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BUILDINGS AND BUILT ENVIRONMENT

Cube Homes Ltd
High Lane
Chorlton

Daylight, Sunlight and Overshadowing Assessment

www.bwbconsulting.com

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Cube Homes Ltd
High Lane
Chorlton

Daylight, Sunlight and Overshadowing Assessment

Birmingham
Livery Place, 35 Livery Street, Colmore Business District
Birmingham, B3 2PB
T: 0121 233 3322

Leeds
Whitehall Waterfront, 2 Riverside Way
Leeds, LS1 4EH
T: 0113 233 8000

London
11 Borough High Street
London, SE1 9SE
T: 0207 407 3879

Manchester
11 Portland Street
Manchester, M1 3HU
T: 0161 233 4260

Nottingham
5th Floor, Waterfront House, Station Street
Nottingham, NG2 3DQ
T: 0115 924 1100

January 2024

DOCUMENT ISSUE RECORD

Document Number:	HLC-BWB-ZZ-XX-RP-ME-0001_Daylight, Sunlight & Overshadowing Assessment
BWB Reference:	232358

Revision	Date of Issue	Status	Author:	Checked:	Approved:
P01	19th July 2023	S2	Mohammed Fatade BSc(Hons) MSc DipNDEA LCC (L5) ACIAT AMEI ICIOB BREEAM Associate NABERS UK Assessor	Marcus Thompson BSc(Hons) MSc Laurence Earnshaw BA(Hons) MSc	Mohammed Fatade
P02	9th August 2023	S2			
P03	16th August 2023	S2			
P04	04th January 2024	S2			

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EXECUTIVE SUMMARY

This Daylight, Sunlight and Overshadowing Assessment has been produced in support of a Planning Application for the Proposed Development at land off High Lane, Chorlton in accordance with the Building Research Establishment's (BRE) Site Layout Planning for Daylight and Sunlight: A Guide to Good Practice (the BRE Guide, 2022).

This report describes the 'existing' and 'proposed' impact of the Proposed Development on the daylight and sunlight levels of the neighbouring residential properties in accordance with the BRE Guide, 2022. The neighbouring residential buildings (sensitive receptors) includes No. 2-14 Hardy Avenue houses (to the south-west), No. 1A-11 Stockton Road houses (to the west), No. 5-31 Acres Road houses (to the east) and No. 49-51 High Lane houses (to the north-east).

Daylight Assessment Summary

In terms of daylight quantity (VSC), the impact of the Proposed Development on all assessed neighbouring residential properties is considered acceptable. Consequently, with **92%** of the assessed windows adhering to the BRE guideline, with another **4%** only just transgressing the guidelines by a marginal amount of less than 5%, overall, the effect of the Proposed Development on neighbouring properties is therefore considered **negligible** in accordance with paragraph H5 of the BRE Guide.

The residual **4%** windows not meeting the BRE guidelines includes: No. 4 Hardy Avenue ground floor north-east rear window; No. 6 and 8 Hardy Avenue ground floor north-east rear patio doors; No. 1A Stockton Road ground and first floor south-west side windows; and No. 1 Stockton Road ground and first floor north-east side windows.

Sunlight Assessment Summary

In terms of sunlight, the impact of the Proposed Development on all assessed neighbouring properties (within 90 degrees due south) is considered **negligible** in accordance with paragraph H6 of the BRE Guide 2022. Consequently, with **100%** of the assessed windows within 90° of due south adhering to the BRE guideline, overall, it is expected that the lighting conditions following the completion of the Proposed Development will present no significant effect to the neighbourhood residential properties as they will all continue to receive adequate sunlight as defined by the BRE guidance.

Overshadowing Assessment Summary

For an amenity space (garden) to appear adequately sunlit throughout the year, at least half of the space should receive a minimum of two hours of sunlight on 21 March. The assessment shows that all gardens (excluding No. 1 Stockton Road rear garden) pass the BRE criteria and will receive adequate levels of sunlight (more than 2 hours) on the 21st of March.

Whilst No. 1 Stockton Road rear garden will see a slight reduction in sunlight (up to 5%). However, up to 49% of the rear garden will still offer enjoyable pleasant and usable space which is considered acceptable for its proposed uses during the hours of 9am – 3pm.
Consequently, the impact of the Proposed Development on the sunlight levels of all surrounding amenity spaces (gardens) is considered **negligible** as the vast majority of the neighbourhood residential gardens will continue to receive the minimum of two hours of sunlight on the 21st of March as defined by the BRE guidance.

Concluding Summary

The BRE Guide, 2022 takes the form of guidance and recommendations. Therefore, they should not form a mandatory set of criteria to which a development must adhere to as that would be too restrictive for site development purposes; rather they provide guidance intended to help the designer and planning authority and should be viewed in the context of other site constraints. The National Planning Policy Framework (2021) also reiterates this, stating that Councils should take a flexible approach when applying daylight and sunlight guidance to planning applications, since natural lighting is only one of many factors in site layout design.

In light of the above, overall, the Proposed Development should be considered **acceptable** in terms of daylight, sunlight and overshadowing.

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1. INTRODUCTION

Instruction

1.1 BWB Consulting (BWB) was instructed by Cube Homes Ltd (the Client) to carry out a Daylight, Sunlight and Overshadowing Assessment in support of a Planning Application for the Proposed Development at land off High Lane, Chorlton.

Description of Site

1.2 The Site is located off High Lane (A5145) in Chorlton and lies within the administrative area of Manchester City Council (MCC). The Site is bound to the north by High Lane (A5145), with residential dwellings located beyond. To the west lies existing residential dwellings, with Stockton Road beyond. To the east lies Acres Road, with residential dwellings beyond. To the south of the Site are existing residential dwellings, with Hardy Avenue beyond. ***Figure 1.1*** illustrates the Proposed Development Site thermal model.

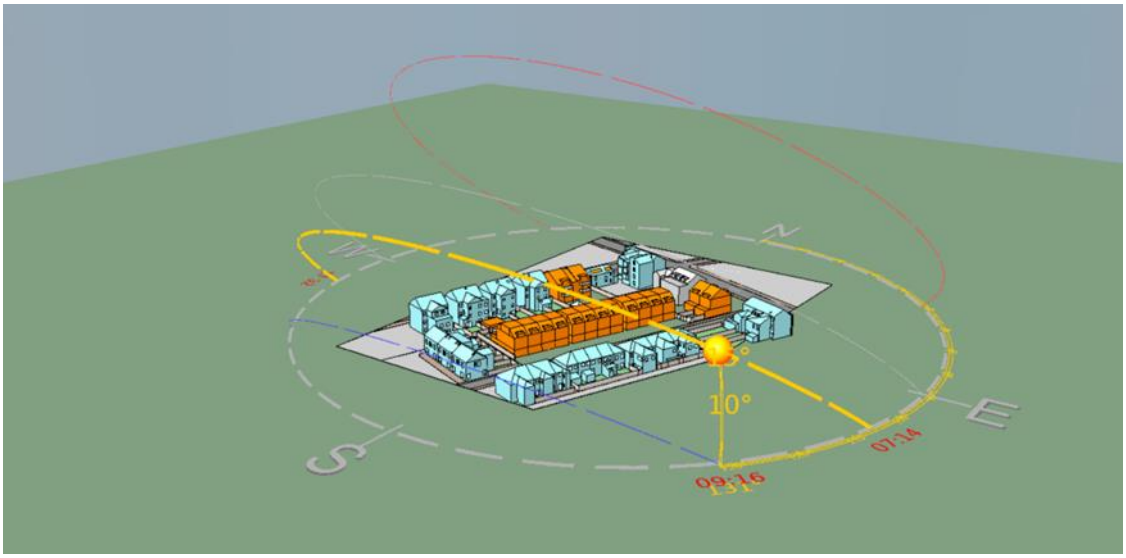

Figure 1.1: Proposed Development Site Thermal Model

Purpose of the Document

1.3 A Daylight, Sunlight and Overshadowing Assessment is required whereby a proposed building could potentially have an adverse impact upon the current levels of daylight/sunlight enjoyed by adjoining properties. This element of work is to carry out a performance check set against the criteria outlined in the BRE Guide, 2022. This document will describe the policy context/guide to which this Daylight, Sunlight and Overshadowing Assessment responds to, before presenting and assessing the impact of the Proposed Development on the daylight and sunlight levels received by the neighbouring buildings, including amenity spaces in accordance with the BRE Guide.

1.4 A detailed model using IES Virtual Environment (IES VE) software (Version 2023) has been used to model the geometry of the 'existing', and 'proposed' development building design, including neighbouring existing buildings in order to provide an accurate 'before' and 'after' representation of the daylight and sunlight performance.

2. POLICY BACKGROUND

Introduction

2.1 This section of the Daylight, Sunlight and Overshadowing Assessment reviews relevant background information, relevant policy at the national, regional, and local levels and then discusses key issues for the Assessment.

Background

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

2.3 Historically the Department of Environment provided guidance on these issues, and, in this country, this role has now been taken on by the Building Research Establishment (BRE), the British Standards Institution (BSI) and the Chartered Institute of Building Services Engineers (CIBSE). Fortunately, they have collaborated in many areas to provide as much unified advice as possible in these areas.

2.4 It is also clear, particularly through either adopted or emerging local plan/policy that Local Authorities take this matter far more seriously than they previously did. There are many instances of planning applications being refused due to impact on daylight and sunlight to neighbouring properties and proportionately more of these refusals are appealed by applicants.

2.5 Where developers are seeking to maximise their development value, it is often in the area of daylight and sunlight issues that they may seek to 'push the boundaries'. Local Authorities vary in their attitude of how flexible they can be with worsening the impact on the amenity enjoyed by neighbouring owners. In city centres, where there is high density, it can be the subject of hot debate as to whether further loss of amenity is material or not. There are many factors that need to be taken into account and therefore each case is usually considered on its own merits. Clearly, though, there are governing principles which direct and inform on the approach that is taken.

2.6 These principles are effectively embodied within either adopted or emerging local plan/policy and the guidance they expressly rely upon. E.g., in central London, most Local Authorities expressly state they will not permit or encourage developments which create a material impact to neighbouring buildings or amenity areas.

2.7 Often the basis on what is constituted as 'material' will be derived specifically from the BRE Guidelines. The BRE Guidelines was initially produced in 1991, as a direct commission from the Department of the Environment and entitled 'Site Layout Planning for Daylight and Sunlight – A Guide to Good Practice'.

2.8 The new edition (2022) replacing the old 2011 edition of this highly regarded BRE guide has been fully revised and updated. Guidance is given on site layout for good sun lighting and daylighting; safeguarding of daylight and sunlight within existing buildings nearby; and the protection of daylighting of adjoining land for future development.

National Planning Policy Framework

2.9 The updated National Planning Policy Framework (NPPF) published in 2023 sets out the Government's planning policies for England and how these should be applied. Paragraph 125, Part C of the NPPF states that:

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

Planning Policy Guidance (The Guidance)

2.10 The updated National Planning Practice Guidance (NPPG) published 2023 provides further advice on various planning issues associated with development, including daylight and sunlight and underpins the policies within the NPPF. The Guidance states that the distribution and design of new development are particularly important considerations, and that good design is an integral part of sustainable development to deliver a wide range of planning objectives. Paragraph 006 states that:

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

Other Relevant Policy, Standards and Guidance

2.11 Historic England Guidance on Tall Buildings – Historic England Advice Note 4 (2015). Paragraph 4.10 of the Historic England Advice Note 4 recommends that the following should be addressed in relation to tall buildings:

> '*[…] consideration of the impact on the local environment, including microclimate, overshadowing, night-time appearance, vehicle movements and the environment and amenity of those in the vicinity of the building. [...]*'.

2.12 The new European standard (BS EN 17037) supersedes the British Standard BS 8206-2:2008 "Lighting for buildings. Code of practice for daylighting. BS EN 17037 gives information on how to use daylighting to provide lighting within interiors, and how to limit glare. The standard details a lot of new material including: (a) the use of median daylight illuminance; (b) a new metric for daylight glare; (c) a new assessment method for sunlight in buildings; and (d) new ways of assessing view.

2.13 Other relevant standards and guidance includes the Building Research Establishment's (BRE) Site Layout Planning for Daylight and Sunlight: A guide to good practice BR 209 2022. It is intended to be used in conjunction with the interior daylight recommendations for new buildings in the British Standard Daylight in buildings, BS EN 17037.

