QODA

Land Adjacent to 46 Maresfield Gardens and 39a Fitzjohn’s Avenue

Sustainability Statement

20727-QODA-FJA-XX-RP-YS-1001

QODA

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1 Introduction

1.1 Site Context

This Sustainability Statement has been prepared by QODA Consulting as part of the planning application for the proposed residential redevelopment at the Land Adjacent to 46 Maresfield Gardens and 39a Fitzjohn's Avenue. This is a development by 39 Fitzjohn's Avenue Ltd and consists of the substantial demolition and redevelopment of 39a Fitzjohn's Avenue and the development of Land at Maresfield Gardens to provide residential (Class C3) accommodation, alongside hard and soft landscaping works, boundary treatment works, and other associated works.

Figure 1 Site model (Source: Sergison Bates Architects)

The Site measures approximately 3,955 square metres and is located in Hampstead, in the Frognal and Fitzjohn's ward. It comprises two principal elements, '39a Fitzjohn's Avenue' and 'Land adjacent to 46 Maresfield Gardens'.

The Site is bounded by Fitzjohn's Avenue to the East, Nutley Terrace to the South and Maresfield Gardens to the West. It is located in a predominantly residential area, however owing to its Central London location, the area does include other commercial, and community uses, in close proximity. The area has a pleasant, spacious leafy residential character, albeit located on a significant North-South route.

There are underground constraints to the Site with a tunnel running underneath which forms the London Overground City Thameslink line and there is a ventilation shaft for the tunnel located to the West of the Site.

Table 1: Type and number of properties in the Proposed Development

Space Type	39a Fitzjohn's Avenue	Land Adjacent to Maresfield Gardens
	Nr. Units	Nr. Units
1-bed dwelling	0	8
2-bed dwelling	0	17
3-bed dwelling	2	4
4-bed+ dwelling	2	0
Residential Total	**4**	**29**
Non-residential area	No	Yes
Total GIA (m^2)	1,590	3,081

1.2 Aims and Objectives

This Sustainability Statement has been prepared by QODA Consulting to support the planning application and meet the requirements of local and regional policies.

1.3 Planning Requirements

The Proposed Development is being submitted in accordance with national, regional and local planning policies that references the climate change and sustainable development. The policies clarify how the Government, the Mayor of London and the London Borough of Camden are seeking to improve the way in which sustainability principles are embedded into development in the built environment. The relevant policies are outlined below:

- **Climate Change Act (2008):** the legal requirement that there is an 80% reduction in greenhouse gas (GHG) emissions compared to 1990 levels by 2050.
- **National Planning Policy Framework (2023)**: Developments are encouraged to consider: sustainable modes of transport; technology; moving to a low carbon future; mitigating and adapting to climate change. It also suggests a consideration of flood risk, water supply and biodiversity.
- **The London Plan (March 2021):** The current plan is the 2021 edition. The energy hierarchy to be followed is: be lean, be clean, be green and be seen and all developments should be designed to be zero carbon while offsetting can still be used. Natural gas-fired CHP is strongly discouraged due to local air quality issues and its failing contribution to carbon-savings as the electricity-grid decarbonizes. Additional documents which should be addressed in this document include:
    - Sustainability Design and Construction SPG
    - Housing SPG
- **London Borough of Camden Local Plan (2017)** – supported by Camden's supplementary Planning Guidance documents (CPGs):
    - Access for All (March 2019)
    - Air Quality (January 2021)
    - Amenity (January 2021)
    - Biodiversity CPG (March 2018)
    - Design (January 2021)
    - Energy Efficiency and Adaptation (January 2021)
    - Planning for Health and Wellbeing (January 2021)
    - Public Open Space (January 2021)
    - Transport (January 2021)
    - Trees CPG (March 2019)
    - Water and Flooding CPG (March 2019)

Please refer to Appendix A for the full summary of key planning policies relevant to sustainability.

2 Policy Context

The below table summarises how the report chapters address the relevant Planning policy requirements. The report should be read alongside the wider suite of technical documents.

Sustainability Statement Chapter	Landscape & Biodiversity	Materials & Waste	Energy & Carbon Performance	Water & Drainage	Sustainable Transport	Health & Wellbeing	Climate Adaptation
Planning Policy							
National Planning Policy Framework (2023)							
Achieving Sustainable Development	X	X	X	X	X	X	X
Promoting Healthy & Safe Communities						X	
Promoting Sustainable Transport					X		
Protecting Green Belt Land			X				X
Climate Change, Flooding & Coastal Change			X	X			X
Conserving & Enhancing the Natural Environment				X			
Achieving Sustainable Development	X	X		X			
The London Plan 2021							
Chapter 1 Good Growth					X	X	X
Chapter 8 Green Infrastructure and Natural Environment	X					X	
Chapter 9 Sustainable Infrastructure		X	X	X		X	X
Chapter 10 Transport					X		
Camden Local Plan (2017) & CPGs							
Camden Local Plan	X	X	X	X	X	X	X
CPG Energy Efficiency and Adaptation		X	X				
CPG Air quality						X	
CPG Access for All							
CPG Amenity	X				X	X	
CPG Biodiversity	X						
CPG Design	X	X					
CPG Planning for Health and wellbeing						X	
CPG Transport		X			X		
CPG Trees	X						
CPG Water & Flooding				X			

3 Addressing Sustainability Policy

3.1 Landscape & Biodiversity

3.1.1 Landscape

Addressing the London Policies G1 'Green Infrastructure', Camden's Local Plan Policy CC2 Adapting to climate change, Policy C1 Access for All, and Camden's CPGs on Design and Access for all

3.1.1.1 Landscape Masterplan

The landscape design approach emphasises the significance of external spaces in the urban environment, recognising their positive impact on mental and physical health, and overall well-being. With the goal of enhancing and expanding the green infrastructure, the proposal focuses on creating a green oasis for residents as part of a wider site strategy.

Key design principles incorporated include:

1. Re-connection with the Green Environment
2. Community Benefits
3. Green-Blue Infrastructure
4. Increased Biodiversity

The Site proposal is designed to actively promote mental and physical health, and well-being by incorporating elements that connect with nature. These features expand to the wider site for a cohesive and explorative experience.

Figure 2 Landscape Masterplan - refer to DAS

3.1.1.2 Open Space

Addressing the Camden Local Plan Policy A2 Open Space

The upper north part of the site has been re-imagined as a multifunctional space for residents of all ages. It includes a generous open space which provides opportunities for socialising, temporary events and playing. This is surrounded by landforms where small fruit trees are planted and naturalistic planting that attracts wildlife.

The extent of shared amenity complies with Camden's Public Open Space guidance and Local Plan policy A2, exceeding the minimum recommendations of 9 sqm per resident with a proposal for 11.5 sqm per resident. The landscape is designed with multifunctional use with natural green space that provides opportunities for passive recreation but also biodiversity and community engagement.

Figure 3 Illustrative sketch of the communal open space behind 39a Fitzjohn's Avenue – Bowles & Wyer

The following design features have been incorporated to encourage community engagement:

- Seating areas and gathering spaces
- Woodland: provides opportunities for foraging and education
- Fruit trees: facilitate community engagement and provide habitat for plants, birds and insects
- Reclaimed wildlife features in the landscape: educational resource for residents

A play area has been provided in the open space. The areas of play space provided exceed the Planning Requirements – refer to the DAS for more information.

- Crawling tunnels carved into proposed mounds, storytelling area and mounds have been integrated into the communal area for children under 4.
- A climbing structure made of stacked logs reclaimed from felled trees, and designed landforms, can be used by children above 4.
- A communal lawn space can be used for active play by children of all ages for running, kicking a ball or playing games.

The proposals encourage active play and physical discovery while also providing a sensory and tactile experience though the incorporation of natural materials. Pockets of seating throughout the site offer places and spaces to hang out and relax. Ample planting and trees, including edibles have been incorporated into the design, giving shade and inviting the kids to interact with nature and learn about wildlife.

Figure 4 Play opportunities diagram - refer to DAS

3.1.1.3 Access and movement

The landscape is designed to provide DDA access to the majority of the spaces with limitations for wheelchair access to the upper North area because of the significant 3m level difference.

Vehicular access is allowed from Maresfield Gardens for deliveries and drop-offs with DDA paths and steps leading to the main building entrance. The road has also been designed for fire emergency access, with the vehicle being able to reach the end of the turning head.

3.1.2 Green Infrastructure

Addressing the London Policies G1 'Green Infrastructure', Camden's Local Plan Policy CC2 Adapting to climate change, and Camden's CPG on Design

One of the key aims of the Landscape Strategy is to provide a positive impact to the site through the provision of green infrastructure.

This is achieved through the following means:

- Retention of the majority of street trees along the boundary
- Enhancement of existing green spaces on the site
- Intensive green roof cover over the Maresfield Gardens building
- A low maintenance sedum roof over the bin stores and the roof over 39a Fitzjohn's Avenue
- Use of permeable materials such as gravel and clay paving for hard landscaping, to reduce surface water runoff
- Tree cover contributing to the mitigation of overheating through enhanced shading
- Sustainable drainage (see section 3.4)
- Reducing surface water runoff (see section 3.4)
- Provision of green roofs, which support mitigation of overheating in line with the cooling hierarchy.

Figure 5 Amenity Planning Diagram - refer to DAS

3.1.3 Biodiversity

Addressing the London Plan Policy G6'Biodiversity and Access to Nature', Camden's Local Plan policy A3 'Biodiversity', and Camden CPGs on Biodiversity and Trees.

3.1.3.1 Ecological Appraisal

An Ecological Appraisal was carried out on the site by Ecology Network Ltd.

