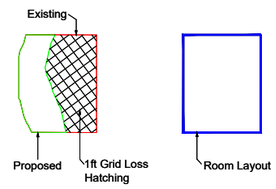
A3

SECOND

THIRD

Legend

Daylight



Existing No-Sky Line Contour

Proposed No-Sky Line Contour

Sources of Information

EXISTING BUILDING
MBS 3D SURVEY 21 JANUARY 2020
MBS20_1073 Northwood Health Centre, Pinner.dwg

SURROUNDING BUILDINGS
MBS 3D SURVEY 21 JANUARY 2020
MBS20_1073 Northwood Health Centre, Pinner.dwg

PROPOSED BUILDING
200427 Allies and Morrison - Updated Block A GAs
200430 Allies and Morison - Block B GAs

AVISON YOUNG
08449 02 03 04
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Project Name
NORTHWOOD PINNER
NHS CENTRE

Client
NHS PROPERTY SERVICE LIMITED

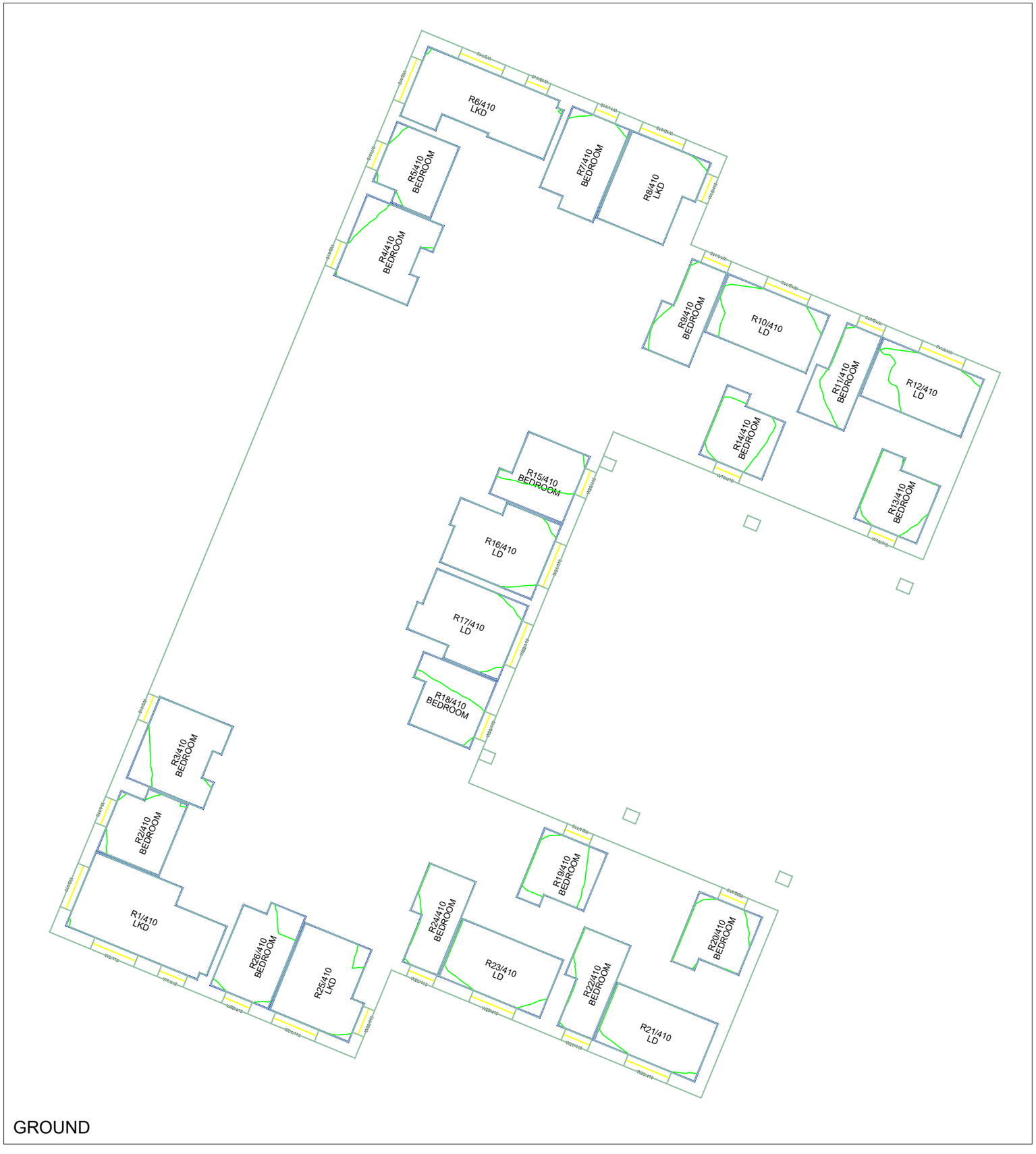
Drawing Title
NO SKYLINE CONTOURS
BLOCK A

Drawn By	Chk'd By	Scale @ A3	Date
CC		1/150	14 MAY 2020

Project No.	Drawing No.	Revision
NO70_03	BRE_19	-

Daylight

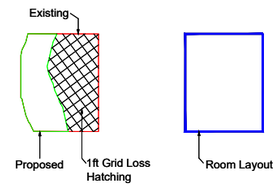
A3



GROUND

Legend

Daylight



Existing No-Sky Line Contour

Proposed No-Sky Line Contour

Sources of Information

EXISTING BUILDING
MBS 3D SURVEY 21 JANUARY 2020
MBS20_1073 Northwood Health Centre, Pinner.dwg