3. BRE GUIDELINES

Introduction

3.1 The Building Research Establishment (BRE) have set out in their handbook 'Site Layout Planning for Daylight and Sunlight: A Guide to Good Practice (2022)' (BRE BR209 2022), guidelines and methodology for the measurement and assessment of daylight and sunlight both within buildings and in the open spaces between them.

BRE Guidelines (BRE BR209 2022)

3.2 The BRE Guidelines provide advice on site layout planning to determine the quality of daylight and sunlight within open spaces between buildings.

3.3 The BRE Guidelines note that the document is intended to be used in conjunction with the interior daylight recommendations for new buildings in the British Standard Daylight in buildings, BS EN 17037. The appendices contain methods to quantify access to sunlight and daylight within a layout.

3.4 The BRE Guidelines are typically referred to for daylight and sunlight amenity spaces 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. In the introduction of 'Site Layout Planning for Daylight and Sunlight (2022)', section 1.6 (page 7) states that:

'*[…] The guide is intended for building designers and their clients, consultants, and planning officials. The advice given here is not mandatory and the guide should not be seen as an instrument of planning policy; its aim is to help rather than constrain the designer. Although it gives numerical guidelines, these should be interpreted flexibly since natural lighting is only one of many factors in site layout design (see Section 5).*

In special circumstances the developer or planning authority may wish to use different target values. For example, in a historic city centre, or in an area with modern high-rise buildings, a higher degree of obstruction may be unavoidable if new developments are to match the height and proportions of existing buildings. [...]'.

3.5 Paragraph 2.2.3 (page 14) of the document states that '*[…] 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. [...]*'.

3.6 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 'Setting alternative target values for skylight and sunlight access' of the document.

3.7 The BRE Guidelines also states in Paragraph 2.2.2 (page 14) 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 area and garages need not be analysed. [...]*'.

3.8 They are therefore primarily designed to be used for residential properties, though, 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, hotels, hostels, small workshop, and some offices.

3.9 However, non-domestic buildings (excluding educational institutions - schools) are usually not assessed for daylight and sunlight as these are generally not considered 'sensitive receptors' as defined by the BRE Guide. This is because they are designed to rely on electric lighting to provide sufficient light by which to work, rather than natural daylight. In addition, they are generally not considered town planning issues.

3.10 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.

3.11 In terms of considering what is a numerical 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.

3.12 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.

3.13 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*" as detailed above. The Standard adopts a new methodology for testing daylight and sunlight in proposed developments based on climatic data as opposed the 'Standard CIE overcast sky' adopted in BS8206-2:2008 and includes views out and glare.

3.14 The BRE Guide is therefore intended to be used in conjunction with the interior daylight recommendations for new buildings in the British Standard Daylight in buildings, BS EN 17037. It contains guidance on site layout to provide good natural lighting within a new development; safeguarding of daylight and sunlight within existing buildings nearby; and the protection of daylighting of adjoining land for future development. A special section deals with loss of solar radiation for solar panels and for passive solar buildings that use the sun as a source of heating energy. Guidance is also given on the sunlighting of gardens and amenity areas. Issues like privacy, enclosure, microclimate, road layout, and security are briefly reviewed. The appendices contain methods to quantify access to sunlight and daylight within a layout.

3.15 This report is a comprehensive revision of the 2011 edition of Site layout planning for daylight and sunlight: a guide to good practice. It is purely advisory and the numerical target values within it may be varied to meet the needs of the development and its location. Appendix F explains how this can be done in a logical way, while retaining consistency with the British Standard recommendations on interior daylighting. The following sections extract relevant sections from the BRE Guidelines (BR209 2022).

4. BRE GUIDELINES (DAYLIGHT)

4.1 The BRE Guidelines set out various methods for assessing daylight in buildings. The Guidelines provide three methodologies for daylight assessment, namely:

i. The Vertical Sky Component (VSC);

ii. The No Sky Line (NSL); and

iii. Illuminance Method and Daylight Factor Method (BS EN 17037).

Vertical Sky Component (VSC)

4.2 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 plan due to an unobstructed hemisphere of this sky. Usually the 'given vertical place' is the outside of a window wall. The VSC does not include reflected light, either from the ground or from other buildings [...]*'.

4.3 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).

4.4 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 0.80 of its former value (i.e., no more than a 20% change).

4.5 This form of assessment does not take account of window size, room use, room size, window number or dual aspect rooms. The assessment also assumed that all obstructions to the sky are 100% non-reflective. The VSC calculation has been undertaken in both the 'existing' and 'proposed' scenarios to make a comparison.

No Sky Line (NSL)

4.6 The BRE recommends the No Sky Line (NSL) method where internal layouts are known. 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 [...]*'.

4.7 In summary, the NSL calculation assesses where the sky can and cannot be seen from inside a room at the working place, '*[…] in houses the working plane is assumed to be horizontal and 0.85m high [...]*'.

4.8 The change in position of the NSL between the 'existing' and 'proposed' scenario is then calculated. The BRE Guidelines state at paragraph 2.2.11 [page 16] 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 0.80 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 workshops [...]*'.

4.9 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.

4.10 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. This assessment is only undertaken where floor plans and elevations of adjacent buildings are available.

Illuminance Method and Daylight Factor Method (BS EN 17037)

4.11 BS EN 17037 (Interior daylighting recommendations) supersedes BS 8206 Part 2 "Code of practice for daylighting", which contained a method of assessment based on Average Daylight Factor, which is now no longer recommended. For daylight provision in buildings, BS EN 17037 provides two methodologies. One is based on target illuminances from daylight to be achieved over specified fractions of the reference plane for at least half of the daylight hours in a typical year. The other method is based on calculating the daylight factors achieved over specified fractions of the reference plane.

4.12 The illuminance method '*[…] involves using climatic data for the location of the site (via the use of an appropriate, typical, or average year, weather file within the software) to calculate the illuminance from daylight at each point on an assessment grid on the reference plane at an at least hourly interval for a typical year […]*'. ***Table 4.1*** gives the minimum target illuminances for side lit rooms:

Table 4.1: Target Illuminances for Side Lit Rooms

Target Illuminances from Daylight Over At Least Half of The Daylight Hours		
Room	Target Minimum illuminance E_T (lx) for half of assessment grid	Duration (At Least Half of the Daylight Hours)
Bedrooms	100	2190 hours (Average of 6 hours)
Living Rooms	150	2190 hours (Average of 6 hours)
Kitchens	200	2190 hours (Average of 6 hours)

4.13 The Daylight factor method '*[…] involves the computation of the daylight factor at each calculation point on an assessment grid. The daylight factor is the illuminance at a point on the reference plane in a space, divided by the illuminance on an unobstructed horizontal surface outdoors. The CIE standard overcast sky is used, and the ratio is usually expressed as a percentage […]*'. ***Table 4.2*** gives the daylight factor targets for side lit rooms in London for example:

Table 4.2: Daylight Factor Targets for side lit rooms in London for example

Target Daylight Factors (D) for London		
Level of recommendations	Target daylight factor D for half of assessment grid	Target daylight factor D for 95% of assessment grid
Minimum	2.1%	0.7%
Medium	3.5%	2.1%
High	5.3%	3.5%

5. BRE GUIDELINES (SUNLIGHT)

5.1 The BRE Guidance suggests that to understand sunlight impacts to a property an assessment of Annual Probable Sunlight Hours (APSH) is undertaken.

5.2 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) [...]*'.

5.3 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:

i. 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

ii. Receives less than 0.8 times its former sunlight houses during either period, and

iii. Has a reduction in sunlight received over the whole year greater than 4% of annual probable sunlight hours.

5.4 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 – for both the 'existing' and 'proposed' scenarios to make a comparison.

5.5 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 [...]*'.

5.6 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 House [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 [...]'.

6. BRE GUIDELINES (OVERSHADOWING)

6.1 The BRE Guidance in respect of overshadowing of amenity spaces is set out in section 3. Of the handbook. The document states:

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

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

6.2 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.

6.3 Likewise, there may be many other urban design planning and site constraints which determine and run contrary to the best form, sitting and location of a proposed development in terms of availability of sun on the ground.

Sun Hours on Ground and Transient Overshadowing

6.4 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.

6.5 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 [...]*'.

6.6 To understand the potential sunlight impacts therefore, all existing garden overlooking the development have been assessed for SHOG – for both the 'existing' and 'proposed' scenarios to make a comparison.

6.7 The Transient Overshadowing study is recommended where large buildings are proposed which may affect a number of gardens or open spaces. The BRE guidelines do not provide any criteria for Transient Overshadowing.

7. MODELLING METHODOLOGY

7.1 The purpose of this report is to provide an objective empirical assessment of the impact on daylight and sunlight in accordance with the standards contained in the Building Research Establishment (BRE) Guidelines "Site Layout Planning for Daylight and Sunlight – A Guide to Good Practice" 2022. These are the standards and controls that the Council will apply in terms of protecting the existing amenity of neighbouring dwellings.

Dynamic Thermal Model

7.2 To determine the daylight and sunlight impact of the Proposed Development on neighbouring residential properties, a three-dimensional detailed thermal model using IES Virtual Environment (IES VE) software (Version 2023) have been used to model and calculate the changes in levels of daylight and sunlight as a consequence of the proposal.

7.3 The three-dimensional representation of the Proposed Development has been modelled using the scheme drawings provided in correspondence with MPSL Planning and Design Ltd. This has been placed in the context of its surrounding buildings which have been modelled from a desktop survey (using Google Earth and the Planning Portal).

7.4 The IES VE 2023 software has been accredited by CIBSE and acknowledged by the BRE as a suitable software tool for undertaking daylight and sunlight assessments in accordance with the Building Research Establishment (BRE) Guide, "Site layout planning for daylight and sunlight" Third Edition 2022 by PJ Littlefair et al.

7.5 Three separate modules of the IES VE have been utilised for this assessment, all of which incorporates the sun position for the site in Manchester (Latitude 53.35° N and longitude 2.28° W):

i. ModelIT: This module enables the creation of three dimensional "Virtual Environment" models without CAD data, or alternatively allows you to create a 3D model from 2D CAD data. ModelIT interfaces with Revit and Google SketchUp, allowing the import of models created within this package;

ii. Radiance IES: This module is a detailed 3D simulation tool designed to predict daylight levels, and the appearance of a space prior to construction. Vertical Sky Components can be calculated for the 'existing' and the 'proposed' development using RadianceIES; and

iii. SunCast: This module is a 3D simulation tool used to calculate solar shading and sunlight availability. SunCast can be used to calculate the Annual Probable Sunlight Hours (APSH) and Winter Probable Sunlight Hours (WPSH) including Sun Hours on Ground (SHOG) for both the 'existing' and 'proposed' development.

7.6 In determining the impact of the Proposed Development on the levels of sunlight/daylight enjoyed by adjoining properties, including associated gardens, all the applicable neighbouring residential buildings have been assessed for daylight and sunlight by means of Vertical Sky Component (VSC) metric, and APSH/WPSH metric. ***Figures 7.1*** - ***7.2*** shows the 3D model of the 'existing', and 'proposed' development modelled in IES VE software (Version 2023) for analysis.