None of the habitats identified were classed as "priority habitats". No notable plants or animals were identified, other than the structure and ivy cover of the trees potentially being bat roosts. As such, a bat survey was commissioned.

The appraisal noted that opportunities exist to implement a landscaping scheme that uses native species and provides a range of habitat types, which will in turn encourage hedgehogs, stag beetles and bats (all animals of conservation concern).

The appraisal made the following recommendations, which will be incorporated as the development progresses:

- Felling / removal of trees should not take place within the bird nesting season.
- As a precaution, a licensed bat worker is present should it be necessary to modify / demolish the roof to the building.
- Prior to the removal of several of the trees, an inspection / activity survey is undertaken in order to ensure that bats or their roosts are not compromised.
- Consideration is given to the effect that lighting may have upon biodiversity features within the development.
- Monitoring of biodiversity takes place during years 1, 3 and 6 following the completion of the development.

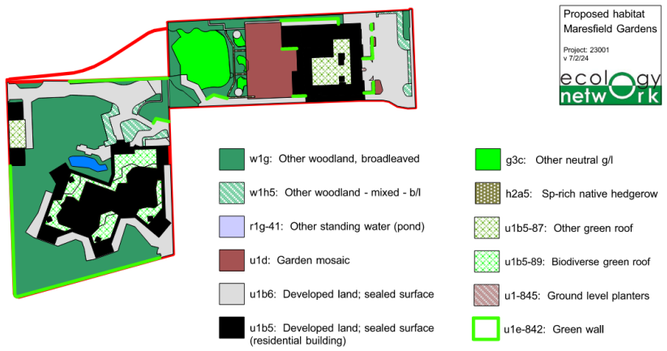

Figure 6 Habitat Plan - refer to Ecology Network Ltd's Report

3.1.3.2 Bat Survey

The ecological survey identified 3 types of pipistrelle bat on the site. Whilst these were noted to fly and forage within the northern boundary ash and the horse chestnut, there was not conclusive evidence of bat emergence, and the report deemed the presence of significant roosts within these trees unlikely. It noted it to be unlikely that the conservation status of bats will be adversely affected by the proposal, so long as a sensitive approach to development (for example, with respect to lighting) is adopted during construction and within the design layout.

The report recommended the following, which will be incorporated as the development progresses:

- The trees identified for felling are 'soft-felled', overseen by a licensed bat worker.
- The felling should take place in September or October of any one year (unless a licensed bat worker indicates that weather (or other) conditions indicate otherwise).
- Opportunities should be explored for the incorporation of features that benefit bats within the woodland and the new build.

- A single night's nocturnal monitoring of the site, using static and manual detectors, should be undertaken at the optimum time of year, during years 1, 3 and 6 following the completion of the development.

3.1.3.3 Biodiverse Landscape Design

Addressing the London Policies G1 'Green Infrastructure' and G5 'Urban Greening', and Camden's CPG 'Amenity'

With reference to the London and Camden Biodiversity Action Plans (BAP), the development aims to contribute to a cleaner and greener future by creating priority habitats and conserving priority species. A number of trees will need to be removed to facilitate development which will lead to a small loss in habitat units. However, the Wider Site strategy looks at developing a woodland landscape that will be managed to ensure a range of habitats by incorporating measures such as:

- reusing the felled tree trunks for creating habitat features within the landscapes that benefit beetles, centipedes, spiders, woodlice and ladybirds
- stumps left in the landscape for food and shelter
- bird and bat boxes to encourage nesting
- integrating wildlife friendly features into retaining walls built partially from reclaimed brick from site
- enhancing existing planting structures and species diversity to provide food and shelter for wildlife
- underplanting the existing trees with shrubs and ground cover improving the planting structure and providing food source for invertebrates and birds
- woodland pond with access for wildlife
- climate resilient planting that have adapted to dry conditions, forming sways of decorative planting islands
- wildflower meadows, species rich lawn and green roofs (responding to Camden's DP22) that support a range of habitats

Based on a study by Bowles & Wyer on the existing neighbourhood green spaces, they have created a design for the new development that enhances the green footprint with more biodiverse friendly species supporting foraging, nesting and pollination habitats.

Policy G5 of the London Plan requires Urban Greening to be integral to the planning and design of new developments. The London Plan states that 'Boroughs should develop an Urban Greening Factor (UGF) to identify the appropriate amount of urban greening required in new developments. The Mayor recommends a target score of 0.4 for predominately residential development. This development is achieving a UGF of 0.56 – refer to Bowles and Wyer's drawings for more information.

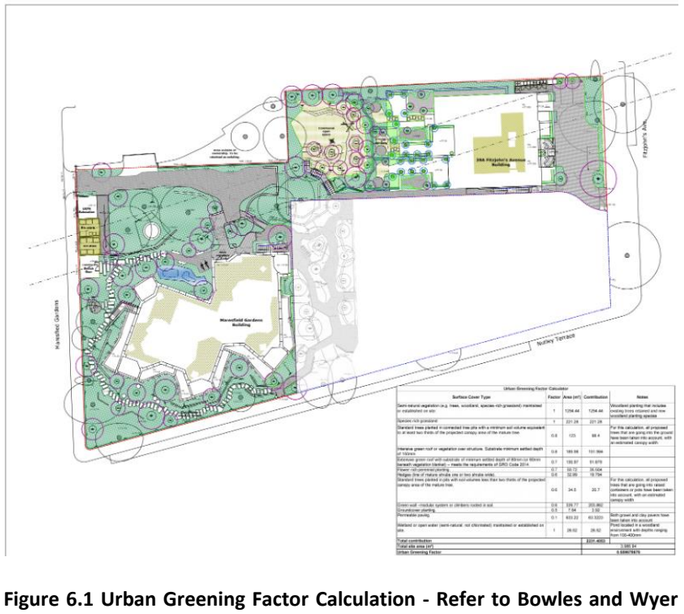

Figure 6.1 Urban Greening Factor Calculation - Refer to Bowles and Wyer information

The Proposed Site will maximise biodiversity net gain onsite and offset additional impact where appropriate. Additional enhancements like a biodiverse landscaping scheme will be integrated, and are essential in contributing to the biodiversity success of the project.

Artificial lighting is being considered, and the design will be developed by a specialist designer such that it does not affect wildlife.

More detailed information is provided within the Landscape section of the DAS, provided by Bowles & Wyer, submitted as part of the planning application.

3.1.3.4 Protecting and enhancing habitats and species

As part of increasing the biodiversity on Site and introducing new types of habitats, a new pond is proposed in proximity to the main entrance to Maresfield Gardens building. Using a range of depths and providing access for wildlife, the pond becomes an opportunity for attracting a wider range of species such as dragonflies, frogs, birds and even bats. The dappling of light creeping through the trees invites insects and amphibians. Marginal plants thriving in shallow edges create additional habitats for wildlife. Regular aftercare integrated as part of the Site maintenance strategy will ensure that water is kept clean and invasive plants don't colonise the pond.

The proposals support the following species, identified as "of importance" for their wider conservation value and importance to London and Camden (BAP):

- House Sparrow – Passer domesticus
- Black Redstart – Progenitures ochruros
- Swift – Apus apus
- Bats – Chiroptera spp
- Wild Bees – Bumblebees and Solitary Bees
- Stag Beetle – Lucanus cervus
- Varieties of butterflies such as the White-letter Hairstreak or the White Admiral
- West European Hedgehog - Erinaceus europaeus

3.1.4 Trees

Addressing Camden's Local Plan policy A3 'Biodiversity', and Camden CPGs on Trees and Design.

An arboricultural impact assessment has been carried out by Landmark Trees. As part of this work, a tree survey was carried out, which determined that there are 62 trees on the property and adjoining land outside of the application boundary that are within close proximity to the development. The assessment found these to be mostly moderate and low-quality trees, but with two high quality mature London Plane trees as standout specimens, and a number of trees which it recommended to be felled regardless of development. The trees and related constraints were mapped out on a Tree Constraints Plan – shown in Figure 7.

Figure 7 Tree Constraints Plan - refer to Landmark Tree's information for full drawing

The AIA concluded the development would create, at most, a medium level impact on the existing trees. Approximately half of the trees on site (but significantly less than half of the canopy cover) would be removed or pruned to facilitate construction. It found that the trees proposed for removal have generally more collective than individual specimen value, such that their loss could be mitigated with new planting, bringing its own benefits to a relatively unmanaged resource. Similarly, it found that best-practice pruning at the scale envisaged should not be altogether untoward in an occupied site.

The AIA recognised that, whilst the default position is that structures be located outside the Root Protection Area*(RPA) of trees to be retained, there are some modest encroachments that could not be avoided in the design of the scheme. It noted that trial pit findings demonstrate that the tree(s) can remain viable in these situations, and that the area lost to encroachment can be compensated for elsewhere. Based on the above, and the proposed series of mitigation measures to improve the soil environment that is used by the trees for growth, the AIA ultimately assessed the in Net impacts of the development as low. It also sets out a series of recommendations prior and during construction that will ensure impacts to trees are minimised (Tree Protection Plan, see Figure). It concludes that the proposal, through following the proposed recommendations, will have no, or very limited, impact on the existing trees.

