



## **DAYLIGHT & SUNLIGHT**

### SUMMARY LETTER

#### **Flat 2, 3 Hyde Park Place**

Bill Mapstone

**19 August 2021**

GIA No: **17935** Letter Ref: **CS/17935**

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Dear Bill,

**Re: Flat 2, 3 Hyde Park Place – Daylight and Sunlight Summary Letter**

GIA have been instructed to review the potential daylight and sunlight implications associated with the proposed rear extension of Flat 2, 3 Hyde Park Place, located in the City of Westminster, London ('the Site'). This letter report is based on full technical analysis run on the scheme forwarded to GIA from Stephen Levrant Heritage Architecture on 10th August 2021 ('the Proposed Scheme').

**Daylight and Sunlight Methodology**

Daylight and sunlight is a planning matter which assesses the changes in light by reference to the Building Research Establishment (BRE) methodology and criteria. The BRE Guidelines state that properties of residential

occupation have a greater requirement for daylight and sunlight than commercial properties, given the latter's reliance on artificial light, and commercial space will therefore not be considered for planning.

Other non-domestic building uses which may be able to demonstrate a greater expectation of natural light may also require consideration, such as hotels, schools or churches.

The BRE Guidelines provide two main methodologies for external daylight assessment, namely;

- 1) *The Vertical Sky Component (VSC); and*
- 2) *The No Sky Line (NSL).*

We have used the VSC and NSL assessment methodologies to analyse the potential impacts to the relevant dwellings as a result of the implementation of the Proposed Scheme.

In addition to the above, we have applied the methodology provided by the BRE Guidelines for sunlight assessment, denoted as Annual Probable Sunlight Hours (APSH).

For information on the methodologies set out in the BRE Guidelines for the assessment of these properties, please refer to the Principles of Daylight and Sunlight which can be found in Appendix 02.

## The Site and The Proposed Development

The Site is located in the City of Westminster, and currently consists of a ground plus six-storey residential apartment building. GIA have been instructed to review the proposal which relates to Flat 2 only, which is situated on the mezzanine, second and third floors. Figure 01 below illustrates the Site, whilst further drawings can be found in Appendix 03 of this report.

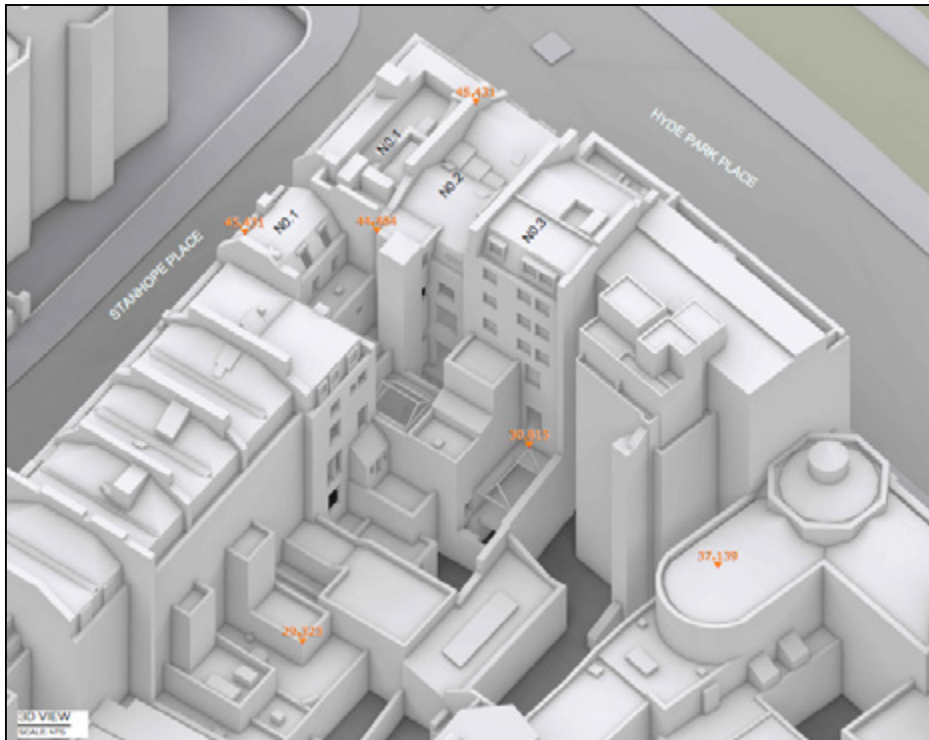


Figure 1: Image of Existing Site

The proposal seeks to extend outwards to the rear by replacing the existing conservatory, whilst also creating a roof terrace above the new extension at third floor level. GIA's understanding of the Proposed Development is illustrated in Figure 02 and further drawings are enclosed within Appendix 03.

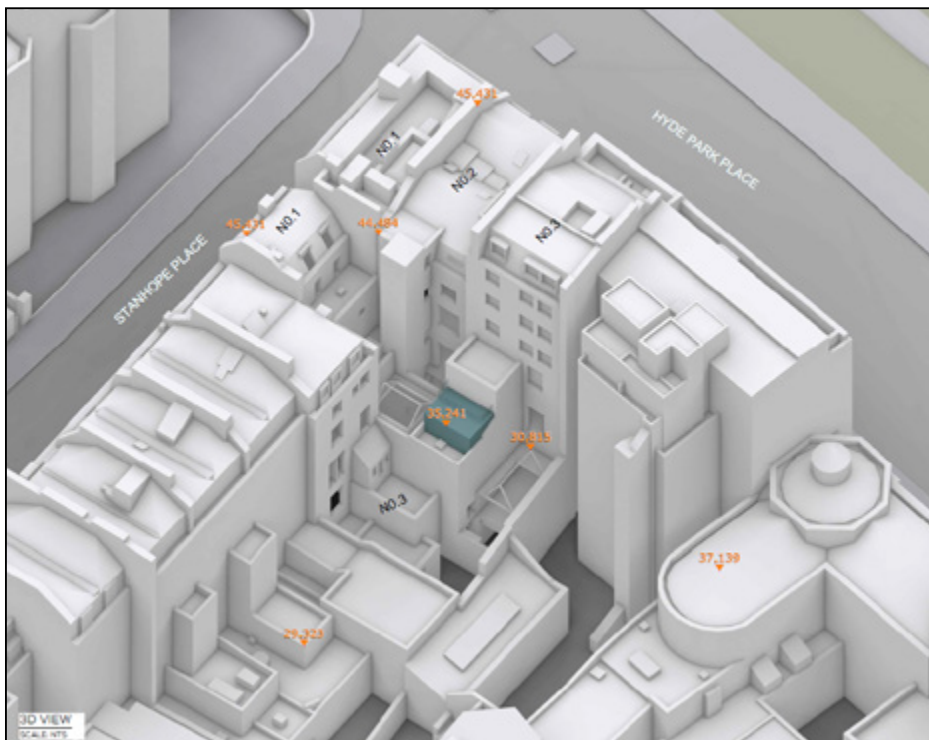


Figure 2: Image of Proposed Scheme

## Surrounding Receptors

From an inspection of the Valuation Office Agency (VOA) website and external observations, we have identified sensitive residential properties around the Site. This is highlighted in the map in Figure 03 below.



Figure 3: Surrounding Property Use Map

From the map above it can be seen that the relevant residential receptors are located at 1, 2 and 3 Hyde Park Place and 1 Stanhope Place. 4-5 Hyde Park Place is a residential building, however as it does not contain any site facing windows we did not consider it relevant for assessment.

## Daylight and Sunlight impacts

A three-dimensional computer model of the Site and surrounding properties was produced using our VU.CITY platform in order to carry out the relevant technical studies. All relevant assumptions made in producing this model can be found in Appendix 01.

GIA have now been able to fully assess the potential daylight and sunlight impacts of the proposed massing. Tables 01 and 02 overleaf provide a summary of the daylight and sunlight results for the properties assessed surrounding the Site, whilst the full set of assessment results can be found in Appendix 04.

PROPERTY	VERTICAL SKY COMPONENT (WINDOW)								NO SKY LINE (ROOM)					
	NO. OF WINDOWS ASSESSED	NO. OF WINDOWS THAT MEET BRE	BRE TRANSGRESSIONS			RETAINED VSC			NO. OF ROOMS ASSESSED	NO. OF ROOMS THAT MEET BRE	BRE TRANSGRESSIONS			
			20-30%	30-40%	40%+	0-15%	15-20%	20-27%			20-30%	30-40%	40%+	
1 Stanhope Place	6	6	0	0	0	0	0	0	4	4	0	0	0	
1 Hyde Park Place	4	4	0	0	0	0	0	0	4	4	0	0	0	
2 Hyde Park Place	15	14	0	0	1	1	0	0	6	6	0	0	0	
3 Hyde Park Place	9	9	0	0	0	0	0	0	5	5	0	0	0	
<b>TOTALS</b>	<b>34</b>	<b>33 (97%)</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>19</b>	<b>19 (100%)</b>	<b>0</b>	<b>0</b>	<b>0</b>	

Table 01: Summary of Daylight Analysis (VSC and NSL)

PROPERTY	ANNUAL PROBABLE SUNLIGHT HOURS							
	NO. OF WINDOWS ASSESSED	NO. OF WINDOWS THAT MEET BRE	ANNUAL			WINTER		
			20-30%	30-40%	40%+	20-30%	30-40%	40%+
1 Stanhope Place	6	6	0	0	0	0	0	0
1 Hyde Park Place	4	4	0	0	0	0	0	0
2 Hyde Park Place	6	6	0	0	0	0	0	0
3 Hyde Park Place	4	4	0	0	0	0	0	0
<b>TOTALS</b>	<b>20</b>	<b>20 (100%)</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

Table 02: Summary of Sunlight Analysis (APSH)

Demonstrated in the above summary tables, 97% of the windows assessed will comply with BRE guidance for VSC, whilst 100% of rooms will adhere to the NSL parameters. Additionally, 100% of windows will comply with the APSP methodology.