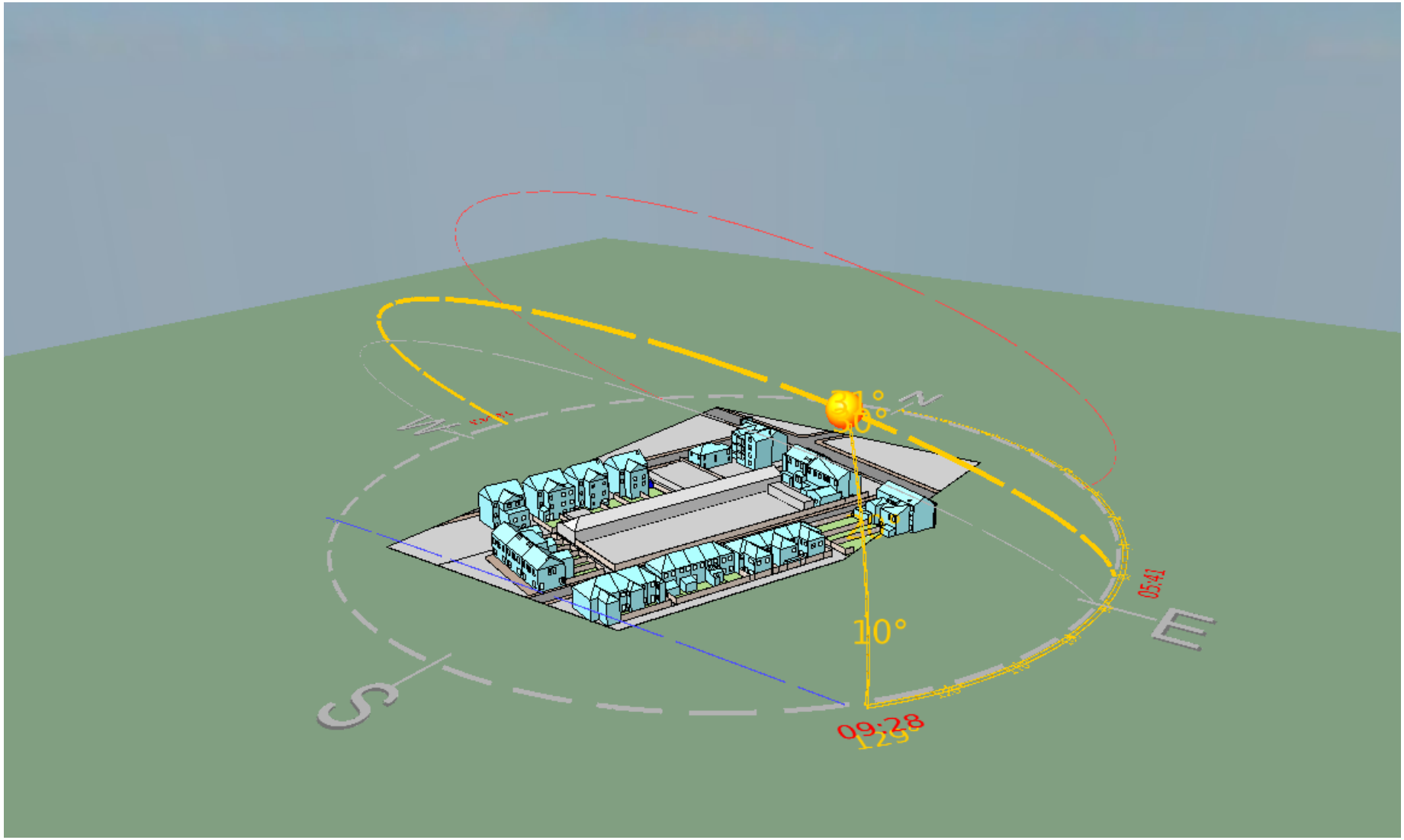

Figure 7.1: 'Existing' Development Site Modelled in IES VE Software

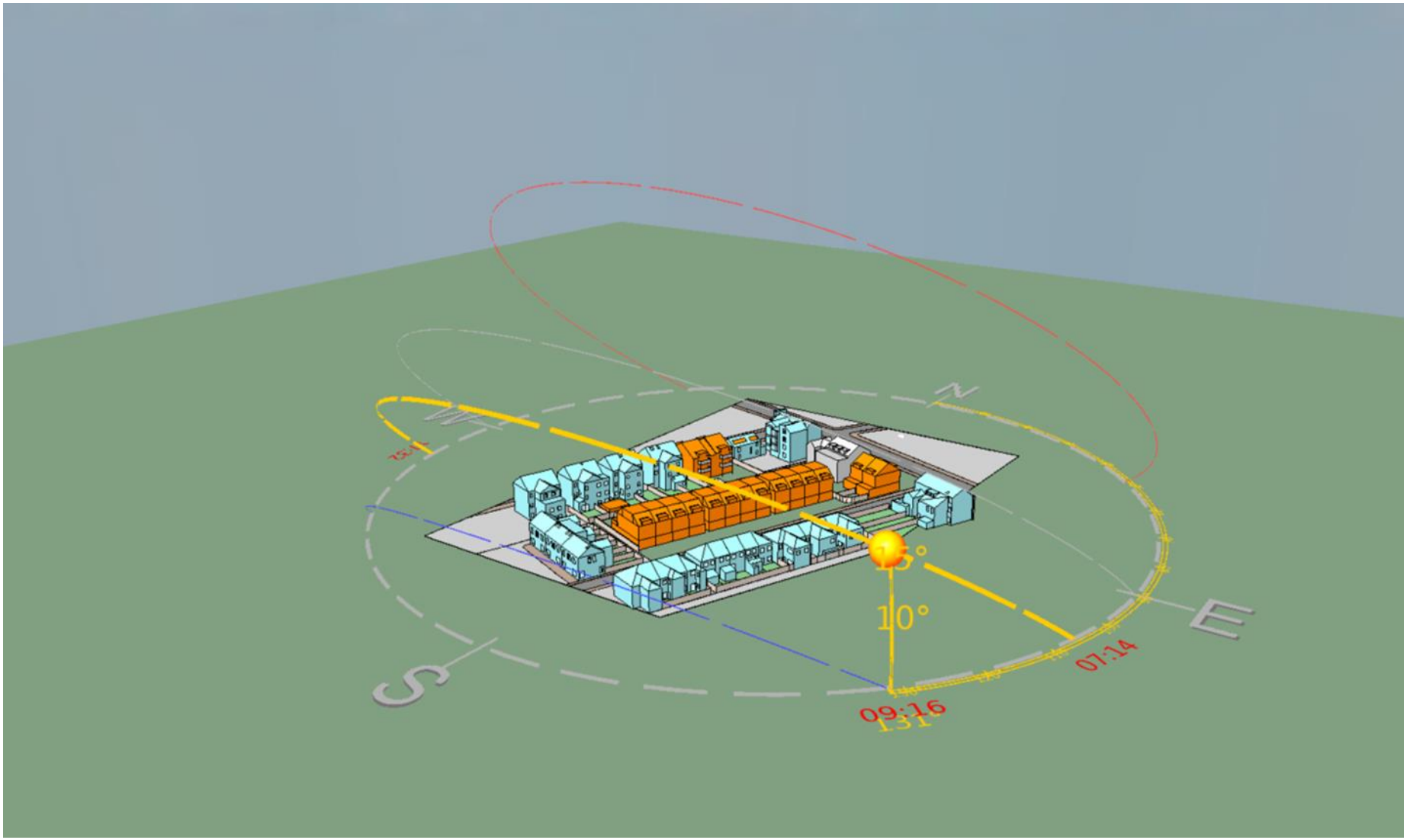

Figure 7.2: 'Proposed' Development Site Modelled in IES VE Software

8. ASSESSMENT RESULTS (DAYLIGHT)

Daylight (VSC) Assessment Criteria

8.1 During the construction of the Proposed Development, the effects in relation to the daylight will vary and will almost certainly be less than that of the completed Proposed Development, given that the extent of building will increase throughout construction, until the building is complete. It is, therefore, considered that the completed Proposed Development represents the worst-case assessment in terms of likely daylight effects. As such, the daylight assessment focuses on the Proposed Development when completed and operational.

8.2 The national numerical value target 'ideal' for Vertical Sky Component VSC is 27%. The BRE Guidelines advise that upon implementation of the Proposed Development, neighbouring buildings windows should retain a VSC value of 27% or at least 0.80 of its former value (i.e., no more than a 20% change).

8.3 Vertical Sky Component (VSC) analysis of all applicable neighbouring residential properties windows was carried out. The results are summarised in ***Appendix 1***. If the VSC at the centre of the window is more than 27% (or if not, then it is more than 80% of its former value), then the diffuse daylighting of the existing building will not be adversely affected.

Daylight (VSC) Assessment Result – No. 2-14 Hardy Avenue houses

8.4 The impact of the Proposed Development on the neighbouring residential property (No. 2-14 Hardy Avenue houses) – highlighted blue in ***Figure 8.1*** will result in **87.5%** of the north-east facing windows passing the BRE guidelines. That is, out of the total number of 24 north-east facing windows that could potentially be affected at No. 2-14 Hardy Avenue houses, 21 (**87.5%**) pass the BRE guidelines with the remaining 3 (**12.5%**) only just transgressing the guidelines by a marginal amount of less than 4%. The daylight simulation results are detailed in ***Appendix 1***.

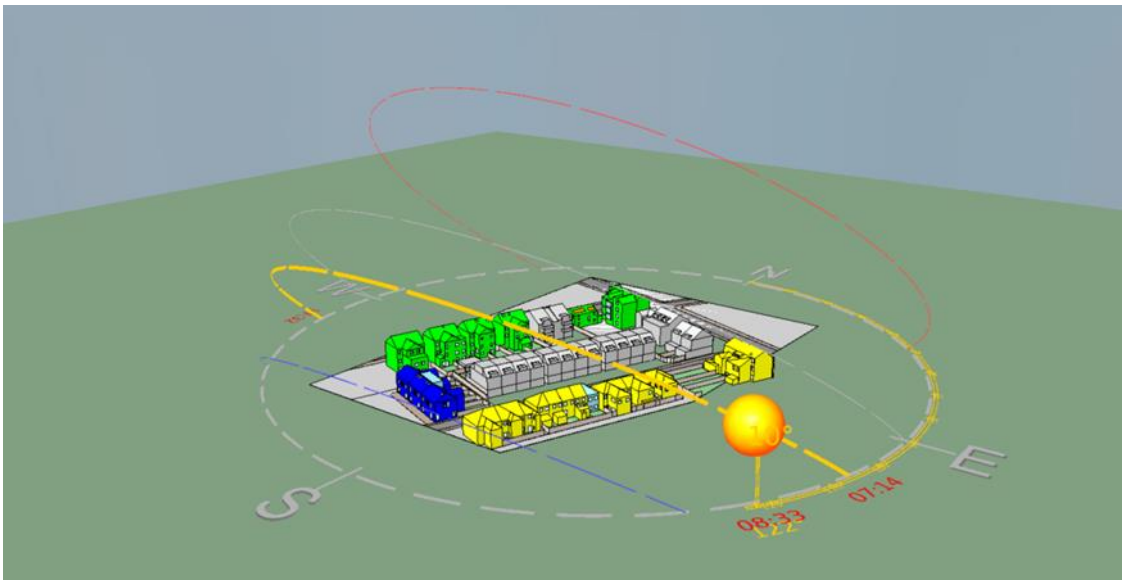

Figure 8.1: Proposed Development with Neighbouring Residential Properties (Hardy Avenue)

Daylight (VSC) Assessment Result – No. 1A-11 Stockton Road houses

8.5 The impact of the Proposed Development on the neighbouring residential property (No. 1A-11 Stockton Road houses) – highlighted green in ***Figure 8.2*** will result in **87%** of the south-east facing windows passing the BRE guidelines. That is, out of the total number of 45 south-east facing windows that could potentially be affected at No. 1A-11 Stockton Road houses, 39 (**87%**) pass the BRE guidelines with the remaining 6 (**13%**) just transgressing the guidelines by a marginal amount of between 5% to 37%. The daylight simulation results are detailed in ***Appendix 1***.

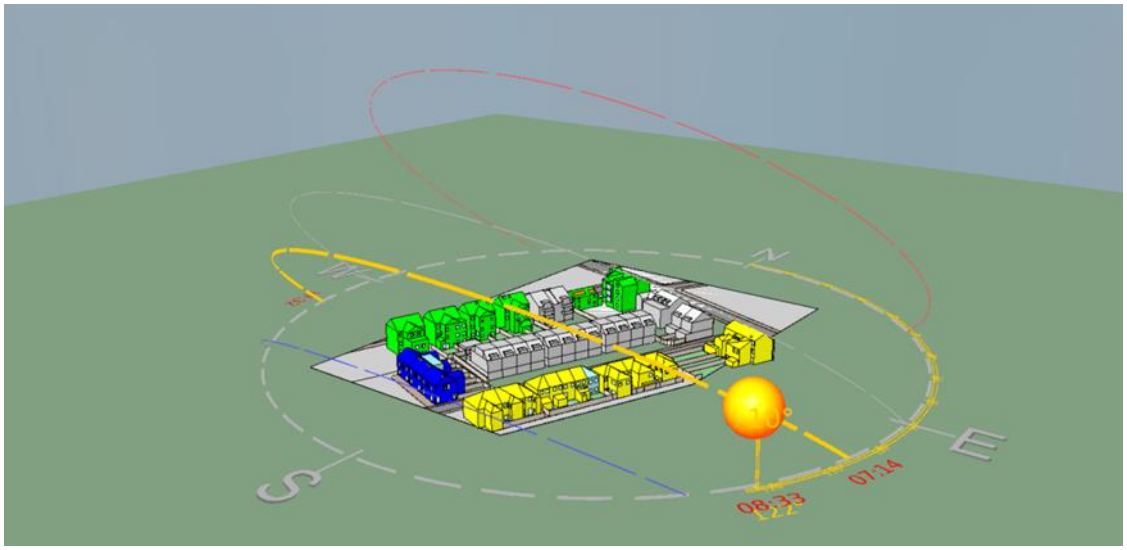

Figure 8.2: Proposed Development with Neighbouring Residential Properties (Stockton Road)

Daylight (VSC) Assessment Result – Acres Road & High Lane houses

8.6 The impact of the Proposed Development on the neighbouring residential property (No. 5-31 Acres Road and No. 49-51 High Lane houses) – highlighted yellow in ***Figure 8.3*** will be negligible. That is, all assessed dwelling windows will continue to receive adequate daylight as defined by the BRE guidance, with all assessed windows (40 out of 40) – **100%** passing the BRE criteria. The daylight simulation results are detailed in ***Appendix 1***.