SURROUNDING BUILDINGS
MBS 3D SURVEY 21 JANUARY 2020
MBS20_1073 Northwood Health Centre, Pinner.dwg

PROPOSED BUILDING
200427 Allies and Morrison - Updated Block A GAs
200430 Allies and Morison - Block B GAs

AVISON YOUNG
08449 02 03 04
65 Gresham Street, London, EC2V 7NQ
www.gva.co.uk

Project Name
NORTHWOOD PINNER
NHS CENTRE

Client
NHS PROPERTY SERVICE LIMITED

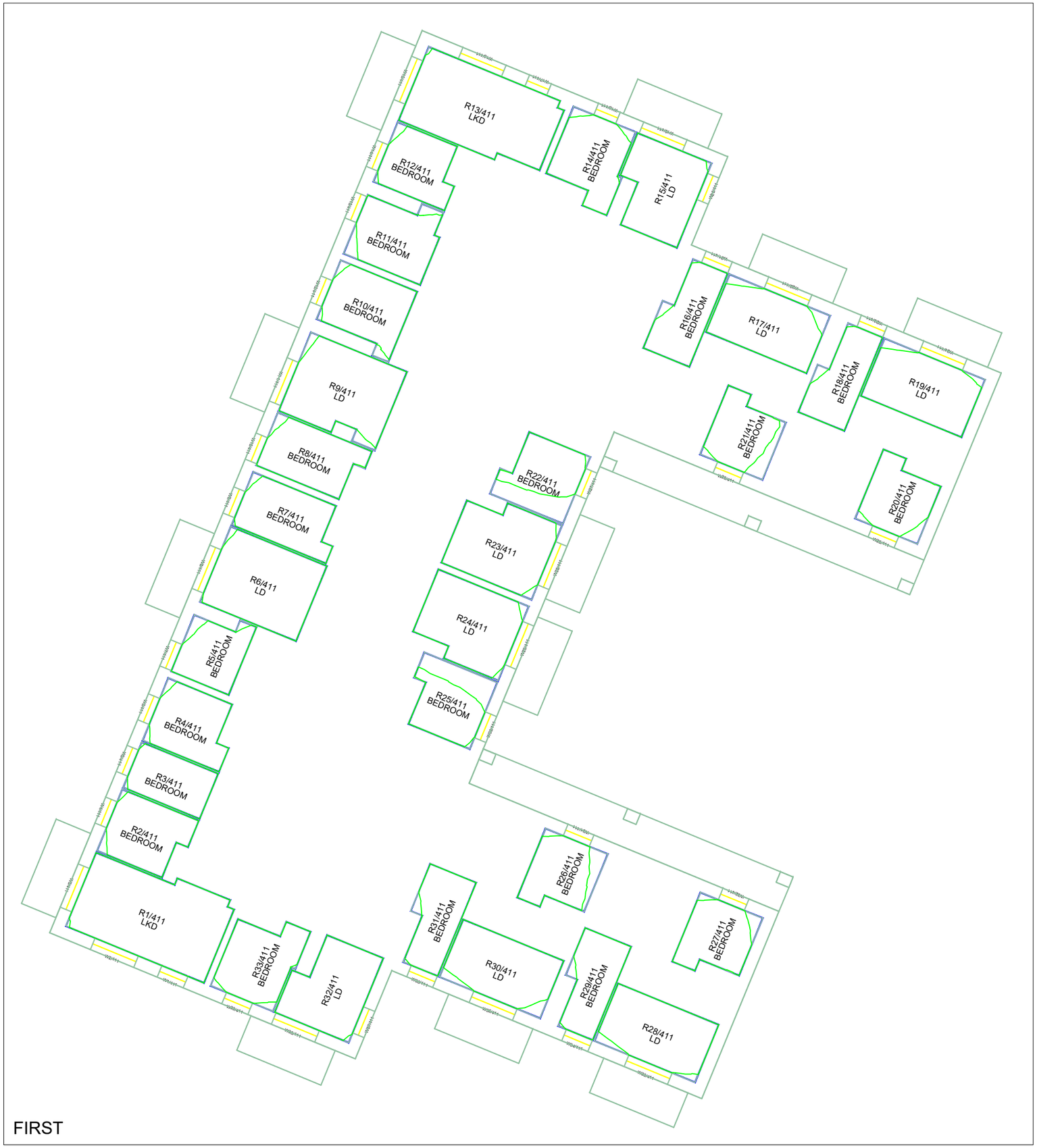
Drawing Title
NO SKYLINE CONTOURS
BLOCK B

Drawn By	Chk'd By	Scale @ A3	Date
CC		1/150	14 MAY 2020

Project No.	Drawing No.	Revision
NO70_03	BRE_20	-

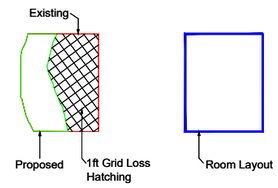
Daylight

A3



Legend

Daylight



Existing No-Sky Line Contour

Proposed No-Sky Line Contour

Sources of Information

EXISTING BUILDING

MBS 3D SURVEY 21 JANUARY 2020
MBS20_1073 Northwood Health Centre, Pinner.dwg

SURROUNDING BUILDINGS

MBS 3D SURVEY 21 JANUARY 2020
MBS20_1073 Northwood Health Centre, Pinner.dwg

PROPOSED BUILDING

200427 Allies and Morrison - Updated Block A GAs
200430 Allies and Morison - Block B GAs

AVISON YOUNG

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Project Name
NORTHWOOD PINNER
NHS CENTRE