The one window that transgresses beyond BRE guidance for VSC serves a room of unknown use, located at the rear of 2 Hyde Park Place. The window, which is located on the ground floor, has an existing VSC level of 10.5%. With the proposed extension in place, this will reduce by 51.4% to 5.1%. Whilst this reduction is beyond the BRE recommended 20%, the existing VSC level is very low and therefore a percentage reduction stands to appear disproportionately high.

We understand from our site visit that this window serves a multi-window glass roof structure. All other windows within this structure remain BRE compliant for VSC, experiencing very small or no daylight losses. When looking at the NSL results for this room, the actual daylight distribution loss is 0.4% which equates to a 3.2% reduction, which is BRE compliant as it is less than a 20% alteration.

On the basis of the one window which experiences daylight reductions beyond BRE guidance serves a room with multiple other windows, we do not believe the daylight amenity to this room will be unduly impacted by the proposed extension at Flat 2.

## Conclusion

GIA have undertaken a daylight and sunlight assessment in relation to the Proposed Development at Flat 2, 3 Hyde Park Place, London. The technical analysis has been undertaken in accordance with the BRE guidelines.

The assessment demonstrates that, following implementation of the Proposed Development, the surrounding residential properties will experience a near perfect level of daylight and sunlight compliance in accordance with recommendations in the BRE guidelines, with only one window forming part of a conservatory-like structure transgressing beyond the suggested parameters as outlined by the BRE.

In light of the above, it is clear that the scheme performs excellently from a daylight and sunlight perspective and, in our opinion, will not cause unacceptable harm to the relevant surrounding properties.

Yours sincerely,

For and on behalf of GIA,



Carl Shoesmith

**Surveyor**

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- Encl. Appendix 01 – Assumptions
- Appendix 02 – Principles of Daylight and Sunlight
- Appendix 03 – Existing and Proposed Drawings
- Appendix 04 – Daylight and Sunlight Assessment Results

## DISCLAIMER:

This report is intended solely for Bill Mapstone and may contain confidential information. The Liability of this Report extends to Bill Mapstone and their duly appointed advisors. No part or whole of its contents may be disclosed to or relied upon by any Third Parties without the consent of this Practice. This report is accurate as at the date of publication but does not take into account anything that has happened since the date of this report.

# APPENDICES

APPENDIX 01:

# ASSUMPTIONS



# ASSUMPTIONS

## 01

The context model has been produced using our VU.CITY platform. GIA have extracted the required area, creating a 3D model with an overall building tolerance of up to 150mm. The relevant windows have been added to the VU.CITY model from site photographs, observations and brick counting.

## 02

GIA have sought to create the most accurate 3D model possible based on the data available, however, a degree of tolerance should be applied.

## 03

The scope of buildings assessed has been determined as a reasonable zone which considers both the scale of the proposed scheme and the proximity of those buildings which surround and face the site. There may be properties outside of the considered scope that are affected by the scheme, however, no significant effects are anticipated.

## 04

The property uses have been ascertained by reference to a Valuation Office Agency/Google search carried out and/or based upon external observations from a site visit carried out on 22<sup>nd</sup> July 2021.

## 05

GIA have obtained full or partial floor plans for the following properties:

- 2 Hyde Park Place
- 3 Hyde Park Place
- 1 Stanhope Place

These layouts have been incorporated into our 3D computer model. It is reasonable to assume that these layouts have been implemented, however, GIA would require access to confirm this.

## 06

Where GIA have not been able to source detailed internal floor-plans reasonable assumptions as to the internal layouts of the rooms behind the fenestration have been made. This is normal practice where access to adjoining properties is undesirable in terms of development confidentiality. Unless the building form dictates otherwise, we assume a standard 4.2m deep room (14ft) for residential properties.

## 07

Floor levels have been assumed for adjoining properties as access has not been obtained. This dictates the level of the working plane which is the point at which the No Sky Line assessments are carried out.

## 08

GIA have discounted rooms that appear to be or are confirmed to be bathrooms, hallways, circulation space etc. These rooms are not considered to be habitable and thus do not require assessment in accordance with the BRE Guidelines.

APPENDIX 02:

# PRINCIPLES OF DAYLIGHT & SUNLIGHT

## APPENDIX 02

# PRINCIPLES OF DAYLIGHT, SUNLIGHT & OVERSHADOWING

The Building Research Establishment (BRE) have set out in their handbook 'Site Layout Planning for Daylight & Sunlight: A Guide to Good Practice 2nd edition (2011)', guidelines and methodology for the measurement and assessment of daylight and sunlight.

### BACKGROUND & CONTEXT

- A 2.1 The quality of amenity and open spaces is often stipulated within planning policy for protection or enhancement and is often a concern for adjoining owners and other interested parties.
- A 2.2 The BRE Guidelines provide advice on site layout planning to determine the quality of Daylight and Sunlight within open spaces between buildings.
- A 2.3 The BRE Guidelines note that the document is intended to be used in conjunction with the interior Daylight recommendations found within the British Standard BS8206-2:2008 and The Applications Manual on Window Design of the Chartered Institution of Building Services Engineers (CIBSE).
- A 2.4 The BRE Guidelines are typically referred to for daylight and sunlight amenity issues, however, they were not intended to be used as an instrument of planning policy, nor were the figures intended to be fixedly applied to all locations.
- A 2.5 In the introduction of 'Site Layout Planning for Daylight and Sunlight (2011)', section 1.6 (page 1), states that:-
- "The guide is intended for building designers and their clients, consultants and planning officials. The advice given here is not mandatory and this document should not be seen as an instrument of planning policy. Its aim is to help rather than constrain the designer. Although it gives numerical guidelines, these should be interpreted flexibly because natural lighting is only one of many factors in site layout design (see Section 5). In special circumstances the developer or Planning Authority may wish to use different target values. For example, in an historic city centre, or in an area with modern high rise buildings, a higher degree of obstruction may be unavoidable if new developments are to match the height and proportions of existing buildings".<sup>1</sup>*
- A 2.6 Paragraph 2.2.3 (page 7) of the document states:-
- "Note that numerical values given here are purely advisory. Different criteria may be used, based on the requirements for daylighting in an area viewed against other site layout constraints".<sup>2</sup>*
- A 2.7 The numerical criteria suggested by the BRE are therefore designed to provide industry advice/guidance to plan/design with daylight in mind. Alternative values may be appropriate in certain circumstances such as highly dense urban areas around London. The BRE approach to creating alternative criteria is detailed within Appendix F of the Document.
- A 2.8 The BRE Guidelines state that they are;
- "intended for use for rooms in adjoining dwellings where daylight is required, including living rooms, kitchens and bedrooms. Windows to bathrooms, toilets, storerooms, circulation areas and garages need not be analysed."<sup>3</sup>*
- A 2.9 They are therefore primarily designed to be used for residential properties however, the BRE Guidelines continue to state that they may be applied to any existing non-residential buildings where there may be a reasonable expectation of daylight including; schools, hospitals, hostels, small workshop and some offices.
- A 2.10 It is important to note, however, that this document is a guide and states that its aim *"is to help rather than constrain the designer"*<sup>4</sup>.
- A 2.11 The document provides advice, but also clearly states that *"it is purely advisory and the numerical target values within it may be varied to meet the needs of the development and its location."*<sup>5</sup>
- A 2.12 Many Local Planning Authorities consider daylight and sunlight an important factor for determining planning applications. Policies refer to both the protection of daylight and sunlight amenity within existing properties as well as the creation of proposed dwellings with high levels of daylight and sunlight amenity.
- A 2.13 In terms of considering what is a material deterioration in light, Local Authorities typically refer to the BRE Guide. Although Local Authorities will look to the BRE Guide to understand impacts it is their Planning Policies that will determine whether the changes in light should be a reason for refusal at planning.
- A 2.14 It is an inevitable consequence of the built up urban environment that Daylight and Sunlight will be more limited in dense urban areas. It is well acknowledged

that in such situations there may be many other conflicting and potentially more important planning and urban design matters to consider other than just the provision of ideal levels of Daylight and Sunlight.

A 2.15 The following sections extract relevant sections from the Guide.

## DAYLIGHT

A 2.16 The BRE Guidelines provide three methodologies for daylight assessment, namely;

- 1 The Vertical Sky Component (VSC);
- 2 The No Sky Line (NSL); and
- 3 The Average Daylight Factor (ADF).

### Vertical Sky Component (VSC)

A 2.17 The Vertical Sky Component (VSC) method is described in the BRE Guidelines as the;

*“Ratio of that part of illuminance, at a point on a given vertical plane, that is received directly from a CIE standard overcast sky, to illuminance on a horizontal plane due to an unobstructed hemisphere of this sky. Usually the ‘given vertical plane’ is the outside of a window wall.*

*The VSC does not include reflected light, either from the ground or from other buildings”<sup>6</sup>*

A 2.18 Put simply, the VSC provides an assessment of the amount of skylight falling on a vertical plane (generally a window) directly from the sky, in the circumstance of an overcast sky (CIE standard).

A 2.19 The national numerical value target “ideal” for VSC is 27%. The BRE Guidelines advise that upon implementation of a development, a window should retain a VSC value of 27% or at least 0.8 of its former value (i.e. no more than a 20% change).<sup>7</sup>

A 2.20 This form of assessment does not take account of window size, room use, room size, window number or dual aspect rooms. The assessment also assumes that all obstructions to the sky are 100% non-reflective.

A 2.21 The VSC calculation has been undertaken in both the existing and proposed scenarios so as to make a comparison.

A 2.22 The image in Figure 01 depicts a waldram diagram which is used to calculate the VSC. The existing buildings are solidly pictured with the proposed scheme semi-transparent in the foreground.

