150 HOLBORN

DAYLIGHT AND SUNLIGHT ASSESSMENT

DAH REAL ESTATES SARL

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1.0 Executive Summary

This external daylight and sunlight assessment has been prepared by GIA in support of a planning application for the redevelopment of 150 Holborn which is bound by Holborn to the south, Gray's Inn Road to the west and Brooke Street to the east.

The redevelopment will provide a mix of office accommodation (Class B1), retail floor space (Class A1-A3), residential units (Class C3) and public realm improvements. The description of development is:

"Demolition of existing building and redevelopment for a mixed use development up to 9 storeys in height comprising 14,604 sqm GEA office floor space (Use Class B1), 1,450 sqm GEA retail floor space (Use Class A1-A3), 13 residential units (Use Class C3), improvements to the public realm and all other necessary enabling works."

The only relevant residential surrounding property is 1-23 Gray's Inn Road.

This is a building that was converted from office use which has resulted in some rooms being over 5m deep.

The technical analysis shows that there is a high level of VSC compliance. The only impacts occur to the top floor where the windows are deeply recessed and as such have very low existing VSC values.

The NSL results show impacts but almost exclusively to rooms that are over 5m deep and the BRE states that in such circumstances "a greater movement of the NSL may be unavoidable." Any other impacts are to bedrooms which again the BRE state are "less important".

The sunlight results show full BRE compliance. As such we are of the opinion that the potential impacts are more to do with the layout and design of 1-23 Gray's Inn Road than the change in massing on the proposed site.

The VSC impacts are all small in reality and we would consider these not to cause a noticeable reduction in daylight in real terms.

2.0 Instructions

GIA have been instructed to undertake detailed technical assessments to understand the potential daylight and sunlight changes that the proposed Perkins+Will scheme dated 26.02.2016 for the redevelopment of 150 Holborn will have upon the surrounding residential properties.

The daylight and sunlight review within this report considers residential properties only as they are recognised by the Building Research Establishment (BRE 2011) as having the highest expectation for natural light when compared to other uses – such as commercial. The criteria suggested within the BRE have been used to understand and compare the existing levels of light and the light achieved subsequent to the development of the school scheme.

3.0 Introduction

Daylight and Sunlight

The technical analysis that forms the basis of this report has been predicated against the methodologies set out within the Building Research Establishment Guidelines entitled ***'Site Layout Planning for Daylight and Sunlight – A Guide to Good Practice (2011)'***. The guidelines in question are precisely that; guidelines which provide a recommendation to inform site layout and design. They are not mandatory nor do they form planning policy and their interpretation may be treated flexibility depending on the specifics of each site.

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

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

There is one methodology for sunlight assessment, denoted as Annual Probable Sunlight Hours (APSH).

Appendix 01 of this report elaborates on the mechanics of each of the above assessment criteria, explains the appropriateness of their use and the parameters of each specific recommendation.

4.0 Sources of Information

In compiling this report we have used the following information:

GIA

Site Photographs

3D Model of the Scheme

F!ND

OS Map

Aerial Photography

Camden Planning Dept

IR07-5538 – 7 High Holborn Planning App

Perkins+Will

IR20-5538-Drawings

5.0 Assumptions

a) We have relied upon a photogrammetric model (circa 300mm tolerance) and site photographs to produce the three dimensional computer model which forms the basis of the technical analysis.

b) All residential buildings have been identified by reference to the Valuation Office Agency (VOA) search and/or external observation. Following this search the only surrounding buildings containing residential space that will be assessed in this report is 1-23 Gray's Inn Road.

c) We have not sought access to the adjoining properties thus have made reasonable assumptions as to the internal layouts of the rooms behind the fenestration based upon the building form and architecture. This is normal practice where access to adjoining properties is not available. Unless the building form dictates otherwise, we assume a standard 4.2m deep room (14ft) for residential properties. We have obtained through the Camden Planning portal the internal layouts of 1-23 Gray's Inn Road, this interior of this building is therefore modelled to a good degree of accuracy.

d) Floor levels have been assumed for the adjoining properties. This dictates the level of the working place which is relevant for the No Skyline assessment.

6.0 The Site

The site is located along the A40 Holborn in the London Borough of Camden. The existing building on site currently comprises of a ground floor retail and six floors of commercial office space.

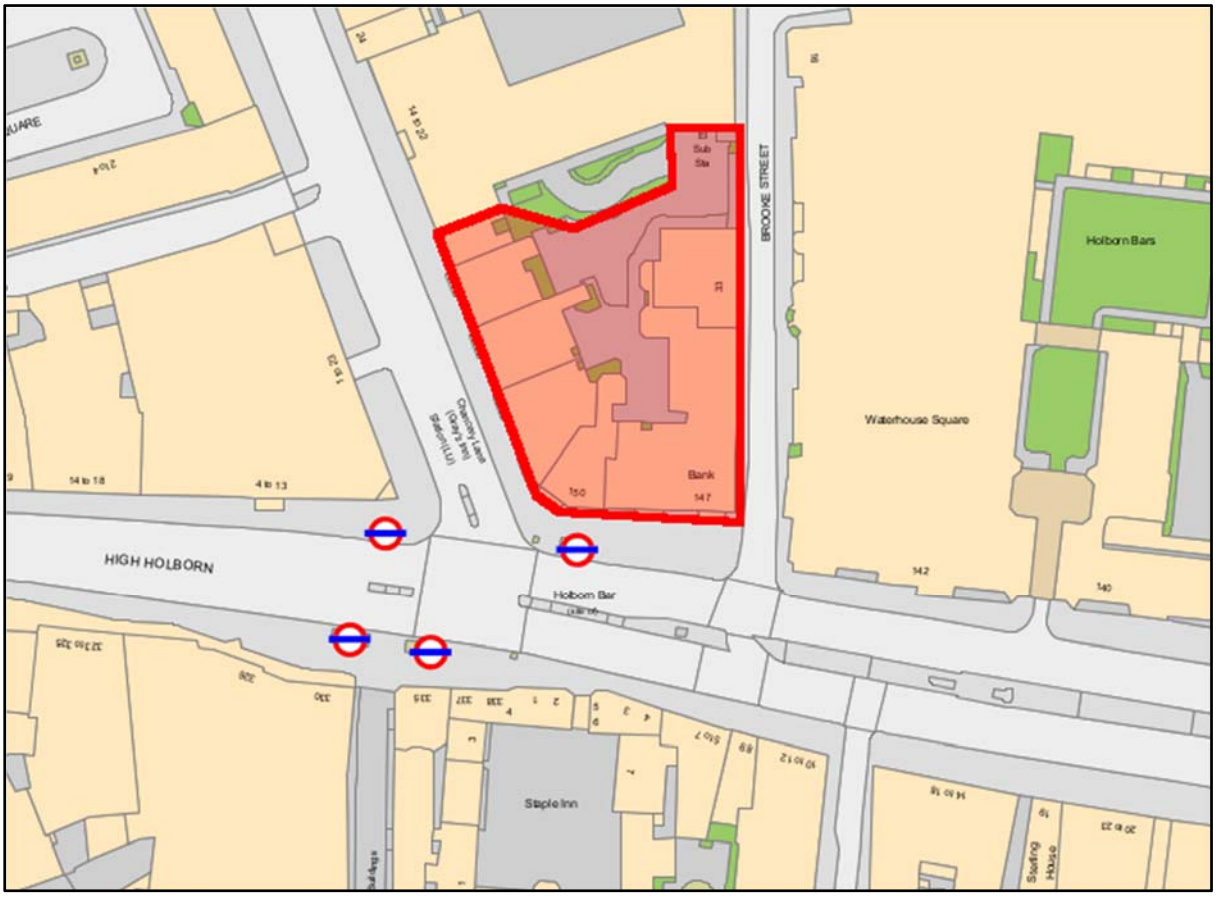


Figure 01 – Site Location

The site is bounded by Holborn to the South, Gray's Inn Road to the west and Brooke Street to the east. Our understanding of this exiting building and the surrounding context is depicted on GIA drawings 5538/01 to 5538/03 within Appendix 02.

7.0 The Proposal

The redevelopment will provide a mix of office accommodation (Class B1), retail floor space (Class A1-A3), residential units (Class C3) and public realm improvements. The description of development is:

"Demolition of existing building and redevelopment for a mixed use development up to 9 storeys in height comprising 14,604 sqm GEA office floor space (Use Class B1), 1,450 sqm GEA retail floor space (Use Class A1-A3), 13 residential units (Use Class C3), improvements to the public realm and all other necessary enabling works."

GIA's understanding of the proposed scheme is illustrated in drawings 5538/50 to 5538/52 shown within Appendix 02.

Our analysis of this option is based on the proposed scheme massing models produced by Perkins+Will received on 13th November 2015.

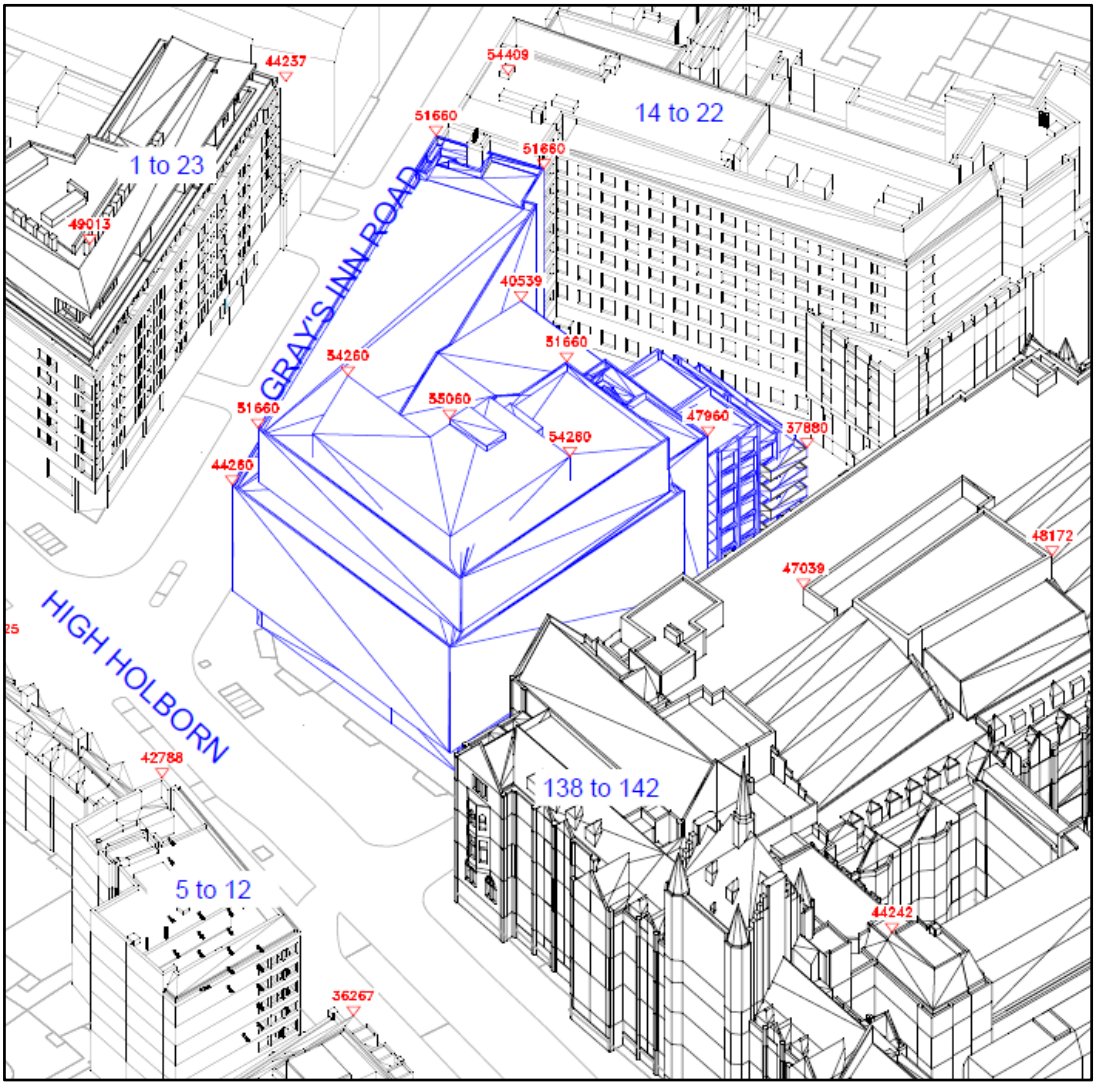


Figure 02 – Proposed Scheme

8.0 Surrounding Properties

We have created a three dimensional computer model of the site and the surrounding properties to allow for a detailed daylight and sunlight assessment.

The baseline condition of the existing buildings on site allows us to calculate the current daylight and sunlight conditions within the neighbouring buildings. From this we can then compare them with the conditions within these properties assuming the proposed development is in place.

Given the commercial nature of the surroundings it is not surprising that our Valuations Office Agency search only identified one adjoining property that contained an element of residential space, 1-23 Gray's Inn Road.

1-23 Gray's Inn Road

1-23 Gray's Inn Road is located to the West of the development site across Gray's Inn Road. The ground floor level of this property is in commercial in use and that the upper levels contain residential units.

This property was originally a commercial office in its entiriy, between 1999 and 2003 this building was re-clad and converted to residential use. We have complete 'as built floor' plans for this building and therefore the internal layouts have been accurately modelled.

Vertical Sky Component (VSC)

We have considered 161 windows for VSC assessment, of this 125 achieve BRE guidance (77%). 16 (10%) of the windows that exceed the BRE guidelines only see reductions of between 20.1% and 21.8% which is only marginally above the the recommended 20% and can therefore be considered minor.

The remaining 20 windows that see reductions in VSC outside of the BRE guidelines are located on the 6th floor, these windows are heavily recessed underneath a deep overhang/balcony that limits their view of the sky in the existing situation making them very sensitive to any change in massing on the development site. The actual VSC reductions to these windows are however small, they only see reductions of between 1.8% and 4% VSC.

In situations like this, the BRE guidelines recommend undertaking an assessment witout the obstructing balconies in place to demonstrate that it is the presence of the balcony and not the proposed development that is the main factor in the loss of light. When this assessment is undertaken the 6th floor windows see no alteration outside of the BRE guidelines, this clearly shows that it is the balconies limiting the exisiting light to these windows.

Daylight Distribution (NSL)

With regards to Daylight Distribution within the room, we have assessed 80 rooms for NSL and 37 (46%) will achieve BRE compliance, The 43 rooms that experience transgressions outside the BRE guidelines are for the most part caused by unusual window position, shape and the depth of room. 24 of the rooms have room depths which exceed 5 metre's, the BRE guidelines concede that "*if a room depth exceeds 5 metre's and are only lit from one side, greater movement of the No Sky line may be unavoidable*".

It is also important to note that 36 of the 43 rooms that experience transgressions are actually bedrooms, the BRE states that while these should be analysed they are "less important" than and living rooms. All windows that do not reach BRE guidance and are not more than 5m in depth are bedrooms.