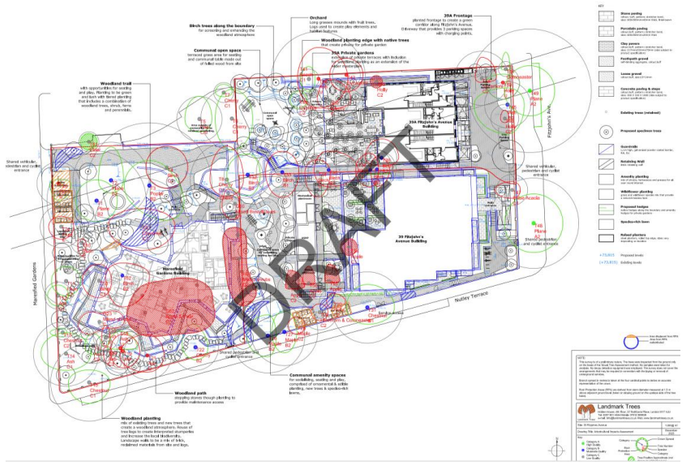

Figure 8 Arboricultural Impact Assessment - Refer to Landmark Trees' drawings

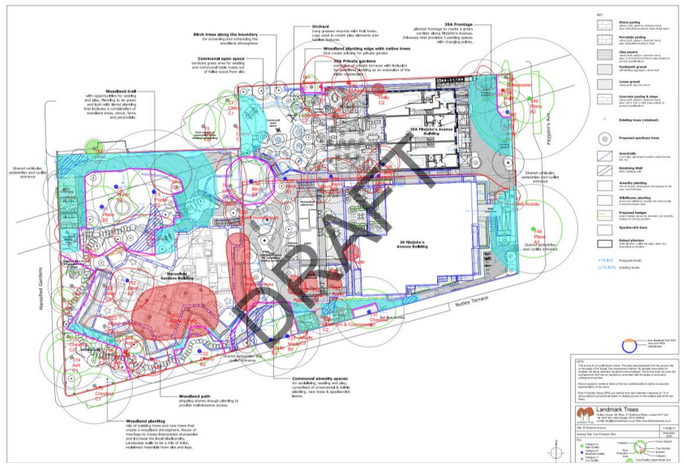

Figure 9 Tree Protection Plan - Refer to Landmark Trees' Drawings.

3.2 Materials and waste

Addressing London Plan Policy SI7 'Reducing Waste and Supporting the Circular Economy', Camden's Local Plan Policy CC5 'Waste', and Camden's Planning Guidance CPGs on Design, and Energy Efficiency and Adaptation

3.2.1 Reuse and Optimising Resource Efficiency

Addressing Camden Local Plan policy CC1 'Climate Change Mitigation', Camden's Planning Guidance CPGs on Design, and Energy Efficiency and Adaptation

The proposed development seeks to use resources efficiently and incorporate circular economy principles. A key consideration is how to approach the existing building at 39a Fitzjohn's Avenue.

A pre-redevelopment options review (see Appendices) was carried out for this part of the site to understand the development options and investigate different ways to reuse the existing building and/or its components. As part of this work, a condition and feasibility study of the existing building was carried out, including a material audit.

This options review concluded that the façade of the existing building could be retained, but that the other aspects of the building could not be retained without significantly reducing the site's potential. The proposed development therefore seeks to demolish and rebuild the existing structure in order to improve the building's contribution. Due to the significant demolition, a Whole Life Carbon Assessment has also been carried out to further investigate the carbon impact of the proposals, both at 39a Fitzjohn's Avenue and at Maresfeld Gardens.

Beyond reuse of the existing façade at 39a Fitzjohn's avenue, reuse of existing materials is being considered throughout the proposal. At the next stage the design team will review the material audit and identify materials which can be reused on the new development. The landscape design already incorporates material reuse, proposing to create wildlife habitats from felled trees and bricks recovered from the demolition of the existing building.

3.2.2 Whole Life Carbon Assessment

Refer to section 3.3.2.

3.2.3 Construction, demolition, and excavation waste

A hierarchical waste management strategy of "Prevent, Reduce, Reuse, and Recycle," will be employed during the design, construction, and operation of the building.

The procurement and construction stages will implement the strategies outlined below to reduce the environmental impact of construction process:

- 95% (either by volume or tonnage) construction waste to be diverted from landfill to be reused and/or recycled;

- 95% (either by volume or tonnage) demolition waste to be diverted from landfill to be reused and/or recycled
- Follow the waste hierarchy and provide adequate space and facilities to segregate waste streams and divert as much waste from landfill as feasible;

3.2.4 Operational Waste

A hierarchical waste management strategy of "Prevent, Reduce, Reuse, and Recycle," will be employed during the design, construction, and operation of the building.

For the units fronting Fitzjohn's Avenue, refuse will be stored to the north of the site in standard refuse bins. The apartments fronting Maresfield Gardens will be provided with a dedicated waste and recycling store, and internal refuse collection will be managed by a facility manager. An integral bin store will be located adjacent to the concierge for residents to deposit their waste and recycling. The concierge / building management will then exchange full bins with empty ones from the refuse store. The refuse storage locations are sensitive to the local areas and existing refuse collection practices. More details on refuse collection can be found in the Transport Statement.

Figure 10 Waste storage locations for both buildings - refer to the DAS

The number of bins required for each building has been calculated based on Camden's Waste Guidance for residential units and includes allowance for general waste, mixed recycling, and food waste. Storage facilities shall be adequately sized and clearly labelled to facilitate the segregation and collection of the recyclable waste streams.

Food waste disposal will be provided in line with the target to achieve zero biodegradable waste to landfill by 2026.

3.3 Energy & Carbon performance

3.3.1 Reuse of existing buildings

Addressing the London Plan Policy SI2 'Minimising Greenhouse Gas Emissions', Camden Local Plan policy CC1 'Climate Change Mitigation', and Camden's CPG 'Energy Efficiency and Adaptation'

Camden's policies on Energy Efficiency and Adaptation require all proposals that involve substantial demolition to demonstrate retention and improvement of the existing building have been considered prior to considering demolition. Refer to Section 3.2.1 for more detail on how this has been addressed.

3.3.2 Whole Lifecycle Carbon

Addressing the London Plan Policy SI2 'Minimising Greenhouse Gas Emissions', Camden Local Plan policy CC1 'Climate Change Mitigation'

A Whole Life Carbon assessment has been carried out for the Proposed Development to address the requirements of Camden Planning Policy CC1 Camden's CPG on Energy Efficiency and Adaptation. An assessment has also been carried out for Maresfield Gardens as part of the proposed development's drive to understand and reduce its environmental impact.

The WLC assessments have been delivered in line with the following recognised methodologies:

- Greater London Authority guidance for undertaking WLC assessments (March 2022)
- RICS Professional Statement: Whole Life Carbon Assessment for the Built Environment

Early investigation, supported by the GLA's Whole Life Carbon principles, indicated that a key design focus should be to design for retrofit and reuse, whilst sourcing local, repurposed or recycling, low-carbon materials.

The design seeks to follow the WLC Principles through the reuse of existing structures and facades, procuring concrete and steel with high recycled content whilst maintaining structural integrity, challenging suppliers to provide reused products, prioritising UK based suppliers, and minimising operational energy usage.

The Whole Life Carbon assessment results are shown in Table 2.

Assessment Scope	WLC Benchmark (kg CO_2e/m^2 GIA)	Aspirational WLC Benchmark (kg CO_2e/m^2 GIA)	Actual WLC Performance (kg CO_2e/m^2 GIA)
RICS Module A1-A5 (excluding sequestration)	< 850	< 500	735
RICS Module B-C (excluding B6 & B7 and sequestration)	< 350	< 300	438
RICS Module A-C (excluding B6 & B7, including sequestration)	< 1,200	< 800	1,149

Table 2 GLA Whole Life Carbon Benchmarks and Aspirational Benchmarks, and Actual Whole Life Carbon Performance

The results show that the project performs better than the GLA's overall (A-C) benchmark, and the A1-A5 benchmark. The results indicate the main area for improvement is RICS Module B-C. This is understandable as a lot of the design needs to be further progressed and there is limited information regarding specific and detailed breakdown of materials.

Refer to the WLC Assessment submitted as part of this planning application, which sets out further commitments, and opportunities that will be explored at the next stage to reduce the Whole Life Carbon of the proposed development.

3.3.3 The Energy Hierarchy

To ensure that the Council can monitor the effectiveness of renewable and low carbon technologies, major developments will be required to install appropriate monitoring equipment.

The Energy Strategy produced by QODA Consulting, highlights that the building will meet the policy targets for carbon emissions, with passive measures prioritised and low and zero-carbon technologies optimised where feasible for the development.

The proposed development has reviewed and secured compliance with Planning Policy by reducing CO_2 emissions at each stage of the energy hierarchy. Table 3, Table 4 and Table 5 below show the carbon emission improvements over the baseline at each stage of the energy hierarchy for both residential and non-residential parts of the development. The proposals are aligned with the London Plan's net zero-carbon target for all major developments.

Standard Assessment Procedure (SAP) and approved Dynamic Simulation Modelling (DSM) modelling has been carried out to calculate the development's expected carbon emissions against the baseline, following the Energy Assessment Guidance and Part L 2021 methodology.

