PLANNING FOR SUSTAINABILITY

Land accessed from private lane between 25a & 25c Frognal

Application for planning consent

Sustainability Statement
November 2018

Revision Schedule

Sustainability Statement
November 2018

Rev	Date	Details	Prepared by	Reviewed by	Approved by
01	Nov 2018	Final	P Giesberg	S. Bamford	P Giesberg

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1 Introduction

Planning for Sustainability has been appointed to provide a sustainability statement to support the planning application for the provision of two detached houses at the back of 29 and 33 Arkwright Road in London.

Site and development

It has been proposed to develop a section of the rear garden area to the rear of 29 and 33 Arkwright Road. This site lies within the boundary of the London Borough of Camden (Fig. 1).

Figure 1. Site Location Plan

The application site lies within the Redington/Frognal Conservation area. The site is subject to a significant gradient and contains a number of mature trees.

It is proposed to erect two detached dwellings at this location (Fig. 2). The development proposals have been subject of discussions with the local planning authority and a Design Review Panel has recently provided positive feedback on the current state of the design evolution.

Figure 2. Overview of external layout and landscaping of the proposed development.

Sustainability Statement

This sustainability statement aims to describe compliance of the proposed development with the planning requirements as they are set out in the Camden's CGP3 on Sustainability of new development projects.

The development is classed as a minor development and is of a residential nature. Chapter 2 will describe the general sustainability topics and compliance of the proposed development.

2 Requirements and compliance

2.1 Energy use in new buildings

The energy use of the building and the measures to minimise the carbon foot print have been described in a separate energy statement.

2.2 Water efficiency

The dwellings have a large garden. A water butt to supply rainwater for watering the garden will be provided in these gardens.

The internal water use will be minimised by using water efficient fittings and appliances. A water-use of less than 105l per day per person will be specified.

2.3 Waste strategy

It is the intention of the developer to require the construction contractor to minimise waste to landfill. As the scale of the works is limited, this will likely be through the employment of a post-collection waste recycling system. The construction contractor will be required to prepare a site waste management plan to demonstrate how waste minimisation is achieved and keep a record of the waste produced and its destination. Unless the contractor can demonstrate that it is not feasible, a target of 70% by volume of construction waste diverted away from landfill will be set.

2.4 Sustainable use of materials

It is the intention of the developer to specify construction materials so that at least 80% have a BRE Green Guide Rating of A or higher.

For the elements that require aggregate the developer will require the construction contractor to use recycled aggregates, according to the targets specified in the table below, if available within 30km of site measured by road transport.

All timber used as part of the construction will be legally sourced and certified under the FSC scheme and for the other materials the developer will seek the construction contractor to supply materials that have a sustainable sourcing certification under a recognised standard.

Table 1. Minimum levels of high-grade aggregate specified per application that is recycled or secondary aggregate.

Application	Minimum percentage
Bound	
Structural frame	15
Bitumen or hydraulically bound base, binder and surface courses for paved areas and roads	30
Building foundations	20
Concrete road surfaces	15
Unbound	
Pipe bedding	100
Granular fill and capping	100

2.5 Brown roofs, green roofs and green walls

It is the intention of the developer to provide an intensive green roof on the roof areas over the single storey elements of the buildings and an extensive green roof on the main roof (Fig. 3). Although these roof areas are shared with roof lights and PV, there will be a significant amount of green roof provided.