An example floor plan showing the depth of the impacted living rooms can be seen below. as the first 5 storeys are all fudemenatlly the same, it is this living room on each floor that sees the largest impact.

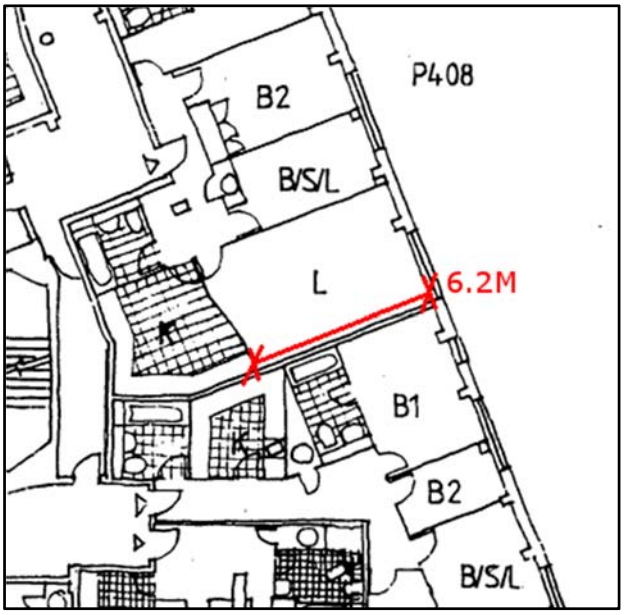


Figure 03 – Example Floor Plan

Sunlight (APSH)

When assessed against the APSH (sunlight criterion), all of the rooms relevant for assessment show full compliance to the BRE Guidelines and are therefore considered acceptable.

Summary

It is our opinion that while there are some daylight impacts to this property they are almost all caused by either the internal or external design of the building which make it very sensitive to massing changes on the development site. It is our opinion that any increase in massing over the existing building on the site will cause some BRE transgressions to this building.

9.0 Conclusions

We have undertaken a daylight and sunlight assessment for the Perkins + Will scheme for the site located at 150 Holborn, London.

It is inevitable when constructing buildings in an urban environment that alterations in daylight and sunlight to adjoining properties can occur. The numerical guidance given in the BRE document should be treated flexibly, especially in dense urban environments and particularly where neighbouring properties are located within a relitively narrow streetscapes and with design obstructions restricting the availability of daylight and sunlight.

In consideration of this, throughout the design process, the scheme has been subjected to extensive testing to minimise the daylight and sunlight impacts to the adjoining residential property, 1-23 Gray's Inn Road.

Our technical analysis shows that the 1-23 Gray's Inn Road will experience a good level of VSC compliance. Where breaches of guidance do occur they are either very minor or located on the 6th floor of the building. The windows on the 6th floor have low exiting values (producing disproportionate percentage alterations) caused by the windows being set deep underneath a balcony which severely limits their view of the sky in the existing instance.

The technical analysis identifies a number of impacts to the daylight distribution within the rooms of 1-23 Gray's Inn Road. It is our opinion that the majority of these impacts are caused by the design of this building, where a number of single aspect rooms over the 5m's deep limit the NSL in the existing situation. This is due to the building originally being commercial in nature but being converted to residential 13 years ago. Rooms that receive alterations outside of the BRE guidance that are not over 5m's are all bedrooms, the BRE states that bedrooms must be tested but that less importance is to be placed on them.

The sunlight criterion demonstrates a total compliance with BRE guidelines.

It is our opinion that even though there are a number of rooms that experience reductions outside of the BRE guidance in terms of NSL the almost total compliance with the VSC daylight test demonstrates that the potential impacts are more to do with the layout and design of 1-23 Gray's Inn Road than the change of massing on the site. It is for this reason we would consider the proposed development to be acceptable in terms of Daylight and Sunlight.

Appendix 01

Principles of Daylight and Sunlight

Principles of Daylight and Sunlight

Background

The quality of amenity and open spaces is often stipulated within planning policy for protection or enhancement and is often a concern for adjoining properties and other interested parties.

Historically the department of environment provided guidance in the issues, and in this country, this role has now been taken on by the building research establishment (BRE), the British standards institutions (BSI) and the charted institute of building services engineers (CIBSE). Fortunately they have collaborated in many areas, to provide as much unified advice as possible in the form of industry best practice.

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 amenities.

In terms of considering what is material local authorities typically refer to the BRE guidelines and apply their criteria set out within. The guidelines were originally produced out in 1991, but superseded by the BRE guidelines (2011*) site layout planning for daylight and sunlight.*

Where developers are seeking to maximise their development value, it is often in the area of daylight sand sunlight issues that they may seek to push the boundaries. Particularly in London, there is a priority on the creation of more housing and thus resulting in the densification of urban areas. Local authority vary in their attitude of how flexible they can be with the degree of impact on the daylight and sunlight amenity enjoyed by neighbouring owners and it is one factor among many planning aspects considered when determining an application. In city centres where high density ins common, the protection of amenity is more challenging and there are many factors that need to be taken into account: each case has to be considered on its own merits.

The BRE Guidelines

The guidelines are typically refereed to for daylight and sunlight amenity issues, however they were not intended to be used as an instrument of planning policy. 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".*

Again, the 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".*

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, for e.g. The approach to creating alternative criteria is detailed within Appendix F of the BRE.

Measurement and Criteria for Daylight and Sunlight as set out in the BRE Guidelines

The BRE guidelines state that they are;

> *"intended for use for rooms in adjoining dwellings where daylight is required, including living rooms, kitchens and bedroom. Windows to bathrooms, toilets, garages need not be analysed."*

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.

Daylight

In the first instance, if a proposed development falls beneath a 25 degree angle taken from the centre point of the lowest window, then the BRE suggests that no further analysis is required as there will be adequate sky light (i.e. sky visibility). This rule is applied when considering the scope of any assessments.

The BRE guidelines provide two methods for calculating daylight to existing surrounding properties:

- Vertical Sky Component (VSC)
- No Sky Line (NSL) also refer4eed to as daylight distribution

A further method, the Average Daylight Factor (ADF) is provided for calculating daylight within proposed properties. However, it is sometimes applied as a supplementary assessment for exiting surrounding properties.

Each method is described below:

Vertical Sky Component

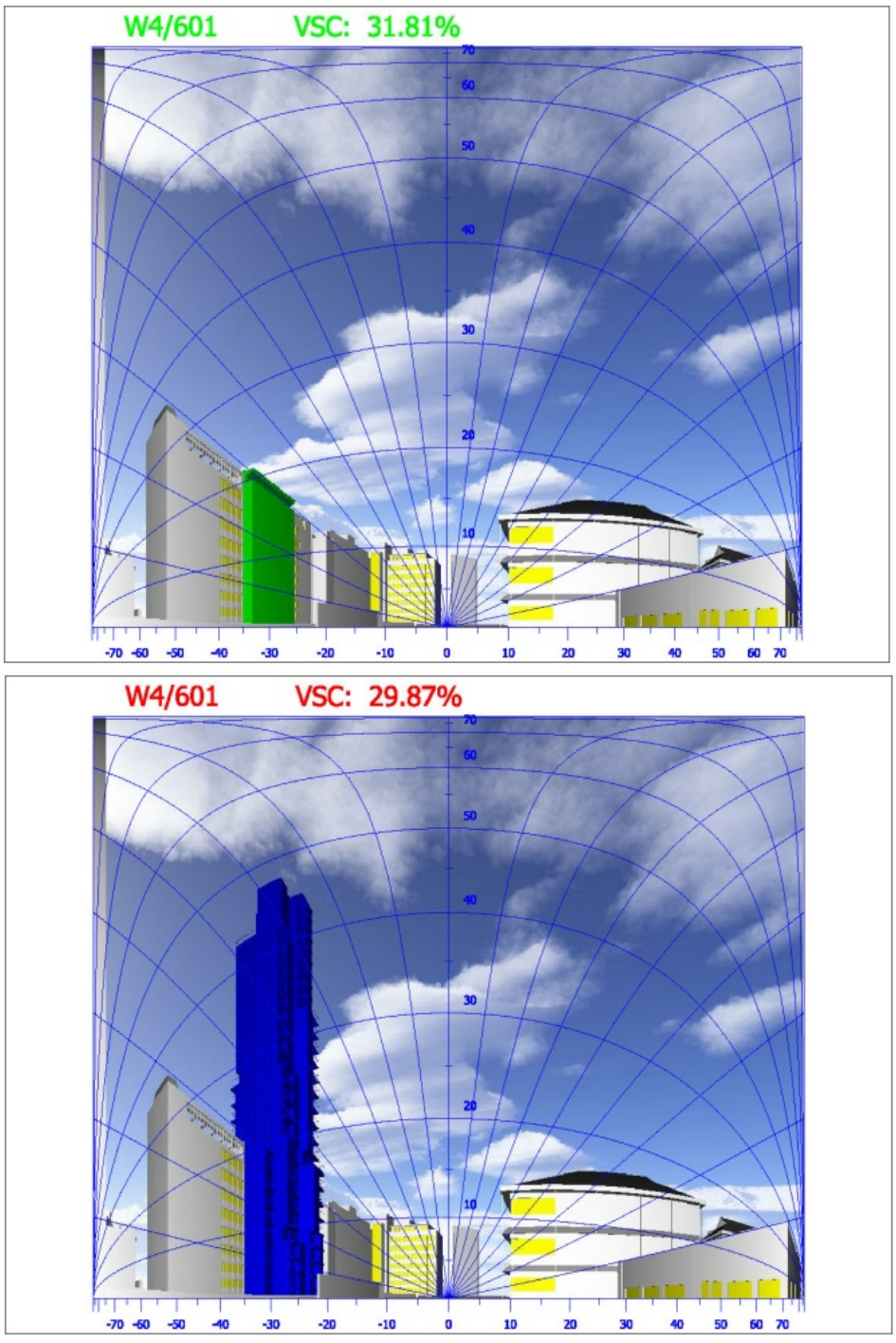
Methodology

This is defined in the BRE as:-

> *"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 illuminate on a horizontal plane due to an unobstructed hemisphere of this sky."*

This statement means, in practice that if one had a totally unobstructed view of the sky, looking in a single direction, then just under 40% of the complete hemisphere would be visible. The measurement of this vertical sky component is undertaken using two indicators, namely a skylight indicator and a transparent direction finder.

Alternatively a further method of measuring the VSC, which is easier to understand both in concept and analysis, is often more precise and can deal with more complex instructions, is that of the Waldram diagram.



The point of reference is the same as for the skylight indicator, at the centre of the outward window face. Effectively a snap shot is taken from that point of the sky in front of the window, before and after the obstruction is put in place together with all the relevant obstructions to it, i.e. the buildings.

An unobstructed sky from that point of reference would give a vertical sky component of 39.6%, corresponding to 50% of the hemisphere, and therefore the purpose of the diagram is to discover how much sky remains once obstructions exist in front of that point.

Criteria

The BRE Handbook provides criteria for:

(a) New Development
(b) Existing Buildings
(c) Adjoining Development Land

(a) New Development

Paragraph 2.1.21 of the BRE states that:

"Obstructions can limit access to light from the sky. This can be checked by measuring or calculating the angle of visible sky 'theta', angle of obstruction or Vertical Sky Component (VSC) at the centre of the lowest window where daylight is required. If VSC is:

- at least 27% ('theta' is greater than 65 degrees, obstruction angle less than 25 degrees) conventional window design will usually give reasonable results.
- between 15% and 27 % ('theta' is between 45 degrees and 65 degrees, obstruction angle between 25 degrees and 45 degrees) special measures (larger windows, changes to room layout) are usually needed to provide adequate daylight.
- between 5% and 15% ('theta' is between 25 degrees and 45 degrees, obstruction angle between 45 degrees and 65 degrees) it is very difficult to provide adequate daylight unless very large windows are used.
- less than 5% ('theta' less than 25 degrees, obstruction angle more than 65 degrees) it is often impossible to achieve reasonable daylight, even if the whole window wall is glazed."

(b) Existing Buildings

Para 2.2.21 (page 11) of the BRE states:

"If any part of a new building or extension measured in a vertical section perpendicular to a main window wall of an existing building, from the centre of the lowest window, subtends an angle of more than 25 degree to the horizontal, then the diffuse daylighting of the existing building may be adversely affected. This will be the case if the vertical sky component measured at the centre of an existing main window is less than 27%, and less than 0.8 times its former value".

The VSC provide a quick and simple test which looks to give an early indication of the potential for light at the window face. However considered in isolation, it does not, in any fashion, indicate the quality of actual light within a space. It does not take into account the window size, the room size or room use. It helps by indicating that if there is an appreciable amount of sky visible from a given point there will be a reasonable potential for daylighting.

(c) Adjoining Development Land

Paragraph 2.3.10 of the BRE guidelines states:

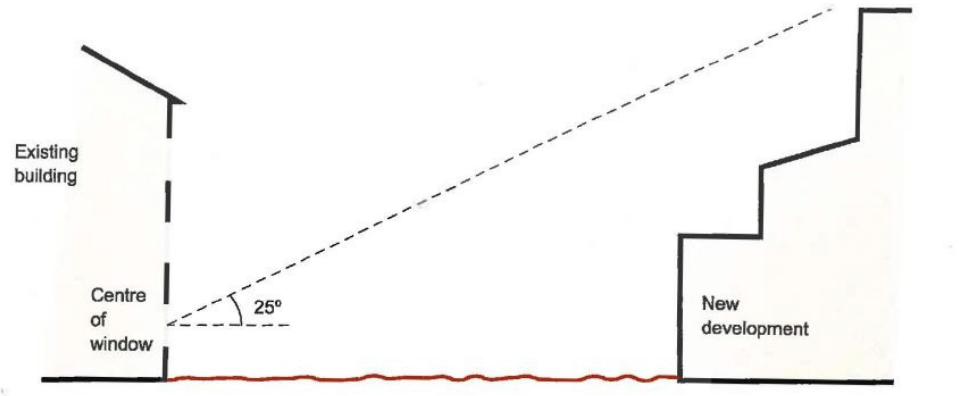
"in broad general terms, a development site next to a proposed new building will retain the potential for good diffuse daylighting providd that on each common boundary:

(a) no new building, measured in a vertical section perpendicular to the boundary, from a point 1.6m above ground level, subtends an angle of more than 43 degrees to the horizontal;

(b) or, If (a) is not satisfied, then all points 16.m above the boundary line are within 4m (measured along the boundary) of a point which has a VSC (looking towards the new building(s)) of 17% or more 2m above ground level are within 4m (measured sideways) of a point which has a vertical sky component of 27% or more.

Alternative VSC criteria as per Appendix F of the BRE guidelines

The 27% VSC target criteria is based upon a sub-urban type environment whereby a 25 degree line was taken from the centre point on a ground floor window as shown below:



However, in city centre locations and urban areas where density levels are increasing, these values may not be considered appropriate. The BRE guidelines provide that "*different targets may be used based on the special requirements of the proposed development or its location*" (paragraph F1).