Client
NHS PROPERTY SERVICE LIMITED

Drawing Title
NO SKYLINE CONTOURS
BLOCK B

Drawn By	Chk'd By	Scale @ A3	Date
CC		1/150	14 MAY 2020

Project No.	Drawing No.	Revision
NO70_03	BRE_21	-

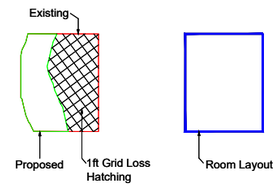
Daylight

A3

SECOND

Legend

Daylight



Existing No-Sky Line Contour

Proposed No-Sky Line Contour

Sources of Information

EXISTING BUILDING
MBS 3D SURVEY 21 JANUARY 2020
MBS20_1073 Northwood Health Centre, Pinner.dwg

SURROUNDING BUILDINGS
MBS 3D SURVEY 21 JANUARY 2020
MBS20_1073 Northwood Health Centre, Pinner.dwg

PROPOSED BUILDING
200427 Allies and Morrison - Updated Block A GAs
200430 Allies and Morison - Block B GAs

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Project Name
NORTHWOOD PINNER
NHS CENTRE

Client
NHS PROPERTY SERVICE LIMITED

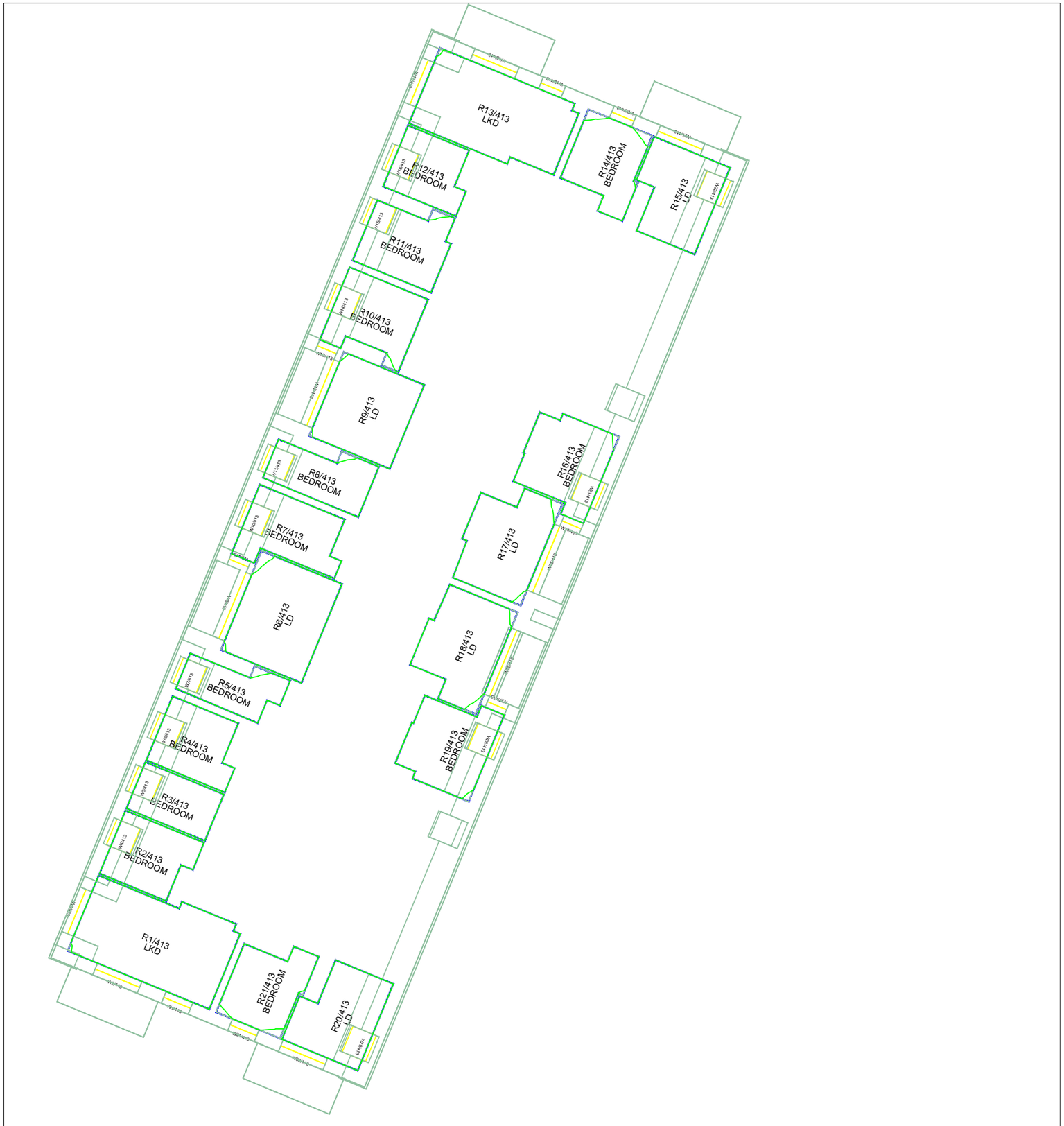
Drawing Title
NO SKYLINE CONTOURS
BLOCK B