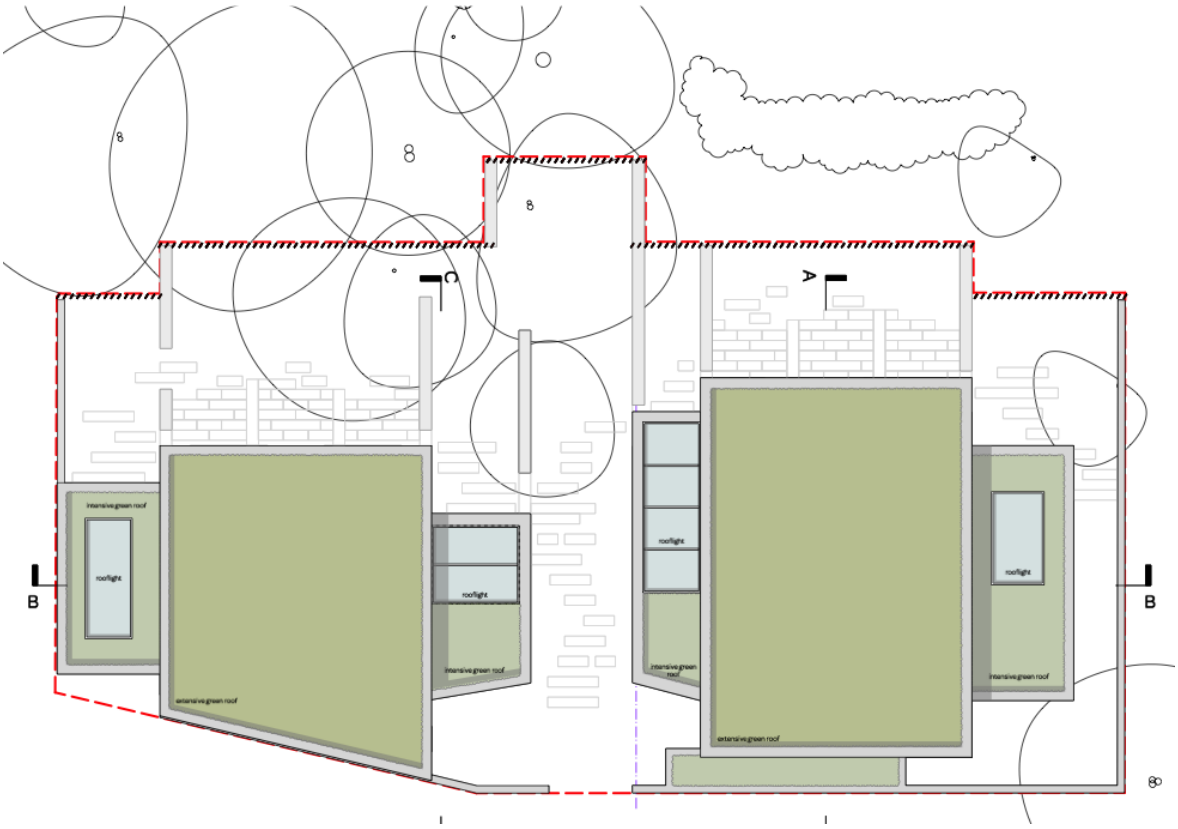

Figure.3 Proposed areas of extensive (dark green) and intensive (light green) green roof.

2.6 Flood risk, sustainable urban drainage systems and water quality

A separate drainage report will provide details of the proposed drainage scheme in compliance with the local and national requirements for sustainable urban drainage.

2.7 Adaptation to climate change

The greenhouse gas emissions by human society in the recent past and near future is predicted to cause changes in the local weather in London. With respect to the proposed development the expected increase in average summer temperature and occurrence of heat waves is of particular relevance. These changes may lead to overheating of occupied spaces within buildings.

Although overheating within buildings can in theory be addressed by installing air conditioning, the increased energy use of these units is highly undesirable. Passive measures to prevent overheating are therefore required to be considered.

There are three factors that increase the risk of overheating in buildings:

1. Buildings located in urban areas
2. Small single aspect units
3. High rise buildings with shared hot-water facilities

The proposed development comprises two spacious detached dwellings in an urban area. Although the location is in an urban area where the urban heat island effect will play a role, the two remaining risk factors are absent. It is therefore not considered necessary to carry out full building dynamic modelling to analyse thermal comfort in the buildings.

The GLA's checklist for overheating in residential units has been completed and is shown in tables 2 and 3.

Table 2 – Site features effecting vulnerability to overheating

Element	Feature	Yes/ No	Comment
Site location	Urban – within central London or in a high density urban conurbation	Yes	
	Peri-urban – on the suburban fringes of London	No	
Air quality and or noise sensitivity – are any of the following in the vicinity of the buildings	Busy Roads/A roads	No	
	Railways/Overground/ DLR	No	
	Airport/flight path	No	
	Industrial uses / waste facility	No	
Proposed building use	Will any buildings be occupied by vulnerable people (e.g elderly, disabled, young children	Yes	Although the building is not specifically target any group of vulnerable people, the units may be occupied by person from these groups.
Dwelling aspect	Are there any single aspect units	No	
Glazing ratio	Is the glazing ration (glazing:internal floor area) greater than 25%?	No	
	If yes is this to allow acceptable levels of daylighting?	No	
Security – are there any security issues that could limit opening of windows for ventilation	Single story ground floor units	No	
	Vulnerable areas identified by the Police Architectural Liaison Officer	No	
	Other	No	