Appendix F of the BRE suggests several approaches as to how alternative targets may be considered including:

- Consented scheme - use of an extant planning permission to establish alternative benchmark criteria for VSC and APSH. It is not appropriate to treat a permitted scheme in the same manner as an existing building and allow a 20% reduction beyond this. if the levels of daylight and sunlight retained are similar to a previously consented scheme then it follows these levels should be considered acceptable again, notwithstanding other planning considerations.
- Mirror massing – to ensure a development matches the height and proportions of existing buildings, the VSC and APSH targets could be set to those of a mirror image of the same height and size, an equal distance away from the boundary (paragraph F5).
- Consider surrounding context and existing obstruction angles as well as spacing to height ratios.

In addition, due to the requirements for external amenity space within local planning policies, many residential buildings are served by balconies. Balconies can restrict the view of the sky dome whereby even the modest obstruction may result in a large relative impact on the VSC. The BRE guidelines therefore provide that an assessment can be carried out comparing the levels of VSC with and without the balconies in place for both the existing and proposed scenarios, to establish whether it is the presence of the balcony or the size of the new obstruction that is the main factor in the loss of light (paragraph 2.2.11).

No Sky Line

Methodology

The NSL method is a measure of the distribution of daylight at the working plane within a room. The 'working plane' means a horizontal 'desktop' plane 0.85m in height for residential properties. The NSL divides those areas of the working plane which can receive direct sky light from those which cannot. If a significant area of the working plane lies beyond the NSL (i.e. it receives no directs sky light), then the distribution of daylight in the room will be poor and supplementary electric lighting may be required.

It is similar to the VSC approach in that a reduction of 0.8 times in the area of sky visibility at the working plane may be deemed to be noticeable. It is however, very dependent upon knowing the actual room layouts or having a reasonable understanding of the likely layouts.

It is assessed by plotting the area of a room which can see the sky and which cannot, referred to as the NSL contour or daylight distribution contour. The contours assist in helping to understand the way the daylight is distributed within a room and the comparisons of existing and limitations of proposed circumstances within neighbouring properties. Like the VSC method, it relates to the amount of visible sky but does not consider the room use in its criteria, it is simply a test to assess the change in position of the No Sky Line, between the existing and proposed situation. It does take into account the number and size of windows to a room, but does not give any quantitative or qualitative assessment of the light in the rooms, only where sky can or cannot be seen.

Criteria

BS 8206 Part 2 (para 5.7) that the:

> *"uniformity of daylight is considered to be unsatisfactory if a significant part of the working plane (normally more than 20%) lies behind the no-sky line".*

Therefore, it is implied that an NSL of at least 80% would be considered satisfactory in regards to deep rooms which are lit by windows on one side, the BRE Guidelines state (para, 2.2.10):

In regards to the alteration as a result of a proposed development or obstruction the BRE provide that the daylight may be adversely affected if *" the area of the working plane in a room which can receive direct skylight is reduced to less than 0.8 times its former value. ".*

Average Daylight Factor

Methodology

The Average Daylight Factor (ADF) is defined within the 2011 BRE Guidelines as:

> *'a ratio of total daylight flux incident on a reference area to the total area of the reference area, expressed as a percentage of outdoor luminance on a horizontal plane, due to an unobstructed sky of assumed or known luminance distribution'.*

Whilst the BRE guidelines provide this measure as a tool to understand daylight within proposed dwellings not existing dwellings, if room layouts are known it can provide a useful supplementary measure of daylight and is often requested by many local authorities.

The ADF method of assessment considers:

- The diffuse visible transmittance of the glazing to the room in question (i.e. how much light gets through the window glass). A transmittance value of 0.8% is assumed for single glazing and 0.65% for double glazed windows;
- The net glazed area of the window in question;
- The total area of the room surfaces (ceiling, walls, floor and windows); and
- The angle of visible sky reaching the window(s) in question

In addition, the ADF method makes allowance for the average reflectance of the internal surfaces of the room and of external obstruction (assumed to be 0.5 unless otherwise stated).

Criteria

The criteria for ADF is taken from the British Standard 8206 part II which gives the following criteria based on the room use:

- Bedroom – 1% ADF
- Living room – 1.5% ADF
- Kitchen – 2% ADF

Where a room has multiple uses such as a living kitchen diner (LKD) or a studio apartment, the highest value is taken so in these cases the required ADF is 2%.

Sunlight

Methodology

The BS 8206 part 2 (section 5.2) states that:

> *"Provided that the entry of sunlight is properly controlled, it is generally welcome in most buildings in the UK. Dissatisfaction can arise as much from the permanent exclusion of sunlight as from its excess. The provision of sunlight is important in dwellings, particularly during winter months. Sunlight is especially valued in habitable rooms used for long periods during the day."*

Principles of Daylight and Sunlight

Sunlight is measured using a sun indicator which contains 100 spots, each representing 1% of Annual Probable Sunlight Hours (APSH). Where no obstruction exists the total APSH would amount to 1486 hours and therefore each spot equates to 14.86 hours of the total annual sunlight hours.

The number of spots is calculated for both the whole year and also during the winter period (21st September to 21st 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. The 2011 BRE Guidelines note that:

- *"In housing, the main requirement for sunlight is in living rooms, where it is valued at any time of day, but especially in the afternoon."*

- *"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."*

- *"…a south facing window will, in general, receive most sunlight, while a north facing one will receive it only on a handful of occasions. East and west facing windows will receive sunlight only at certain times of day".*

When a room has multiple windows, not all may have a southerly orientation however, these windows may contribute to the levels of sunlight within a given room even if by 1-2% APSH. As well as the assessment on a window basis the BRE guidelines provide that an assessment can be undertaken on a room basis.

Whilst the emphasis of the BRE guidelines is in regards to living rooms, it is not always possible to determine the room uses within all of the properties assessed and therefore typically all windows or all rooms with windows facing within 90 degrees of due south and facing the site are assessed.

Criteria

The BRE provide that for existing buildings a window maybe adversely affected if a point at the centre of a window receives:

- Less than 25% of the APSH during the whole year, of which 5% APSH must be in the winter period; and
- Receives less than 0.8 times its former sunlight hours in either time period; and
- Has a reduction in sunlight for the whole year more than 4% APSH.

In terms of the assessment on a room basis the criteria applied is the same.

For proposed buildings the BRE provide (paragraph 3.1.15) that a dwelling or building which has a particular requirement for sunlight will appear reasonably sunlit provided:

- At least one main window faces within 90 degrees of due south; and

- Centre of one main living room window can receive 25% of APSH including 5% APSH in the winter months.

It continues that where groups of dwellings are planned the layout should aim to maximise the number of living rooms that meet the above recommendations.

Overshadowing

As well as daylight and sunlight amenity to neighbouring dwellings, planning policy often refers to the levels of overshadowing to amenity areas such as parks, public squares, playgrounds etc. The BRE guidelines provide two methods of calculation in regards to overshadowing which are as follows:

Sun Hours on Ground

Methodology

This method of overshadowing assessment uses the sun on ground indicator to determine the areas which receive direct sunlight and those which do not. This method applies to both new and existing areas of amenity space. The BRE Guidelines suggest that the Spring Equinox (21st March) is a suitable date for the assessment as this is the midpoint of the suns 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.

Criteria

The BRE guidelines recommend that at least half of an amenity space should receive at least 2 hours of direct sunlight on March 21st. In regards to existing spaces where the existing sunlit area is less than half of the area, the area which receives 2 hours of sunlight should not be reduced by more than 20% (it should retain 0.8 times its former value).

Transient Overshadowing

The BRE guidelines suggest that where large buildings are proposed which may affect a number of gardens or open spaces, it is useful to plot a shadow plan to illustrate the location of shadows at different times of the day and year. For the purpose of this assessment, shadow has been mapped at the following times of the year:

- 21st March (spring equinox)
- 21st June (Summer solstice)
- 21st December (winter solstice)

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

For each of these dates the overshadowing is calculated at hourly intervals throughout the day however some images may not be present given the early sun set during the winter period.

The BRE guidelines do not provide any criteria for transient overshadowing. Therefore the analysis provides a description of where additional shadow is cast as a result of a development with professional judgement to determine the

Light pollution and Solar Glare

Light pollution is defined as any light emitting from artificial sources into spaces where it is not wanted for example from offices into neighbouring residential properties where it could cause a nuisance. The ILP Guidance notes provide details of how to measure light pollution and criteria based on the urban density of the respective area to determine the acceptability of the light levels.

Solar glare is particularly important at pedestrian and road junctions as well as along railway lines where the glare can cause a temporary blinding of drivers or pedestrians. Glare can occur from reflective materials such as glazed areas or metal cladding on the facades. This assessment is therefore undertaken from viewpoints surrounding the site at junctions and positioned at the drive's eye level. Focal points are dictated by the location of signals or oncoming traffic.

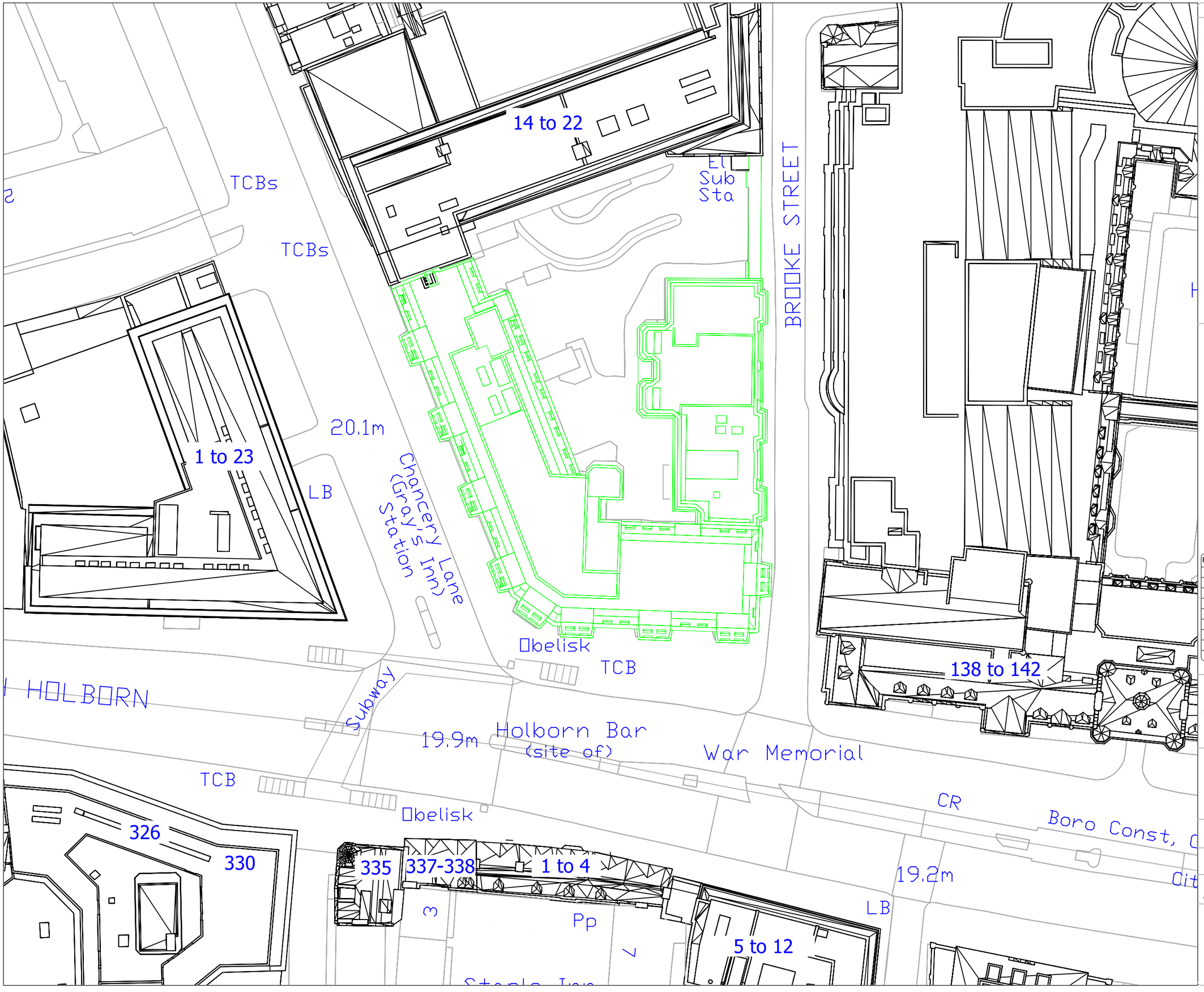
Other Amenity Considerations

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

Appendix 02

Drawings



Sources of Information

MAKE ARCHITECTS
IR01-5538

PROSPAPLANS
IR02-5538
IR05-5538

MICHAEL GALLIE & PARTNERS
IR03-5538

CAMDEN PLANNING WEBSITE
IR04-5538

VERTEX MODELLING
IR06-5538

Notes

N.B. DO NOT SCALE OFF THIS DRAWING

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Indicative Only

ALL HEIGHTS GIVEN IN mm AOD

Rev	Date	Description	Initials
A		Initial Issue	

Project
150 HIGH HOLBORN
LONDON

Title
PLAN VIEW
EXISTING SCHEME

Scale: 1:500@A3
Date: DEC '10
Drawn: MF
Checked:
Drawing No.: 5538-01
Rel No.: 01
Revision: A