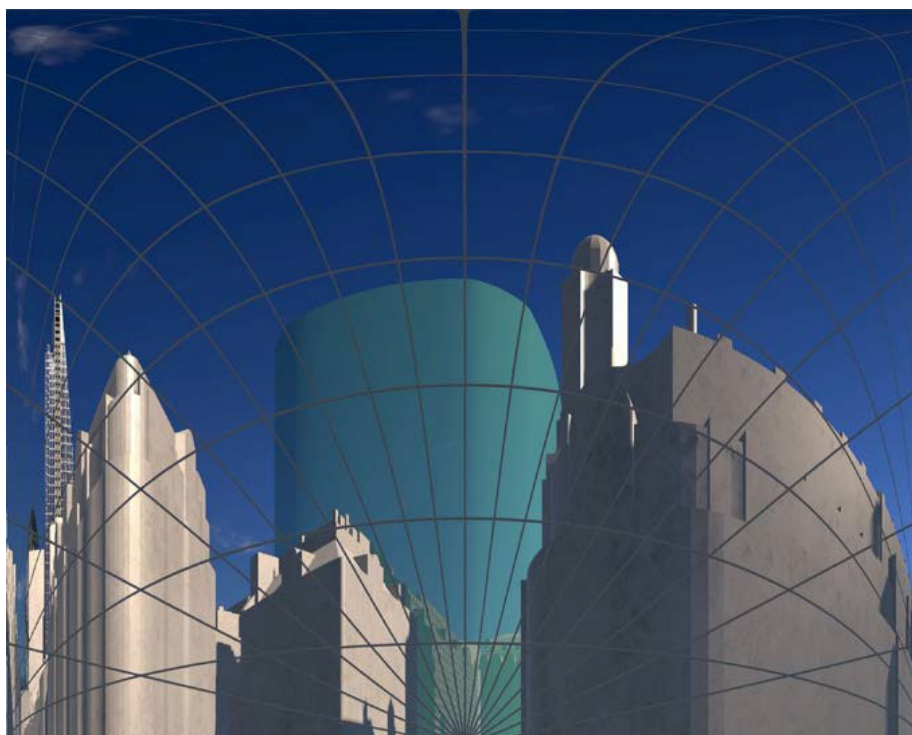


Figure 01: Waldram diagram

### No Sky Line (NSL)

A 2.23 The BRE recommends the No Sky Line (NSL) method where internal layouts are known.

A 2.24 The No Sky Line (NSL) method is described as “the outline on the working plane of the area from which no sky can be seen.”<sup>8</sup>

A 2.25 In summary, the NSL calculation assesses where the sky can and cannot be seen from inside a room at the working plane, “in houses the working plane is assumed to be horizontal and 0.85m high.”<sup>9</sup>

A 2.26 The change in position of the NSL between the existing and proposed scenario is then calculated. This change can be illustrated on a contour plot, an example of which can be found in Figure 02.

A 2.27 The BRE Guidelines state at paragraph 2.2.9 that:

*“If, following construction of a new development, the no sky line moves so that the area of the existing room, which does receive direct skylight, is reduced to less than 0.8 times its former value this will be noticeable to the occupants,*

*and more of the room will appear poorly lit. This is also true if the no sky line encroaches on key areas like kitchen sinks and worktops.”<sup>10</sup>*

A 2.28 If the NSL experiences more than a 20% change from the existing situation then, in accordance with the strict application of the national numerical values, the change in daylight would be noticeable to the occupants.

A 2.29 This assessment takes the number and size of windows serving a room into account however, there is no qualitative assessment of the light in the room, only where sky can or cannot be seen.



Figure 02: Example NSL diagram

**Decision Chart (Figure 20 of the BRE Guide)**

A 2.30 The flowchart in Figure 03 illustrates the steps and criteria outlined within the BRE Guidelines to understand whether the daylighting (VSC and NSL) may be significantly affected.

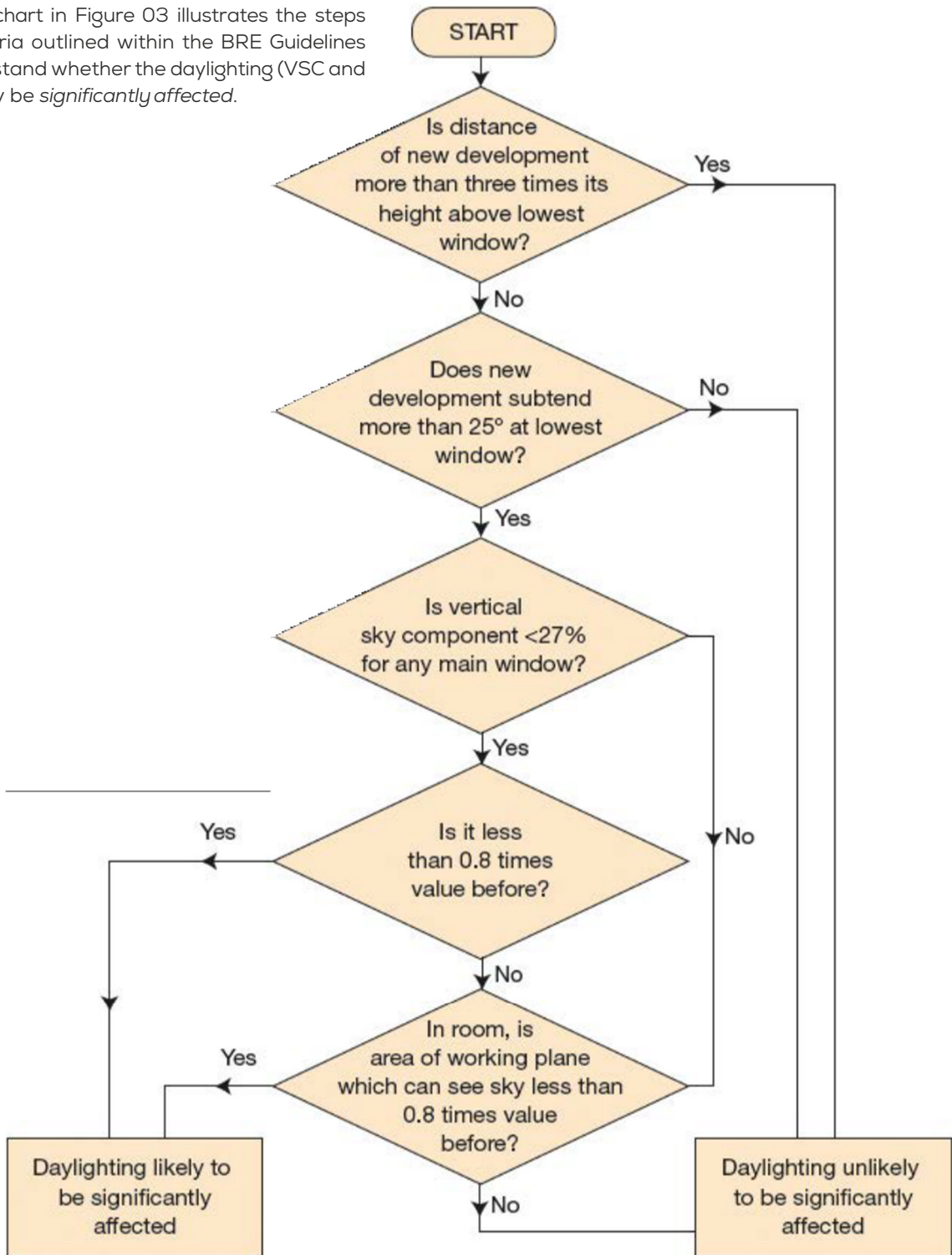


Figure 03: BRE Decision Chart (Figure 20): diffuse daylight in existing buildings. This does not include an assessment of rights to light issues, which a developer may need to consider separately



### Average Daylight Factor (ADF)

A 2.31 The Average Daylight Factor (ADF) is defined within the 2011 BRE Guidelines as the *'ratio of total daylight flux incident on the working plane to the area of the working plane, expressed as a percentage of the outdoor illuminance on a horizontal plane due to an unobstructed CIE standard overcast sky. Thus a 1% ADF would mean that the average indoor illuminance would be one hundredth the outdoor unobstructed illuminance'*.<sup>11</sup>

A 2.32 This calculation considers not only the amount of skylight falling on the vertical face of the window, but also the glazing size, transmittance value, average reflectance, room area and room use. It is therefore a more detailed analysis of the daylight levels within a room.

A 2.33 British Standard 8206-2 quotes a number of recommended ADF levels based on room use. The ADF criteria is the prescribed methodology for evaluating the Daylight within proposed accommodation and the values referenced by the BRE Guidelines can be found in the British Standard document BS8206 Part II. The values for those rooms that are most relevant for our assessments are:

- Bedrooms 1% ADF
- Living rooms 1.5% ADF
- Kitchens 2% ADF<sup>12</sup>

A 2.34 Where one room serves more than one purpose, the minimum ADF should be that for the room type with the highest value.