Table 3 Whole Development Residential Regulated CO2 Savings

Residential Regulated CO2 Savings			
	Total Reg. CO2 (TCO2/y)	CO2 savings (TCO2/y)	Percentage savings (%)
Baseline	58.4	0	0%
Be lean	40.3	18.1	31%
Be clean	40.3	0.0	0%
Be green	13.4	26.9	46%
Cumulative savings on site	-	45.0	77%
Annual Savings from Offset payment	-	13.4	100%
Cumulative savings for off-set payment	-	**401**	-
Cash in-lieu contribution (£)	-	**£38,058**	-

Table 4 Whole Development Non-Residential Regulated CO2 Savings

Non- Residential Regulated CO2 Savings			
	Total Reg. CO2 (TCO2/y)	CO2 savings (TCO2/y)	Percentage savings (%)
Baseline	3.8	0	0%
Be lean	3.7	0.1	3%
Be clean	3.7	0.0	0%
Be green	3.5	0.1	3%
Cumulative savings on site	-	0.2	6%
Annual Savings from Offset payment	-	3.5	100%
Cumulative savings for off-set payment	-	**106**	-
Cash in-lieu contribution (£)	-	**£10,107**	-

Table 5 Whole Development Non-Residential Regulated CO2 Savings

Site-wide Regulated CO2 Savings			
	Total Reg. CO2 (TCO2/y)	CO2 savings (TCO2/y)	Percentage savings (%)
Baseline	62.1	-	0%
Be lean	43.9	18.2	29%
Be clean	43.9	0.0	0%
Be green	16.9	27.0	43%
Cumulative savings on site	-	45.2	73%
Annual Savings from Offset payment	-	**16.9**	100%
Cumulative savings for off-set payment	-	**507**	-
Cash in-lieu contribution (£)	-	**£48,165**	-

At Be Lean stage a 31% improvement in regulated carbon emissions beyond Part L 2021 of the Building Regulations is achieved for residential spaces, and 3% for non-domestic spaces. An overall improvement of 77% is achieved over the baseline for residential spaces – far exceeding the London Plan's target of 35%.

The development has prioritised lean design through passive design, well insulated fabric, LED lighting, and highly efficient systems. The development improves on the target requirements for Fabric Energy Efficiency, and the Energy Use Intensity and Space Heating have been calculated – refer to the Energy Statement for more information.

On-site design opportunities to reduce carbon emissions have been maximised within the constraints of the development. The calculations presented in this document show that there is a shortfall to achieve the Zero Carbon target. This shortfall will be addressed by an offset payment in-lieu to Camden's carbon offset fund.

3.3.3.1 Demand Reduction (Be Lean)

The form of the proposed development at Maresfield Gardens has been created to be sensitive to the important trees and root protection zones surrounding it. Although this has precluded optimisation of the building form factor, it has provided a form that is excellent for optimising daylight and natural ventilation to the dwellings. The loggias provided to the homes are generally south-orientated to provide highly effective solar shading from peak summer sun, while allowing winter low-angle sun to provide passive solar heat.

The form of the proposed development at 39a Fitzjohn's Avenue has been dictated by the envelope of the existing retained fabric, and as such there is limited scope to make massing and orientation-focussed amendments. Refer to the next section for passive, fabric-first methods incorporated.

The following building fabric measures have been incorporated as part of the "Be Lean" stage.

<u>39a Fitzjohn's Avenue</u>

- High levels of thermal insulation to reduce heating demand
- Providing continuity of insulation to mitigate cold bridges which create heat loss and cold surfaces.
- Upgrading the retained façade as much as possible without introducing moisture risks
- Replacement of all existing windows to improve their thermal performance in a way that is sensitive to the local conservation area requirements.
    - This will be high-performance double-glazed sash windows, which will reduce heating demand and reduce cold internal surfaces to improve occupant comfort.

- Air-tight construction to mitigate cold draughts, reduce heat losses and protect the fabric against moisture ingress.

- High levels of thermal insulation to new thermal elements at 39a Fitzjohn's Avenue to reduce heating demand.

Maresfield gardens

- High levels of thermal insulation to reduce heating demand.
- Continuity of insulation to avoid cold bridges which create heat loss and cold surfaces.
- Air-tight construction to avoid cold draughts, reduce heat losses and protect the fabric against moisture egress.
- Triple glazing to reduce heating demand and prevent cold internal surfaces, improving occupant comfort.

Following the application of passive design measures, active design measures have been applied to further reduce the energy demand and CO_2 emissions. Active design measures incorporated for both buildings include the following:

- Mechanical ventilation with heat recovery to provide indoor air quality while minimizing energy use. This system included summer bypass.
- Installation of low energy LED lighting with photocell/timer clock/presence detection controlling where appropriate (e.g., in communal spaces)
- Use of smart meters for heat and electricity networks
- Use of programmable heating controls with individual zone control for heating and hot water.

3.3.4 Heating Infrastructure (Be Clean)

With energy demand reduced, supplying energy efficiently and cleanly to reduce CO_2 emissions has been considered by following the heating hierarchy of the London plan in the Be Clean stage.

Potential to connect to an existing heat network was investigated, referring to the London heat map, however there are no existing or planned heat networks within the surrounding area which would be close enough to connect to. The development does not fall within a Heat Network Priority Area. An on-site heat network is proposed for Maresfield Gardens.

3.3.5 Renewable Energy (Be Green)

The opportunities for renewable energy on-site will be maximised. The design team carried out assessment of what LZC Technologies were feasible for the scheme, and as a result, both buildings will include low carbon Air Source Heat Pump (ASHP) systems. In addition, solar PV is proposed on appropriate areas of roof at Maresfield Gardens and 39a Fitzjohn's Avenue to maximise on-site renewable energy generation, resulting in on-site CO_2 savings in excess of CO_2 emitted by the building.

The amount of energy generated by renewable sources is not sufficient to balance out the remaining carbon emissions following each stage of the energy hierarchy. Therefore, the residual carbon will be offset using a cash-in-lieu contribution to London Borough of Camden's carbon offset fund. More detailed information is provided within the Energy Statement submitted as part of the planning application.

3.3.6 Be Seen

The buildings' energy performance will be reported on and monitored as the scheme is planned, built out and in use, in line with the GLA's "Be Seen" Energy Monitoring Guidance.

Post-construction, energy performance will be monitored through the installation of smart meters for heat and electricity networks which enable occupants to monitor, manage and reduce their energy usage.

The energy use associated with all major items of plant equipment will be monitored to enable a minimum of 90% of the energy used in the building to be easily attributed to an end use.

This will include the provision of meters to allow the separate metering of space heating, air handling plant, domestic hot water (in areas with a large water demand), lighting and small power.

Meters will be connected to a dedicated energy management system. The metering strategy will be developed in line with the Client's brief and guidance from the system manufacturer for the energy management system.

3.4 Water & Drainage

3.4.1 Flood Risk & Surface Water Drainage

Addressing the London Plan Policy SI13 'Sustainable Drainage', Camden Local Plan policy CC3 "Water and Flooding", and Camden's CPG "Water and Flooding"

Flood Risk Assessment and Drainage Strategy reports have been produced by Price & Myers for the proposed development. It identified that the flood risk to the site is low as the site is located in Flood Zone 1. The site is also at low flood risk from all other sources.

3.4.1.1 39A Fitzjohn's Avenue

Due to low risk of groundwater flooding and no ground water found on site a cavity drainage has been proposed to protect the site against ground water flooding. Levels have been proposed to fall away from the building, permeable paving & an attenuation tank has been designed for a flood event of 1 in 100 years plus 40% climate change.

Surface water will be attenuated to 2.7l/s using an attenuation tank, permeable paving, and a flow control manhole for all design storms. Pumping stations for surface and foul water have been proposed at the basement level to prevent surcharging from the public sewers into the development.

3.4.1.2 Maresfield Gardens

The surface water discharge rate from the development will be restricted to 3.2 l/s by a flow control device. Thames Water have confirmed capacity I their network for both the foul and surface water drainage flows.

The drainage has been designed in accordance with LB Camden's SFRA drainage discharge hierarchy with below ground attenuation located to the South of the site adjacent to Nutley Terrace. Additional SuDS components including permeable paving and green roofs have been included in the design. In accordance with the EA guidance, the system has been designed to accommodate all storms up to and including the 100 year +40% climate change storm event.

3.4.2 Sustainable Drainage

Addressing the London Plan Policy SI13 'Sustainable Drainage', and Camden's CPG "Water and Flooding"

The provision of rainwater harvesting for landscape irrigation measures is to be considered for the development during detailed design stages. As a minimum, rainwater butts will be proposed in the rear of each plot of 39a Fitzjohn's Avenue to capture surface water run-off for re-use.

The results of the ground investigation report show that the ground is not suitably permeable for soakaway drainage, or for surface water run-off to be disposed of to the ground via infiltration.

Below ground attenuation tanks and permeable paving have been proposed for both sites, to create a below-ground void space for the temporary storage of surface water before controlled release to the sewers. The volumes have been designed to accommodate storms up to the 1 in 100-year rainfall event, including a 40% allowance for climate change. The 39a attenuation tank has

been proposed to be situated at ground level in the parking area at the front of the site. The MFG attenuation tank is to be located to the south of the site along Nutley Terrace Surface water will be attenuated for 24hr storage and pumped out of the basement to an attenuation tank at ground level.

Permeable paving is proposed at the front of 39a on the private drive by the east of the site, and to all areas of external hard landscaping at MFG. Any build up over tree RPAs will include a cell web layer to avoid damage to the roots.

Green Roofs have been proposed for MFG, which will provide some additional capacity for surface water attenuation and inception at source, contributing towards reducing the water flow into the surface water network and providing water quality benefits.