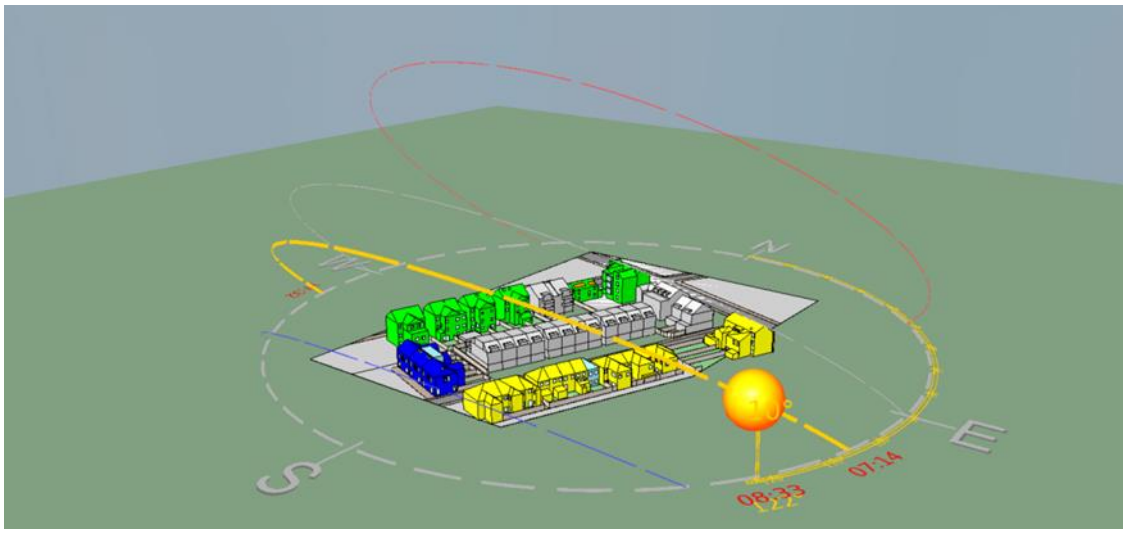

Figure 8.3: Proposed Development with Neighbouring Residential Properties (Acres Road)

9. ASSESSMENT RESULTS (SUNLIGHT)

Sunlight (APSH & WPSH) Assessment Criteria

9.1 BRE Guidance uses the Annual Probable Sunlight Hours (APSH) and Winter Probable Sunlight Hours (WPSH) method to assess the existing development as it currently stands to determine the 'existing' and then with the 'proposed' development in place to identify the magnitude of impact.

9.2 If the window reference point can receive more than 25% of APSH, including at least 5% of APSH during winter months between 21 Sep & 21 March, then the room should still receive enough sunlight and the impact will therefore be negligible. However, if the available sunlight hours are both less than the 25% level & less than 0.8 times their former value, either over the whole year or during the winter months, then the occupants of the neighbouring properties will notice the loss of sunlight.

Sunlight (APSH & WPSH) Assessment Result

9.3 In terms of sunlight, the impact of the Proposed Development on the neighbouring property (No. 1A-11 Stockton Road houses) will be negligible. That is, No. 1A-11 Stockton Road houses 90 degrees of due south windows will continue to receive adequate sunlight level as defined by the BRE guidance, with all windows (42 of 42) passing the BRE criteria. The impact of the Proposed Development on the neighbouring property (No. 49-59 High Lane houses – highlighted red in Figure 9.1) will be negligible. That is, No. 49-59 High Lane 90 degrees of due south windows will continue to receive adequate sunlight level as defined by the BRE guidance, with all windows (21 of 21) passing the BRE criteria. Refer to Appendix 2.

9.4 Consequently, with **100%** of all assessed windows within 90° of due south adhering to the BRE guideline, overall, it is expected that the lighting conditions following the completion of the Proposed Development will present no significant effect to the applicable neighbourhood properties. Hence, in accordance with paragraph H6 of the BRE Guide, the impact of the Proposed Development on the applicable assessed neighbouring properties is considered **negligible**.

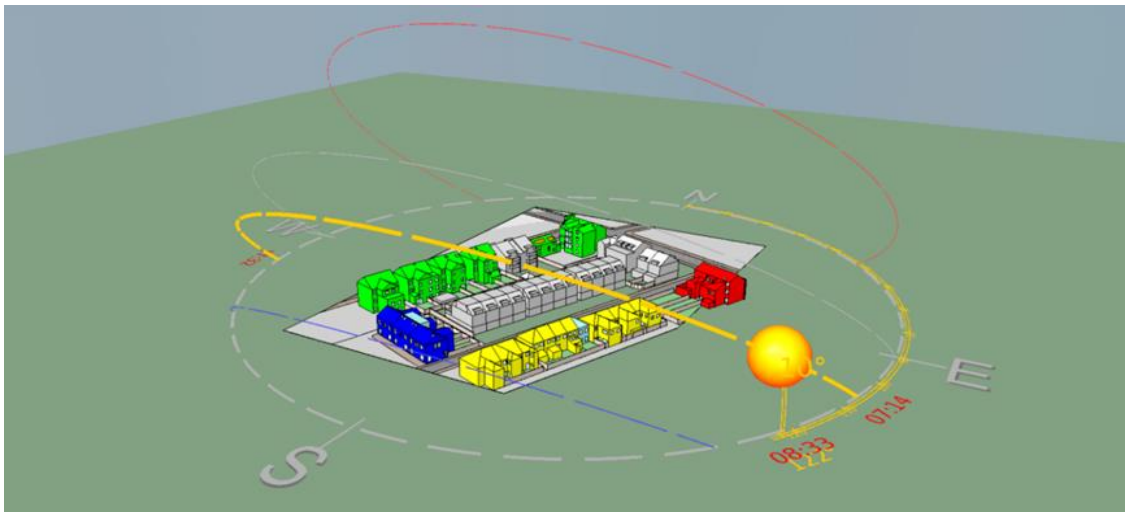

Figure 9.1: Proposed Development with Neighbouring Residential Properties (High Lane)

10. ASSESSMENT RESULTS (OVERSHADOWING)

Overshadowing (SHOG) Assessment Criteria

10.1 BRE's 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.

10.2 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.

10.3 It is recommended that for 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 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.

Overshadowing (SHOG) Assessment Result – Amenity Spaces

10.4 In terms of overshadowing, the assessment (***Figure 10.1***) shows that all gardens (excluding No. 1 Stockton Road rear garden) pass the BRE criteria and will receive adequate levels of sunlight (more than 2 hours) on the 21st of March. Whilst No. 1 Stockton Road rear garden will see a slight reduction in sunlight (up to 5%). However, up to 49% of the rear garden will still offer enjoyable pleasant and usable space which is considered acceptable for its proposed uses during the hours of 9am – 3pm.

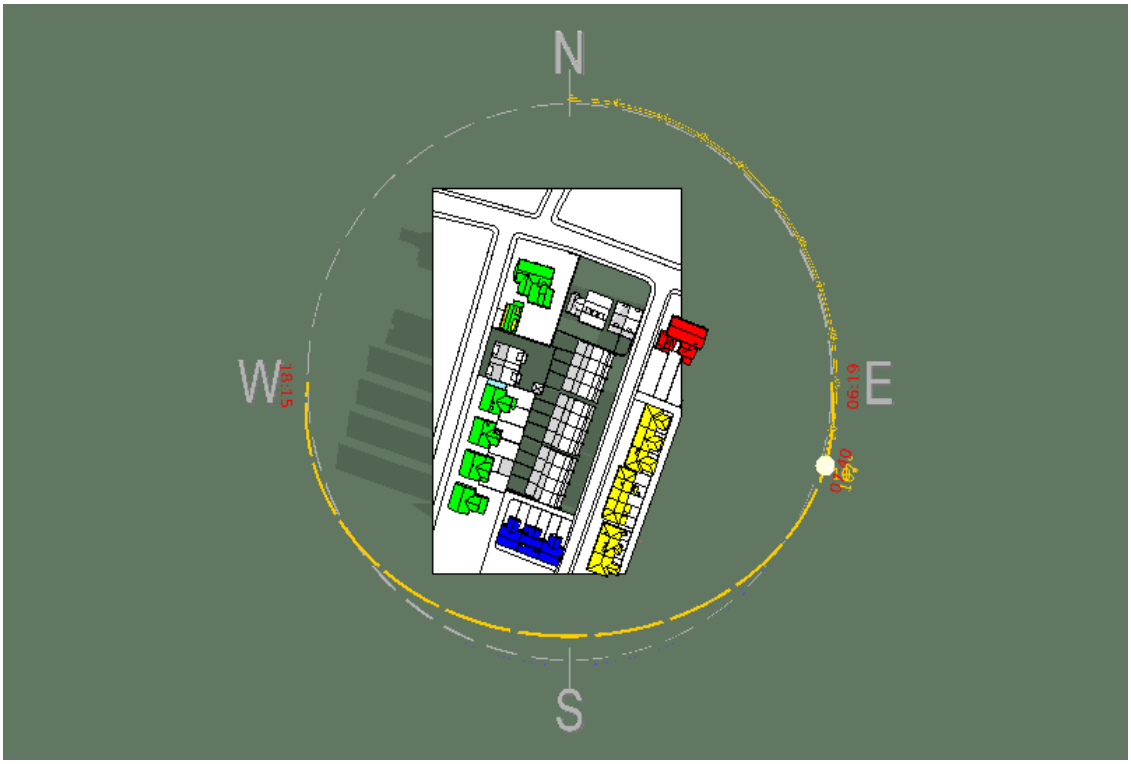

Figure 10.1: Proposed Development with Neighbouring Properties (Overshadowing)

10.5 Consequently, the impact of the Proposed Development on the sunlight levels of all surrounding amenity spaces (gardens) is considered negligible as the vast majority of the neighbourhood residential gardens will continue to receive the minimum of two hours of sunlight on the 21st of March as defined by the BRE guidance.

10.6 The result is further detailed in ***Appendix 3. Figure 10.2-10.5*** also shows the shadow plan calculated at 08:00, 12:00 and 15:00 and 17:00 intervals throughout the day on the 21st of March and this is further detailed in ***Appendix 4***.