A 2.35 As per the *British Standard Lighting for buildings - Part 2: Code of practice for daylighting* the ADF value should be 5%+ for a well daylight space:

*"It is considered good practice to ensure that rooms in dwellings and in most other buildings have a predominantly daylight appearance. In order to achieve this the average daylight factor should be at least 2%. If the average daylight factor in a space is at least 5% then electric lighting is not normally needed during the daytime, provided the uniformity is satisfactory. If the average daylight factor in a space is between 2% and 5% supplementary electric lighting is usually required."*<sup>13</sup>

A 2.36 Appendix F of the BRE guidance states that, though

not being generally recommended, the use of the ADF for loss of light to existing buildings can be appropriate in some situations:

- where the existing building is one of a series of new buildings that are being built one after another;
- where the existing building is proposed (i.e. consented) but not built;
- where the developer of the new building also owns the existing nearby building and proposes to carry out improvements to the existing building;
- where the developer also owns the existing nearby building and the affected rooms are either unoccupied or would be occupied by different people following construction of the new building.<sup>14</sup>

## SUNLIGHT

### Annual Probable Sunlight Hours (APSH)

A 2.37 The BRE Guidance suggests that to understand sunlight impacts to a property an assessment

A 2.38 of Annual Probable Sunlight Hours (APSH) is undertaken. The APSH is defined as:

*"the long-term average of the total number of hours during a year in which direct sunlight reaches the unobstructed ground (when clouds are taken into account)"*<sup>15</sup>

A 2.39 In interpreting the results, the BRE Guidance states that the Sunlight to a window may be adversely affected if a point at the centre of a window:

- receives less than 25% of annual probable sunlight hours, or less than 5% of annual probable sunlight hours between 21 September and 21 March, and
- receives less than 0.8 times its former sunlight hours during either period, and
- has a reduction in sunlight received over the whole year greater than 4% of annual probable sunlight hours.<sup>16</sup>

A 2.40 To understand the potential sunlight impacts therefore, all windows facing within 90 degrees of due south and overlooking the development have been assessed for APSH.

A 2.41 The image in Figure 04 depicts the APSH sun spots on a waldram diagram. The existing buildings are solidly pictured with the proposed scheme semi-transparent in the foreground. The yellow spots indicate summer sun and the blue spots indicate winter sun.

A 2.42 The number of sun spots is calculated for both the whole year and during the winter period (21 September to 21 March), prior to an obstruction and after the obstruction is put in place. This provides a percentage of APSH for each of the time periods for each window assessed.

A 2.43 The BRE Guidelines note that:

*“all main living rooms of dwellings...should be checked if they have a window facing within 90° of due south. Kitchens and bedrooms are less important, although care should be taken not to block too much sun: and*

*“If the main living room to a dwelling has a main window facing within 90° of due north, but a secondary window facing within 90° of due south, sunlight to the secondary window should be checked.”<sup>17</sup>*

A 2.44 The BRE Guidelines set out the overall methodology and criteria for the assessment of Sunlight in

Chapter 3. The BRE Guidelines state:

*“To assess loss of sunlight to an existing building, it is suggested that all main living rooms of dwellings, and conservatories, should be checked if they have a window facing within 90 degrees of due south. Kitchens and bedrooms are less important, although care should be taken not to block too much sun.*

*A point at the centre of the window on the outside face of the window wall may be taken.*

*If this window reference point can receive more than one quarter of Annual Probable Sunlight Hours [25%], including at least 5% of APSH in the winter months between 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 available sunlight hours are both less than the amount above and less than 0.8 times their former value, either over the whole year or just during the winter months (21 September - 21 March), then the occupants of the existing building will notice the loss of sunlight; if the overall annual loss is greater than 4% of APSH, the room may appear colder and less cheerful and pleasant.”<sup>18</sup>*

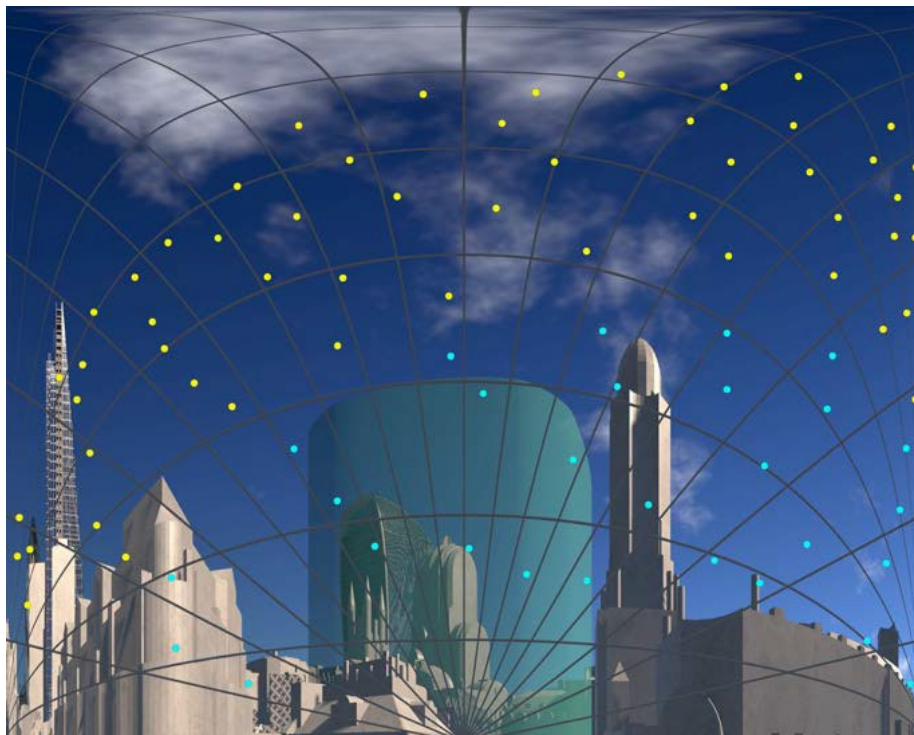


Figure 04: Waldram diagram



## OVERSHADOWING

A 2.45 The BRE guidance in respect of overshadowing of amenity spaces is set out in section 3.3 of the handbook. Here it states as follows:

*“Sunlight in the spaces between buildings has an important impact on the overall appearance and ambiance of a development. It is valuable for a number of reasons:*

- *To provide attractive sunlit views (all year)*
- *To make outdoor activities, like sitting out and children’s play more pleasant (mainly during the warmer months)*
- *To encourage plant growth (mainly in spring and summer)*
- *To dry out the ground, reducing moss and slime (mainly during the colder months)*
- *To melt frost, ice and snow (in winter)*
- *To dry clothes (all year)<sup>19</sup>*

A 2.46 It must be acknowledged that in urban areas the availability of sunlight on the ground is a factor which is significantly controlled by the existing urban fabric around the site in question and so may have very little to do with the form of the development itself. Likewise, there may be many other urban design, planning and site constraints which determine and run contrary to the best form, siting and location of a proposed development in terms of availability of sun on the ground.

## Sun Hours on Ground & Transient Overshadowing

A 2.47 The Sun Hours on Ground (SHOG) method of overshadowing assessment uses a simulation software to determine the areas which receive direct Sunlight and those which do not.

A 2.48 The BRE Guidelines suggest that the Spring Equinox (21 March) is a suitable date for the assessment as this is the midpoint of the sun’s position throughout the year. Using specialist software, the path of the sun is tracked to determine where the sun would reach the ground and where it would not.

*“It is recommended that for it [an amenity space] to appear adequately sunlit throughout the year at least half of a garden or amenity area should receive at least two hours of sunlight on 21 March. If as a result of new development an existing garden or amenity area does not meet the above, and the area which can receive two hours of sun on 21 March is less than 0.8 times its former value, then the loss of sunlight is likely to be noticeable.”<sup>20</sup>*

A 2.49 The Transient Overshadowing study is recommended where large buildings are proposed which may affect a number of gardens or open spaces. For the purpose of this assessment, the shadow is mapped at hourly intervals (from sun rise to sun set) on the following dates:

- 21 March (Spring equinox)
- 21 June (Summer solstice)
- 21 December (Winter solstice)

A 2.50 The September equinox is not assessed as this would provide the same results as those for 21 March.

A 2.51 The BRE guidelines do not provide any criteria for Transient Overshadowing.

## BRE GUIDELINES: ADDITIONAL DAYLIGHT AND SUNLIGHT TESTS

### Daylight - VSC and APSH to Rooms

A 2.52 As outlined within the BRE Guidelines the VSC value is calculated for each window; however –

*“If a room has two or more windows of equal size, the mean of their VSC’s may be taken.”<sup>21</sup>*

A 2.53 Although not strictly in accordance with the BRE methodology, where a room is served by two or more windows of the same or different sizes, the VSC value to the room can be calculated by applying an average weighting calculation to understand the VSC value to the room. The formula used is as follows;

$$\frac{\sum(Vn \cdot An)}{\sum An}$$

Where:

V = window VSC

A = window area

n = the number of windows

A 2.54 The BRE provide a methodology to calculate APSH in relation to the room and window.

*“If a room has multiple windows on the same walls or adjacent walls, the highest value of ASPH should be taken. If a room has two windows on opposite walls, the ASPH due to each can be added together.”<sup>22</sup>*

A 2.55 The above extract of the BRE is in relation to proposed units rather than existing buildings. It does, however, make sense to apply this methodology to existing rooms. A room served by multiple windows could receive the benefit of Sunlight entering from all of them and not just one.

A 2.56 GIA calculate the APSH room assessment in the following way:

- 1 The sunlight hours (both winter and annual) are calculated for each window. Instead of simply returning the overall per cent pass rate, i.e. one figure for winter, and one for the whole year, the yes/no result of each of the 100 sun spots is tracked. For this accounting to work, each sun dot needs to be assigned a unique identifier, e.g. from 1 to 100;

- 2 The sets of 100 sun spots are combined for each room using Boolean logic, i.e. conjunctions of yes/no values. The outcome of this step is a set of 100 yes/no values corresponding to the 100 sun spots, but on a per-room basis. Each per-room dot is counted if it is unobstructed for at least one of its windows; and

- 3 The unobstructed sun dots for the room are summed up and expressed as a percentage of the total number of annual and winter spots. This returns the per-room pass rate consistent with Section 3.1.10 of BR 209.