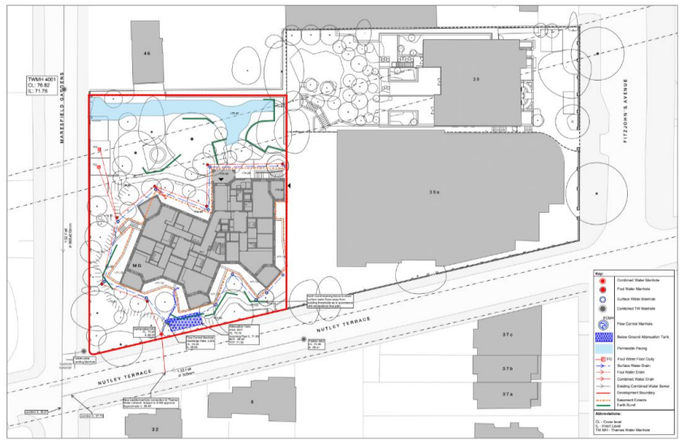

Figure 11 Maresfield Gardens drainage strategy drawing - refer to Price & Myers' drawings

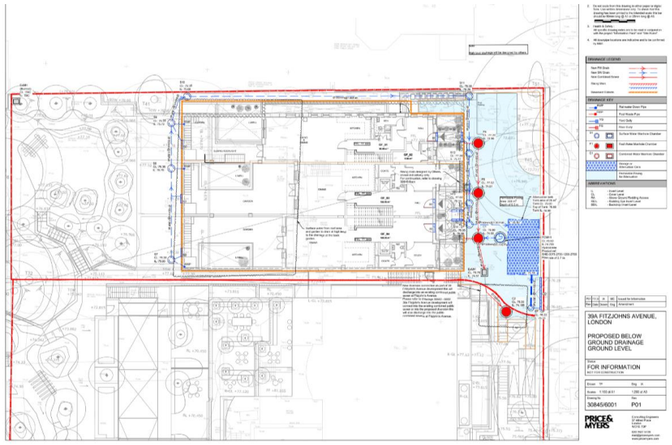

Figure 12 39a FJA drainage strategy drawing - refer to Price & Myers' drawings

Refer to Price & Myers' drainage strategies for more information.

3.4.3 Water Efficiency

Addressing the London Plan Policy SI5 'Water Infrastructure', and Camden Local Plan Policy CC3 'Water & flooding'.

The proposed developments will seek to be water efficient, meeting the London Plan and Camden's requirement of 110 litres per person per day (including 5 litres for external water use).

A fitting-based approach will be used to determine the water consumption of the development.

Fittings will, as meet the "maximum consumption" figures in Part G of the Building regulations as a minimum, with the aim of meeting or improving upon the "optional" (improved) consumption values.

3.5 Sustainable Transport

Addressing London Policies T2 'Healthy Streets', T5 'Cycling' and T6 'Car Parking', Camden's Local Plan sections T1-T4 'Transport' and Policy C6 – Access for all, and Camden's CPG 'Transport'

Syntegra have produced a Transport Statement (TS) and Travel Plan for the Proposed Development – refer to these for more detail on this section.

The Travel Plan has the aim of encouraging sustainable travel patterns to residents once the proposed development is occupied. It is proposed to be implemented by a Travel Plan Coordinator (TPC) on an ongoing basis in the leadup to, and after handover. The TPC will engage with residents to oversee the implementation of the travel plan and monitor its progress annually.

Some of the measures to be implemented as part of the Travel Plan are as follows:

- Provide a sustainable Travel Information pack
- Issue an annual sustainable travel newsletter
- Encouraging residents to reduce their need to travel
- Make residents aware of local walking and cycling routes and resources
- Monitor and maintain on-site parking facilities
- Promote and encourage cycling to work
- Supply up to date public transport information
- Investigate the potential to provide residents with taster travel tickets.

Clear targets and a monitoring regime are proposed to enable those responsible to measure, report upon and maximise the effectiveness of the Travel Plan.

3.5.1 Parking and Car Free development

Addressing Camden Local Plan Policy T1 'Prioritising Walking, Cycling and Public Transport', Policy T2 'Parking and car-free development', and Policy C6 – Access for all

The site is located in a highly sustainable location with ready access to a high level of local services and amenities as well as public transport nodes. It is therefore considered that residents will not be reliant on the private car to undertake everyday journeys.

The apartments (at Maresfield Gardens) will not be provided with any on-site parking, which is considered appropriate given the sustainable nature of the site. Three parking spaces are proposed to serve the units fronting Fitzjohn's Avenue. A Framework Delivery and Servicing Management Plan has been developed to support the proposals.

3.5.2 Public Transport

Addressing Camden Local Plan Policy T1 'Prioritising Walking, Cycling and Public Transport'

The proposed development includes two Public Transport Accessibility Levels (PTALs), 5 and 6a, which demonstrates that the site is well located for access to public transport nodes. The Transport Assessment concludes, on this basis,

that the site has good active travel and public transport accessibility, such that future residents will not be reliant on private cars for everyday journeys.

3.5.3 Cycling Provision and Access

Addressing Camden Local Plan Policy T1 'Prioritising Walking, Cycling and Public Transport'

For the units fronting 39a Fitzjohn's Avenue, cycle parking is proposed at garden level in a secure store for eight cycles.

For the apartments at Maresfield Gardens, cycle parking is proposed at lower ground floor level in the form of two tier cycle stores. A total of 60 spaces are proposed, which exceeds the Policy requirements.

3.5.4 Managing Transport Impacts

Syntegra's Transport Statement notes that the proposals will result in a minimal level of person trips on the local network. In terms of vehicle trips, just 16 two-way trips across the 12-hour day would be expected. It is not considered that this level of movement would lead to any notable impacts on the local highway network.

3.5.5 Cycling and Walking

Addressing Camden Local Plan Policy T1 Prioritising Walking, Cycling and Public Transport

Syntegra's Transport Plan notes that there is a good level of pedestrian infrastructure to facilitate trips from the site on foot. It concludes that the site is well located to encourage pedestrian journeys instead of journeys by private car. It also notes that much of Northwest London can be accessed within an appropriate cycle distance, and that the site is connected with the wider network of cycle routes throughout Greater London.

Within the site boundary, the proposal prioritises pedestrian and cyclist traffic with minimal vehicular use inside the development. While this application demonstrates the use within the Site, attention was given Wider Site to ensure connectivity and access respond to the needs of residents and to the function of spaces. A main access route cuts through the Wider Site from East to West, almost parallel to Nutley Terrace providing a nature walk between Fitzjohn's Avenue and Maresfield Gardens. Secondary access routes are designed for reduced traffic and primarily for utilitarian use. Stepping stone through planting around the south boundary discourage intensive traffic.

Figure 13 Movement Diagram - Refer to the DAS for more information

3.5.6 Electric Vehicles

To the front of 39A Fitzjohn's Avenue, 3 parking spaces with electrical charging points are proposed.

3.6 Health & Wellbeing

Addressing Camden's Local Plan Policy C1 Health and Wellbeing

3.6.1 Air Quality

Addressing London Plan Policy SI1 'Improving Air Quality' and Camden Local Plan policy CC4 Air Quality

Syntegra have prepared an Air Quality Assessment (AQA) to support the Proposed Development. The AQA includes a section on Air Quality Neutral requirements, and since the development involves significant demolition, the AQA also assessed the risk of dust and emissions impacts.

3.6.1.1 Air Quality Neutral

Developments, including major developments which do not include additional emissions sources are assumed to be Air Quality Neutral and to meet the Air Quality Neutral benchmarks. As such, they do not need an Air Quality Neutral assessment. Table 6 shows an evaluation of the proposed development against these criteria.

Table 6 Excluded development criteria

Criterion	Evaluation (Yes/No)
Has no additional motor vehicle parking (beyond the provision for disabled persons)	Yes
Does not lead to an increase in motor vehicle movements	Yes
Doesnot include new combustion plant, such as gas-fired boilers	Yes

As the proposed development meets the Excluded Development criteria, it is assumed to be Air Quality Neutral

3.6.1.2 Dust and emissions impacts

The AQA assessed the potential air quality impacts because of fugitive dust emissions from the site during the construction phase of the development. It found that these were in accordance with the IAQM methodology. Assuming good practice dust control measures are implemented, the residual significance of potential air quality impacts from dust generated by demolition, earthworks, construction, and track out was predicted to be not significant. Appropriate mitigation measures to mitigate dust during this phase have been captured in the Construction Management Plan.

The AQA assessed the potential traffic exhaust emissions associated with vehicles traveling to and from the site during the operational phase of the development. These emissions were assessed against the screening criteria provided within IAQM guidance. Due to the size and nature of the proposals, road vehicle exhaust emissions impacts were predicted to be not significant.

The AQA concluded that local monitoring results indicate that future users are unlikely to be exposed to pollutant concentrations that exceed AQOs. Based on the assessment results, air quality factors are not considered a constraint to planning consent for the development.

3.6.2 Noise Impact

Addressing London Plan policy D14 Noise, Camden's Local Plan Policy A4 'Noise and vibration', and CPG 'Amenity'

RBA Acoustics have carried out an assessment in relation to the noise levels likely to be incident on the proposed building facades, a vibration survey, and

have also set suitable plant noise emission criteria at noise sensitive receptors inside and outside the development.

The measured noise levels are presented within the Acoustic Planning Assessment. This assessment concludes that acceptable internal noise levels can be achieved using standard thermal double glazing.

Detailed vibration measurements have been undertaken at the site due to the presence of the Network Railway tunnels situated beneath the site. RBA's predictions indicate that the levels of vibration are likely to be imperceptible and comfortably within the guideline limits.

Plant noise emission limits have also been set in line with the requirements of the London Borough of Camden. Given the low existing background noise levels, RBA have noted that they would not expect the typical criteria to be achievable at receptors within the Wider Site (i.e., 39 Fitzjohn's Avenue main house, 39A Fitzjohn's Avenue and Land adjacent to 46 Maresfield Gardens). Therefore, they have proposed relaxed criteria which they consider appropriate in terms of noise impact to receptors within the site boundary. Furthermore, they have devised such limits that are practical to ensure the mechanical design requirements are met. They have noted that, at this stage, there is insufficient information available to undertake a detailed plant noise emission assessment.