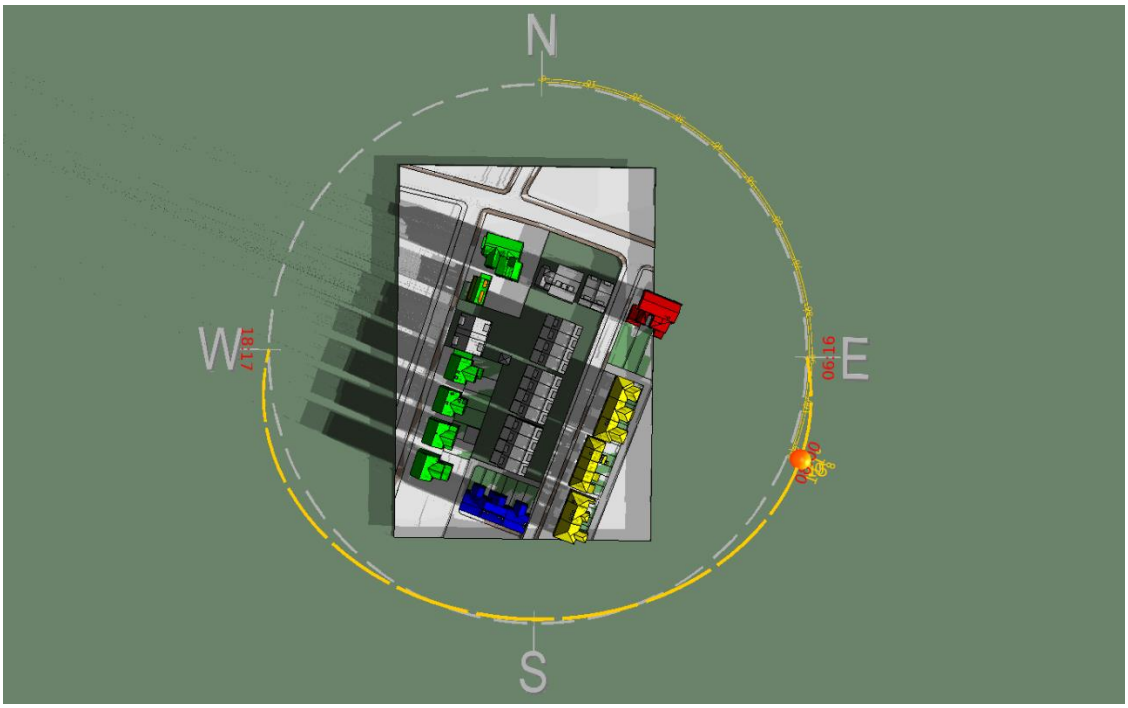

Figure 10.2: Transient Overshadowing Analysis – Spring 21st March at 08:00

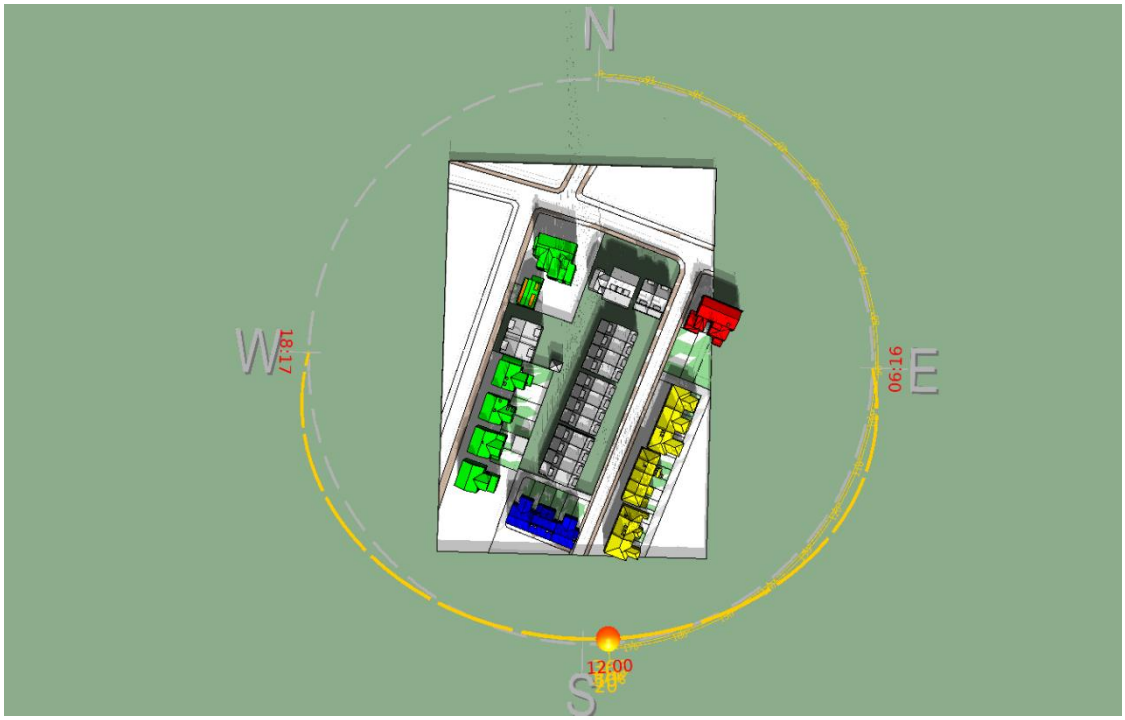

Figure 10.3: Transient Overshadowing Analysis – Spring 21st March at 12:00

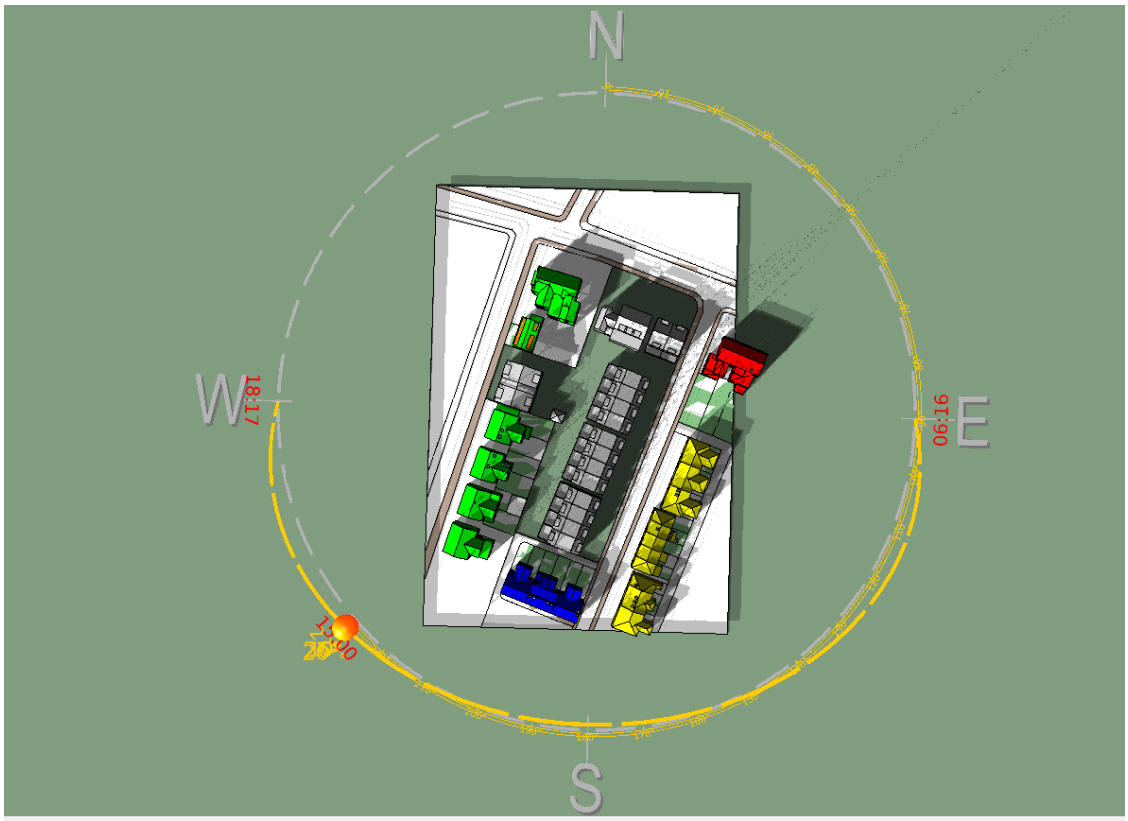

Figure 10.4: Transient Overshadowing Analysis – Spring 21st March at 15:00

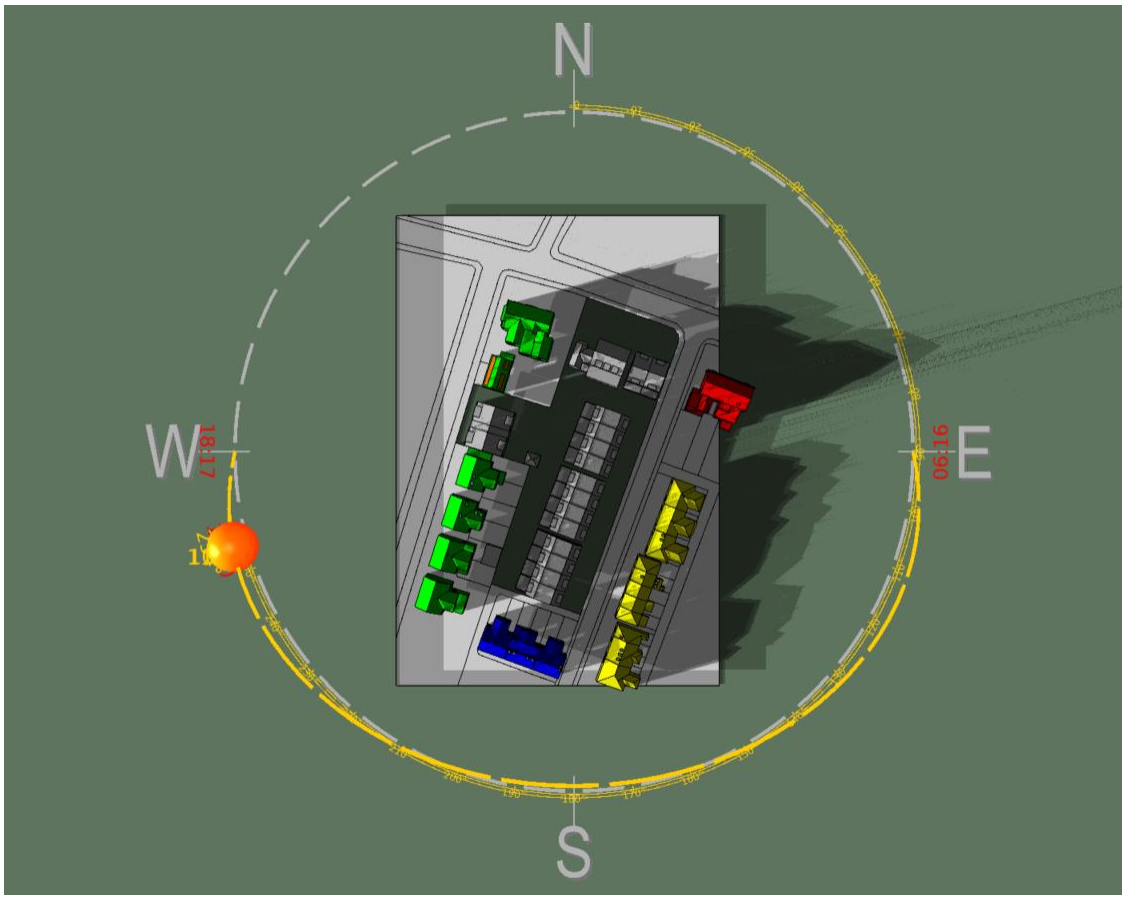

Figure 10.5: Transient Overshadowing Analysis – Spring 21st March at 17:00

11. CONCLUSION

11.1 This Daylight, Sunlight and Overshadowing Assessment has been produced in support of a Planning Application for the Proposed Development at land off High Lane, Chorlton in accordance with the Building Research Establishment's (BRE) Site Layout Planning for Daylight and Sunlight: A Guide to Good Practice (the BRE Guide, 2022).

11.2 This report describes the 'existing' and 'proposed' impact of the Proposed Development on the daylight and sunlight levels of the neighbouring residential properties in accordance with the BRE Guide, 2022. The neighbouring residential buildings (sensitive receptors) includes No. 2-14 Hardy Avenue houses (to the south-west), No. 1A-11 Stockton Road houses (to the west), No. 5-31 Acres Road houses (to the east) and No. 49-51 High Lane houses (to the north-east).

11.3 Daylight Summary: In terms of daylight quantity (VSC), the impact of the Proposed Development on all assessed neighbouring residential properties is considered acceptable. Consequently, with **92%** of the assessed windows adhering to the BRE guideline, with another **4%** only just transgressing the guidelines by a marginal amount of less than 5%, overall, the effect of the Proposed Development on neighbouring properties is therefore considered **negligible** in accordance with paragraph H5 of the BRE Guide.

11.4 The residual **4%** windows not meeting the BRE guidelines includes: No 4 Hardy Avenue ground floor north-east rear window; No 6 and 8 Hardy Avenue ground floor north-east rear patio doors; No 1A Stockton Road ground and first floor south-west side windows; and No 1 Stockton Road ground and first floor north-east side windows.