Drawn By	Chk'd By	Scale @ A3	Date
CC		1/150	14 MAY 2020

Project No.	Drawing No.	Revision
NO70_03	BRE_22	-

Daylight

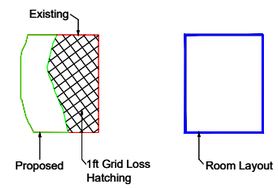
A3



THIRD

Legend

Daylight



Existing No-Sky Line Contour

Proposed No-Sky Line Contour

Sources of Information

EXISTING BUILDING
MBS 3D SURVEY 21 JANUARY 2020
MBS20_1073 Northwood Health Centre, Pinner.dwg

SURROUNDING BUILDINGS
MBS 3D SURVEY 21 JANUARY 2020
MBS20_1073 Northwood Health Centre, Pinner.dwg

PROPOSED BUILDING
200427 Allies and Morrison - Updated Block A GAs
200430 Allies and Morison - Block B GAs

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65 Gresham Street, London, EC2V 7NQ
www.gva.co.uk

Project Name
NORTHWOOD PINNER
NHS CENTRE

Client
NHS PROPERTY SERVICE LIMITED

Drawing Title
NO SKYLINE CONTOURS
BLOCK B

Drawn By	Chk'd By	Scale @ A3	Date
CC		1/150	14 MAY 2020

Project No.	Drawing No.	Revision
NO70_03	BRE_23	-

Daylight

A3

AVISON YOUNG

NORTHWOOD PINNER
3-Mar-21
JOB 03-STANDARD AMENITY RESULTS

					Daylight Distribution			%Sun		
Room/Floor	Room Use	Window	%VSC	%ADF	Room Area sq ft	Proposed Area sq ft	Proposed % of Room Area	Summer	Winter	Total
Block A										
Gnd Floor										
R1/400	LKD	W1/400	35.78	5.33	268.70	267.90	99.70%	47	28	75
		W2/400	35.93					48	27	75
		W3/400	20.43					17	8	25
R2/400	BEDROOM	W4/400	30.27	2.55	116.20	109.90	94.58%	N/A	N/A	N/A
R3/400	BEDROOM	W5/400	32.94	3.09	96.00	93.90	97.81%	N/A	N/A	N/A
R4/400	LD	W6/400	19.27	2.43	164.90	158.10	95.88%	N/A	N/A	N/A
R5/400	BEDROOM	W7/400	27.63	2.18	138.20	128.00	92.62%	N/A	N/A	N/A
R6/400	LD	W8/400	15.93	2.18	164.80	157.90	95.81%	N/A	N/A	N/A
R7/400	BEDROOM	W9/400	19.79	1.76	138.30	128.60	92.99%	N/A	N/A	N/A
R8/400	LD	W10/400	23.28	3.16	219.60	214.20	97.54%	28	12	40
		W11/400	14.53					10	11	21
R9/400	BEDROOM	W12/400	21.67	1.20	78.60	44.80	57.00%	N/A	N/A	N/A
R10/400	LD	W13/400	34.62	1.37	117.70	102.90	87.43%	N/A	N/A	N/A
R11/400	BEDROOM	W14/400	32.90	2.17	134.90	125.00	92.66%	N/A	N/A	N/A
R12/400	BEDROOM	W15/400	27.18	2.18	117.00	110.00	94.02%	N/A	N/A	N/A
R13/400	LKD	W16/400	32.90	4.51	269.60	269.00	99.78%	9	0	9
		W17/400	32.75					8	0	8
		W18/400	16.99					16	12	28
R14/400	BEDROOM	W19/400	27.12	2.19	128.70	118.20	91.84%	37	16	53
R15/400	BEDROOM	W20/400	30.01	1.80	168.50	118.10	70.09%	37	14	51
R16/400	BEDROOM	W21/400	27.27	2.10	133.80	122.50	91.55%	27	8	35
R17/400	LKD	W22/400	16.07	1.98	355.20	332.10	93.50%	22	11	33
		W23/400	25.95					35	11	46
R18/400	BEDROOM	W24/400	25.17	1.80	141.80	85.30	60.16%	27	8	35
R19/400	BEDROOM	W25/400	29.10	1.86	153.00	126.50	82.68%	34	17	51
R20/400	LKD	W26/400	30.11	5.03	256.70	251.40	97.94%	34	18	52
		W27/400	22.40					20	25	45
		W28/400	30.85					38	22	60
1st Floor										
R1/401	LKD	W1/401	36.44	5.28	287.70	287.10	99.79%	48	29	77
		W2/401	36.31					51	29	80
		W3/401	25.15					23	9	32
R2/401	BEDROOM	W4/401	33.76	2.83	111.80	107.50	96.15%	N/A	N/A	N/A
R3/401	BEDROOM	W5/401	36.16	2.50	137.20	126.30	92.06%	N/A	N/A	N/A
R4/401	LD	W6/401	24.63	2.98	164.90	158.10	95.88%	N/A	N/A	N/A
R5/401	BEDROOM	W7/401	32.27	2.38	138.20	128.20	92.76%	N/A	N/A	N/A
R6/401	LD	W8/401	22.41	2.82	164.80	158.20	96.00%	N/A	N/A	N/A
R7/401	BEDROOM	W9/401	26.07	2.08	138.30	128.60	92.99%	N/A	N/A	N/A
R8/401	LD	W10/401	27.89	4.35	219.60	215.60	98.18%	40	13	53
		W11/401	31.13					46	17	63
R9/401	BEDROOM	W12/401	31.79	1.90	78.60	45.60	58.02%	N/A	N/A	N/A
R10/401	KITCHEN	W13/401	36.19	1.41	117.70	102.90	87.43%	N/A	N/A	N/A
R11/401	BEDROOM	W14/401	34.51	2.24	134.90	125.00	92.66%	N/A	N/A	N/A
R12/401	BEDROOM	W15/401	28.41	2.25	117.00	110.00	94.02%	N/A	N/A	N/A
R13/401	LD	W16/401	27.34	4.10	199.40	197.20	98.90%	N/A	N/A	N/A
		W17/401	23.82					N/A	N/A	N/A
R14/401	BEDROOM	W18/401	30.31	1.43	135.10	127.80	94.60%	N/A	N/A	N/A
R15/401	LKD	W19/401	33.94	4.81	287.80	287.20	99.79%	11	0	11
		W20/401	33.51					11	0	11
		W21/401	21.33					18	19	37
R16/401	BEDROOM	W22/401	30.20	2.56	111.80	107.50	96.15%	36	20	56
R17/401	BEDROOM	W23/401	32.81	2.28	137.30	122.40	89.15%	36	17	53
R18/401	BEDROOM	W24/401	30.67	2.17	139.50	129.80	93.05%	28	13	41
R19/401	LD	W25/401	21.13	2.49	174.60	166.10	95.13%	24	16	40