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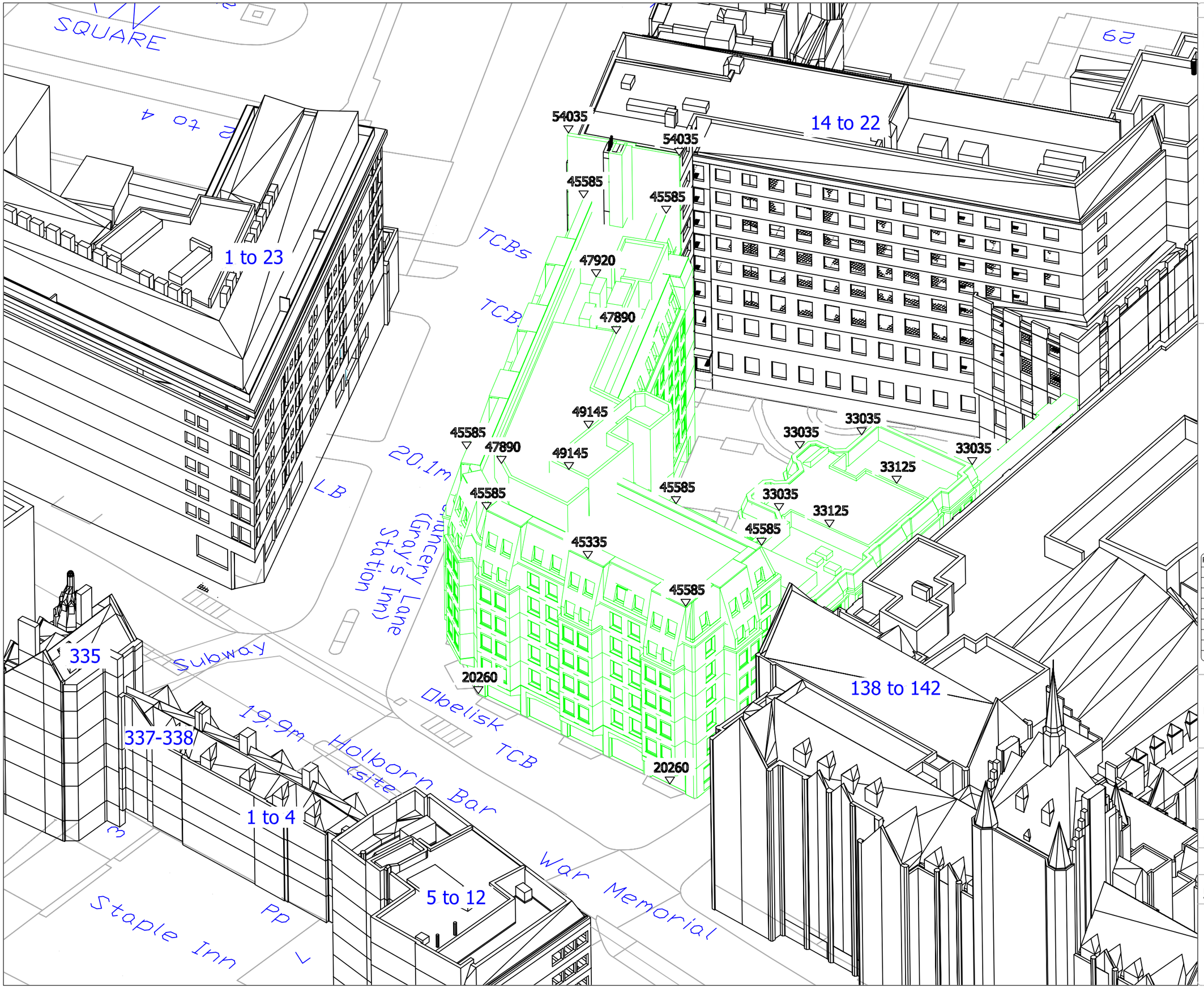

Sources of Information

MAKE ARCHITECTS
IR01-5538

PROSPAPLANS
IR02-5538
IR05-5538

MICHAEL GALLIE & PARTNERS
IR03-5538

CAMDEN PLANNING WEBSITE
IR04-5538

VERTEX MODELLING
IR06-5538

Notes

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Rev	Date	Description	Initials
A		Initial Issue	

Project

150 HIGH HOLBORN
LONDON

Title

3D VIEW
EXISTING SCHEME

Scale: NTS
Date: DEC '10
Drawn: MF
Checked:
Drawing No.: 5538-03
Rel No.: 01
Revision: A

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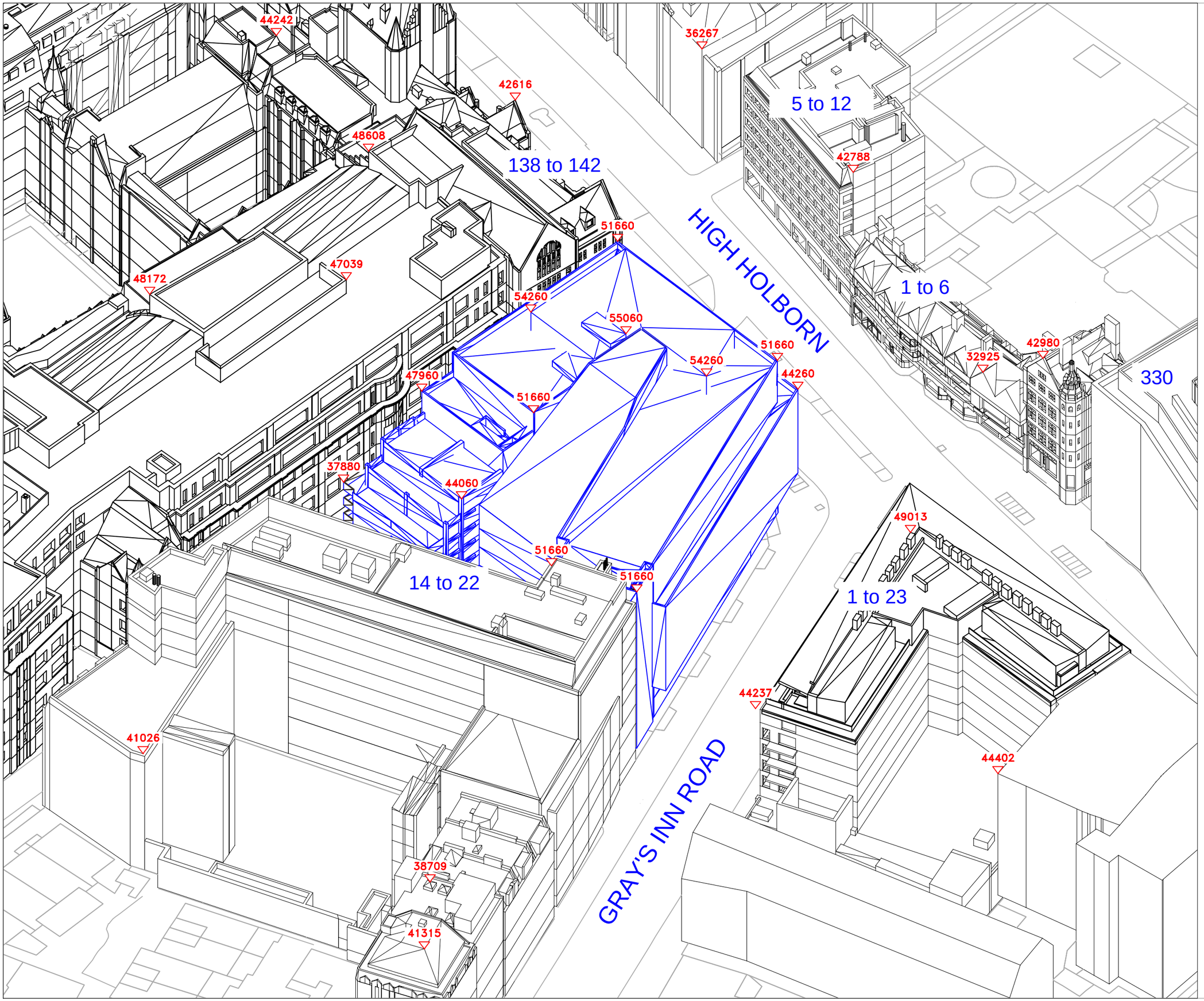
Proposed



SOURCES OF INFORMATION

PRINGLE BRANDON
IR17-5538 (21.08.15)

PROSPAPLANS
IR02-5538
IR05-5538

MICHAEL GALLIE & PARTNERS
IR03-5538

CAMDEN PLANNING WEBSITE
IR04-5538

VERTEX MODELLING
IR06-5538

GIA
IR12-5538 - FOX COURT FLOOR PLAN MEASUREMENTS

PRINGLE BRANDON
IR17-5538 - 21.08.15

NOTES:

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PROPOSED SCHEME SHOWN IN BLUE

PROJECT:

150 HIGH HOLBORN
LONDON

DRAWING NAME:

PROPOSED SCHEME
3D VIEW
RECEIVED 26.02.16

DWN BY	SCALE	CHK BY	STATUS	DATE
MO	NTS @ A3	-	3D & ROL	MAR 16
PROJ No.	REL No.	IS No.	DWG No.	REV No.
5538	REL020	IS021	52	A

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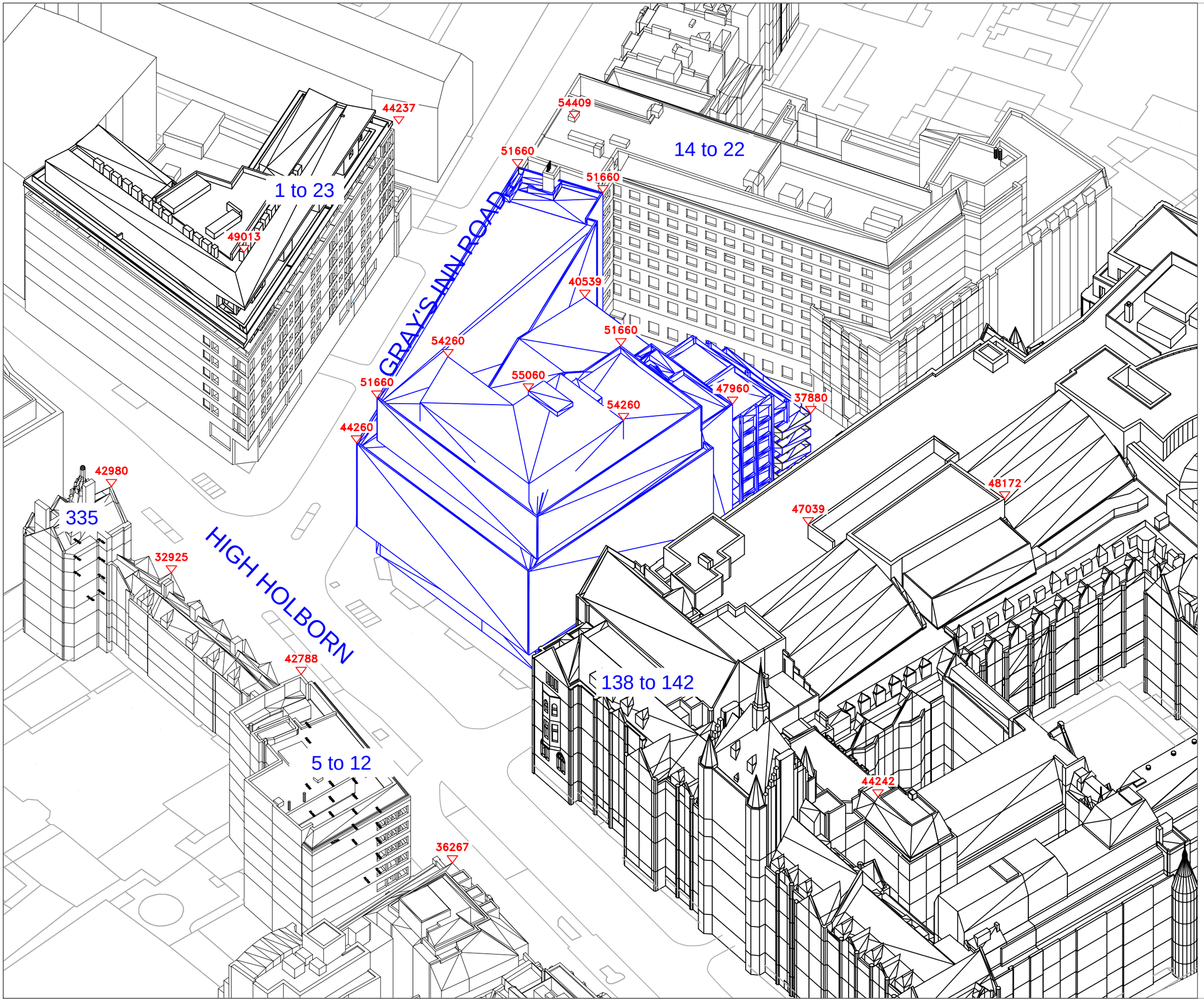

SOURCES OF INFORMATION

PRINGLE BRANDON
IR17-5538 (21.08.15)

PROSPAPLANS
IR02-5538
IR05-5538

MICHAEL GALLIE & PARTNERS
IR03-5538

CAMDEN PLANNING WEBSITE
IR04-5538

VERTEX MODELLING
IR06-5538

GIA
IR12-5538 - FOX COURT FLOOR PLAN MEASUREMENTS

PRINGLE BRANDON
IR17-5538 - 21.08.15

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NOTES:

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ALL HEIGHTS AND DIMENSIONS GIVEN IN mm AOD

PROPOSED SCHEME SHOWN IN BLUE

PROJECT:

150 HIGH HOLBORN
LONDON

DRAWING NAME:

PROPOSED SCHEME
3D VIEW
RECEIVED 26.02.16

DWN BY	SCALE	CHK BY	STATUS	DATE
MO	NTS @ A3	-	3D & ROL	FEB 16
PROJ No.	REL No.	IS No.	DWG No.	REV No.
5538	REL020	IS021	51	A

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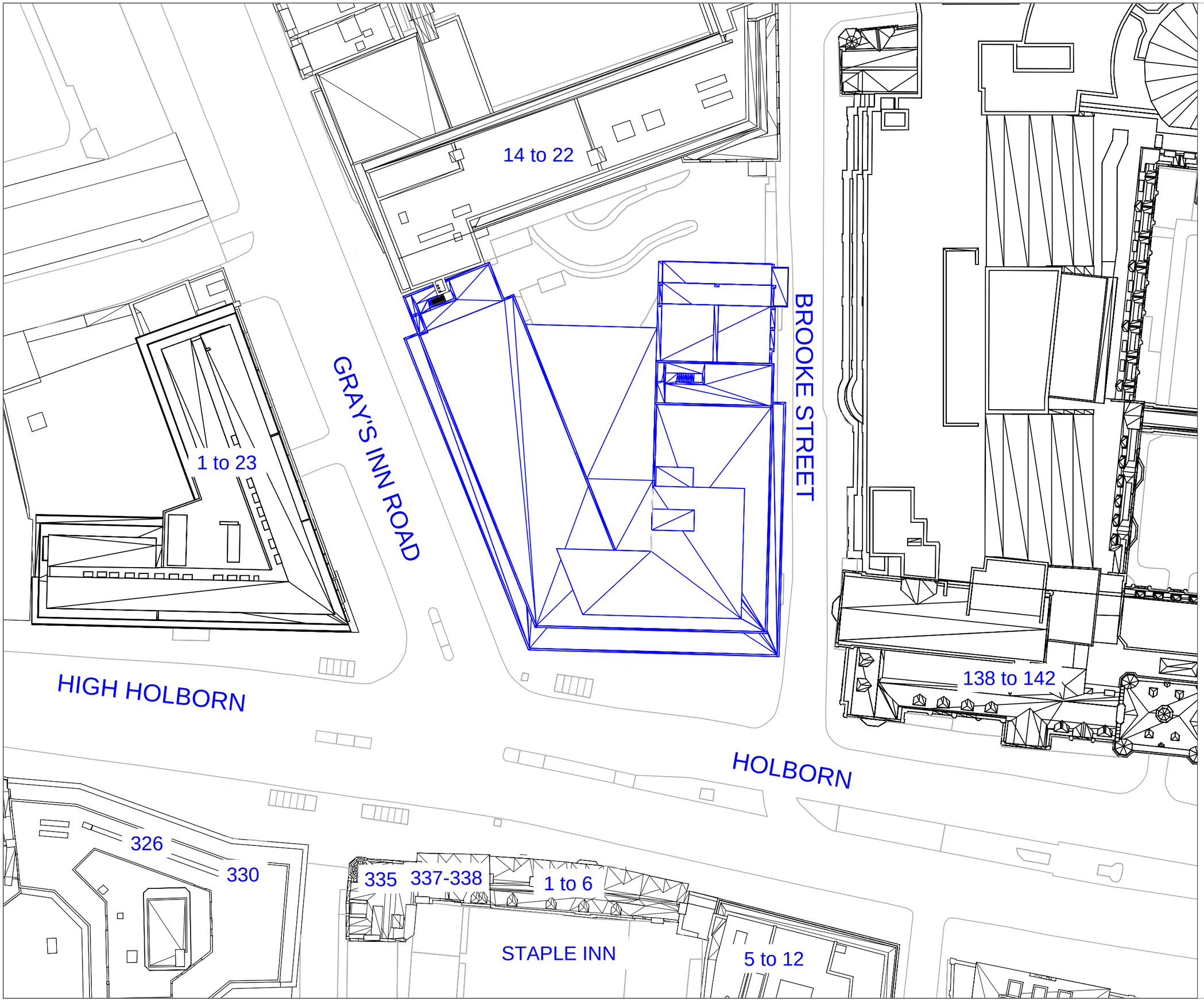