### Balconies/Overhangs

A 2.57 The BRE recognises that existing architectural features on neighbouring buildings such as balconies and overhangs inherently restrict the quantum of skylight to a window. The BRE Guidelines note on page 5, paragraph 2.1.17 and page 8, paragraph 2.2.11:

*“This is a particular problem if there are large obstructions opposite; with the combined effect of the overhang and the obstruction, it may be impossible to see the sky from inside the room, and hence to receive any direct skylight or sunlight at all.”*

*“Existing windows with balconies above them typically receive less daylight. Because the balcony cuts out light from the top part of the sky, even a modest obstruction opposite may result in a large relative impact on the VSC, and on the area receiving direct skylight. One way to demonstrate this would be to carry out an additional calculation of the VSC and the area receiving direct skylight, for both the existing and proposed situations, without the balcony in place.”<sup>23</sup>*

A 2.58 As noted by the BRE Guidelines, where there are existing overhanging features larger reductions in skylight and sunlight may be unavoidable and alternative criteria can be used. The guidance suggests that in such situations a calculation is carried out that excludes the balcony or the obstruction.

## DAYLIGHT - MIRROR MASSING & ADJOINING DEVELOPMENT LAND

### Alternative target Values for Skylight and Sunlight Access “Mirror Massing”

A 2.59 The BRE Guidelines provide a calculation for the VSC and APSH analysis to quantify an appropriate alternative value based on the context of an environment. This approach is known as the ‘mirror image’ analysis (see Figure 05).

A 2.60 The BRE notes:

*“where an existing building has windows that are unusually close to the site boundary and taking more than their fair share of light. Figure 3 shows an example where side windows of an existing building are close to the boundary. To ensure that new development matches the height and proportions of existing buildings, the VSC and APSH targets for these windows could be set to those for a ‘mirror-image’ building of the same height and size, an equal distance away on the other side of the boundary.”<sup>24</sup>*

A 2.61 This analysis is used to understand the levels of Daylight (VSC) and Sunlight (APSH) that would be experienced by an extant neighbouring property if there were a building of the same height and extent opposite.

A 2.62 The mirror image assessment is fairly simplistic and is not, therefore, easily applied to large and complex site footprints which are not all built at equal distances from the site boundary or of the same footprint.

### Adjoining Development Land

A 2.63 The “Adjoining Development Land” analysis provided within the BRE Guidelines is a simple test to ensure that a proposal is a reasonable distance from the boundary so as to “enable future nearby developments to enjoy a similar access to daylight.”

A 2.64 The BRE comments that:

*“The diffuse daylight coming over the boundary may be quantified in the following way. As a first check, draw a section in a plane perpendicular to the boundary (Figure 21). If a road separates the two sites then the centre line of the road should*

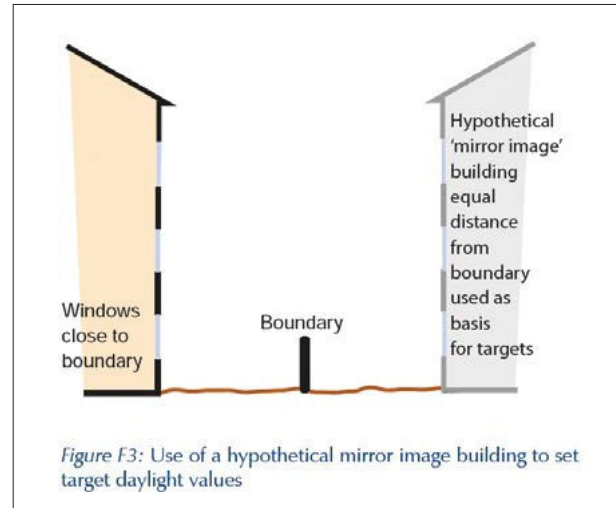


Figure 05: Littlefair, P. (2011). Site Layout Planning for Daylight and Sunlight – A Guide to Good Practice. Hertfordshire: HIS BRE Press p 64  
Figure F3

*be taken. Measure the angle to the horizontal subtended at a point 1.6 m. above the boundary by the proposed new buildings. If this angle is less than 43° then there will normally still be the potential for good daylighting on the adjoining development site (but see Sections 2.3.6 and 2.3.7).<sup>25</sup>*

*“The guidelines above should not be applied too rigidly. A particularly important exception occurs when the two sites are very unequal in size and the proposed new building is larger in scale than the likely future development nearby. This is because the numerical values above are derived by assuming the future development will be exactly the same size as the proposed new building (Figure 22). If the adjoining sites for development are a lot smaller, a better approach is to make a rough prediction of where the nearest window wall of the future development may be; then to carry out the ‘new building’ analysis in Section 2.1 for this window wall.”<sup>26</sup>*

*“The 43° angle should not be used as a form generator, to produce a building which slopes or steps down towards the boundary. Compare Figure 23 with Figure 22 to see how this can result in a higher than anticipated obstruction to daylight. In Figure 23 the proposed building subtends 34° at its mirror image, rather than the maximum of 25° suggested here. In cases of doubt, the best approach is again to carry out a new building analysis for the most likely location of a window wall of a future development.”<sup>27</sup>*

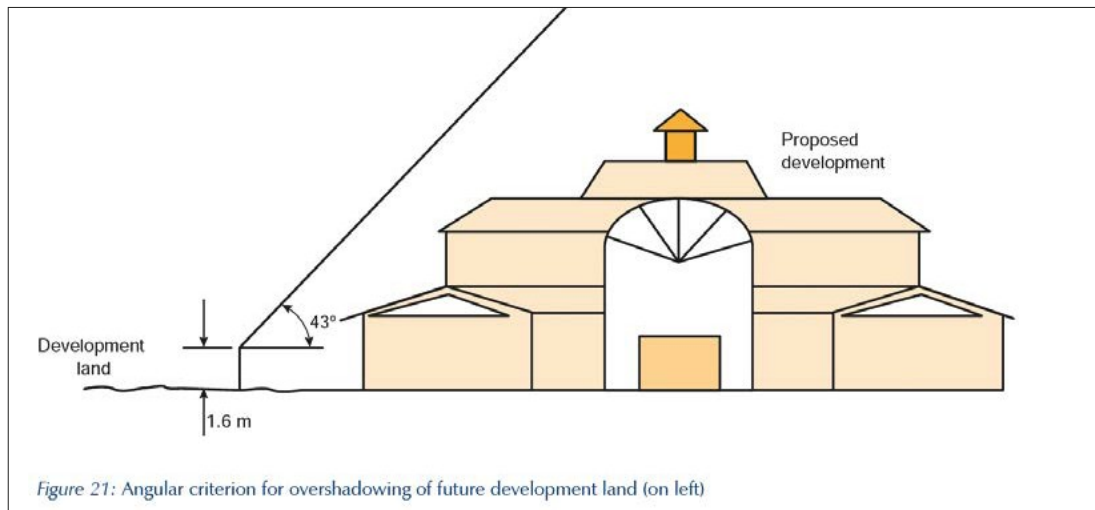


Figure 06: Littlefair, P. (2011). Site Layout Planning for Daylight and Sunlight – A Guide to Good Practice. Hertfordshire: HIS BRE Press p 11 Figure F21

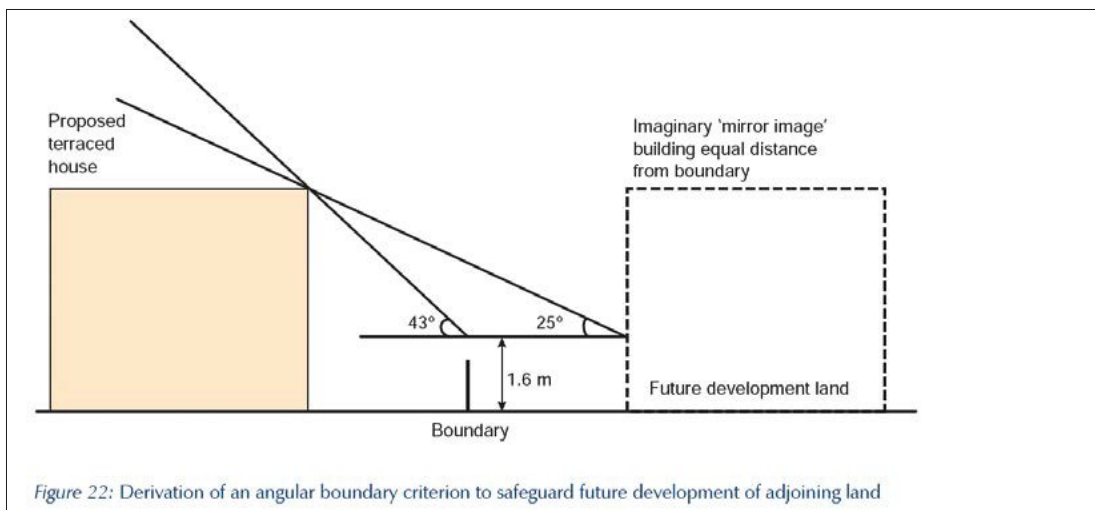


Figure 07: Littlefair, P. (2011). Site Layout Planning for Daylight and Sunlight – A Guide to Good Practice. Hertfordshire: HIS BRE Press p 12 Figure 22

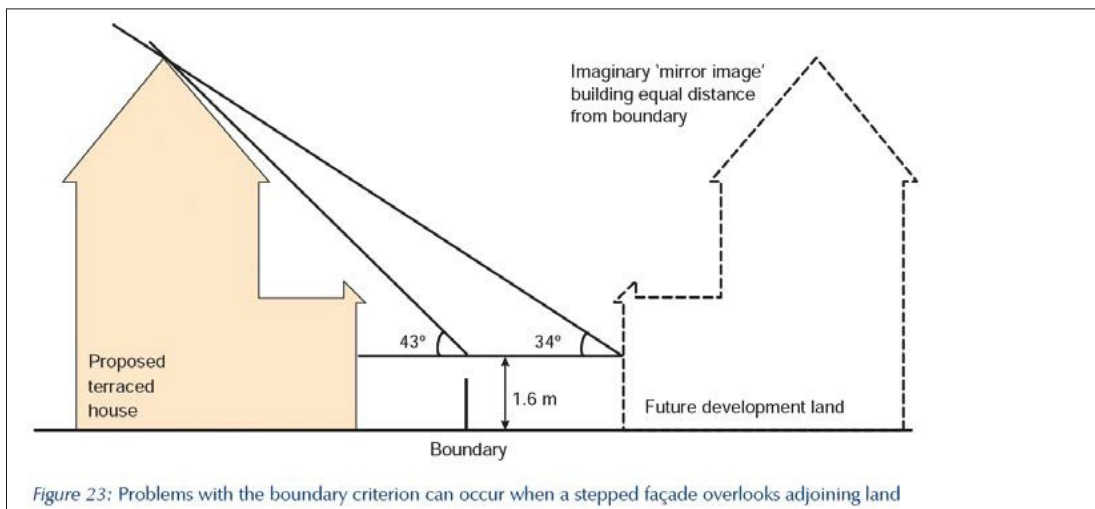


Figure 08: Littlefair, P. (2011). Site Layout Planning for Daylight and Sunlight – A Guide to Good Practice. Hertfordshire: HIS BRE Press p 12 Figure 23

A 2.65 As is outlined above the Adjoining Development Land analysis is predicated on ensuring that a proposal next to future development land is not negatively impacting the ability to develop in consideration of light matters.