11.5 Sunlight Summary: terms of sunlight, the impact of the Proposed Development on all assessed neighbouring properties (within 90 degrees due south) is considered **negligible** in accordance with paragraph H6 of the BRE Guide 2022. Consequently, with **100%** of the assessed windows within 90° of due south adhering to the BRE guideline, overall, it is expected that the lighting conditions following the completion of the Proposed Development will present no significant effect to the neighbourhood residential properties as they will all continue to receive adequate sunlight as defined by the BRE guidance.

11.6 Overshadowing Summary: For an amenity space (garden) to appear adequately sunlit throughout the year, at least half of the space should receive a minimum of two hours of sunlight on 21 March. The assessment shows that all gardens (excluding No. 1 Stockton Road rear garden) pass the BRE criteria and will receive adequate levels of sunlight (more than 2 hours) on the 21st of March.

11.7 Whilst No. 1 Stockton Road rear garden will see a slight reduction in sunlight (up to 5%). However, up to 49% of the rear garden will still offer enjoyable pleasant and usable space which is considered acceptable for its proposed uses during the hours of 9am – 3pm.

11.8 Consequently, the impact of the Proposed Development on the sunlight levels of all surrounding amenity spaces (gardens) is considered **negligible** as the vast majority of

the neighbourhood residential gardens will continue to receive the minimum of two hours of sunlight on the 21st of March as defined by the BRE guidance.

11.9 Concluding Summary: The BRE Guide, 2022 takes the form of guidance and recommendations. Therefore, they should not form a mandatory set of criteria to which a development must adhere to as that would be too restrictive for site development purposes; rather they provide guidance intended to help the designer and planning authority and should be viewed in the context of other site constraints.

11.10 The National Planning Policy Framework (2021) also reiterates this, stating that Councils should take a flexible approach when applying daylight and sunlight guidance to planning applications, since natural lighting is only one of many factors in site layout design.

11.11 In light of the above, overall, the Proposed Development should be considered **acceptable** in terms of daylight, sunlight and overshadowing.

APPENDICES

APPENDIX 1: Daylight Assessment Result

BWB Consulting

BRE Site Layout Planning for Daylight and Sunlight (BRE Guide, 2022): Daylight Study

Project Name	High Lane, Chorlton
Project Number	232358
Weather Location	Manchester
Status	S2
Revision	P04
Date	04 January 2024
Consultant / Author	Ariana Beepath BASc(Hons) MSc
Checked / Approved	Mohammed Fatade-O BSc(Hons) MSc ACIAT AMEI ICIOB LCC NDEAL5 BRREAM Associate NABERS Assessor

Appendix 1 - Daylight (VSC) Assessment Result - Hardy Avenue

	DAYLIGHT STUDY - RESULTS (HARDY AVENUE)									
Building Reference	Floor	Window R = Right hand L = Left hand C = Centre	**Existing Site**	**Proposed Site**			**Compliance with BRE Criteria Met?**			Magnitude of Change VL = Very Low (=/> 80%) L = Low (60-79%) M = Medium (41-59%) H = High (<40%)
			Vertical Sky Component (%)	Vertical Sky Component (%)	Greater than 27%	Percentage of Existing	Greater than 27%	80% of Existing	Overall Compliance	
2-4 Hardy Avenue	Ground Floor	Left to Right	19.92	19.73	Fail	99%	Fail	Pass	Pass	Very Low (Negligible)
Windows facing development			18.35	14.68	Fail	80%	Fail	Fail	Fail	Low
	First Floor		28.39	28.34	Pass	100%	Pass	Pass	Pass	Very Low (Negligible)
			37.06	35.53	Pass	96%	Pass	Pass	Pass	Very Low (Negligible)
			37.15	34.78	Pass	94%	Pass	Pass	Pass	Very Low (Negligible)
			30.40	28.35	Pass	93%	Pass	Pass	Pass	Very Low (Negligible)
6-8 Hardy Avenue	Ground Floor	Left to Right	34.45	26.24	Fail	76%	Fail	Fail	Fail	Low
Windows facing development			32.20	25.31	Fail	79%	Fail	Fail	Fail	Low
	First Floor		29.18	27.77	Pass	95%	Pass	Pass	Pass	Very Low (Negligible)
			37.24	33.21	Pass	89%	Pass	Pass	Pass	Very Low (Negligible)
			37.05	32.84	Pass	89%	Pass	Pass	Pass	Very Low (Negligible)
			28.92	27.44	Pass	95%	Pass	Pass	Pass	Very Low (Negligible)
	Second Floor	Left to Right	38.63	38.03	Pass	98%	Pass	Pass	Pass	Very Low (Negligible)
			38.50	38.16	Pass	99%	Pass	Pass	Pass	Very Low (Negligible)
			38.22	37.50	Pass	98%	Pass	Pass	Pass	Very Low (Negligible)
			38.32	37.78	Pass	99%	Pass	Pass	Pass	Very Low (Negligible)
10-12 Hardy Avenue	Ground Floor	Left to Right	19.85	19.21	Fail	97%	Fail	Pass	Pass	Very Low (Negligible)
Windows facing development			32.38	28.58	Pass	88%	Pass	Pass	Pass	Very Low (Negligible)
			30.66	29.14	Pass	95%	Pass	Pass	Pass	Very Low (Negligible)
			18.65	19.64	Fail	105%	Fail	Pass	Pass	Very Low (Negligible)
	First Floor	Left to Right	28.73	26.81	Fail	93%	Fail	Pass	Pass	Very Low (Negligible)
			36.76	33.95	Pass	92%	Pass	Pass	Pass	Very Low (Negligible)
			36.44	34.20	Pass	94%	Pass	Pass	Pass	Very Low (Negligible)
			27.55	27.33	Pass	99%	Pass	Pass	Pass	Very Low (Negligible)

BWB Consulting

BRE Site Layout Planning for Daylight and Sunlight (BRE Guide, 2022): Daylight Study

Project Name	High Lane, Chorlton
Project Number	232358
Weather Location	Manchester
Status	S2
Revision	P04
Date	04/01/2024
Consultant / Author	Ariana Beepath BASc(Hons) MSc
Checked / Approved	Mohammed Fatade-O BSc(Hons) MSc ACIAT AMEI ICIOB LCC NDEAL5 BRREAM Associate NABERS Assessor

Appendix 1 - Daylight (VSC) Assessment Result - Stockton Road

	DAYLIGHT STUDY - RESULTS (STOCKTON ROAD)									
Building Reference	Floor	Window R = Right hand L = Left hand C = Centre	**Existing Site**	**Proposed Site**			**Compliance with BRE Criteria Met?**			Magnitude of Change VL = Very Low (=/> 80%) L = Low (60-79%) M = Medium (41-59%) H = High (<40%)
			Vertical Sky Component (%)	Vertical Sky Component (%)	Greater than 27%	Percentage of Existing	Greater than 27%	80% of Existing	Overall Compliance	
1A Stockton Road	Ground Floor	Right to Left	26.16	25.45	Fail	97%	Fail	Pass	Pass	Very Low (Negligible)
Windows facing development			31.28	28.48	Pass	91%	Pass	Pass	Pass	Very Low (Negligible)
		Side elevation	32.37	13.90	Fail	43%	Fail	Fail	Fail	Medium
			32.09	18.85	Fail	59%	Fail	Fail	Fail	Medium
	First Floor	Right to Left	30.13	29.29	Pass	97%	Pass	Pass	Pass	Very Low (Negligible)
			30.23	28.72	Pass	95%	Pass	Pass	Pass	Very Low (Negligible)
			34.77	31.82	Pass	92%	Pass	Pass	Pass	Very Low (Negligible)
		Side elevation	36.66	19.70	Fail	54%	Fail	Fail	Fail	Medium
			36.95	25.67	Fail	69%	Fail	Fail	Fail	Low
1-3 Stockton Road	Ground Floor	Right to Left	21.92	18.72	Fail	85%	Fail	Pass	Pass	Very Low (Negligible)
Windows facing development			29.72	16.80	Fail	57%	Fail	Fail	Fail	Medium
			26.54	22.57	Fail	85%	Fail	Pass	Pass	Very Low (Negligible)
			30.91	30.64	Pass	99%	Pass	Pass	Pass	Very Low (Negligible)
	First Floor		25.18	22.32	Fail	89%	Fail	Pass	Pass	Very Low (Negligible)
			25.76	19.47	Fail	76%	Fail	Fail	Fail	Low
			38.82	35.22	Pass	91%	Pass	Pass	Pass	Very Low (Negligible)
			38.68	35.17	Pass	91%	Pass	Pass	Pass	Very Low (Negligible)
			24.96	23.72	Fail	95%	Fail	Pass	Pass	Very Low (Negligible)
	Second Floor	Right to Left	30.16	29.56	Pass	98%	Pass	Pass	Pass	Very Low (Negligible)
			38.82	37.75	Pass	97%	Pass	Pass	Pass	Very Low (Negligible)
			38.82	37.81	Pass	97%	Pass	Pass	Pass	Very Low (Negligible)
			30.78	30.00	Pass	97%	Pass	Pass	Pass	Very Low (Negligible)
5-7 Stockton Road	Ground Floor	Right to Left	20.42	20.42	Fail	100%	Fail	Pass	Pass	Very Low (Negligible)
Windows facing development			32.18	31.58	Pass	98%	Pass	Pass	Pass	Very Low (Negligible)
			32.20	31.45	Pass	98%	Pass	Pass	Pass	Very Low (Negligible)
			17.69	17.69	Fail	100%	Fail	Pass	Pass	Very Low (Negligible)
	First Floor	Right to Left	23.91	22.84	Fail	96%	Fail	Pass	Pass	Very Low (Negligible)
			36.53	34.54	Pass	95%	Pass	Pass	Pass	Very Low (Negligible)
			36.38	34.42	Pass	95%	Pass	Pass	Pass	Very Low (Negligible)
			21.17	20.75	Fail	98%	Fail	Pass	Pass	Very Low (Negligible)
	Second Floor	Right to Left	31.05	30.23	Pass	97%	Pass	Pass	Pass	Very Low (Negligible)
			38.63	37.55	Pass	97%	Pass	Pass	Pass	Very Low (Negligible)
			38.81	37.44	Pass	96%	Pass	Pass	Pass	Very Low (Negligible)
			28.74	28.34	Pass	99%	Pass	Pass	Pass	Very Low (Negligible)
9-11 Stockton Road	Ground Floor	Right to Left	30.97	29.96	Pass	97%	Pass	Pass	Pass	Very Low (Negligible)
Windows facing development			31.25	31.06	Pass	99%	Pass	Pass	Pass	Very Low (Negligible)
			30.17	30.17	Pass	100%	Pass	Pass	Pass	Very Low (Negligible)
	First Floor	Right to Left	36.33	34.92	Pass	96%	Pass	Pass	Pass	Very Low (Negligible)
			36.26	34.78	Pass	96%	Pass	Pass	Pass	Very Low (Negligible)
			36.26	34.54	Pass	95%	Pass	Pass	Pass	Very Low (Negligible)
			22.84	22.43	Fail	98%	Fail	Pass	Pass	Very Low (Negligible)
	Second Floor	Right to Left	38.66	27.68	Pass	72%	Pass	Fail	Pass	Very Low (Negligible)

			38.66	37.72	Pass	98%	Pass	Pass	Pass	Very Low (Negligible)
			38.64	37.54	Pass	97%	Pass	Pass	Pass	Very Low (Negligible)
			29.54	29.41	Pass	100%	Pass	Pass	Pass	Very Low (Negligible)

APPENDIX 2: Sunlight Assessment Result

BWB Consulting

BRE Site Layout Planning for Daylight and Sunlight (BRE Guide, 2022): Daylight Study

Project Name	High Lane, Chorlton
Project Number	232358
Weather Location	Manchester
Status	S2
Revision	P04
Date	04/01/2024
Consultant / Author	Ariana Beepath BASc(Hons) MSc
Checked / Approved	Mohammed Fatade-O BSc(Hons) MSc ACIAT AMEI ICIOB LCC NDEAL5 BRREAM Associate NABERS Assessor