In light of the above, RBA conclude that noise impact is expected to be controlled to an appropriate level with relatively standard measures.

3.6.3 Daylight

Addressing Camden's CPG 'Amenity' to satisfy the BRE guidance Site Layout Planning for Daylight and Sunlight: A Guide to Good Practice (BR209).

A Daylight and sunlight report has been provided by eb7 to support this Planning application. This includes a detailed assessment of the potential daylight and sunlight effects of the proposed development at 39a Fitzjohn's Avenue and the land adjacent to 46 Maresfield Gardens on the key neighbouring properties; as well as an assessment of the provision of daylight and sunlight within the proposed residential units.

The assessment concludes that the development's impact upon the neighbouring properties is considered to be entirely consistent with the BRE guidance and relevant planning policy in terms of daylight and sunlight.

The assessment of sunlight amenity (overshadowing) to the neighbouring gardens has shown that all the gardens analysed will remain fully compliant with the BRE guidelines.

The Daylight Illuminance assessment has indicated that 97% of the overall proposed habitable rooms assessed will meet or exceed the 2022 BRE targets. Whilst direct sunlight levels are more orientation specific, the Sunlight Exposure assessment has indicated that 79% of the overall units meet the 2022 BRE targets which is considered to be a very good level of compliance. Overall, our daylight and sunlight results within the proposed residential units indicate a very good level of compliance.

3.7 Climate Adaptation

Addressing Camden Local Plan Policy CC2 'Adapting to Climate Change'

3.7.1 Green Infrastructure

New appropriate green infrastructure has been proposed as part of the scheme to mitigate the effects of climate change. Refer to section 3.1.2.

3.7.2 Flood risk & Sustainable Drainage Systems

The proposals demonstrate that surface water run-off will not be increased through increasing permeable surfaces and use of Sustainable Drainage Systems. Refer to Section 3.4 for details on flood risk strategy and Sustainable drainage proposals.

The proposals incorporate biodiverse roofs, which mitigate the impact of overheating. Refer to section 3.1.2 for more information.

3.7.3 Mitigating Overheating Risk

Addressing the London Plan Policy SI4 'Managing Heat Risk', and Camden Local Plan Policy CC2 'Adapting to Climate Change'

Potential overheating risk has been identified early in the design process and suitable passive measures have been incorporated within the building envelope and services design to mitigate overheating and reduce cooling demand.

3.7.3.1 Cooling Hierarchy

Measures to reduce the cooling demand have been considered under the following categories set out in London Plan Policy SI 4 Managing heat risk:

1. Reduce the amount of heat entering the building through orientation, shading, high albedo materials, fenestration, insulation and the provision of green infrastructure.
2. Minimise internal heat generation through energy efficient design.
3. Manage the heat within the building through exposed internal thermal mass and high ceilings.
4. Passive ventilation.
5. Mechanical ventilation.
6. Active cooling systems.

The measures implemented at each stage of the cooling hierarchy are set out in the Energy statement.

3.7.3.2 Overheating risk analysis

<u>Compliance requirements - Residential Areas</u>

The GLA's energy Assessment guidance notes that CIBSE TM59 and Building Regulations Part O compliance should be met for developments.

Due to the retained aspects of the façade for 39a Fitzjohn's Avenue, it has certain exemptions from meeting the requirements of Building Regulations Part O. Rooms with retained façade elements are not required to meet Part O but must seek to improve as much as possible within the constraints. Rooms bounded by new building fabric must meet the requirements of Part O. These exemptions are echoed by CIBSE TM52. All other residential aspects of the development will need to meet the requirements of Part O.

<u>Compliance requirements - Non-residential areas</u>

The non-residential area in the Maresfield Gardens development occupies only a small floor area and is proposed to be used for typologies that do not require overheating assessments in line with CIBSE's TM52 methodology. As a result, an overheating assessment has not been conducted for this area.

A dynamic thermal modelling method has been used to assess overheating risk for a sample of rooms. The modelling has been conducted using the dynamic simulation modelling software IES Virtual Environment (VE). The assessment has been performed for the current (2020s) climate scenario. In accordance with TM59 methodology, CIBSE Design Summer Year (DSY) weather data was used to represent a year with a hot summer in each scenario. The weather files used were the closest ones available to the project location, this is the Gatwick CIBSE DSY1 **2020** High 50 weather file. In accordance with TM59 methodology, a sample of units within the development has been selected for the overheating assessment.

Full details of the model methodology, including occupancy and internal heat gain profiles, can be found in the Overheating Risk assessment Appendix to the Energy statement.

The results of the overheating modelling are shown in Table 7, Table 8, and Table 9.

Table 7 Overheating risk assessment results for 39A Fitzjohn's Avenue – New Build Rooms

39a FJA – New Build Rooms (Required to meet Part O Requirements)		
Natural Ventilation		
Room Type	**Rooms Passing Criterion A**	**Rooms Passing Criterion B**
Living Rooms	1/1	N/A
Bedrooms	3/3	3/3
Mechanical Ventilation		
Rooms	8/8	

Table 8 Overheating risk assessment results for 39A Fitzjohn's Avenue – Rooms with Retained Facades

39a FJA – Rooms with Retained Facades - (Not required to meet Part O Requirements)		
Room type	**Rooms Passing Criterion A**	**Rooms Passing Criterion B**
Living Rooms	1/1	N/A
Bedrooms	2/2	0/1

Table 9 Overheating risk assessment results for LaMG

Land Adjacent to Maresfield Gardens		
Room type	**Rooms Passing Criterion A**	**Rooms Passing Criterion B**
Living Rooms	5/5	N/A
Bedrooms	10/10	10/10

The acoustic constraints at 39A Fitzjohn's Avenue have meant that an enhanced ventilation solution has been required to meet Part O requirements. One bedroom fails to meet criterion B for a naturally ventilated space, though this space falls outside of the scope for Part O compliance due to its retained façade.

The overheating risk assessment demonstrates that, under current climate conditions as represented by the Gatwick CIBSE DSY1 **2020** High 50 weather data, there is a low risk of overheating in all occupied spaces in the sample dwellings, as defined in TM59. The proposed building design allows internal temperatures in all occupied spaces to be maintained in line with the TM59/Part O recommended levels.

4 Conclusion

Taking into consideration all the previous sections, it is recommended that the project meets the planning policy requirements set for sustainability, including:

- Achieving Sustainable Development
- Air quality
- Access for All
- Amenity
- Biodiversity
- Climate Change, Flooding & Coastal Change
- Conserving & Enhancing the Natural Environment
- Design
- Energy Efficiency and Adaptation
- Promoting Healthy & Safe Communities
- Promoting Sustainable Transport
- Protecting Green Belt Land
- Planning for Health and wellbeing
- Sustainable Infrastructure
- Transport
- Trees
- Water & Flooding

Appendix A Planning Policy Summary

The Proposed Development is submitted within the context of national, regional and local planning policies that seek to address the challenges of climate change and sustainable development. The policies outline how the Government, the Mayor of London and the London Borough of Camden are embedding sustainability principles into the built environment.

A.1 Policy Summary

- **Climate Change Act (2008)**: 80% reduction in greenhouse gas (GHG) emissions compared to 1990 levels by 2050.
- **Current 2021 Part L of the Building Regulations for England & Wales:** Sets out maximum levels of CO_2 emissions by comparing the actual buildings to a notional building.
- **Consideration of High-efficiency Alternative Systems**: Building Standards requires the technical, environmental and economic feasibility of high-efficiency alternative systems such as renewables, cogeneration, district heating and heat pumps to be considered and taken into account.
- **National Planning Policy Framework (2023)**: Development to encourage sustainable modes of transport and use of technology; support transition to low carbon future, mitigating and adapt to climate change, including taking account of flood risk, water supply and biodiversity.
- **The London Plan (March 2021)**: Came into force in 2021. The new energy hierarchy to be followed: be lean, be clean, be green and be seen, all developments to be zero carbon, offsetting can still be used, CHP strongly discouraged due to air quality and grid decarbonisation.
    - Sustainability Design and Construction SPG
    - Housing SPG
    - + Guidance on WLC and CE
- **Camden Local Plan** 2017 – supported by Camden's supplementary Planning Guidance documents (CPGs)

A.2 The Climate Change Act (2008)

The Climate Change Act (2008) commits the UK to a reduction of greenhouse gas emissions (GHGs) by at least 80% by 2050 from 1990. The Act also requires annual emissions reduction targets are set. They restrict the amount of greenhouse gas the UK can legally emit in a five-year period. The UK is currently in the third carbon budget period (2018 to 2022). The 3rd Carbon budget (2018-22) is targeting a reduction of 37% by 2020 from the base year. UK emissions were 41% below 1990 levels in 2016. The first carbon budget (2008 to 2012) was met, and the UK is currently on track to outperform on the second (2013 to 2017) and third (2018 to 2022). However, it is not on track to meet the fourth (2023 to 2027).

To meet future carbon budgets and the 80% target for 2050, the UK Government will need to apply more challenging measures. The construction and operation of UK buildings account for approximately 60% of national carbon dioxide emissions. Therefore, planning legislation seeks to mitigate the impact (in particular) of new construction in order to minimise these emissions and to meet the national targets.

A.3 Net Zero Emissions Law

In June 2019 the UK passed a Net Zero Emissions law requiring the UK to bring all greenhouse gas emissions to net zero by 2050. This supersedes the target set by the Climate change Act in 2008.

A.4 National Planning Policy Framework (2023)

The National Planning Policy Framework (NPPF) sets out the Government's planning policies on the delivery of sustainable development through the planning system and how these are expected to be applied.