SOURCES OF INFORMATION

PRINGLE BRANDON
IR17-5538 (21.08.15)

PROSPAPLANS
IR02-5538
IR05-5538

MICHAEL GALLIE & PARTNERS
IR03-5538

CAMDEN PLANNING WEBSITE
IR04-5538

VERTEX MODELLING
IR06-5538

GIA
IR12-5538 - FOX COURT FLOOR PLAN MEASUREMENTS

PRINGLE BRANDON
IR17-5538 - 21.08.15

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NOTES:

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ALL HEIGHTS AND DIMENSIONS GIVEN IN mm AOD

PROPOSED SCHEME SHOWN IN BLUE

PROJECT:

150 HIGH HOLBORN
LONDON

DRAWING NAME:

PROPOSED SCHEME
PLAN VIEW
RECEIVED 26.02.16

DWN BY	SCALE	CHK BY	STATUS	DATE
MO	1:500 @ A3	-	3D & ROL	MAR 16
PROJ No.	REL No.	IS No.	DWG No.	REV No.
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Appendix 03

Daylight and Sunlight Results

DAYLIGHT ANALYSIS

Vertical Sky Component						
Room	**Window**	**Room Use**	Existing	Proposed	Loss	**%**
GRAY-S INN ROAD-1-23						
R2/500	**W10/500**	Commercial	0.4	0.2	0.2	50.0
R2/500	**W11/500**	Commercial	14.6	12.5	2.1	14.4
R2/500	**W6/500**	Commercial	14.6	11.8	2.8	19.2
R2/500	**W7/500**	Commercial	14.9	12.3	2.6	17.4
R2/500	**W8/500**	Commercial	0.5	0.5	0	0.0
R2/500	**W9/500**	Commercial	0	0	0	0.0
R1/501	**W2/501**	Living Room	25.2	25.2	0	0.0
R1/501	**W3/501**	Living Room	26.2	26.2	0	0.0
R1/501	**W4/501**	Living Room	26.4	26.4	0	0.0
R1/501	**W5/501**	Living Room	22.6	18.8	3.8	16.8
R1/501	**W6/501**	Living Room	21.8	17.6	4.2	19.3
R2/501	**W7/501**	Bedroom/Study	21.4	17.1	4.3	20.1
R3/501	**W8/501**	Bedroom	20.5	16.1	4.4	21.5
R4/501	**W9/501**	Bedroom	20.2	15.9	4.3	21.3
R4/501	**W21/501**	Bedroom	20.2	15.9	4.3	21.3
R5/501	**W10/501**	Living Room	19.7	15.4	4.3	21.8
R5/501	**W11/501**	Living Room	19.5	15.3	4.2	21.5
R6/501	**W12/501**	Bedroom/Study	19.1	15	4.1	21.5
R7/501	**W13/501**	Bedroom	18.9	14.9	4	21.2
R8/501	**W14/501**	Bedroom	18.4	14.7	3.7	20.1
R8/501	**W15/501**	Bedroom	18.3	14.7	3.6	19.7
R9/501	**W16/501**	Bedroom	18	14.7	3.3	18.3
R9/501	**W22/501**	Bedroom	18.4	14.9	3.5	19.0
R10/501	**W17/501**	Bedroom	17.9	14.7	3.2	17.9
R10/501	**W18/501**	Bedroom	17.7	14.9	2.8	15.8
R11/501	**W19/501**	LKD	17.6	15	2.6	14.8
R11/501	**W20/501**	LKD	17.4	15.2	2.2	12.6
R1/502	**W2/502**	Living Room	27.3	27.3	0	0.0
R1/502	**W3/502**	Living Room	28.3	28.3	0	0.0
R1/502	**W4/502**	Living Room	28.6	28.5	0.1	0.3
R1/502	**W5/502**	Living Room	24.9	20.7	4.2	16.9
R1/502	**W6/502**	Living Room	24.2	19.6	4.6	19.0
R2/502	**W7/502**	Bedroom/Study	23.8	19.1	4.7	19.7
R3/502	**W8/502**	Bedroom	23	18.2	4.8	20.9
R4/502	**W9/502**	Bedroom	22.8	18	4.8	21.1
R4/502	**W21/502**	Bedroom	22.8	18	4.8	21.1
R5/502	**W10/502**	Living Room	22.2	17.5	4.7	21.2
R5/502	**W11/502**	Living Room	22	17.4	4.6	20.9
R6/502	**W12/502**	Bedroom/Study	21.6	17.1	4.5	20.8
R7/502	**W13/502**	Bedroom	21.4	17	4.4	20.6
R8/502	**W14/502**	Bedroom	21	16.8	4.2	20.0

DAYLIGHT ANALYSIS

Vertical Sky Component						
Room	**Window**	**Room Use**	Existing	Proposed	Loss	**%**
R8/502	**W15/502**	Bedroom	20.8	16.8	4	19.2
R9/502	**W16/502**	Bedroom	20.5	16.8	3.7	18.0
R9/502	**W17/502**	Bedroom	20.4	16.8	3.6	17.6
R9/502	**W22/502**	Bedroom	21	17.1	3.9	18.6
R10/502	**W18/502**	Bedroom	20.1	17	3.1	15.4
R11/502	**W19/502**	Bedroom/Study	20	17.1	2.9	14.5
R12/502	**W20/502**	LKD	19.8	17.3	2.5	12.6
R12/502	**W23/502**	LKD	19.8	17.5	2.3	11.6
R12/502	**W24/502**	LKD	19.9	17.7	2.2	11.1
R12/502	**W25/502**	LKD	21.3	21.3	0	0.0
R12/502	**W26/502**	LKD	9.6	9.6	0	0.0
R1/503	**W2/503**	Living Room	29.5	29.5	0	0.0
R1/503	**W3/503**	Living Room	30.5	30.5	0	0.0
R1/503	**W4/503**	Living Room	30.7	30.7	0	0.0
R1/503	**W5/503**	Living Room	27.4	23	4.4	16.1
R1/503	**W6/503**	Living Room	26.8	22	4.8	17.9
R2/503	**W7/503**	Bedroom/Study	26.5	21.5	5	18.9
R3/503	**W8/503**	Bedroom	25.7	20.7	5	19.5
R4/503	**W9/503**	Bedroom	25.5	20.5	5	19.6
R4/503	**W21/503**	Bedroom	25.6	20.5	5.1	19.9
R5/503	**W10/503**	Living Room	25	20	5	20.0
R5/503	**W11/503**	Living Room	24.8	19.9	4.9	19.8
R6/503	**W12/503**	Bedroom/Study	24.5	19.7	4.8	19.6
R7/503	**W13/503**	Bedroom	24.3	19.6	4.7	19.3
R8/503	**W14/503**	Bedroom	23.8	19.3	4.5	18.9
R8/503	**W15/503**	Bedroom	23.7	19.3	4.4	18.6
R9/503	**W16/503**	Bedroom	23.3	19.3	4	17.2
R9/503	**W17/503**	Bedroom	23.2	19.3	3.9	16.8
R9/503	**W22/503**	Bedroom	23.9	19.6	4.3	18.0
R10/503	**W18/503**	Bedroom	22.9	19.5	3.4	14.8
R11/503	**W19/503**	Bedroom/Study	22.8	19.6	3.2	14.0
R12/503	**W20/503**	LKD	22.5	19.9	2.6	11.6
R12/503	**W23/503**	LKD	22.5	20	2.5	11.1
R12/503	**W24/503**	LKD	22.6	20.3	2.3	10.2
R12/503	**W25/503**	LKD	26.5	26.5	0	0.0
R12/503	**W26/503**	LKD	19.7	19.7	0	0.0
R1/504	**W2/504**	Living Room	31.7	31.7	0	0.0
R1/504	**W3/504**	Living Room	32.6	32.6	0	0.0
R1/504	**W4/504**	Living Room	32.8	32.8	0	0.0
R1/504	**W5/504**	Living Room	30	25.6	4.4	14.7
R1/504	**W6/504**	Living Room	29.6	24.7	4.9	16.6
R2/504	**W7/504**	Bedroom/Study	29.3	24.3	5	17.1
R3/504	**W8/504**	Bedroom	28.6	23.4	5.2	18.2

DAYLIGHT ANALYSIS

Vertical Sky Component						
Room	**Window**	**Room Use**	Existing	Proposed	Loss	**%**
R4/504	**W9/504**	Bedroom	28.4	23.2	5.2	18.3
R4/504	**W21/504**	Bedroom	28.5	23.4	5.1	17.9
R5/504	**W10/504**	Living Room	27.9	22.8	5.1	18.3
R5/504	**W11/504**	Living Room	27.8	22.7	5.1	18.3
R6/504	**W12/504**	Bedroom/Study	27.6	22.6	5	18.1
R7/504	**W13/504**	Bedroom	27.4	22.5	4.9	17.9
R8/504	**W14/504**	Bedroom	26.9	22.2	4.7	17.5
R8/504	**W15/504**	Bedroom	26.7	22.2	4.5	16.9
R9/504	**W16/504**	Bedroom	26.4	22.1	4.3	16.3
R9/504	**W17/504**	Bedroom	26.2	22.1	4.1	15.6
R9/504	**W22/504**	Bedroom	26.9	22.5	4.4	16.4
R10/504	**W18/504**	Bedroom	26	22.4	3.6	13.8
R11/504	**W19/504**	Bedroom/Study	25.9	22.5	3.4	13.1
R12/504	**W20/504**	LKD	25.5	22.7	2.8	11.0
R12/504	**W23/504**	LKD	25.5	22.9	2.6	10.2
R12/504	**W24/504**	LKD	25.5	23.2	2.3	9.0
R12/504	**W25/504**	LKD	30.6	30.6	0	0.0
R12/504	**W26/504**	LKD	24	24	0	0.0
R1/505	**W2/505**	Living Room	33.3	33.3	0	0.0
R1/505	**W3/505**	Living Room	34.1	34.1	0	0.0
R1/505	**W4/505**	Living Room	34.3	34.3	0	0.0
R1/505	**W5/505**	Living Room	32.5	28.4	4.1	12.6
R1/505	**W6/505**	Living Room	32.2	27.6	4.6	14.3
R2/505	**W7/505**	Bedroom/Study	32	27.2	4.8	15.0
R3/505	**W8/505**	Bedroom	31.4	26.5	4.9	15.6
R4/505	**W9/505**	Bedroom	31.2	26.3	4.9	15.7
R4/505	**W21/505**	Bedroom	31.4	26.5	4.9	15.6
R5/505	**W10/505**	Living Room	30.9	25.9	5	16.2
R5/505	**W11/505**	Living Room	30.8	25.8	5	16.2
R6/505	**W12/505**	Bedroom/Study	30.6	25.8	4.8	15.7
R7/505	**W13/505**	Bedroom	30.4	25.7	4.7	15.5
R8/505	**W14/505**	Bedroom	30	25.3	4.7	15.7
R8/505	**W15/505**	Bedroom	29.8	25.3	4.5	15.1
R9/505	**W16/505**	Bedroom	29.5	25.3	4.2	14.2
R9/505	**W17/505**	Bedroom	29.3	25.2	4.1	14.0
R9/505	**W22/505**	Bedroom	30	25.7	4.3	14.3
R10/505	**W18/505**	Bedroom	29.1	25.5	3.6	12.4
R11/505	**W19/505**	Bedroom/Study	28.9	25.6	3.3	11.4
R12/505	**W20/505**	LKD	28.5	25.7	2.8	9.8
R12/505	**W23/505**	LKD	28.5	25.9	2.6	9.1
R12/505	**W24/505**	LKD	28.5	26.2	2.3	8.1
R12/505	**W25/505**	LKD	37.5	37.5	0	0.0
R12/505	**W26/505**	LKD	37.7	37.7	0	0.0

DAYLIGHT ANALYSIS

Vertical Sky Component						
Room	**Window**	**Room Use**	Existing	Proposed	Loss	**%**
R1/506	**W1/506**	Living Room	15.9	15.9	0	0.0
R1/506	**W2/506**	Living Room	16.3	16.3	0	0.0
R1/506	**W3/506**	Living Room	15.3	11.8	3.5	22.9
R1/506	**W4/506**	Living Room	15	11.2	3.8	25.3
R1/506	**W5/506**	Living Room	10.3	6.4	3.9	37.9
R2/506	**W6/506**	Kitchen	10.2	6.3	3.9	38.2
R2/506	**W7/506**	Kitchen	10.1	6.1	4	39.6
R3/506	**W8/506**	LKD	10.1	6.1	4	39.6
R3/506	**W9/506**	LKD	14.4	10.4	4	27.8
R4/506	**W10/506**	Bedroom/Study	9.8	5.9	3.9	39.8
R5/506	**W11/506**	Bedroom	9.7	5.8	3.9	40.2
R5/506	**W12/506**	Bedroom	9.6	5.8	3.8	39.6
R6/506	**W13/506**	Bedroom	9.6	5.8	3.8	39.6
R6/506	**W14/506**	Bedroom	9.5	5.8	3.7	38.9
R7/506	**W15/506**	Bedroom	9.4	5.8	3.6	38.3
R7/506	**W16/506**	Bedroom	9.3	5.8	3.5	37.6
R7/506	**W17/506**	Bedroom	9.2	5.8	3.4	37.0
R8/506	**W18/506**	Bedroom	9.1	5.8	3.3	36.3
R8/506	**W19/506**	Bedroom	8.9	5.9	3	33.7
R9/506	**W20/506**	Bedroom/Study	8.8	6	2.8	31.8
R9/506	**W21/506**	Bedroom/Study	8.5	6	2.5	29.4
R10/506	**W22/506**	LKD	7.7	5.3	2.4	31.2
R10/506	**W23/506**	LKD	29.8	27.5	2.3	7.7
R10/506	**W24/506**	LKD	29.8	27.8	2	6.7
R10/506	**W25/506**	LKD	33.3	33.3	0	0.0
R1/507	**W1/507**	Living Room	20.7	20.7	0	0.0
R1/507	**W2/507**	Living Room	20	17.6	2.4	12.0
R1/507	**W3/507**	Living Room	29.8	27.2	2.6	8.7
R2/507	**W4/507**	Living Room	19.2	16.7	2.5	13.0
R3/507	**W5/507**	Bedroom	19	16.5	2.5	13.2
R4/507	**W6/507**	Living Room	8.6	8.3	0.3	3.5
R4/507	**W7/507**	Living Room	14.8	12.7	2.1	14.2
R5/507	**W8/507**	Bedroom	19.8	17.3	2.5	12.6
R6/507	**W9/507**	Bedroom	17.9	15.4	2.5	14.0
R7/507	**W10/507**	Bedroom	10.2	10.1	0.1	1.0
R7/507	**W11/507**	Bedroom	16	14.2	1.8	11.3
R8/507	**W12/507**	Bedroom	18	15.8	2.2	12.2
R9/507	**W13/507**	Living Room	35.9	33.8	2.1	5.8
R9/507	**W14/507**	Living Room	25.9	24.2	1.7	6.6
R9/507	**W15/507**	Living Room	18.8	18.8	0	0.0
R1/510	**W1/510**	Commercial	22.6	22.6	0	0.0
R1/510	**W2/510**	Commercial	0	0	0	0.0
R1/510	**W3/510**	Commercial	18.7	15.1	3.6	19.3