### **Other Amenity Considerations**

A 2.66 Daylight and sunlight is one factor among many under the heading of residential amenity considerations for any given development design or planning application; others include:

- outlook;
- sense of enclosure;
- privacy;
- access to outdoor space e.g. balconies or communal garden/courtyard.

## **CONTEXT METHODOLOGY**

A 2.67 In May 2019 the British Standard (BS8206-2:2008) was superseded by the new European Standard on daylight "*BS EN 17037:2018 Daylight in buildings*" but this standard is only applicable for assessing the levels of light within proposed developments. Until and unless it is revised, therefore, BR209 remains the basis for assessing impacts to neighbours and the new European Standard is not relevant for this report.

## ENDNOTES

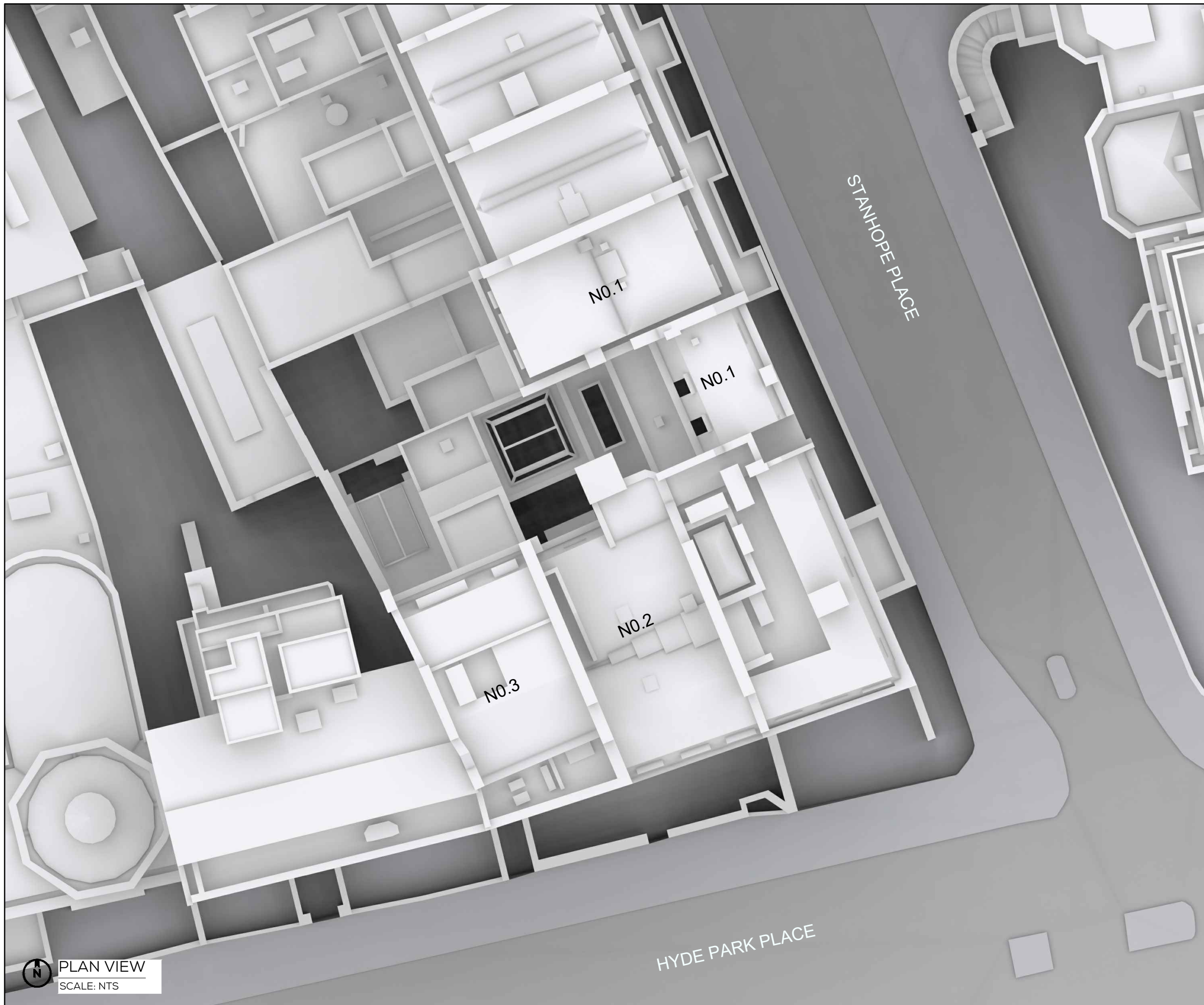
- 1 Littlefair, P. (2011). Site Layout Planning for Daylight and Sunlight – A Guide to Good Practice. Hertfordshire: IHS BRE Press, page 1, paragraph 1.6
- 2 Littlefair, P. (2011). Site Layout Planning for Daylight and Sunlight – A Guide to Good Practice. Hertfordshire: IHS BRE Press, page 7, paragraph 2.2.3
- 3 Littlefair, P. (2011). Site Layout Planning for Daylight and Sunlight – A Guide to Good Practice. Hertfordshire: IHS BRE Press, page 7 paragraph 2.2.
- 4 Littlefair, P. (2011). Site layout Planning for Daylight and Sunlight – A Guide to Good Practice. Hertfordshire: IHS BRE Press, page 1, paragraph 1.6
- 5 Littlefair, P. (2011). Site layout Planning for Daylight and Sunlight – A Guide to Good Practice. Hertfordshire: IHS BRE Press, page v
- 6 Littlefair, P. (2011). Site Layout Planning for Daylight and Sunlight – A Guide to Good Practice. Hertfordshire: IHS BRE Press, page viii
- 7 Littlefair, P. (2011). Site layout Planning for Daylight and Sunlight – A Guide to Good Practice. Hertfordshire: IHS BRE Press, page 7, paragraph 2.2.7
- 8 Littlefair, P. (2011). Site layout Planning for Daylight and Sunlight – A Guide to Good Practice. Hertfordshire: IHS BRE Press, page viii
- 9 Littlefair, P. (2011). Site layout Planning for Daylight and Sunlight – A Guide to Good Practice. Hertfordshire: IHS BRE Press, page 7, paragraph 2.2.8
- 10 Littlefair, P. (2011). Site layout Planning for Daylight and Sunlight – A Guide to Good Practice. Hertfordshire: IHS BRE Press, page 8, paragraph 2.2.9
- 11 Littlefair, P. (2011). Site layout Planning for Daylight and Sunlight – A Guide to Good Practice. Hertfordshire: IHS BRE Press, page viii
- 12 British Standard 8206-2:2008, page 10, paragraph 5.6
- 13 British Standard 8206-2:2008, page 9-10, paragraph 5.5
- 14 Littlefair, P. (2011). Site layout Planning for Daylight and Sunlight – A Guide to Good Practice. Hertfordshire: IHS BRE Press, page 64, paragraph F8
- 15 Littlefair, P. (2011). Site layout Planning for Daylight and Sunlight – A Guide to Good Practice. Hertfordshire: IHS BRE Press, page viii
- 16 Littlefair, P. (2011). Site layout Planning for Daylight and Sunlight – A Guide to Good Practice. Hertfordshire: IHS BRE Press, page 17, paragraph 3.2.11
- 17 Littlefair, P. (2011). Site layout Planning for Daylight and Sunlight – A Guide to Good Practice. Hertfordshire: IHS BRE Press, page 16 paragraph 3.2.3 and paragraph 3.2.4
- 18 Littlefair, P. (2011). Site layout Planning for Daylight and Sunlight – A Guide to Good Practice. Hertfordshire: IHS BRE Press, page 16 paragraph 3.2.3, paragraph 3.2.4 and 3.2.5 and page 17 paragraph 3.2.6
- 19 Littlefair, P. (2011). Site layout Planning for Daylight and Sunlight – A Guide to Good Practice. Hertfordshire: IHS BRE Press, page 18, paragraph 3.3.1
- 20 Littlefair, P. (2011). Site layout Planning for Daylight and Sunlight – A Guide to Good Practice. Hertfordshire: IHS BRE Press, page 20, paragraph 3.3.17
- 21 Littlefair, P. (2011). Site layout Planning for Daylight and Sunlight – A Guide to Good Practice. Hertfordshire: IHS BRE Press, page 7, paragraph 2.2.6
- 22 Littlefair, P. (2011). Site layout Planning for Daylight and Sunlight – A Guide to Good Practice. Hertfordshire: IHS BRE Press, page 16, paragraph 3.1.12
- 23 Littlefair, P. (2011). Site layout Planning for Daylight and Sunlight – A Guide to Good Practice. Hertfordshire: IHS BRE Press, page 5, paragraph 2.1.17 and page 8, paragraph 2.2.11
- 24 Littlefair, P. (2011). Site layout Planning for Daylight and Sunlight – A Guide to Good Practice. Hertfordshire: IHS BRE Press, page 62, paragraph F5
- 25 Littlefair, P. (2011). Site layout Planning for Daylight and Sunlight – A Guide to Good Practice. Hertfordshire: IHS BRE Press, page 11, paragraph 2.3.3
- 26 Littlefair, P. (2011). Site layout Planning for Daylight and Sunlight – A Guide to Good Practice. Hertfordshire: IHS BRE Press, page 11, paragraph 2.3.6
- 27 Littlefair, P. (2011). Site layout Planning for Daylight and Sunlight – A Guide to Good Practice. Hertfordshire: IHS BRE Press, page 11 paragraph 2.3.7

APPENDIX 03:

# DRAWINGS

EXISTING





**PLAN VIEW**  
SCALE: NTS

**SOURCES OF INFORMATION**

VUCITY  
IR04-05.08.2021-Heritage Architecture DWG

ALL INFORMATION DISPLAYED IS SUBJECT TO A COMPLETE VERIFIABLE SITE SURVEY BEING UNDERTAKEN. GIA TAKES NO RESPONSIBILITY ON THE ACCURACY OR RELIABILITY OF THE DISPLAYED DATA SINCE A VERIFIED SITE SURVEY WAS NOT MADE AVAILABLE PRIOR TO THE GENERATION OF SUCH INFORMATION.