It provides a framework within which local people and their councils can produce their own local and neighbourhood plans, which reflect the needs and priorities of their communities.

9. Promoting Sustainable Transport: Developments to consider the environmental implications of traffic and mitigate the impacts. Air quality and public health can be improved through encouraging sustainable modes of transport and offering genuine choices.

14. Meeting the challenge of climate change, flooding and coastal change: Planning system should support the transition to low carbon future in a changing climate, taking full account of long term implications for flood risk, coastal change, water supply, biodiversity and landscapes, and risk of overheating from rising temperatures.

15. Conserving and enhancing the natural environment: Policies and decisions should contribute to enhance the natural and local environment.

A.5 The London Plan (March 2021)

The London Plan forms the statutory development plan for Greater London. In it, the Mayor of London lays out the London-wide policy context within which London Boroughs should set their local planning policies.

The foreword and high-level policies of the plan establish that London has set a target to become a zero-carbon city by 2050. All policies within the plan promote sustainable development, including mitigating and adapting to the impacts of climate change, as well as promoting health and equality within London.

The plan sets out an integrated approach to address the challenges of climate change and deliver sustainable growth for London. The Proposed Development will align with the framework, particularly in the below key areas:

A.5.1 Policy GG6 'Increasing Efficiency and Resilience'

Help London become a more efficient and resilient city:

- Improve energy efficiency and support move toward a low carbon circular economy, contributing towards London becoming a zero-carbon city by 2050.
- Building and infrastructure are designed to adapt to a changing climate, making efficient use of water, reducing impacts from natural hazards like flooding and heatwaves, and avoiding contributing to the heat Island effect.

A.5.2 Policy S4 'Play and Informal Recreation

Development proposals are required to increase opportunities for play and information recreation and enable children and young people to be independently mobile.

For residential schemes at least 6.5m^2 of play space is required per child, as long as 9m^2 of open space / resident is provided, that:

- Provides a stimulating environment.
- Can be accessed safely from the street by children and young people independently.
- Forms an integral part of the surrounding neighborhood.
- Incorporates trees and/or other forms of greenery.
- Is overlooked to enable passive surveillance; and
- Is not segregated by tenure.

Accessible routes to existing play provision, should and youth centres within the local area should also be incorporated where relevant.

A.5.3 Policy G1 ‘Green Infrastructure’

Development proposals should incorporate appropriate elements of green infrastructure that are integrated into London’s wider green infrastructure network.

A.5.4 Policy G4 ‘Open Space’

Development proposals should not result in a loss of protected open space.

Where possible, proposals should also create areas of publicly accessible open space, particularly in areas of deficiency.

A.5.5 Policy G5 ‘Urban Greening’

Major development proposals should contribute to the greening of London by including urban greening as a fundamental element of site and building design, and by incorporating measures such as high-quality landscaping (including trees), green roofs, green walls and nature-based sustainable drainage.

Boroughs should develop an Urban Greening Factor (UGF) to identify the appropriate amount of urban greening required in new developments. the Mayor recommends a target score of 0.4 for developments that are predominately residential, and a target score of 0.3 for predominately commercial development (excluding B2 and B8 uses).

A.5.6 Policy G6 ‘Biodiversity and Access to Nature’

Development proposals should manage impacts on biodiversity and aim to secure net biodiversity gain. This should be informed by the best available ecological information and addressed from the start of the development process.

A.5.7 Policy SI1 ‘Improving Air Quality’

- All major developments need to demonstrate that they will be at least air quality neutral.
- All energy proposals should have emissions lower than those generated by ultra-low NOx emission gas boilers.
- Developments in Air Quality Focus Areas (AQFA) will be under particular scrutiny.
- For major developments preliminary Air Quality Assessments (AQAs) should be carried out before designing the development to inform the design process.

A.5.8 Policy SI2 ‘Minimising Greenhouse Gas Emissions’

The existing requirements have been strengthened, and some aspirations of the previous plan have been clarified:

The New Energy Hierarchy:

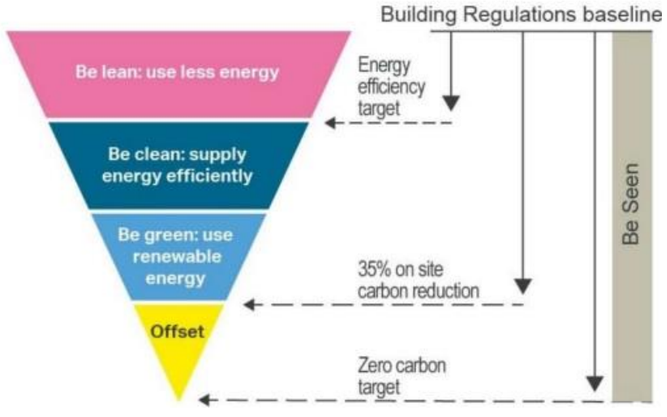

Figure 14: Energy Hierarchy

Be Lean: Use less energy and manage demand during operation

Be Clean: Exploit local energy resources (such as secondary heat) and supply energy efficiently and cleanly

Be Green: Maximise opportunities for renewable energy by producing, storing and using renewable energy onsite

Be Seen: Monitor, verify and report on energy performance

- Major developments to be net-zero carbon overall, although this can be achieved through off-site or offsetting payments.
- As with current London Plan at least a 35% reduction on building regulations must be achieved on site.
- For residential developments 10% of the reductions must be achieved through energy efficiency.
- For non-domestic 15% of reductions must be achieved through energy efficiency.
- Major development proposals should calculate and minimise carbon emissions of unregulated emissions.
- Development proposals referable to the Mayor should calculate whole lifecycle carbon emissions through a nationally recognised Whole Life-Cycle Carbon Assessment and demonstrate actions taken to reduce life-cycle carbon emissions.
- All developments to demonstrate how the development will achieve net-zero carbon on-site by 2050.
- All major developments to monitor and report on their energy use for 5 years after completion. It has been suggested that DECs might be used to do this (currently only required for public buildings).
- Gas-engine CHP will not be permissible in developments due to the new air quality standards and decarbonising electricity grid.
- The Mayor recognises that Building Regulations use outdated carbon emission factors and that this will continue to cause uncertainty until they are updated by Government. Further guidance on the use of appropriate emissions factors will be set out in the Mayor’s Energy Planning Guidance to help provide certainty to developers on how these policies are implemented.
- Demand-side response, specifically through installation of smart meters, minimising peak energy demand and promoting short-term energy storage, as well as consideration of smart grids and local micro grids where feasible, required.

A.5.9 Policy SI3 ‘Energy Infrastructure’

Major development proposals within Heat Network Priority Areas should have a communal **low-temperature** heating system.

Requirement for an energy masterplan for large-scale developments (town centres and areas of multiple developments) which should consider:

- major heat loads (including anchor heat loads, with particular reference to sites such as universities, hospitals and social housing)
- heat loads from existing buildings that can be connected to future phases of a heat network
- major heat supply plant including possible opportunities to utilise heat from energy from waste plants
- secondary heat sources
- opportunities for low temperature heat networks
- possible land for energy centers and/or energy storage
- possible heating and cooling network routes
- opportunities for futureproofing utility infrastructure networks to minimise the impact from road works
- infrastructure and land requirements for electricity and gas supplies
- Implementation options for delivering projects, considering issues of procurement, funding and risk, and the role of the public sector.
- opportunities to maximise renewable electricity generation and incorporate demand-side response measures

The heat source for the communal heating system should be selected in accordance with the following **heating hierarchy**:

a) connect to local existing or planned heat networks

b) use available zero-emission or local secondary heat sources (in conjunction with heat pump, if required

c) Use low-emission combined heat and power (CHP) (only where there is a case for CHP to enable the delivery of an area-wide heat network).

d) Use ultra-low NOx gas boilers.

CHP and ultra-low NOx gas boiler communal or district heating systems to meet the requirements of policy SI1 (Air Quality).

A.5.10 Policy SI4 'Managing Heat Risk'

Show steps to minimise overheating and avoid active cooling:

1) minimise internal heat generation through energy efficient design

2) reduce the amount of heat entering a building through orientation, shading, albedo, fenestration, insulation and the provision of green roofs and walls

3) manage the heat within the building through exposed internal thermal mass and high ceilings

4) provide passive ventilation

5) provide mechanical ventilation

6) Provide active cooling systems.

A.5.11 Policy SI5 'Water Infrastructure'

A. In order to minimise the use of mains water, water supplies and resources should be protected and conserved in a sustainable manner.

B. Development Plans should promote improvements to water supply infrastructure to contribute to security of supply. This should be done in a timely, efficient, and sustainable manner taking energy consumption into account.

C. Development proposals should:

a. through the use of Planning Conditions minimise the use of mains water in line with the Optional Requirement of the Building Regulations (residential development), achieving mains water consumption of 105 litres or less per head per day (excluding allowance of up to five litres for external water consumption)

b. achieve at least the BREEAM excellent standard for the 'Wat 01' water category or equivalent (commercial development)

c. incorporate measures such as smart metering, water saving and recycling measures, including retrofitting, to help to achieve lower water consumption rates and to maximise future-proofing.

D. In terms of water quality, Development Plans should:

a. promote the protection and improvement of the water environment in line with the Thames River Basin Management Plan, and should take account of Catchment Plans

b. support wastewater treatment infrastructure investment to accommodate London's growth and climate change impacts. Such infrastructure should be constructed in a timely and sustainable manner taking account of new, smart technologies, intensification opportunities

c. on existing sites, and energy implications. Boroughs should work with Thames Water in relation to local wastewater infrastructure requirements.