Appendix 1 - Daylight (VSC) Assessment Result - Acres Road

	DAYLIGHT STUDY - RESULTS (ACRES ROAD)									
Building Reference	Floor	Window R = Right hand L = Left hand C = Centre	**Existing Site**	**Proposed Site**			**Compliance with BRE Criteria Met?**			Magnitude of Change VL = Very Low (=/> 80%) L = Low (60-79%) M = Medium (41-59%) H = High (<40%)
			Vertical Sky Component (%)	Vertical Sky Component (%)	Greater than 27%	Percentage of Existing	Greater than 27%	80% of Existing	Overall Compliance	
5-7 Acres Road	Ground Floor	Left to Right	35.32	31.32	Pass	89%	Pass	Pass	Pass	Very Low (Negligible)
Windows facing development			35.53	31.33	Pass	88%	Pass	Pass	Pass	Very Low (Negligible)
			35.53	31.34	Pass	88%	Pass	Pass	Pass	Very Low (Negligible)
	First Floor	Left to Right	37.01	34.62	Pass	94%	Pass	Pass	Pass	Very Low (Negligible)
			37.19	34.49	Pass	93%	Pass	Pass	Pass	Very Low (Negligible)
			37.20	34.48	Pass	93%	Pass	Pass	Pass	Very Low (Negligible)
9-11 Acres Road	Ground Floor	Left to Right	35.56	31.28	Pass	88%	Pass	Pass	Pass	Very Low (Negligible)
Windows facing development			35.52	31.14	Pass	88%	Pass	Pass	Pass	Very Low (Negligible)
	First Floor	Left to Right	37.06	34.69	Pass	94%	Pass	Pass	Pass	Very Low (Negligible)
			37.22	34.47	Pass	93%	Pass	Pass	Pass	Very Low (Negligible)
13-15 Acres Road	Ground Floor	Left to Right	35.55	30.82	Pass	87%	Pass	Pass	Pass	Very Low (Negligible)
Windows facing development			32.93	28.50	Pass	87%	Pass	Pass	Pass	Very Low (Negligible)
	First Floor	Left to Right	36.99	34.67	Pass	94%	Pass	Pass	Pass	Very Low (Negligible)
			35.21	32.53	Pass	92%	Pass	Pass	Pass	Very Low (Negligible)
17 Acres Road	Ground Floor	Left to Right	35.66	30.88	Pass	87%	Pass	Pass	Pass	Very Low (Negligible)
Windows facing development	First Floor		37.14	34.27	Pass	92%	Pass	Pass	Pass	Very Low (Negligible)
19 Acres Road	Ground Floor	Left to Right	35.62	30.85	Pass	87%	Pass	Pass	Pass	Very Low (Negligible)
Windows facing development	First Floor		36.81	34.24	Pass	93%	Pass	Pass	Pass	Very Low (Negligible)
21 Acres Road	Ground Floor	Left to Right	35.42	31.11	Pass	88%	Pass	Pass	Pass	Very Low (Negligible)
Windows facing development	First Floor		36.86	34.36	Pass	93%	Pass	Pass	Pass	Very Low (Negligible)
23 Acres Road	Ground Floor	Left to Right	35.04	31.27	Pass	89%	Pass	Pass	Pass	Very Low (Negligible)
Windows facing development	First Floor		36.64	34.30	Pass	94%	Pass	Pass	Pass	Very Low (Negligible)
25 Acres Road	Ground Floor	Left to Right	35.05	31.67	Pass	90%	Pass	Pass	Pass	Very Low (Negligible)
Windows facing development	First Floor		36.73	34.69	Pass	94%	Pass	Pass	Pass	Very Low (Negligible)
27 Acres Road	Ground Floor	Left to Right	33.45	31.38	Pass	94%	Pass	Pass	Pass	Very Low (Negligible)
Windows facing development	First Floor		36.31	35.41	Pass	98%	Pass	Pass	Pass	Very Low (Negligible)
29-31 Acres Road	Ground Floor	Left to Right	34.01	31.98	Pass	94%	Pass	Pass	Pass	Very Low (Negligible)
Windows facing development			33.63	32.09	Pass	95%	Pass	Pass	Pass	Very Low (Negligible)
	First Floor	Left to Right	36.67	35.64	Pass	97%	Pass	Pass	Pass	Very Low (Negligible)
			36.29	35.63	Pass	98%	Pass	Pass	Pass	Very Low (Negligible)

BWB Consulting

BRE Site Layout Planning for Daylight and Sunlight (BRE Guide, 2022): Daylight Study

Project Name	High Lane, Chorlton
Project Number	232358
Weather Location	Manchester
Status	S2
Revision	P04
Date	04 January 2024
Consultant / Author	Ariana Beepath BASc(Hons) MSc
Checked / Approved	Mohammed Fatade-O BSc(Hons) MSc ACIAT AMEI ICIOB LCC NDEAL5 BRREAM Associate NABERS Assessor

Appendix 1 - Daylight (VSC) Assessment Result - High Lane

	DAYLIGHT STUDY - RESULTS (HIGH LANE)									
Building Reference	Floor	Window R = Right hand L = Left hand C = Centre	**Existing Site**	**Proposed Site**			**Compliance with BRE Criteria Met?**			Magnitude of Change VL = Very Low (=/> 80%) L = Low (60-79%) M = Medium (41-59%) H = High (<40%)
			Vertical Sky Component (%)	Vertical Sky Component (%)	Greater than 27%	Percentage of Existing	Greater than 27%	80% of Existing	Overall Compliance	
49-53 High Lane	Ground Floor	Right to Left	23.01	23.01	Fail	100%	Fail	Pass	Pass	Very Low (Negligible)
Windows facing development			32.61	31.75	Pass	97%	Pass	Pass	Pass	Very Low (Negligible)
	First Floor	Right to Left	24.72	24.71	Fail	100%	Fail	Pass	Pass	Very Low (Negligible)
			38.64	38.33	Pass	99%	Pass	Pass	Pass	Very Low (Negligible)
			38.49	38.27	Pass	99%	Pass	Pass	Pass	Very Low (Negligible)
			17.72	17.71	Fail	100%	Fail	Pass	Pass	Very Low (Negligible)
	Second Floor	Right to Left	35.04	35.08	Pass	100%	Pass	Pass	Pass	Very Low (Negligible)
			39.07	39.05	Pass	100%	Pass	Pass	Pass	Very Low (Negligible)
			38.99	39.04	Pass	100%	Pass	Pass	Pass	Very Low (Negligible)
			31.29	30.87	Pass	99%	Pass	Pass	Pass	Very Low (Negligible)

BWB Consulting

BRE Site Layout Planning for Daylight and Sunlight (BRE Guide, 2021): Sunlight (APSH & WPSH) Assessment

Project Name	High Lane, Chorlton
Project Number	232358
Weather Location	Manchester
Status	S2
Revision	P04
Date	04 January 2024
Consultant / Author	Ariana Beepath BASc(Hons) MSc
Checked / Approved	Mohammed Fatade-O BSc(Hons) MSc ACIAT AMEI ICIOB LCC NDEAL5 BRREAM Associate NABERS Assessor

Appendix 2 - Sunlight (APSH & WPSH) Assessment Result - High Lane, Chorlton

	SUNLIGHT STUDY - RESULTS							
Building and Window Reference	Existing Annual/Winter Probable Sunlight Hours (APSH)		Proposed Annual/Winter Probable Sunlight Hours (APSH)		Compliance with BRE Criteria Met?			
	Annual Year (main windows within 90° of due south)	Winter Months (main windows within 90° of due south)	Annual Year (main windows within 90° of due south)	Winter Months (main windows within 90° of due south)	Compliance with BRE Criteria (Annual - APSH) **>25 %**	Compliance with BRE Criteria (Winter - WPSH) **>5 %**	Compliance with BRE Criteria (> 0.8 times it former sunlight hours)	Overall Compliance with BRE Criteria?
1A Stockton Road - South-East Windows (GF)	41%	49%	38%	37%	Pass	Pass	Fail	Pass
1A Stockton Road - South-East Windows (GF)	43%	43%	31%	19%	Pass	Pass	Fail	Pass
1A Stockton Road - South-East Windows (1F)	51%	56%	42%	46%	Pass	Pass	Pass	Pass
1A Stockton Road - South-East Windows (1F)	48%	53%	42%	40%	Pass	Pass	Fail	Pass
1A Stockton Road - South-East Windows (1F)	46%	57%	42%	40%	Pass	Pass	Fail	Pass
1 Stockton Road - South-East Windows (GF)	19%	7%	24%	10%	Fail	Pass	Pass	Pass
1 Stockton Road - South-East Windows (1F)	25%	13%	25%	18%	Pass	Pass	Pass	Pass
1 Stockton Road - South-East Windows (1F)	51%	53%	45%	46%	Pass	Pass	Pass	Pass
1 Stockton Road - South-East Windows (2F)	42%	31%	40%	27%	Pass	Pass	Pass	Pass
1 Stockton Road - South-East Windows (2F)	53%	57%	51%	52%	Pass	Pass	Pass	Pass
3 Stockton Road - South-East Windows (1F)	51%	53%	38%	35%	Pass	Pass	Fail	Pass
3 Stockton Road - South-East Windows (1F)	44%	47%	45%	46%	Pass	Pass	Pass	Pass
3 Stockton Road - South-East Windows (2F)	53%	57%	47%	50%	Pass	Pass	Pass	Pass
3 Stockton Road - South-East Windows (2F)	50%	57%	51%	52%	Pass	Pass	Pass	Pass
1 Stockton Road - South-East Windows (RL)	55%	55%	45%	40%	Pass	Pass	Fail	Pass
2 Stockton Road - South-East Windows (RL)	76%	78%	72%	69%	Pass	Pass	Pass	Pass
3 Stockton Road - South-East Windows (RL)	76%	78%	72%	69%	Pass	Pass	Pass	Pass
5 Stockton Road - South-East Windows (GF)	23%	13%	22%	69%	Fail	Pass	Pass	Pass
5 Stockton Road - South-East Windows (GF)	43%	43%	36%	34%	Pass	Pass	Fail	Pass
5 Stockton Road - South-East Windows (1F)	29%	16%	26%	12%	Pass	Pass	Fail	Pass
5 Stockton Road - South-East Windows (1F)	52%	55%	41%	38%	Pass	Pass	Fail	Pass
5 Stockton Road - South-East Windows (2F)	44%	35%	40%	27%	Pass	Pass	Fail	Pass
5 Stockton Road - South-East Windows (2F)	54%	59%	47%	44%	Pass	Pass	Fail	Pass
5 Stockton Road - South-East Windows (RL)	76%	78%	72%	69%	Pass	Pass	Pass	Pass
7 Stockton Road - South-East Windows (GF)	28%	20%	27%	18%	Pass	Pass	Pass	Pass
7 Stockton Road - South-East Windows (GF)	42%	41%	40%	41%	Pass	Pass	Pass	Pass
7 Stockton Road - South-East Windows (1F)	37%	34%	33%	26%	Pass	Pass	Fail	Pass
7 Stockton Road - South-East Windows (1F)	52%	55%	45%	46%	Pass	Pass	Pass	Pass
7 Stockton Road - South-East Windows (2F)	46%	53%	44%	35%	Pass	Pass	Fail	Pass
7 Stockton Road - South-East Windows (2F)	54%	59%	50%	50%	Pass	Pass	Pass	Pass
9 Stockton Road - South-East Windows (GF)	42%	41%	38%	38%	Pass	Pass	Pass	Pass
9 Stockton Road - South-East Windows (GF)	41%	38%	37%	35%	Pass	Pass	Pass	Pass
9 Stockton Road - South-East Windows (1F)	53%	56%	47%	50%	Pass	Pass	Pass	Pass