**NOTES:**  
EXISTING SCENARIO SHOWN IN SEPIA  
ALL HEIGHTS AND DIMENSIONS GIVEN IN mm AOD

N.B. DO NOT SCALE OFF THIS DRAWING  
**PROJECT:**  
**3 HYDE PARK PLACE**

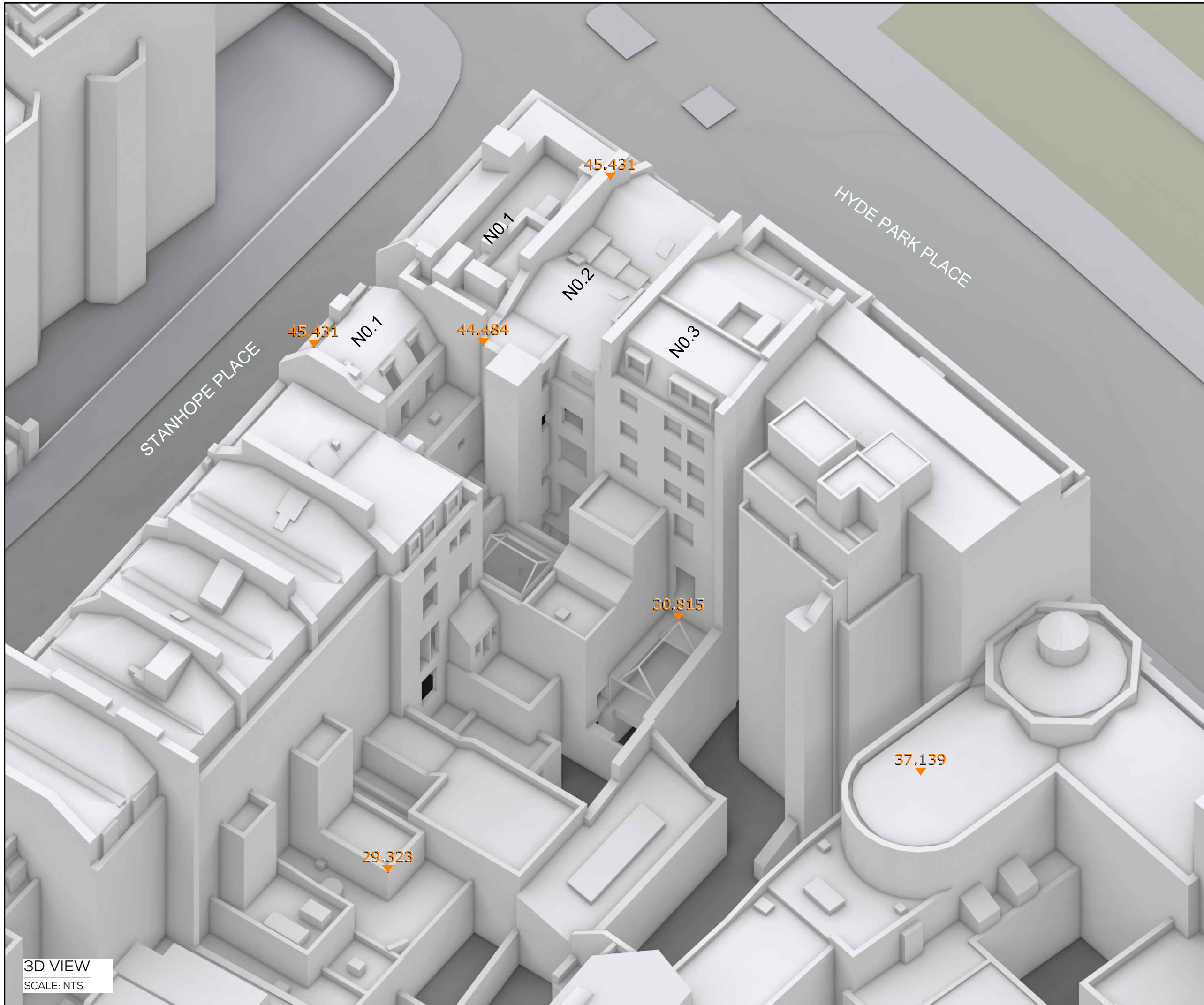
**DRAWING NAME:**  
PLAN VIEW EXISTING

DWN BY	SCALE	CHK BY	DATE	REV No.
AI	NTS		10.08.21	
PROJ No.	REL No.	ADDR No.	IS No.	DWG No.
17935	01		01	01

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3D VIEW  
SCALE: NTS

SOURCES OF INFORMATION

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IR04-05.08.2021-Heritage Architecture DWG

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NOTES:  
EXISTING SCENARIO SHOWN IN SEPIA  
ALL HEIGHTS AND DIMENSIONS GIVEN IN mm AOD

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PROJECT:  
3 HYDE PARK PLACE

DRAWING NAME:  
3D VIEW EXISTING

DWN BY	SCALE	CHK BY	DATE	REV No.
AI	NTS		10.08.21	
PROJ No.	REL No.	ADDR No.	IS No.	DWG No.
17935	01		01	03

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PROPOSED





SOURCES OF INFORMATION

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NOTES:  
 PROPOSED SCHEME SHOWN IN TEAL  
 ALL HEIGHTS AND DIMENSIONS GIVEN IN mm AOD

N.B. DO NOT SCALE OFF THIS DRAWING  
 PROJECT:  
**3 HYDE PARK PLACE**

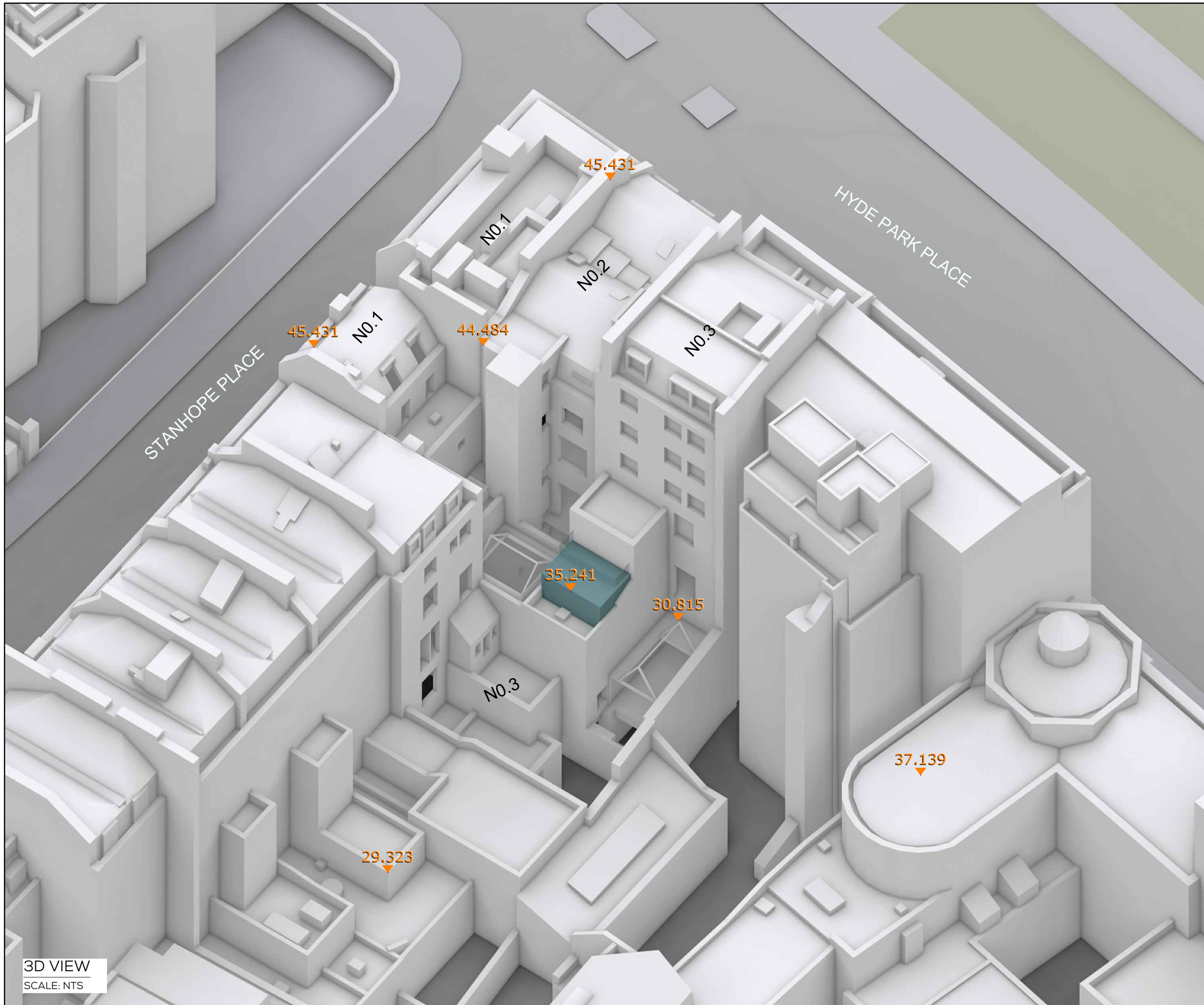
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AI	NTS		10.08.21	
PROJ No.	REL No.	ADDR No.	IS No.	DWG No.
17935	01		01	02