Table 3 – Design features implemented to mitigate overheating risk

Element	Feature	Comment
Landscaping	Will deciduous trees be provided for summer shading (to windows and pedestrian routes)	There are already a range of mature deciduous trees present around the building. These will be retained.
	Will green roofs be provided	Yes, both areas of intensive and extensive green roof space will be provided.
	Will other green or blue infrastructure be provided around buildings for evaporative cooling	The landscaping at the back of the ground floor flats, will be a mix of hard and soft landscaping
Materials	Have high albedo (light colour) materials been specified?	The building materials have been selected to match the existing building. These are dark.
Dwelling aspect	% of total units that are single aspect	0%
	% single aspect with N/NE/NW orientation	-
	% single aspect with E orientation	-
	% single aspect with S/SE/SW orientation	-
	% single aspect with W orientation	-
Glazing ratio What is the glazing ration on each facade	N/NE/NW	
	E	
	S/SE/SW	
	W	
Daylight	What is the average daylight factor range	1.5 to 2.5
Window opening	Are windows openable	yes
Window opening	What is the average percentage of openable area for the windows	100%
Window opening	What is the extent of the opening	Fully openable
Security	Where there are security issues (e.g. ground floor flats) has an alternative night time natural ventilation method been provided (e.g. ventilation grades)	
Shading	Is there any external shading	
	Is there any internal shading	No.
Glazing specification	Is there any solar control glazing	
Ventilation – What is the ventilation strategy	Natural - background	Main form of ventilation
	Natural - purge	Occupant controlled by opening windows and back doors
	Mechanical - background	none
	Mechanical - purge	Some mandatory (wet rooms, kitchen)
	What is the average design air change rate	Natural ventilation is used
Heating system	Is communal heating present	No
	What is the flow/return temperature	N/A
	Have horizontal pipes been minimised	N/A
	Do the specifications include insulation levels in line with the London Heat Network Manual	N/A

2.8 Daylight and sunlight

The effects of the proposed buildings on the availability of daylight and sunlight on the existing buildings have been considered in addition to the availability of daylight and sunlight for the proposed buildings. The appraisal has been carried out using the methodology set out by Paul Littlefair in BR209 "*Site layout planning for daylight and sunlight: a guide to good practice*" (2011) (BRE Trust)

Effects on existing buildings

Light from the sky

It is important to safeguard the daylight that is available for nearby buildings in living rooms, kitchens and bedrooms. Loss of light to existing windows need not be analysed if the distance of each part of the new development from the existing window is three or more times its height above the centre of the existing window.

Figure 4 shows the full impact decision tree regarding the effect on the availability of daylight in nearby buildings.

There are three buildings with windows that are in close proximity of the proposed new dwellings (figure 2): 25a Frognal, 25b Frognal and 25e Frognal. The closest area of the building at 25a Frognal comprises a conservatory with glazed facades and glazed rood to all sites. This will have sufficient views of the skies and is therefore not considered further.

There are two windows that face the new development (one each in 25b and 25e Frognal) where the Vertical Sky Component was calculated using the Waldram diagram in BR209 (Figure 5). The window at 25b Frognal was shown to have a VSC of 30.0% and the window at 25e a VSC of 29.8%. Both windows are therefore deemed to receive sufficient light.