AVISON YOUNG

Room/Floor	Room Use	Window	%VSC	%ADF	Daylight Distribution: Room Area sq ft	Proposed Area sq ft	Proposed % of Room Area	%Sun: Summer	Winter	Total
R20/401	BEDROOM	W26/401	29.97	2.29	128.50	123.90	96.42%	38	14	52
R21/401	BEDROOM	W27/401	29.36	2.99	83.40	77.60	93.05%	31	12	43
R22/401	LD	W28/401	20.18	2.12	207.10	149.30	72.09%	22	16	38
R23/401	BEDROOM	W29/401	31.93	2.22	137.20	126.50	92.20%	36	17	53
R24/401	BEDROOM	W30/401	32.56	2.64	111.80	107.50	96.15%	36	17	53
R25/401	LKD	W31/401	33.37					37	18	55
		W32/401	25.91	5.00	287.70	283.00	98.37%	27	29	56
		W33/401	32.09					36	24	60
2nd Floor										
R1/402	LKD	W1/402	33.85					40	29	69
		W2/402	27.27	5.47	287.70	287.10	99.79%	27	29	56
		W3/402	39.10					27	9	36
R2/402	BEDROOM	W4/402	39.10	3.11	111.80	107.50	96.15%	N/A	N/A	N/A
R3/402	BEDROOM	W5/402	39.10	2.64	137.20	126.30	92.06%	N/A	N/A	N/A
R4/402	LD	W6/402	39.10	4.09	164.90	158.10	95.88%	N/A	N/A	N/A
R5/402	BEDROOM	W7/402	39.11	2.63	138.20	128.00	92.62%	N/A	N/A	N/A
R6/402	LD	W8/402	39.14	4.09	164.80	158.20	96.00%	N/A	N/A	N/A
R7/402	BEDROOM	W9/402	39.15	2.62	138.30	128.70	93.06%	N/A	N/A	N/A
R8/402	LD	W10/402	39.26	4.61	199.40	198.40	99.50%	N/A	N/A	N/A
		W11/402	25.47					N/A	N/A	N/A
R9/402	BEDROOM	W12/402	32.63	1.49	135.10	127.80	94.60%	N/A	N/A	N/A
R10/402	LKD	W13/402	31.81					3	0	3
		W14/402	24.93	5.05	287.80	287.20	99.79%	12	0	12
		W15/402	35.17					37	20	57
R11/402	BEDROOM	W16/402	35.42	2.84	111.80	107.50	96.15%	38	20	58
R12/402	BEDROOM	W17/402	35.56	2.42	137.30	126.60	92.21%	38	20	58
R13/402	BEDROOM	W18/402	35.69	2.41	139.50	129.80	93.05%	38	19	57
R14/402	LD	W19/402	35.66	3.62	174.60	168.10	96.28%	39	19	58
R15/402	BEDROOM	W20/402	35.51	2.57	128.50	123.90	96.42%	39	18	57
R16/402	BEDROOM	W21/402	35.41	3.40	83.40	79.10	94.84%	39	18	57
R17/402	LD	W22/402	35.36	3.17	207.10	206.50	99.71%	39	18	57
R18/402	BEDROOM	W23/402	35.65	2.44	137.20	126.50	92.20%	39	18	57
R19/402	BEDROOM	W24/402	35.91	2.89	111.80	107.50	96.15%	39	18	57
R20/402	LKD	W25/402	36.39					39	19	58
		W26/402	27.25	5.30	287.70	287.10	99.79%	26	30	56
		W27/402	33.93					32	25	57
3rd Floor										
R1/403	LKD	W1/403	39.61					53	30	83
		W2/403	39.60	6.62	287.70	287.10	99.79%	53	30	83
		W3/403	39.62					27	9	36
R2/403	BEDROOM	W4/403	81.57	5.07	111.80	111.80	100.00%	N/A	N/A	N/A
R3/403	BEDROOM	W5/403	82.08	4.32	137.20	135.00	98.40%	N/A	N/A	N/A
R4/403	LD	W6/403	25.88	4.24	158.70	156.10	98.36%	N/A	N/A	N/A
R5/403	BEDROOM	W7/403	79.29	3.91	145.10	144.80	99.79%	N/A	N/A	N/A
R6/403	LD	W8/403	25.88	4.24	158.70	156.00	98.30%	N/A	N/A	N/A
R7/403	BEDROOM	W9/403	79.80	3.92	144.90	144.80	99.93%	N/A	N/A	N/A
R8/403	BEDROOM	W10/403	82.10	4.32	137.20	134.40	97.96%	N/A	N/A	N/A
R9/403	BEDROOM	W11/403	81.28	5.04	111.80	111.80	100.00%	N/A	N/A	N/A
R10/403	LKD	W12/403	39.62					N/A	N/A	N/A
		W13/403	38.64	6.73	287.70	285.00	99.06%	N/A	N/A	N/A
		W14/403	38.70					N/A	N/A	N/A
R11/403	LKD	W15/403	38.56					14	0	14
		W16/403	38.23	6.37	287.80	287.20	99.79%	14	0	14
		W17/403	37.55					41	20	61
R12/403	BEDROOM	W18/403	80.22	4.97	111.80	111.80	100.00%	57	25	82
R13/403	BEDROOM	W19/403	81.13	4.26	137.30	134.50	97.96%	57	25	82
R14/403	BEDROOM	W20/403	79.03	3.90	144.00	143.90	99.93%	57	16	73
R15/403	LD	W21/403	23.78	3.73	184.40	181.80	98.59%	26	10	36
R16/403	BEDROOM	W22/403	79.33	4.41	128.50	128.50	100.00%	57	26	83
R17/403	LD	W23/403	79.64	3.58	281.70	281.00	99.75%	57	17	74
		W24/403	12.91					16	6	22
R18/403	KITCHEN	W25/403	4.40	0.71	68.00	29.20	42.94%	N/A	N/A	N/A
R19/403	BEDROOM	W26/403	81.73	4.31	137.20	135.00	98.40%	57	26	83
R20/403	BEDROOM	W27/403	81.27	5.06	111.80	111.80	100.00%	57	22	79