DAYLIGHT ANALYSIS

Vertical Sky Component						
Room	**Window**	**Room Use**	Existing	Proposed	Loss	**%**
R1/510	**W4/510**	Commercial	17.6	13.9	3.7	21.0
R1/510	**W5/510**	Commercial	16.7	13.1	3.6	21.6

DAYLIGHT DISTRIBUTION ANALYSIS

Room / Floor	Room Use	Flat Number	Whole Room	Prev sq ft	New sq ft	Loss sq ft	%Loss	%Prev	%New
GRAY-S INN ROAD-1-23									
R2/500	Commercial		764.58	218.74	180.42	38.32	17.52	28.61	23.60
R1/501	Living Room		368.96	362.51	362.51	0.00	0.00	98.25	98.25
R2/501	Bedroom/Study		119.55	85.67	76.15	9.52	11.11	71.66	63.70
R3/501	Bedroom		50.50	22.55	15.07	7.48	33.18	44.65	29.83
R4/501	Bedroom		133.26	79.43	62.84	16.59	20.89	59.61	47.16
R5/501	Living Room		287.76	88.12	67.76	20.36	23.10	30.62	23.55
R6/501	Bedroom/Study		158.00	34.45	24.49	9.96	28.91	21.81	15.50
R7/501	Bedroom		209.68	54.82	39.05	15.77	28.77	26.14	18.62
R8/501	Bedroom		181.05	57.51	43.36	14.14	24.59	31.76	23.95
R9/501	Bedroom		161.50	58.82	49.43	9.39	15.96	36.42	30.61
R10/501	Bedroom		179.46	99.42	78.94	20.49	20.61	55.40	43.98
R11/501	LKD		305.04	97.01	86.17	10.84	11.18	31.80	28.25
R1/502	Living Room		368.96	362.71	362.71	0.00	0.00	98.31	98.31
R2/502	Bedroom/Study		119.55	88.88	76.32	12.57	14.14	74.35	63.84
R3/502	Bedroom		50.50	28.05	18.34	9.70	34.59	55.53	36.32
R4/502	Bedroom		133.26	88.12	65.96	22.16	25.15	66.13	49.49
R5/502	Living Room		287.76	99.55	74.01	25.54	25.66	34.59	25.72
R6/502	Bedroom/Study		158.00	41.12	27.96	13.16	32.01	26.02	17.69
R7/502	Bedroom		209.68	62.13	43.16	18.97	30.53	29.63	20.58
R8/502	Bedroom		181.05	71.01	48.46	22.55	31.76	39.22	26.76
R9/502	Bedroom		231.58	129.19	108.45	20.74	16.06	55.79	46.83
R10/502	Bedroom		101.06	54.68	44.96	9.71	17.76	54.10	44.49
R11/502	Bedroom/Study		128.18	47.42	30.45	16.97	35.79	36.99	23.75
R12/502	LKD		325.67	320.81	320.01	0.80	0.25	98.51	98.26
R1/503	Living Room		368.96	362.59	362.59	0.00	0.00	98.27	98.27
R2/503	Bedroom/Study		119.55	94.48	80.04	14.44	15.28	79.03	66.95
R3/503	Bedroom		50.50	35.46	22.65	12.82	36.14	70.22	44.84
R4/503	Bedroom		133.26	102.16	74.54	27.62	27.03	76.66	55.94
R5/503	Living Room		287.76	117.73	83.62	34.11	28.97	40.91	29.06
R6/503	Bedroom/Study		158.00	55.59	34.68	20.91	37.61	35.18	21.95
R7/503	Bedroom		209.68	76.96	51.32	25.64	33.32	36.70	24.48
R8/503	Bedroom		181.05	92.47	56.97	35.50	38.39	51.07	31.47
R9/503	Bedroom		231.58	156.11	120.79	35.32	22.63	67.41	52.16
R10/503	Bedroom		101.06	65.55	51.08	14.48	22.09	64.86	50.54
R11/503	Bedroom/Study		128.18	62.33	37.86	24.47	39.26	48.62	29.53
R12/503	LKD		325.67	322.68	322.51	0.17	0.05	99.08	99.03
R1/504	Living Room		368.96	366.05	362.81	3.25	0.89	99.21	98.33
R2/504	Bedroom/Study		119.55	104.67	88.96	15.71	15.01	87.55	74.41
R3/504	Bedroom		50.50	45.56	27.68	17.88	39.25	90.22	54.80
R4/504	Bedroom		133.26	123.44	86.17	37.27	30.19	92.63	64.67
R5/504	Living Room		287.76	147.43	96.42	51.02	34.60	51.23	33.50
R6/504	Bedroom/Study		158.00	83.67	47.31	36.36	43.46	52.96	29.94
R7/504	Bedroom		209.68	107.13	63.86	43.27	40.39	51.09	30.46
R8/504	Bedroom		181.05	123.87	68.99	54.88	44.30	68.42	38.11
R9/504	Bedroom		231.58	195.60	131.04	64.56	33.01	84.46	56.59
R10/504	Bedroom		101.06	79.71	59.76	19.95	25.03	78.87	59.13
R11/504	Bedroom/Study		128.18	91.73	51.10	40.63	44.29	71.56	39.87
R12/504	LKD		325.67	325.02	325.01	0.01	0.00	99.80	99.80
R1/505	Living Room		368.96	368.93	363.27	5.66	1.53	99.99	98.46
R2/505	Bedroom/Study		119.55	111.05	97.61	13.44	12.10	92.89	81.65
R3/505	Bedroom		50.50	50.28	36.55	13.72	27.30	99.55	72.38
R4/505	Bedroom		133.26	131.55	102.34	29.21	22.20	98.71	76.80
R5/505	Living Room		287.76	206.25	117.07	89.18	43.24	71.67	40.68
R6/505	Bedroom/Study		158.00	124.07	64.06	60.01	48.37	78.53	40.55
R7/505	Bedroom		209.68	154.62	82.48	72.14	46.66	73.74	39.34
R8/505	Bedroom		181.05	162.39	91.03	71.36	43.94	89.69	50.28
R9/505	Bedroom		231.58	227.73	153.70	74.03	32.51	98.34	66.37
R10/505	Bedroom		101.06	83.32	72.42	10.90	13.08	82.45	71.66
R11/505	Bedroom/Study		128.18	119.86	68.68	51.18	42.70	93.51	53.58
R12/505	LKD		325.67	325.59	325.59	0.01	0.00	99.98	99.97
R1/506	Living Room		449.08	449.08	449.07	0.01	0.00	100.00	100.00
R2/506	Kitchen		127.78	119.93	90.67	29.26	24.40	93.86	70.96
R3/506	LKD		401.10	396.80	220.25	176.55	44.49	98.93	54.91
R4/506	BSL		73.03	69.03	56.61	12.42	18.00	94.52	77.51
R5/506	Bedroom		153.36	144.20	117.15	27.05	18.76	94.03	76.39
R6/506	Bedroom		251.15	238.05	168.84	69.21	29.08	94.79	67.23
R7/506	Bedroom		156.37	144.33	144.33	0.00	0.00	92.30	92.30
R8/506	Bedroom		64.90	57.15	57.15	0.00	0.00	88.05	88.05
R9/506	BSL		94.53	86.64	86.64	0.00	0.00	91.65	91.65
R10/506	LKD		313.15	313.08	311.34	1.74	0.56	99.98	99.42
R1/507	Living Room		435.15	433.51	433.51	0.00	0.00	99.62	99.62
R2/507	Living Room		140.60	140.50	140.50	0.00	0.00	99.93	99.93
R3/507	Bedroom		180.79	180.66	180.66	0.00	0.00	99.93	99.93
R4/507	Living Room		229.18	226.02	226.02	0.00	0.00	98.62	98.62
R5/507	Bedroom		97.38	97.38	97.38	0.00	0.00	100.00	100.00
R6/507	Bedroom		102.22	102.19	102.19	0.00	0.00	99.98	99.98
R7/507	Bedroom		191.17	189.11	189.11	0.00	0.00	98.92	98.92
R8/507	Bedroom		132.88	132.77	132.77	0.00	0.00	99.92	99.92
R9/507	Living Room		448.13	442.65	442.64	0.00	0.00	98.78	98.78
R1/510	Commercial		1044.54	1044.54	1044.54	0.00	0.00	100.00	100.00

Annual Probable Sunlight Hours (APSH)

SUNLIGHT ANALYSIS

Room	Window	Room Use	Flat Number	Existing Winter APSH	Existing Annual APSH	Proposed Winter APSH	Proposed Annual APSH	Winter Loss	Annual Loss	Winter %Loss	Annual %Loss
GRAY-S INN ROAD-1-23											
R2/500	W10/500	Commercial		0	0	0	0	0	0	0.00	0.00
R1/501	W2/501	Living Room		8	48	8	48	0	0	0.00	0.00
R1/501	W3/501	Living Room		9	42	9	42	0	0	0.00	0.00
R1/501	W4/501	Living Room		14	54	14	54	0	0	0.00	0.00
R1/502	W2/502	Living Room		11	52	11	52	0	0	0.00	0.00
R1/502	W3/502	Living Room		12	46	12	46	0	0	0.00	0.00
R1/502	W4/502	Living Room		16	57	16	57	0	0	0.00	0.00
R1/503	W2/503	Living Room		15	56	15	56	0	0	0.00	0.00
R1/503	W3/503	Living Room		16	50	16	50	0	0	0.00	0.00
R1/503	W4/503	Living Room		19	60	19	60	0	0	0.00	0.00
R1/504	W2/504	Living Room		19	60	19	60	0	0	0.00	0.00
R1/504	W3/504	Living Room		20	54	20	54	0	0	0.00	0.00
R1/504	W4/504	Living Room		22	63	22	63	0	0	0.00	0.00
R1/505	W2/505	Living Room		20	61	20	61	0	0	0.00	0.00
R1/505	W3/505	Living Room		21	55	21	55	0	0	0.00	0.00
R1/505	W4/505	Living Room		24	65	24	65	0	0	0.00	0.00
R1/506	W1/506	Living Room		20	20	20	20	0	0	0.00	0.00
R1/506	W2/506	Living Room		20	21	20	21	0	0	0.00	0.00
R1/507	W1/507	Living Room		25	28	25	28	0	0	0.00	0.00
R1/510	W1/510	Commercial		10	55	10	55	0	0	0.00	0.00
R1/510	W2/510	Commercial		0	0	0	0	0	0	0.00	0.00

Appendix 04

Daylight and Sunlight
Results – Balcony Removed

DAYLIGHT ANALYSIS

			Vertical Sky Component			
Room	**Window**	**Room Use**	Existing	Proposed	Loss	**%**
GRAY-S INN ROAD-1-23						
R2/500	**W10/500**	Commercial	0.4	0.2	0.2	50.0
R2/500	**W11/500**	Commercial	14.7	12.6	2.1	14.3
R2/500	**W6/500**	Commercial	14.6	11.8	2.8	19.2
R2/500	**W7/500**	Commercial	15	12.3	2.7	18.0
R2/500	**W8/500**	Commercial	0.5	0.5	0	0.0
R2/500	**W9/500**	Commercial	0	0	0	0.0
R1/501	**W2/501**	Living Room	25.2	25.2	0	0.0
R1/501	**W3/501**	Living Room	26.2	26.2	0	0.0
R1/501	**W4/501**	Living Room	26.4	26.4	0	0.0
R1/501	**W5/501**	Living Room	22.6	18.8	3.8	16.8
R1/501	**W6/501**	Living Room	21.9	17.7	4.2	19.2
R2/501	**W7/501**	Bedroom/Study	21.5	17.2	4.3	20.0
R3/501	**W8/501**	Bedroom	20.6	16.2	4.4	21.4
R4/501	**W9/501**	Bedroom	20.3	16	4.3	21.2
R4/501	**W21/501**	Bedroom	20.3	16	4.3	21.2
R5/501	**W10/501**	Living Room	19.8	15.5	4.3	21.7
R5/501	**W11/501**	Living Room	19.6	15.4	4.2	21.4
R6/501	**W12/501**	Bedroom/Study	19.2	15.2	4	20.8
R7/501	**W13/501**	Bedroom	19	15	4	21.1
R8/501	**W14/501**	Bedroom	18.5	14.8	3.7	20.0
R8/501	**W15/501**	Bedroom	18.4	14.8	3.6	19.6
R9/501	**W16/501**	Bedroom	18.1	14.8	3.3	18.2
R9/501	**W22/501**	Bedroom	18.5	15	3.5	18.9
R10/501	**W17/501**	Bedroom	18	14.8	3.2	17.8
R10/501	**W18/501**	Bedroom	17.8	15	2.8	15.7
R11/501	**W19/501**	LKD	17.7	15.1	2.6	14.7
R11/501	**W20/501**	LKD	17.5	15.3	2.2	12.6
R1/502	**W2/502**	Living Room	27.3	27.3	0	0.0
R1/502	**W3/502**	Living Room	28.3	28.3	0	0.0
R1/502	**W4/502**	Living Room	28.6	28.5	0.1	0.3
R1/502	**W5/502**	Living Room	24.9	20.8	4.1	16.5
R1/502	**W6/502**	Living Room	24.3	19.7	4.6	18.9
R2/502	**W7/502**	Bedroom/Study	23.9	19.2	4.7	19.7
R3/502	**W8/502**	Bedroom	23.1	18.3	4.8	20.8
R4/502	**W9/502**	Bedroom	22.9	18.1	4.8	21.0
R4/502	**W21/502**	Bedroom	22.9	18.1	4.8	21.0
R5/502	**W10/502**	Living Room	22.3	17.6	4.7	21.1
R5/502	**W11/502**	Living Room	22.1	17.5	4.6	20.8
R6/502	**W12/502**	Bedroom/Study	21.8	17.3	4.5	20.6
R7/502	**W13/502**	Bedroom	21.6	17.2	4.4	20.4
R8/502	**W14/502**	Bedroom	21.1	16.9	4.2	19.9