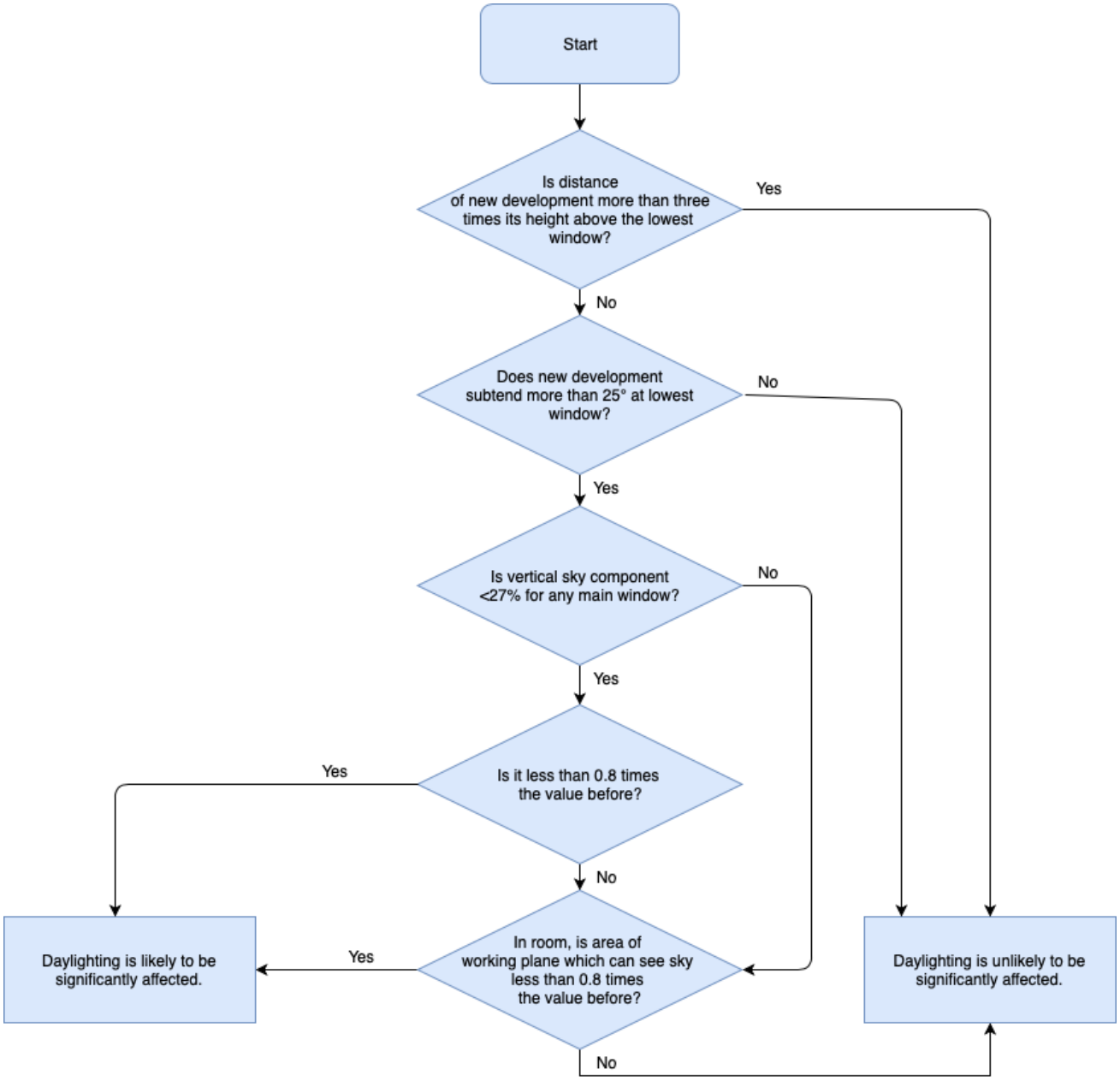

Figure 4. Decision chart daylight in existing buildings.