AVISON YOUNG

Room/Floor	Room Use	Window	%VSC	%ADF	Daylight Distribution: Room Area sq ft	Proposed Area sq ft	Proposed % of Room Area	%Sun: Summer	Winter	Total
R21/403	LKD	W28/403	39.02	6.58	287.70	287.10	99.79%	41	20	61
		W29/403	39.59					53	30	83
		W30/403	39.61					53	30	83
Block B										
Gnd Floor										
R1/410	LKD	W1/410	31.26	4.61	269.60	269.00	99.78%	44	21	65
		W2/410	30.83					45	21	66
		W3/410	18.29					13	5	18
R2/410	BEDROOM	W4/410	30.18	2.49	121.00	114.10	94.30%	N/A	N/A	N/A
R3/410	BEDROOM	W5/410	34.07	2.01	168.40	147.60	87.65%	N/A	N/A	N/A
R4/410	BEDROOM	W6/410	34.42	1.79	168.20	150.90	89.71%	N/A	N/A	N/A
R5/410	BEDROOM	W7/410	30.68	2.23	121.00	114.80	94.88%	N/A	N/A	N/A
R6/410	LKD	W8/410	16.67	4.95	234.80	234.00	99.66%	N/A	N/A	N/A
		W9/410	33.87					N/A	N/A	N/A
		W10/410	33.37					N/A	N/A	N/A
R7/410	BEDROOM	W11/410	27.10	1.37	147.40	142.10	96.40%	N/A	N/A	N/A
R8/410	LKD	W12/410	16.79	3.47	182.80	180.70	98.85%	10	0	10
		W13/410	21.56					20	2	22
R9/410	BEDROOM	W14/410	17.01	1.87	110.40	103.60	93.84%	N/A	N/A	N/A
R10/410	LD	W15/410	13.20	1.79	169.70	148.50	87.51%	N/A	N/A	N/A
R11/410	BEDROOM	W16/410	25.44	2.27	110.40	82.70	74.91%	N/A	N/A	N/A
R12/410	LD	W17/410	12.40	1.60	169.70	127.90	75.37%	N/A	N/A	N/A
R13/410	BEDROOM	W18/410	12.27	1.33	112.60	101.50	90.14%	7	19	26
R14/410	BEDROOM	W19/410	7.72	0.94	112.60	83.70	74.33%	3	12	15
R15/410	BEDROOM	W20/410	16.18	1.77	128.10	78.60	61.36%	21	9	30
R16/410	LD	W21/410	12.48	1.75	189.10	179.30	94.82%	15	7	22
R17/410	LD	W22/410	12.61	1.77	189.10	179.50	94.92%	16	3	19
R18/410	BEDROOM	W23/410	16.66	1.81	128.10	78.80	61.51%	16	2	18
R19/410	BEDROOM	W24/410	7.46	0.90	112.60	84.20	74.78%	N/A	N/A	N/A
R20/410	BEDROOM	W25/410	11.30	1.17	112.70	101.50	90.06%	N/A	N/A	N/A
R21/410	LD	W26/410	19.24	2.46	169.70	160.80	94.76%	13	27	40
R22/410	BEDROOM	W27/410	31.01	2.31	110.40	105.60	95.65%	35	23	58
R23/410	LD	W28/410	17.28	2.28	169.70	157.10	92.58%	10	23	33
R24/410	BEDROOM	W29/410	21.18	1.88	110.40	105.50	95.56%	21	17	38
R25/410	LKD	W30/410	25.34	3.69	182.80	173.70	95.02%	32	20	52
		W31/410	17.50					16	25	41
R26/410	BEDROOM	W32/410	26.83	1.69	147.40	127.40	86.43%	33	17	50
1st Floor										
R1/411	LKD	W1/411	33.35	4.72	307.90	307.30	99.81%	45	25	70
		W2/411	32.66					49	26	75
		W3/411	22.48					19	5	24
R2/411	BEDROOM	W4/411	32.74	2.52	126.00	121.40	96.35%	N/A	N/A	N/A
R3/411	BEDROOM	W5/411	35.73	3.16	101.30	100.30	99.01%	N/A	N/A	N/A
R4/411	BEDROOM	W6/411	36.04	2.67	125.70	121.20	96.42%	N/A	N/A	N/A
R5/411	BEDROOM	W7/411	34.62	3.11	100.40	92.60	92.23%	N/A	N/A	N/A
R6/411	LD	W8/411	23.69	2.45	211.70	209.30	98.87%	N/A	N/A	N/A
R7/411	BEDROOM	W9/411	34.62	2.51	133.50	130.50	97.75%	N/A	N/A	N/A
R8/411	BEDROOM	W10/411	34.70	2.51	133.50	129.00	96.63%	N/A	N/A	N/A
R9/411	LD	W11/411	23.95	2.38	214.20	205.90	96.13%	N/A	N/A	N/A
R10/411	BEDROOM	W12/411	35.42	2.51	137.20	130.20	94.90%	N/A	N/A	N/A
R11/411	BEDROOM	W13/411	36.61	2.54	137.20	126.50	92.20%	N/A	N/A	N/A
R12/411	BEDROOM	W14/411	33.84	2.86	111.80	107.50	96.15%	N/A	N/A	N/A
R13/411	LKD	W15/411	24.11	5.08	287.70	287.10	99.79%	N/A	N/A	N/A
		W16/411	34.70					N/A	N/A	N/A
		W17/411	34.59					N/A	N/A	N/A
R14/411	BEDROOM	W18/411	29.90	1.57	135.10	128.30	94.97%	N/A	N/A	N/A
R15/411	LD	W19/411	21.85	4.67	161.10	160.40	99.57%	14	0	14
		W20/411	27.45					35	3	38
R16/411	BEDROOM	W21/411	22.26	1.86	110.40	106.70	96.65%	N/A	N/A	N/A
R17/411	LD	W22/411	30.51	3.45	169.70	158.50	93.40%	N/A	N/A	N/A
R18/411	BEDROOM	W23/411	32.87	2.30	110.40	106.70	96.65%	N/A	N/A	N/A
R19/411	LD	W24/411	32.57	3.55	169.70	162.00	95.46%	N/A	N/A	N/A
R20/411	BEDROOM	W25/411	12.98	1.41	112.60	104.10	92.45%	5	20	25
R21/411	BEDROOM	W26/411	9.23	1.16	112.60	94.90	84.28%	1	14	15