DAYLIGHT ANALYSIS

			Vertical Sky Component			
Room	**Window**	**Room Use**	Existing	Proposed	Loss	**%**
R8/502	**W15/502**	Bedroom	21	16.9	4.1	19.5
R9/502	**W16/502**	Bedroom	20.6	16.9	3.7	18.0
R9/502	**W17/502**	Bedroom	20.5	16.9	3.6	17.6
R9/502	**W22/502**	Bedroom	21.1	17.2	3.9	18.5
R10/502	**W18/502**	Bedroom	20.3	17.1	3.2	15.8
R11/502	**W19/502**	Bedroom/Study	20.2	17.2	3	14.9
R12/502	**W20/502**	LKD	20	17.5	2.5	12.5
R12/502	**W23/502**	LKD	19.9	17.6	2.3	11.6
R12/502	**W24/502**	LKD	20	17.9	2.1	10.5
R12/502	**W25/502**	LKD	21.3	21.3	0	0.0
R12/502	**W26/502**	LKD	9.6	9.6	0	0.0
R1/503	**W2/503**	Living Room	29.5	29.5	0	0.0
R1/503	**W3/503**	Living Room	30.5	30.5	0	0.0
R1/503	**W4/503**	Living Room	30.7	30.7	0	0.0
R1/503	**W5/503**	Living Room	27.4	23.1	4.3	15.7
R1/503	**W6/503**	Living Room	26.9	22.1	4.8	17.8
R2/503	**W7/503**	Bedroom/Study	26.6	21.6	5	18.8
R3/503	**W8/503**	Bedroom	25.9	20.8	5.1	19.7
R4/503	**W9/503**	Bedroom	25.6	20.6	5	19.5
R4/503	**W21/503**	Bedroom	25.7	20.6	5.1	19.8
R5/503	**W10/503**	Living Room	25.2	20.1	5.1	20.2
R5/503	**W11/503**	Living Room	25	20	5	20.0
R6/503	**W12/503**	Bedroom/Study	24.6	19.8	4.8	19.5
R7/503	**W13/503**	Bedroom	24.4	19.7	4.7	19.3
R8/503	**W14/503**	Bedroom	24	19.5	4.5	18.8
R8/503	**W15/503**	Bedroom	23.8	19.4	4.4	18.5
R9/503	**W16/503**	Bedroom	23.5	19.4	4.1	17.4
R9/503	**W17/503**	Bedroom	23.3	19.4	3.9	16.7
R9/503	**W22/503**	Bedroom	24	19.8	4.2	17.5
R10/503	**W18/503**	Bedroom	23.1	19.6	3.5	15.2
R11/503	**W19/503**	Bedroom/Study	22.9	19.7	3.2	14.0
R12/503	**W20/503**	LKD	22.7	20	2.7	11.9
R12/503	**W23/503**	LKD	22.7	20.2	2.5	11.0
R12/503	**W24/503**	LKD	22.7	20.4	2.3	10.1
R12/503	**W25/503**	LKD	26.5	26.5	0	0.0
R12/503	**W26/503**	LKD	19.7	19.7	0	0.0
R1/504	**W2/504**	Living Room	31.7	31.7	0	0.0
R1/504	**W3/504**	Living Room	32.6	32.6	0	0.0
R1/504	**W4/504**	Living Room	32.8	32.8	0	0.0
R1/504	**W5/504**	Living Room	30	25.6	4.4	14.7
R1/504	**W6/504**	Living Room	29.7	24.8	4.9	16.5
R2/504	**W7/504**	Bedroom/Study	29.4	24.4	5	17.0
R3/504	**W8/504**	Bedroom	28.7	23.6	5.1	17.8

DAYLIGHT ANALYSIS

Vertical Sky Component						
Room	**Window**	**Room Use**	Existing	Proposed	Loss	**%**
R4/504	**W9/504**	Bedroom	28.6	23.4	5.2	18.2
R4/504	**W21/504**	Bedroom	28.7	23.6	5.1	17.8
R5/504	**W10/504**	Living Room	28.1	23	5.1	18.1
R5/504	**W11/504**	Living Room	28	22.9	5.1	18.2
R6/504	**W12/504**	Bedroom/Study	27.8	22.8	5	18.0
R7/504	**W13/504**	Bedroom	27.6	22.7	4.9	17.8
R8/504	**W14/504**	Bedroom	27.1	22.4	4.7	17.3
R8/504	**W15/504**	Bedroom	26.9	22.4	4.5	16.7
R9/504	**W16/504**	Bedroom	26.6	22.3	4.3	16.2
R9/504	**W17/504**	Bedroom	26.4	22.3	4.1	15.5
R9/504	**W22/504**	Bedroom	27.1	22.7	4.4	16.2
R10/504	**W18/504**	Bedroom	26.2	22.6	3.6	13.7
R11/504	**W19/504**	Bedroom/Study	26	22.7	3.3	12.7
R12/504	**W20/504**	LKD	25.7	22.9	2.8	10.9
R12/504	**W23/504**	LKD	25.7	23.1	2.6	10.1
R12/504	**W24/504**	LKD	25.7	23.3	2.4	9.3
R12/504	**W25/504**	LKD	30.6	30.6	0	0.0
R12/504	**W26/504**	LKD	24	24	0	0.0
R1/505	**W2/505**	Living Room	33.3	33.3	0	0.0
R1/505	**W3/505**	Living Room	34.1	34.1	0	0.0
R1/505	**W4/505**	Living Room	34.3	34.3	0	0.0
R1/505	**W5/505**	Living Room	32.5	28.4	4.1	12.6
R1/505	**W6/505**	Living Room	32.3	27.7	4.6	14.2
R2/505	**W7/505**	Bedroom/Study	32.1	27.4	4.7	14.6
R3/505	**W8/505**	Bedroom	31.7	26.7	5	15.8
R4/505	**W9/505**	Bedroom	31.5	26.6	4.9	15.6
R4/505	**W21/505**	Bedroom	31.7	26.8	4.9	15.5
R5/505	**W10/505**	Living Room	31.2	26.3	4.9	15.7
R5/505	**W11/505**	Living Room	31.1	26.2	4.9	15.8
R6/505	**W12/505**	Bedroom/Study	31	26.1	4.9	15.8
R7/505	**W13/505**	Bedroom	30.8	26	4.8	15.6
R8/505	**W14/505**	Bedroom	30.3	25.7	4.6	15.2
R8/505	**W15/505**	Bedroom	30.2	25.7	4.5	14.9
R9/505	**W16/505**	Bedroom	29.8	25.6	4.2	14.1
R9/505	**W17/505**	Bedroom	29.7	25.6	4.1	13.8
R9/505	**W22/505**	Bedroom	30.4	26	4.4	14.5
R10/505	**W18/505**	Bedroom	29.4	25.9	3.5	11.9
R11/505	**W19/505**	Bedroom/Study	29.3	25.9	3.4	11.6
R12/505	**W20/505**	LKD	28.8	26.1	2.7	9.4
R12/505	**W23/505**	LKD	28.8	26.2	2.6	9.0
R12/505	**W24/505**	LKD	28.8	26.5	2.3	8.0
R12/505	**W25/505**	LKD	37.6	37.6	0	0.0
R12/505	**W26/505**	LKD	37.8	37.8	0	0.0

DAYLIGHT ANALYSIS

			Vertical Sky Component			
Room	**Window**	**Room Use**	Existing	Proposed	Loss	**%**
R1/506	**W1/506**	Living Room	15.9	15.9	0	0.0
R1/506	**W2/506**	Living Room	16.3	16.3	0	0.0
R1/506	**W3/506**	Living Room	21.3	17.8	3.5	16.4
R1/506	**W4/506**	Living Room	27	23.3	3.7	13.7
R1/506	**W5/506**	Living Room	27.8	24	3.8	13.7
R2/506	**W6/506**	Kitchen	29.6	25.7	3.9	13.2
R2/506	**W7/506**	Kitchen	29.8	25.9	3.9	13.1
R3/506	**W8/506**	LKD	29.8	25.8	4	13.4
R3/506	**W9/506**	LKD	31.4	27.4	4	12.7
R4/506	**W10/506**	Bedroom/Study	29.4	25.4	4	13.6
R5/506	**W11/506**	Bedroom	29.3	25.4	3.9	13.3
R5/506	**W12/506**	Bedroom	29.1	25.3	3.8	13.1
R6/506	**W13/506**	Bedroom	29	25.2	3.8	13.1
R6/506	**W14/506**	Bedroom	28.8	25.1	3.7	12.8
R7/506	**W15/506**	Bedroom	28.7	25.1	3.6	12.5
R7/506	**W16/506**	Bedroom	28.6	25	3.6	12.6
R7/506	**W17/506**	Bedroom	28.4	25	3.4	12.0
R8/506	**W18/506**	Bedroom	28.2	25	3.2	11.3
R8/506	**W19/506**	Bedroom	28	25	3	10.7
R9/506	**W20/506**	Bedroom/Study	27.8	25	2.8	10.1
R9/506	**W21/506**	Bedroom/Study	27.4	24.8	2.6	9.5
R10/506	**W22/506**	LKD	25.6	23.2	2.4	9.4
R10/506	**W23/506**	LKD	31.7	29.5	2.2	6.9
R10/506	**W24/506**	LKD	31.7	29.7	2	6.3
R10/506	**W25/506**	LKD	33.3	33.3	0	0.0
R1/507	**W1/507**	Living Room	20.7	20.7	0	0.0
R1/507	**W2/507**	Living Room	20	17.6	2.4	12.0
R1/507	**W3/507**	Living Room	29.8	27.2	2.6	8.7
R2/507	**W4/507**	Living Room	19.2	16.7	2.5	13.0
R3/507	**W5/507**	Bedroom	19	16.5	2.5	13.2
R4/507	**W6/507**	Living Room	8.6	8.3	0.3	3.5
R4/507	**W7/507**	Living Room	14.8	12.7	2.1	14.2
R5/507	**W8/507**	Bedroom	19.8	17.3	2.5	12.6
R6/507	**W9/507**	Bedroom	17.9	15.4	2.5	14.0
R7/507	**W10/507**	Bedroom	10.2	10.1	0.1	1.0
R7/507	**W11/507**	Bedroom	16	14.2	1.8	11.3
R8/507	**W12/507**	Bedroom	18	15.8	2.2	12.2
R9/507	**W13/507**	Living Room	35.9	33.8	2.1	5.8
R9/507	**W14/507**	Living Room	25.9	24.2	1.7	6.6
R9/507	**W15/507**	Living Room	18.8	18.8	0	0.0
R1/510	**W1/510**	Commercial	22.6	22.6	0	0.0
R1/510	**W2/510**	Commercial	0	0	0	0.0
R1/510	**W3/510**	Commercial	18.8	15.2	3.6	19.1

DAYLIGHT ANALYSIS

			Vertical Sky Component			
Room	**Window**	**Room Use**	Existing	Proposed	Loss	**%**
R1/510	**W4/510**	Commercial	17.7	14	3.7	20.9
R1/510	**W5/510**	Commercial	16.8	13.2	3.6	21.4