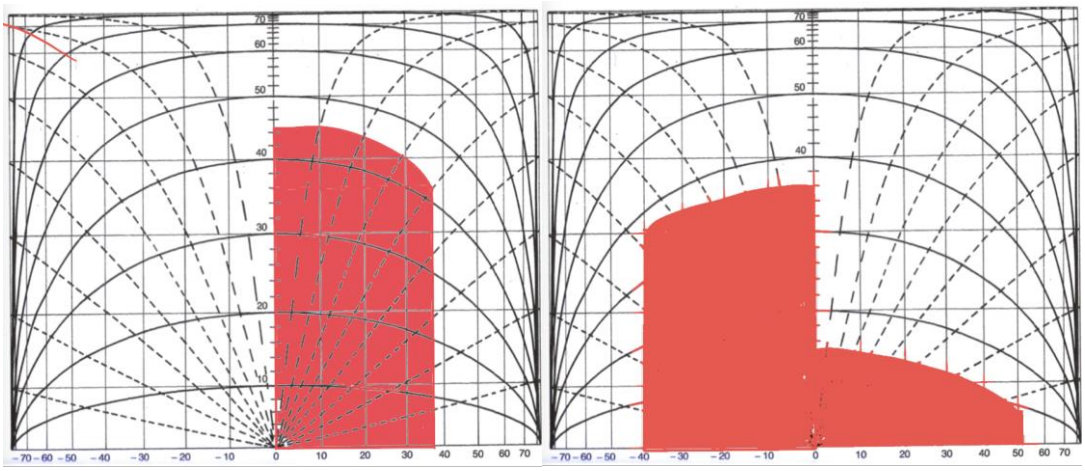

Figure 5 Waldram diagram windows at 25b(left) and 25e (right) Frognal

Sunlight and overshadowing

If a living room of an existing dwelling has a main window facing within 90° of due south and any part of the new development subtends an angle of more than 25° to the horizontal measured from the centre of the window then the sunlighting of the existing dwelling may be adversely affected.

The existing houses along Arkwright Road have windows facing 90° of due south towards the new development. The distance of these dwellings is such that the new dwellings will not create an angle greater than 25°. It is therefore concluded that the new development will not cause a significant reduction in sunlight availability to other properties through overshadowing.

Availability of daylight and sunlight to the new development

Light from the sky and daylight

The distance between the new development and the highest point at the dwellings along Arkwright Road is 36m and the height difference between window and highest point at the dwellings Arkwright Road is 14m. Although the distance is more than three times the height, the angle of 21.3° is less than the 25° and therefore the new dwellings will have sufficient access to light from the sky.

The average daylight factor provides a benchmark to demonstrate that the design and internal layout of the new development utilises the available light adequately. An Average Daylight Factor of more than 5% points to a well daylit space and 2% to a partially daylit space. These are recommended values and it would depend on the use of the space how much weight to the recommendations should be given. For instance, daylight provision in a bedroom is less important than in a sitting room or kitchen. There are also a set of minimum standards for daylight availability:

- 2% for kitchens
- 1.5% for sitting and dining rooms
- 1% for bedrooms

The main living areas for both dwelling are designed according to the open plan principle. The daylight factor for the entire habitable area has therefore been considered, as well as those for the bedrooms and the study in the larger dwelling.

Table 4a and 4b show the total Average Daylight Factor for the living space in each of the dwellings, broken down to the contribution of each individual window. The Patio doors have been split in an area above and below that of the working pane for dwellings (0.85 m). Table 5 summarises the daylight availability in the various rooms in both units.

Table 4a: Contribution of each window to ADF for the living space in the two-bedroom dwelling

Window type	ADF	Number of windows	Sub-total
Patio door upper	0.83	3	2.79
Patio door lower	0.4	3	1.2
Window 1	0.44	2	0.88
Window 2	0.49	2	0.98
Rooflight 1	0.77	1	0.77
Rooflight 2	1	1	1
Total			7.32

Table 4b: Contribution of each window to ADF for the living space in the three-bedroom dwelling

Window type	ADF	Number of windows	Sub-total
Patio door upper	0.73	3	2.13
Patio door lower	0.34	3	1.02
Window 1	0.37	2	0.74
Window 2	0.42	1	0.42
Rooflight 1	0.66	1	0.66
Rooflight 2	1.47	1	1.47
Total			6.44

Table 5. Summary of Average Daylight Factor in each of the spaces

Space	Dwelling 1 (ADF %)	Dwelling 2 (ADF %)
Living area and kitchen	7.32	6.44
Master bedroom	3.73	3.06
Bedroom 1	2.55	2.84
Bedroom 2	-	2.34
Study	-	1.62

The results show that the main spaces are very well daylit. The remaining rooms are adequately lit, with the study in the three-bedroom dwelling receiving the least daylight of all habitable spaces.

Sunlight

The living area in both dwellings does not have a façade that would allow for a window within 90° of due south. To provide adequate access to sunlight a glazed rood area has been provided in both dwellings. This is deemed to provide sufficient sunlight to the living areas in both properties.

3 Conclusion

The proposed development plans comply with the requirements set-out in the SPD on Sustainability and Construction.