AVISON YOUNG

Room/Floor	Room Use	Window	%VSC	%ADF	Daylight Distribution			%Sun		
					Room Area sq ft	Proposed Area sq ft	Proposed % of Room Area	Summer	Winter	Total
R22/411	BEDROOM	W27/411	20.40	1.97	128.10	87.70	68.46%	21	13	34
R23/411	LD	W28/411	18.45	2.37	183.60	180.00	98.04%	21	12	33
R24/411	LD	W29/411	18.47	2.37	183.60	180.00	98.04%	23	7	30
R25/411	BEDROOM	W30/411	20.54	1.97	128.40	88.00	68.54%	19	2	21
R26/411	BEDROOM	W31/411	9.00	1.14	112.60	95.70	84.99%	N/A	N/A	N/A
R27/411	BEDROOM	W32/411	12.12	1.30	112.70	104.10	92.37%	N/A	N/A	N/A
R28/411	LD	W33/411	36.82	3.97	169.70	162.00	95.46%	48	28	76
R29/411	BEDROOM	W34/411	36.21	2.52	110.40	106.70	96.65%	46	28	74
R30/411	LD	W35/411	33.31	3.71	169.70	158.50	93.40%	42	27	69
R31/411	BEDROOM	W36/411	25.13	2.04	110.40	106.70	96.65%	30	23	53
R32/411	LD	W37/411	30.25	4.85	161.10	160.40	99.57%	37	20	57
		W38/411	22.34					21	27	48
R33/411	BEDROOM	W39/411	29.92	1.96	135.10	130.10	96.30%	34	24	58
2nd Floor										
R1/412	LKD	W1/412	32.31	4.98	307.90	307.30	99.81%	38	27	65
		W2/412	23.83					22	27	49
		W3/412	37.15					26	8	34
R2/412	BEDROOM	W4/412	37.44	2.74	126.00	121.40	96.35%	N/A	N/A	N/A
R3/412	BEDROOM	W5/412	37.63	3.27	101.30	100.30	99.01%	N/A	N/A	N/A
R4/412	BEDROOM	W6/412	37.79	2.76	125.70	121.20	96.42%	N/A	N/A	N/A
R5/412	BEDROOM	W7/412	37.94	3.27	100.40	92.60	92.23%	N/A	N/A	N/A
R6/412	LD	W8/412	38.13	3.43	211.70	209.30	98.87%	N/A	N/A	N/A
R7/412	BEDROOM	W9/412	38.25	2.64	133.50	130.50	97.75%	N/A	N/A	N/A
R8/412	BEDROOM	W10/412	38.33	2.65	133.50	129.00	96.63%	N/A	N/A	N/A
R9/412	LD	W11/412	38.41	3.33	214.20	205.90	96.13%	N/A	N/A	N/A
R10/412	BEDROOM	W12/412	38.49	2.62	137.20	130.20	94.90%	N/A	N/A	N/A
R11/412	BEDROOM	W13/412	38.53	2.63	137.20	126.50	92.20%	N/A	N/A	N/A
R12/412	BEDROOM	W14/412	38.54	3.10	111.80	107.50	96.15%	N/A	N/A	N/A
R13/412	LKD	W15/412	38.56	5.25	287.70	287.10	99.79%	N/A	N/A	N/A
		W16/412	24.82					N/A	N/A	N/A
		W17/412	32.29					N/A	N/A	N/A
R14/412	BEDROOM	W18/412	32.49	1.65	135.10	128.30	94.97%	N/A	N/A	N/A
R15/412	LKD	W19/412	24.23	5.30	161.10	160.50	99.63%	13	0	13
		W20/412	37.97					39	20	59
R16/412	BEDROOM	W21/412	38.82	2.75	128.10	121.20	94.61%	40	20	60
R17/412	LD	W22/412	38.97	3.87	183.60	181.90	99.07%	40	20	60
R18/412	LD	W23/412	39.07	3.88	183.60	181.90	99.07%	40	20	60
R19/412	BEDROOM	W24/412	39.16	2.76	128.40	121.50	94.63%	40	20	60