DAYLIGHT DISTRIBUTION ANALYSIS

Room / Floor	Room Use	Flat Number	Whole Room	Prev sq ft	New sq ft	Loss sq ft	%Loss	%Prev	%New
GRAY-S INN ROAD-1-23									
R2/500	Commercial		764.58	235.35	198.00	37.35	15.87	30.78	25.90
R1/501	Living Room		368.96	362.51	362.51	0.00	0.00	98.25	98.25
R2/501	Bedroom/Study		119.55	85.67	76.15	9.52	11.11	71.66	63.70
R3/501	Bedroom		50.50	22.55	15.07	7.48	33.18	44.65	29.83
R4/501	Bedroom		133.26	79.43	62.84	16.59	20.89	59.61	47.16
R5/501	Living Room		287.76	88.12	67.76	20.36	23.10	30.62	23.55
R6/501	Bedroom/Study		158.00	34.45	24.49	9.96	28.91	21.81	15.50
R7/501	Bedroom		209.68	54.82	39.05	15.77	28.77	26.14	18.62
R8/501	Bedroom		181.05	57.51	43.36	14.14	24.59	31.76	23.95
R9/501	Bedroom		161.50	58.82	49.43	9.39	15.96	36.42	30.61
R10/501	Bedroom		179.46	99.42	78.94	20.49	20.61	55.40	43.98
R11/501	LKD		305.04	97.01	86.17	10.84	11.18	31.80	28.25
R1/502	Living Room		368.96	362.71	362.71	0.00	0.00	98.31	98.31
R2/502	Bedroom/Study		119.55	88.88	76.32	12.57	14.14	74.35	63.84
R3/502	Bedroom		50.50	28.05	18.34	9.70	34.59	55.53	36.32
R4/502	Bedroom		133.26	88.12	65.96	22.16	25.15	66.13	49.49
R5/502	Living Room		287.76	99.55	74.01	25.54	25.66	34.59	25.72
R6/502	Bedroom/Study		158.00	41.12	27.96	13.16	32.01	26.02	17.69
R7/502	Bedroom		209.68	62.13	43.16	18.97	30.53	29.63	20.58
R8/502	Bedroom		181.05	71.01	48.46	22.55	31.76	39.22	26.76
R9/502	Bedroom		231.58	129.19	108.45	20.74	16.06	55.79	46.83
R10/502	Bedroom		101.06	54.68	44.96	9.71	17.76	54.10	44.49
R11/502	Bedroom/Study		128.18	47.42	30.45	16.97	35.79	36.99	23.75
R12/502	LKD		325.67	320.81	320.01	0.80	0.25	98.51	98.26
R1/503	Living Room		368.96	362.59	362.59	0.00	0.00	98.27	98.27
R2/503	Bedroom/Study		119.55	94.48	80.04	14.44	15.28	79.03	66.95
R3/503	Bedroom		50.50	35.46	22.65	12.82	36.14	70.22	44.84
R4/503	Bedroom		133.26	102.16	74.54	27.62	27.03	76.66	55.94
R5/503	Living Room		287.76	117.73	83.62	34.11	28.97	40.91	29.06
R6/503	Bedroom/Study		158.00	55.59	34.68	20.91	37.61	35.18	21.95
R7/503	Bedroom		209.68	76.96	51.32	25.64	33.32	36.70	24.48
R8/503	Bedroom		181.05	92.47	56.97	35.50	38.39	51.07	31.47
R9/503	Bedroom		231.58	156.11	120.79	35.32	22.63	67.41	52.16
R10/503	Bedroom		101.06	65.55	51.08	14.48	22.09	64.86	50.54
R11/503	Bedroom/Study		128.18	62.33	37.86	24.47	39.26	48.62	29.53
R12/503	LKD		325.67	322.68	322.51	0.17	0.05	99.08	99.03
R1/504	Living Room		368.96	366.05	362.81	3.25	0.89	99.21	98.33
R2/504	Bedroom/Study		119.55	104.67	88.96	15.71	15.01	87.55	74.41
R3/504	Bedroom		50.50	45.56	27.68	17.88	39.25	90.22	54.80
R4/504	Bedroom		133.26	123.44	86.17	37.27	30.19	92.63	64.67
R5/504	Living Room		287.76	147.43	96.42	51.02	34.60	51.23	33.50
R6/504	Bedroom/Study		158.00	83.67	47.31	36.36	43.46	52.96	29.94
R7/504	Bedroom		209.68	107.13	63.86	43.27	40.39	51.09	30.46
R8/504	Bedroom		181.05	123.87	68.99	54.88	44.30	68.42	38.11
R9/504	Bedroom		231.58	195.60	131.04	64.56	33.01	84.46	56.59
R10/504	Bedroom		101.06	79.71	59.76	19.95	25.03	78.87	59.13
R11/504	Bedroom/Study		128.18	91.73	51.10	40.63	44.29	71.56	39.87
R12/504	LKD		325.67	325.02	325.01	0.01	0.00	99.80	99.80
R1/505	Living Room		368.96	368.93	363.27	5.66	1.53	99.99	98.46
R2/505	Bedroom/Study		119.55	111.05	97.61	13.44	12.10	92.89	81.65
R3/505	Bedroom		50.50	50.28	36.55	13.72	27.30	99.55	72.38
R4/505	Bedroom		133.26	131.55	102.34	29.21	22.20	98.71	76.80
R5/505	Living Room		287.76	206.25	117.07	89.18	43.24	71.67	40.68
R6/505	Bedroom/Study		158.00	124.07	64.06	60.01	48.37	78.53	40.55
R7/505	Bedroom		209.68	154.62	82.48	72.14	46.66	73.74	39.34
R8/505	Bedroom		181.05	162.39	91.03	71.36	43.94	89.69	50.28
R9/505	Bedroom		231.58	227.73	153.70	74.03	32.51	98.34	66.37
R10/505	Bedroom		101.06	83.32	72.42	10.90	13.08	82.45	71.66
R11/505	Bedroom/Study		128.18	119.86	68.68	51.18	42.70	93.51	53.58
R12/505	LKD		325.67	325.59	325.59	0.01	0.00	99.98	99.97
R1/506	Living Room		449.08	449.08	449.07	0.01	0.00	100.00	100.00
R2/506	Kitchen		127.78	125.67	114.02	11.65	9.27	98.35	89.23
R3/506	LKD		401.10	399.57	276.24	123.33	30.87	99.62	68.87
R4/506	BSL		73.03	71.63	71.63	0.00	0.00	98.07	98.07
R5/506	Bedroom		153.36	149.65	149.65	0.00	0.00	97.58	97.58
R6/506	Bedroom		251.15	245.51	220.97	24.54	10.00	97.76	87.98
R7/506	Bedroom		156.37	152.07	152.07	0.00	0.00	97.25	97.25
R8/506	Bedroom		64.90	61.34	61.34	0.00	0.00	94.51	94.51
R9/506	BSL		94.53	90.58	90.58	0.00	0.00	95.82	95.82
R10/506	LKD		313.15	313.08	311.35	1.74	0.55	99.98	99.43
R1/507	Living Room		435.15	433.51	433.51	0.00	0.00	99.62	99.62
R2/507	Living Room		140.60	140.50	140.50	0.00	0.00	99.93	99.93
R3/507	Bedroom		180.79	180.66	180.66	0.00	0.00	99.93	99.93
R4/507	Living Room		229.18	226.02	226.02	0.00	0.00	98.62	98.62
R5/507	Bedroom		97.38	97.38	97.38	0.00	0.00	100.00	100.00
R6/507	Bedroom		102.22	102.19	102.19	0.00	0.00	99.98	99.98
R7/507	Bedroom		191.17	189.11	189.11	0.00	0.00	98.92	98.92
R8/507	Bedroom		132.88	132.77	132.77	0.00	0.00	99.92	99.92
R9/507	Living Room		448.13	442.65	442.64	0.00	0.00	98.78	98.78
R1/510	Commercial		1044.54	1044.54	1044.54	0.00	0.00	100.00	100.00

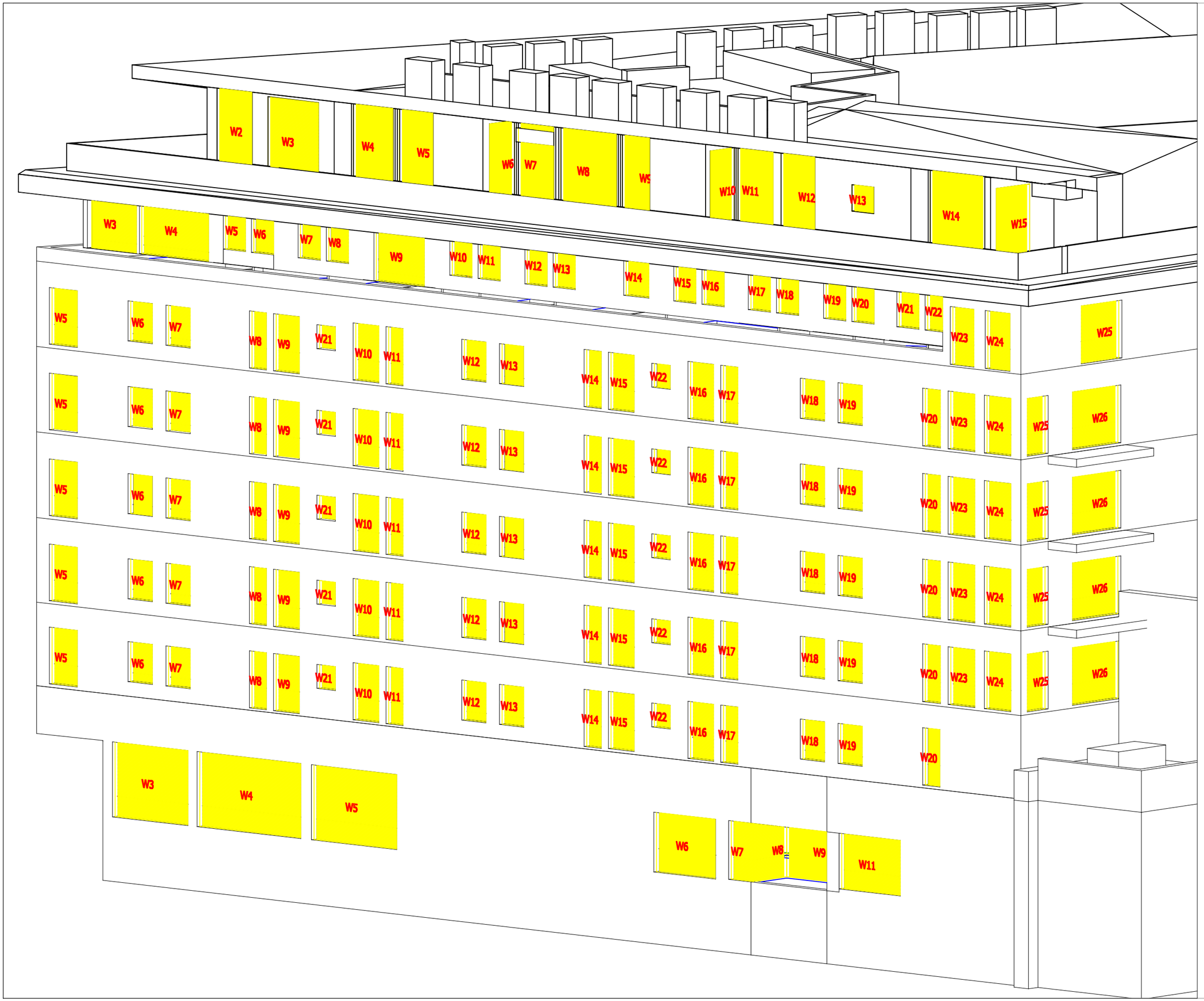
Annual Probable Sunlight Hours (APSH)

SUNLIGHT ANALYSIS

Room	Window	Room Use	Flat Number	Existing Winter APSH	Existing Annual APSH	Proposed Winter APSH	Proposed Annual APSH	Winter Loss	Annual Loss	Winter %Loss	Annual %Loss
GRAY-S INN ROAD-1-23											
R2/500	W10/500	Commercial		0	0	0	0	0	0	0.00	0.00
R1/501	W2/501	Living Room		8	48	8	48	0	0	0.00	0.00
R1/501	W3/501	Living Room		9	42	9	42	0	0	0.00	0.00
R1/501	W4/501	Living Room		14	54	14	54	0	0	0.00	0.00
R1/502	W2/502	Living Room		11	52	11	52	0	0	0.00	0.00
R1/502	W3/502	Living Room		12	46	12	46	0	0	0.00	0.00
R1/502	W4/502	Living Room		16	57	16	57	0	0	0.00	0.00
R1/503	W2/503	Living Room		15	56	15	56	0	0	0.00	0.00
R1/503	W3/503	Living Room		16	50	16	50	0	0	0.00	0.00
R1/503	W4/503	Living Room		19	60	19	60	0	0	0.00	0.00
R1/504	W2/504	Living Room		19	60	19	60	0	0	0.00	0.00
R1/504	W3/504	Living Room		20	54	20	54	0	0	0.00	0.00
R1/504	W4/504	Living Room		22	63	22	63	0	0	0.00	0.00
R1/505	W2/505	Living Room		20	61	20	61	0	0	0.00	0.00
R1/505	W3/505	Living Room		21	55	21	55	0	0	0.00	0.00
R1/505	W4/505	Living Room		24	65	24	65	0	0	0.00	0.00
R1/506	W1/506	Living Room		20	20	20	20	0	0	0.00	0.00
R1/506	W2/506	Living Room		20	21	20	21	0	0	0.00	0.00
R1/507	W1/507	Living Room		25	28	25	28	0	0	0.00	0.00
R1/510	W1/510	Commercial		10	55	10	55	0	0	0.00	0.00
R1/510	W2/510	Commercial		0	0	0	0	0	0	0.00	0.00

Appendix 05

Window Maps



SOURCES OF INFORMATION

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PROSPAPLANS
IR02-5538
IR05-5538

MICHAEL GALLIE & PARTNERS
IR03-5538

CAMDEN PLANNING WEBSITE
IR04-5538

VERTEX MODELLING
IR06-5538

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LONDON

DRAWING NAME:
GREY'S INN ROAD
WINDOW MAPS

DWN BY	SCALE	CHK BY	STATUS	DATE
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PROJ No.	REL No.	IS No.	DWG No.	REV No.
5538	REL020	IS021	47	A

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WINDOW MAPS

DWN BY	SCALE	CHK BY	STATUS	DATE
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PROJ No.	REL No.	IS No.	DWG No.	REV No.
5538	REL020	IS021	46	A

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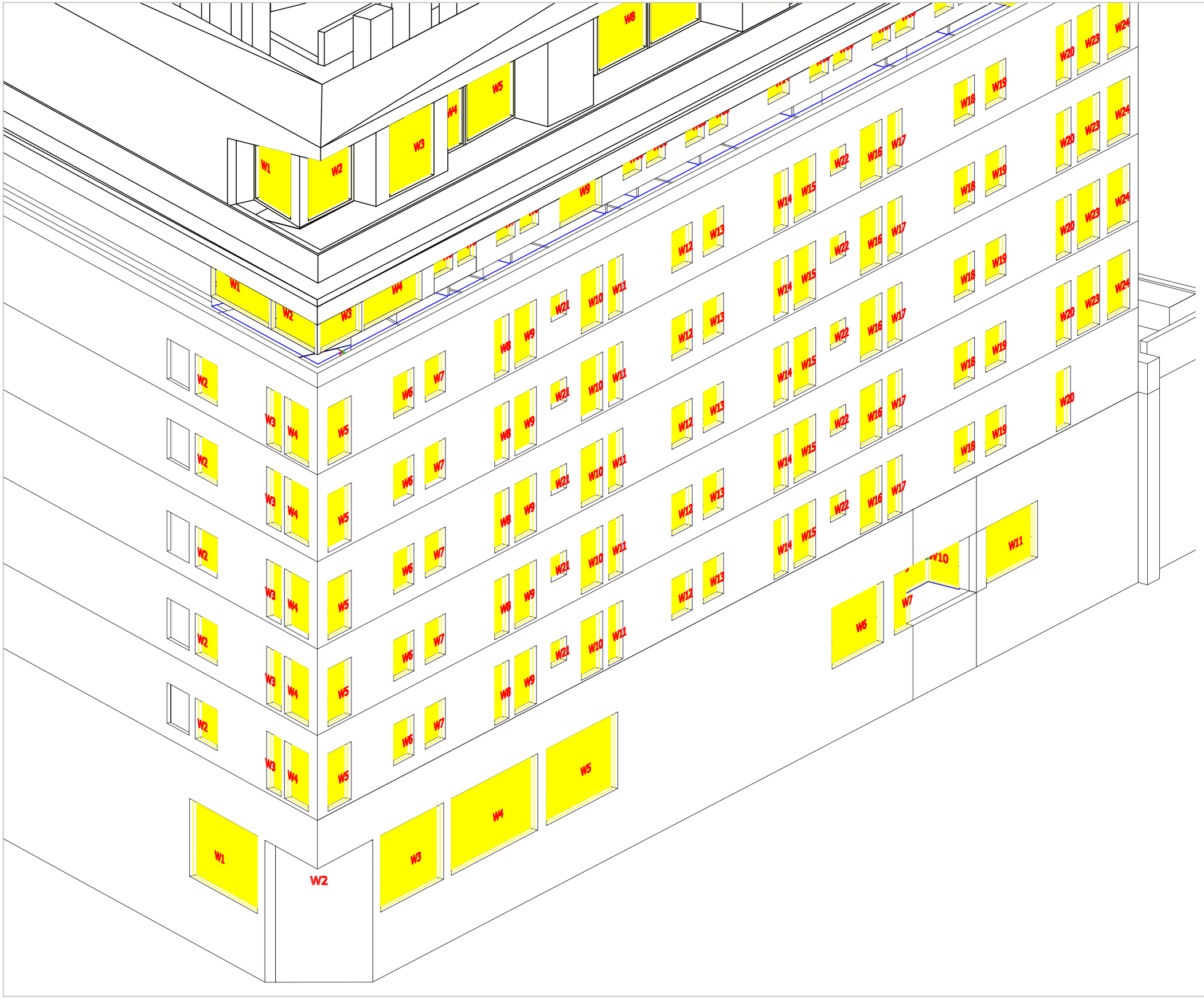

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WINDOW MAPS

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