9 Stockton Road - South-East Windows (1F)	52%	55%	47%	50%	Pass	Pass	Pass	Pass
9 Stockton Road - South-East Windows (2F)	54%	57%	52%	55%	Pass	Pass	Pass	Pass
9 Stockton Road - South-East Windows (2F)	55%	59%	52%	55%	Pass	Pass	Pass	Pass
11 Stockton Road - South-East Windows (GF)	40%	34%	35%	32%	Pass	Pass	Pass	Pass
11 Stockton Road - South-East Windows (GF)	38%	31%	34%	31%	Pass	Pass	Pass	Pass
11 Stockton Road - South-East Windows (1F)	53%	56%	47%	51%	Pass	Pass	Pass	Pass
11 Stockton Road - South-East Windows (1F)	41%	43%	40%	40%	Pass	Pass	Pass	Pass
11 Stockton Road - South-East Windows (2F)	55%	59%	53%	56%	Pass	Pass	Pass	Pass
11 Stockton Road - South-East Windows (2F)	49%	57%	48%	56%	Pass	Pass	Pass	Pass
49-53 High Lane - South-West Windows (GF)	51%	69%	51%	69%	Pass	Pass	Pass	Pass
49-53 High Lane - South-West Windows (GF)	74%	85%	71%	79%	Pass	Pass	Pass	Pass
49-53 High Lane - South-West Windows (1F)	53%	69%	53%	69%	Pass	Pass	Pass	Pass
49-53 High Lane - South-West Windows (1F)	79%	91%	77%	88%	Pass	Pass	Pass	Pass
49-53 High Lane - South-West Windows (1F)	79%	91%	77%	88%	Pass	Pass	Pass	Pass
49-53 High Lane - South-West Windows (1F)	37%	37%	37%	37%	Pass	Pass	Pass	Pass
49-53 High Lane - South-West Windows (2F)	78%	93%	76%	90%	Pass	Pass	Pass	Pass
49-53 High Lane - South-West Windows (2F)	79%	94%	77%	90%	Pass	Pass	Pass	Pass
49-53 High Lane - South-West Windows (2F)	79%	94%	77%	90%	Pass	Pass	Pass	Pass
49-53 High Lane - South-West Windows (2F)	70%	75%	68%	71%	Pass	Pass	Pass	Pass
49-53 High Lane - South-West Windows (RL)	91%	97%	90%	94%	Pass	Pass	Pass	Pass
55-59 High Lane - South-West Windows (1F)	55%	53%	51%	45%	Pass	Pass	Pass	Pass
55-59 High Lane - South-West Windows (1F)	71%	77%	64%	63%	Pass	Pass	Pass	Pass
55-59 High Lane - South-West Windows (1F)	69%	71%	60%	53%	Pass	Pass	Fail	Pass
55-59 High Lane - South-West Windows (2F)	72%	82%	66%	69%	Pass	Pass	Pass	Pass
55-59 High Lane - South-West Windows (2F)	79%	94%	72%	79%	Pass	Pass	Pass	Pass
55-59 High Lane - South-West Windows (2F)	78%	90%	69%	70%	Pass	Pass	Fail	Pass
55-59 High Lane - South-West Windows (3F)	78%	90%	73%	79%	Pass	Pass	Pass	Pass
55-59 High Lane - South-West Windows (3F)	80%	96%	74%	84%	Pass	Pass	Pass	Pass
55-59 High Lane - South-West Windows (3F)	80%	96%	73%	79%	Pass	Pass	Pass	Pass
55-59 High Lane - South-West Windows (4F)	80%	96%	75%	84%	Pass	Pass	Pass	Pass

APPENDIX 3: Overshadowing Assessment Result

BWB Consulting

BRE Site Layout Planning for Daylight and Sunlight (BRE Guide, 2021): Overshadowing Assessment

Project Name	High Lane, Chorlton
Project Number	232358
Weather Location	Manchester
Status	S2
Revision	P04
Date	04-Jan-24
Consultant / Author	Marcus Thompson BSc(Hons) MSc
Checked / Approved	Mohammed Fatade-O BSc(Hons) MSc ACIAT AMEI ICIOB LCC NDEAL5 BRREAM Associate NABERS Assessor

Appendix 3 - Overshadowing Assessment Result - Surrounding Amenity Spaces

	OVERSHADOWING STUDY - RESULTS (SURROUNDING AMENITY SPACES INCLUDING GARDENS)								
Area Reference	**Existing Site**			**Proposed Site**			**Reduction in Comparison with Existing (Target is 80% of Existing)**		**Overall Compliance with BRE Criteria?**
	Maximum Area of Sunlight (%)	Hours of Sunlight When More than 50% of Area is Exposed to Sunlight	BRE Criteria for 2 Hours of Sunlight Met?	Maximum Area of Sunlight (%)	Hours of Sunlight When More than **50%** of Area is Exposed to Sunlight	BRE Criteria for **2 Hours** of Sunlight Met?	Maximum Area of Sunlight (%)	Hours of Sunlight When More than 50% of Area is Exposed to Sunlight	
2 Hardy Avenue_Garden	48	0	NO	48	0	NO	100%	100%	Pass
4 Hardy Avenue_Garden	10	0	NO	10	0	NO	96%	100%	Pass
6 Hardy Avenue_Garden	10	0	NO	10	0	NO	97%	100%	Pass
8 Hardy Avenue_Garden	2	0	NO	2	0	NO	100%	100%	Pass
10 Hardy Avenue_Garden	8	0	NO	8	0	NO	100%	100%	Pass
12 Hardy Avenue_Garden	37	0	NO	37	0	NO	100%	100%	Pass
1 Stockton Road_Garden	54	2	YES	49	0	NO	92%	0%	Fail
1A Stockton Road_'Front Garden'	95	6	YES	95	6	YES	100%	100%	Pass
3 Stockton Road_Garden	56	2	YES	56	2	YES	99%	100%	Pass
5 Stockton Road_Garden	53	1	NO	53	1	NO	101%	100%	Pass
7 Stockton Road_Garden	53	1	NO	53	1	NO	101%	100%	Pass
9 Stockton Road_Garden	18	0	NO	18	0	NO	100%	100%	Pass
11 Stockton Road_Garden	44	0	NO	44	0	NO	101%	100%	Pass
49 High Lane_Garden	78	8	YES	78	8	YES	100%	100%	Pass
51 High Lane_Garden	74	5	YES	74	5	YES	100%	100%	Pass
53 High Lane_Garden	79	6	YES	78	6	YES	99%	100%	Pass

APPENDIX 4: Transient Overshadowing Result

BWB Consulting

BRE Site Layout Planning for Daylight and Sunlight (BRE Guide, 2022): Overshadowing Assessment

Project Name	High Lane, Chorlton
Status	S2
Date	04/01/2024
Consultant / Author	Mohammed Fatade-O BSc(Hons) MSc ACIAT AMEI ICIOB LCC NDEAL5 BRREAM Associate NABERS Assessor

Transient Overshadowing

21st March - Existing

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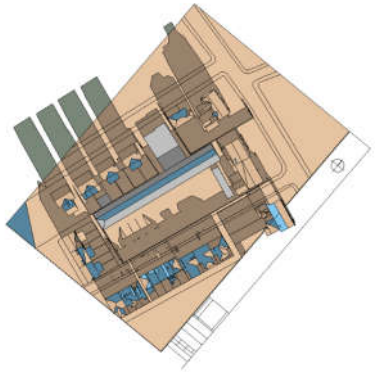

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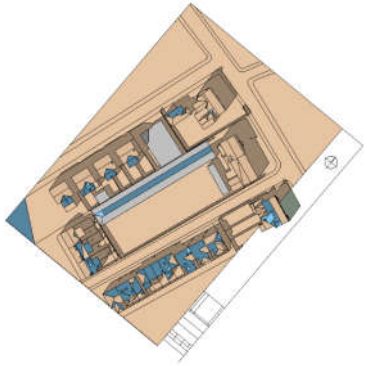

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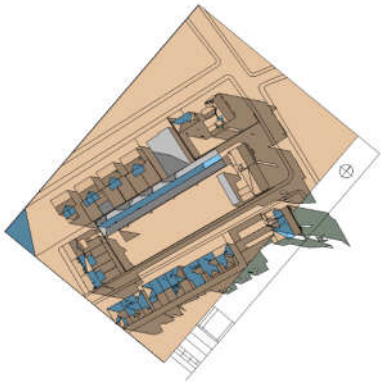
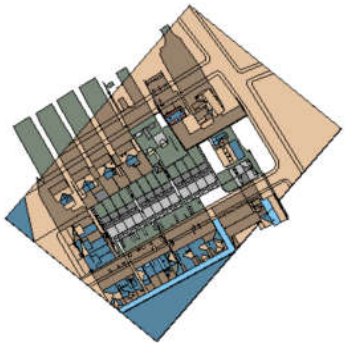
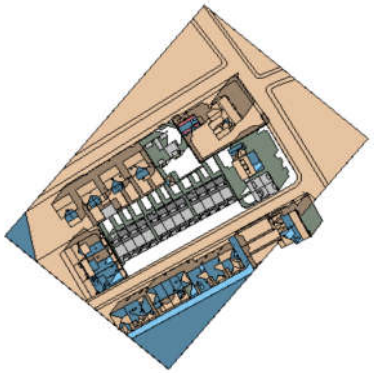
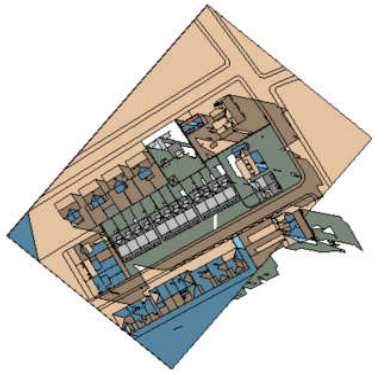


21st March - Proposed







BWB Consulting

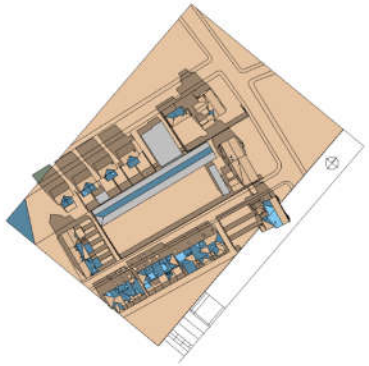
BRE Site Layout Planning for Daylight and Sunlight (BRE Guide, 2022): Overshadowing Assessment

Project Name	High Lane, Chorlton
Status	S2
Date	04/01/2024
Consultant / Author	Mohammed Fatade-O BSc(Hons) MSc ACIAT AMEI ICIOB LCC NDEAL5 BRREAM Associate NABERS Assessor

Transient Overshadowing

21st June - Existing

08:00



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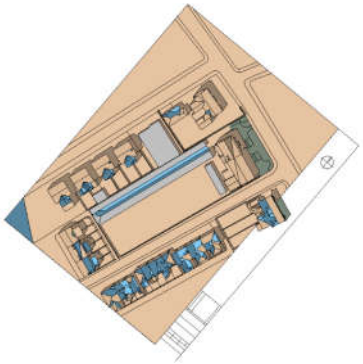

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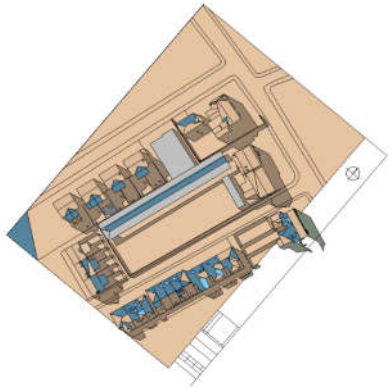
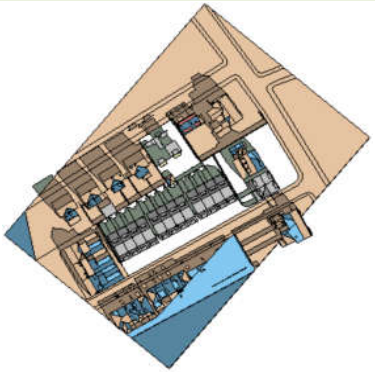
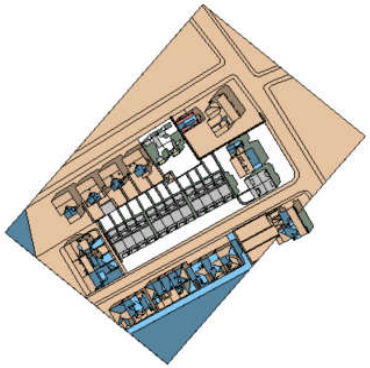
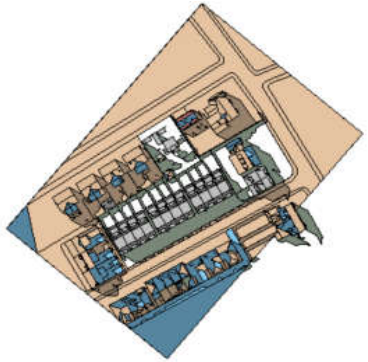


21st June - Proposed







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