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3D VIEW  
SCALE: NTS

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NOTES:  
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ALL HEIGHTS AND DIMENSIONS GIVEN IN mm AOD

N.B. DO NOT SCALE OFF THIS DRAWING  
PROJECT:  
3 HYDE PARK PLACE

DRAWING NAME:  
3D VIEW PROPOSED

DWN BY	SCALE	CHK BY	DATE	REV No.
AI	NTS		10.08.21	
PROJ No.	REL No.	ADDR No.	IS No.	DWG No.
17935	01		01	04



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L O N D O N • M A N C H E S T E R

APPENDIX 04:

# RESULTS

FLOOR	ROOM	PROPERTY TYPE	ROOM USE	ROOM NOTES	WINDOW	VSC (WINDOW)				VSC (ROOM)				NSL				APSH (WINDOW)						APSH (ROOM)					
						EX	PR	LOSS	LOSS %	EX	PR	LOSS	LOSS %	EX	PR	LOSS	LOSS %	EX		PR		LOSS %		EX		PR		LOSS	
						%	%	%	%	%	%	%	%	%	%	SOM	%	ANNUAL	WINTER	ANNUAL	WINTER	ANNUAL	WINTER	ANNUAL	WINTER	ANNUAL	WINTER	ANNUAL	WINTER
1 STANHOPE PLACE																													
B01	R1	RESIDENTIAL	UNKNOWN		W1/B01	7.4	7.4	0	0.0%	7.4	7.4	0	0.0%	82.3	82.3	0.0	0.0%	3	0	3	0	0.0%	0.0%	3	0	3	0	0.0%	
FOO	R1	RESIDENTIAL	UNKNOWN		W1/FOO	23.8	23.8	0	0.0%	23.8	23.8	0	0.0%	86.6	86.6	0.0	0.0%	23	0	23	0	0.0%	0.0%	23	0	23	0	0.0%	
	R2	RESIDENTIAL	UNKNOWN		W2/FOO	23.9	23.9	0	0.0%	22	22	0	0.0%	96.6	96.6	0.0	0.0%	24	0	24	0	0.0%	0.0%	24	0	24	0	0.0%	
			UNKNOWN		W3/FOO	22.3	22.3	0	0.0%									19	0	19	0	0.0%	0.0%						
			UNKNOWN		W4/FOO	19.6	19.6	0	0.0%									15	0	15	0	0.0%	0.0%						
FO1	R2	RESIDENTIAL	KITCHEN (1)		W2/FO1	26.6	26.6	0	0.0%	26.6	26.6	0	0.0%	97.9	97.9	0.0	0.0%	34	0	34	0	0.0%	0.0%	34	0	34	0	0.0%	
1 HYDE PARK PLACE																													
FO1	R1	RESIDENTIAL	UNKNOWN		W1/FO1	14.1	14.1	0	0.0%	14.1	14.1	0	0.0%	51.1	51.1	0.0	0.0%	16	0	16	0	0.0%	0.0%	16	0	16	0	0.0%	
	R2	RESIDENTIAL	UNKNOWN		W2/FO1	14.6	14.6	0	0.0%	14.6	14.6	0	0.0%	56.9	56.9	0.0	0.0%	13	0	13	0	0.0%	0.0%	13	0	13	0	0.0%	
FO2	R1	RESIDENTIAL	UNKNOWN		W1/FO2	19.1	19.1	0	0.0%	19.1	19.1	0	0.0%	49.5	49.5	0.0	0.0%	18	1	18	1	0.0%	0.0%	18	1	18	1	0.0%	
	R2	RESIDENTIAL	UNKNOWN		W2/FO2	15.6	15.6	0	0.0%	15.6	15.6	0	0.0%	70.7	70.7	0.0	0.0%	8	0	8	0	0.0%	0.0%	8	0	8	0	0.0%	
2 HYDE PARK PLACE																													
B01	R1	RESIDENTIAL	UNKNOWN		W1/B01	0.1	0.1	0	0.0%	0.1	0.1	0	0.0%	2.3	2.3	0.0	0.0%	0	0	0	0	0.0%	0.0%	0	0	0	0	0.0%	
	R2	RESIDENTIAL	KITCHEN		W2/B01	0.5	0.5	0	0.0%	0.5	0.5	0	0.0%	3.1	3.1	0.0	0.0%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
FOO	R1	RESIDENTIAL	UNKNOWN		W1/FOO	0.2	0.2	0	0.0%	12.4	12	0.4	3.2%	100	100	0.0	0.0%	0	0	0	0	0.0%	0.0%	24	1	21	0	12.5%	
			UNKNOWN		W4/FOO	0.3	0.3	0	0.0%									0	0	0	0	0.0%	0.0%						
			UNKNOWN		W5/FOO / INC (2)	13.1	12.9	0.2	1.5%									1	0	0	0	100.0%	0.0%						
			UNKNOWN		W6/FOO / INC (2)	0.1	0.1	0	0.0%													100.0%	0.0%						
			UNKNOWN		W7/FOO / INC (2)	25.8	25.3	0.5	1.9%									8	0	4	0	50.0%	0.0%						
			UNKNOWN		W8/FOO / INC (2)	6.3	6.3	0	0.0%													100.0%	0.0%						
			UNKNOWN		W9/FOO	10.5	5.1	5.4	51.4%									2	0	0	0	100.0%	0.0%						
			UNKNOWN		W10/FOO / INC (2)	46.8	46.5	0.3	0.6%									15	0	15	0	100.0%	0.0%						
			UNKNOWN		W11/FOO / INC (2)	15.8	15.8	0	0.0%									10	0	10	0	0.0%	0.0%						
			UNKNOWN		W12/FOO	3	3	0	0.0%									3	0	3	0	100.0%	0.0%						
	R3	RESIDENTIAL	UNKNOWN		W3/FOO	1.7	1.7	0	0.0%	1.7	1.7	0	0.0%	20.9	20.8	0.0	0.5%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
FO1	R2	RESIDENTIAL	UNKNOWN		W2/FO1	10	9.6	0.4	4.0%	10	9.6	0.4	4.0%	79.5	79.5	0.0	0.0%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
FO2	R2	RESIDENTIAL	UNKNOWN		W2/FO2	19.9	19.9	0	0.0%	19.9	19.9	0	0.0%	88.8	88.8	0.0	0.0%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	

(1) KITCHEN SMALLER THAN 13m2

(2) INC\HZ = SKY COMPONENT (INCLINED\HORIZONTAL WINDOWS)

(3) SINGLE ASPECT ROOM DEEPER THAN 5m

FLOOR	ROOM	PROPERTY TYPE	ROOM USE	ROOM NOTES	WINDOW	VSC (WINDOW)				VSC (ROOM)				NSL				APSH (WINDOW)						APSH (ROOM)				
						EX	PR	LOSS	LOSS	EX	PR	LOSS	LOSS	EX	PR	LOSS	LOSS	EX		PR		LOSS %		EX		PR		LOSS
						%	%	%	%	%	%	%	%	%	%	SOM	%	ANNUAL	WINTER	ANNUAL	WINTER	ANNUAL	WINTER	ANNUAL	WINTER	ANNUAL	WINTER	ANNUAL
3 HYDE PARK PLACE																												
B01	R1	RESIDENTIAL	BEDROOM		W1/B01	2.1	2.1	0	0.0%	2.1	2.1	0	0.0%	13.2	13.2	0.0	0.0%	0	0	0	0	0.0%	0.0%	0	0	0	0	0.0%
	R2	RESIDENTIAL	BEDROOM		W2/B01	6.1	6.1	0	0.0%	6.1	6.1	0	0.0%	76.1	76.1	0.0	0.0%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
FOO	R1	RESIDENTIAL	KITCHEN		W1/FOO	11.2	11.2	0	0.0%	11.2	11.2	0	0.0%	26.9	26.9	0.0	0.0%	1	0	1	0	0.0%	0.0%	1	0	1	0	0.0%
	R2	RESIDENTIAL	DINING ROOM		W2/FOO	17.1	17.1	0	0.0%	17.4	17.3	0.1	0.6%	100	100	0.0	0.0%					0%	0%	5	0	5	0	0.0%
			DINING ROOM		W3/FOO / INC (2)	11.4	11.1	0.3	2.6%									0	0	0	0	0.0%	0.0%					
			DINING ROOM		W4/FOO	24.3	24.3	0	0.0%										0	0	0	0	0.0%	0.0%				
			DINING ROOM		W5/FOO / INC (2)	26.6	26.6	0	0.0%									1	0	1	0	0.0%	0.0%					
			DINING ROOM		W6/FOO	0.1	0.1	0	0.0%									0	0	0	0	0.0%	0.0%					
FO1	R1	RESIDENTIAL	UNKNOWN		W1/FO1	20.7	20.6	0.1	0.5%	20.7	20.6	0.1	0.5%	83.4	82.4	0.2	1.2%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	

(1) KITCHEN SMALLER THAN 13m2

(2) INC\HZ = SKY COMPONENT (INCLINED\HORIZONTAL WINDOWS)

(3) SINGLE ASPECT ROOM DEEPER THAN 5m





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