R20/412	LD	W25/412	39.34	5.40	161.10	160.50	99.63%	40	20	60
		W26/412	24.48					21	29	50
R21/412	BEDROOM	W27/412	32.79	2.07	135.10	130.10	96.30%	32	26	58
3rd Floor										
R1/413	LKD	W1/413	39.16	6.14	307.90	307.30	99.81%	53	30	83
		W2/413	38.97					53	30	83
		W3/413	38.74					27	8	35
R2/413	BEDROOM	W4/413	81.31	4.62	126.00	126.00	100.00%	N/A	N/A	N/A
R3/413	BEDROOM	W5/413	81.78	5.50	101.30	101.30	100.00%	N/A	N/A	N/A
R4/413	BEDROOM	W6/413	81.78	4.62	125.70	125.70	100.00%	N/A	N/A	N/A
R5/413	BEDROOM	W7/413	79.74	5.06	97.90	95.00	97.04%	N/A	N/A	N/A
R6/413	LD	W8/413	24.16	3.20	221.90	216.70	97.66%	N/A	N/A	N/A
R7/413	BEDROOM	W9/413	0.00	4.00	143.10	143.10	100.00%	N/A	N/A	N/A
		W10/413	80.75					N/A	N/A	N/A
R8/413	BEDROOM	W11/413	79.99	4.67	114.70	112.20	97.82%	N/A	N/A	N/A
R9/413	LD	W12/413	24.37	3.68	188.20	187.10	99.42%	N/A	N/A	N/A
R10/413	BEDROOM	W13/413	9.25	4.56	144.30	141.90	98.34%	16	6	22
		W14/413	81.26					48	12	60
R11/413	BEDROOM	W15/413	82.01	4.32	137.20	134.50	98.03%	N/A	N/A	N/A
R12/413	BEDROOM	W16/413	81.20	5.04	111.80	111.80	100.00%	N/A	N/A	N/A
R13/413	LKD	W17/413	39.46	6.38	287.70	287.10	99.79%	N/A	N/A	N/A
		W18/413	39.45					N/A	N/A	N/A
		W19/413	39.54					N/A	N/A	N/A
R14/413	BEDROOM	W20/413	39.50	1.76	135.10	128.30	94.97%	N/A	N/A	N/A
R15/413	LD	W21/413	39.42	7.95	161.10	161.10	100.00%	15	0	15
		W22/413	82.19					58	26	84

Room/Floor	Room Use	Window	%VSC	%ADF	Daylight Distribution			%Sun		
					Room Area sq ft	Proposed Area sq ft	Proposed % of Room Area	Summer	Winter	Total
R16/413	BEDROOM	W23/413	79.61	3.67	162.30	160.90	99.14%	58	16	74
		W24/413	9.51					13	15	28
R17/413	LD	W25/413	24.48	3.62	184.20	179.10	97.23%	27	10	37
R18/413	LD	W26/413	24.50	3.62	184.20	179.10	97.23%	27	10	37
R19/413	BEDROOM	W27/413	9.44	3.67	162.20	161.00	99.26%	16	0	16
		W28/413	79.65					58	25	83
R20/413	LD	W29/413	82.19	7.93	161.10	161.10	100.00%	58	26	84
		W30/413	39.20					53	30	83
R21/413	BEDROOM	W31/413	39.18	2.21	135.10	130.10	96.30%	53	30	83

ADF	Target Value	No. Rooms	No. meeting Target	% meeting Target
BEDROOM	1	114	112	98.25%
DINING	1.5	0	0	0.00%
KITCHEN	2	2	0	0.00%
LD	1.5	46	45	97.83%
KD	2	0	0	0.00%
STUDY	1.5	0	0	0.00%
STUDIO	1.5	0	0	0.00%
LKD	2	25	24	96.00%
Livingroom	1.5	0	0	0.00%
TOTALS		187	181	96.79%

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