E. Development proposals should:

a. seek to improve the water environment and ensure that adequate wastewater infrastructure capacity is provided

b. take action to minimise the potential for misconnections between foul and surface water networks.

F. Development Plans and proposals for strategically or locally defined growth locations with particular flood risk constraints or where there is insufficient water infrastructure capacity should be informed by Integrated Water Management Strategies at an early stage.

A.5.12 Policy SI7 'Reducing Waste and Supporting the Circular Economy'

Resource conservation, waste reduction, increases in material re-use and recycling, and reductions in waste going for disposal shall be achieved.

Referable applications should promote circular economy outcomes and aim to be net zero-waste. Some key overarching targets set out in this policy are as follows:

- Zero biodegradable or recyclable waste to landfill by 2026
- 65% of municipal waste recycled by 2030
- 95% of construction and demolition waste reused/recycled/recovered
- 95% of excavation waste put to beneficial use

GLA Supplementary Guidance: Circular Economy Statement Guidance & Primer

In support of Policy SI7 - Reducing Waste and Supporting the Circular Economy, projects shall demonstrate how their development, including any public realm and supporting infrastructure, will incorporate circular economy measures into all aspects of the design, construction and operation process.

Projects shall ensure that their designs:

- Consider strategies to facilitate the transition towards a circular built environment;
- Recognise opportunities to benefit from greater efficiencies that can help to save resources, materials and money;
- Report against targets that will facilitate monitoring of waste and recycling.

A.5.13 Policy SI8 'Waste Capacity and Net Waste Self-Sufficiency'

A. In order to manage London's waste sustainably:

a. the equivalent of 100 per cent of London's waste should be managed

b. within London (i.e. net self-sufficiency) by 2026

c. existing waste management sites should be safeguarded (see Policy SI 9 Safeguarded waste sites)

d. the waste management capacity of existing sites should be optimised

e. new waste management sites should be provided where required

f. environmental, social and economic benefits from waste and secondary materials management should be created.

B. Development Plans should:

a. plan for identified waste needs

b. identify how waste will be reduced, in line with the principles of the Circular Economy and how remaining quantums of waste will be managed

c. allocate sufficient sites, identify suitable areas, and identify waste management facilities to provide the capacity to manage the apportioned tonnages of waste, as set out in Table 9.2 – boroughs are encouraged to collaborate by pooling their apportionment requirements

d. identify the following as suitable locations to manage borough waste apportionments:

i. existing waste and secondary material sites/land, particularly waste

ii. transfer facilities, with a view to maximising their capacity

iii. Strategic Industrial Locations and Locally Significant Industrial Sites safeguarded wharves with an existing or future potential for waste and secondary material management.

C. Mayoral Development Corporations must cooperate with host boroughs to meet identified waste needs.

D. Development proposals for materials and waste management sites are encouraged where they:

a. deliver a range of complementary waste management and secondary material processing facilities on a single site

b. support prolonged product life and secondary repair, refurbishment and remanufacture of materials and assets

c. contribute towards renewable energy generation, especially renewable gas technologies from organic/biomass waste, and/or

d. are linked to low emission combined heat and power and/or combined cooling heat and power (CHP is only acceptable where it will enable the delivery or extension of an area-wide heat network consistent with Policy SI 3 Energy infrastructure Part D1c)

A.5.14 Policy SI12 'Flood Risk Management'

Development Plans should use the Mayor's Regional Flood Risk Appraisal and their Strategic Flood Risk Assessment as well as Local Flood Risk Management Strategies, where necessary, to identify areas where particular and cumulative flood risk issues exist and develop actions and policy approaches aimed at reducing these risks. Boroughs should cooperate and jointly address cross-boundary flood risk issues including with authorities outside London.

Development proposals should ensure that flood risk is minimised and mitigated, and that residual risk is addressed. This should include, where possible, making space for water and aiming for development to be set back from the banks of watercourses.

A.5.15 Policy SI13 'Sustainable Drainage'

Development proposals should aim to achieve greenfield run-off rates and ensure that surface water run-off is managed as close to its source as possible in line with the following drainage hierarchy:

1) Rainwater harvesting (including a combination of green and blue roofs).

2) Infiltration techniques and green roofs.

3) Rainwater attenuation in open water features for gradual release.

4) Rainwater discharge direct to a watercourse (unless not appropriate).

5) Rainwater attenuation above ground (including blue roofs).

6) Rainwater attenuation below ground.

7) Rainwater discharge to a surface water sewer or drain.

8) Rainwater discharge to a combined sewer.

Development proposals for impermeable paving should be refused where appropriate, including on small surfaces such as front gardens and driveways.

Drainage should be designed and implemented in ways that address issues of water use efficiency, river water quality, biodiversity, amenity and recreation.

A.5.16 Policy G1 'Green Infrastructure'

Development proposals should incorporate appropriate elements of green infrastructure that are integrated into London's wider green infrastructure network.

A.5.17 Policy G4 'Open Space'

Development Plans should:

- undertake a needs assessment of all open space to inform policy. Assessments should identify areas of public open space deficiency.
- include appropriate designations and policies for the protection of open space to meet needs and address deficiencies.
- promote the creation of new areas of publicly accessible open space particularly green space, ensuring that future open space needs are planned for, especially in areas with the potential for substantial change
- ensure that open space, particularly green space, included as part of development remains publicly accessible.

A.5.18 Policy G5 'Urban Greening'

Major development proposals should contribute to the greening of London by including urban greening as a fundamental element of site and building design, and by incorporating measures such as high-quality landscaping (including trees), green roofs, green walls and nature-based sustainable drainage.

The Mayor recommends a target score of 0.4 for developments that are predominately residential, and a target score of 0.3 for predominately commercial development (excluding B2 and B8 uses).

A.5.19 Policy G6 'Biodiversity and Access to Nature'

Development proposals should manage impacts on biodiversity and aim to secure net biodiversity gain. This should be informed by the best available ecological information and addressed from the start of the development process.

Proposals which reduce deficiencies in access to nature are considered positively.

A.5.20 Policy T2 'Healthy Streets'

Development proposals should deliver patterns of land use that facilitate residents making shorter, regular trips by walking or cycling.

In opportunity areas and other growth areas, new and improved walking, cycling and public transport networks should be planned at an early stage, with delivery phased appropriately to support mode shift towards active and public transport travel. Designs for new or enhanced streets must demonstrate how they deliver against the ten healthy streets indicators.

Development proposal should:

- Demonstrate how they will deliver improvements that support the ten healthy streets indicators in line with transport for London guidance.
- Reduce dominance of vehicles on London's streets whether stationary or moving.
- be permeable by foot and cycle and connect to local walking and cycling networks as well as public transport.

A.5.21 Policy T5 'Cycling'

Development proposals should help remove barriers to cycling and create a healthy environment in which people choose to cycle. This will be achieved through:

- Supporting the delivery of a London-wide network of cycle routes, with new routes and improved infrastructure.
- Securing the provision of appropriate levels of cycle parking which should be fit for purpose, secure and well-located. Developments should provide cycle parking in accordance with the minimum standards set out within the London Plan (see below) and should be designed and laid out in accordance with the guidance contained in the London Cycling design Standards.

Where it is not possible to provide suitable short stay cycle parking off the public highway, the borough should work with stakeholders to identify an appropriate on-street location for the require provision. This may mean the reallocation of space from other uses such as on-streetcar parking.

Where it is not possible to provide adequate cycle parking within residential developments, boroughs must work with developers to propose alternative solutions which met the objectives of the standard these may include options such as providing spaces in secure, conveniently located, on street parking facilities such as bicycle hangers.

Where flexible commercial uses are proposed and exact uses are not determined at the point of application, the highest potential applicable cycle parking standard should be applied.

A.5.22 Policy T6.1 'Residential Parking'

The London Plan sets limits on the maximum parking allowable for new residential development with at least 20% of the car parking provision provided with active charging facilities. The remaining provision should be provided with passive provision.

Minimum standards for disabled persons parking bays are also set:

- For 3% of dwellings, at least one designated disabled persons parking bay per dwelling available from the outset; and
- Demonstrate as part of the Parking Design and Management Plan, how an additional 7% of dwelling should be provided with one designated disabled persons parking space per dwelling in future upon request.

A.6 Sustainability Design and Construction SPG

The Sustainable Design and Construction SPG, adopted in April 2014, provides additional information and guidance to support the implementation of the Mayor's London Plan. The SPG does not set new policy but explains how policies in the London Plan should be carried through into action.

It is applicable to all major developments and building uses so it is not technically applicable to this development, however in line with the developer's intention to implement the requirements of the London Plan it has been used to guide the design. It covers the following areas:

- Resource Management
- Adapting to Climate Change and Greening the City
- Pollution Management

This SPG provides a basis for sustainable design in London. Where additional local policies are addressed by these areas this has also been indicated.

A.7 Camden Local Plan (2017)

Camden Local Plan 2017 is the key strategic document in Camden's development plan. It sets out the vision for shaping the future of the borough and contains policies for guiding planning decisions. The Local Plan includes policies on climate change mitigation and adaptation, health and wellbeing, open space, biodiversity, design, heritage, water and flooding, air quality and waste. The Local Plan requires developments to reduce on-site carbon dioxide emissions by at least 35% beyond Building Regulations (Part L 2013) and to make a financial contribution towards the Council's carbon offset fund for any remaining emissions. The Local Plan also encourages developments to achieve high standards of sustainability certification, such as BREEAM or Home Quality Mark.

A.7.1 Policy C1 Health and Wellbeing

- Requires development to positively contribute to creating high quality, active, safe and accessible places
- Requires major developments to include a Health Impact Assessment

A.7.2 Policy C6 Access for all

- expect all buildings and places to meet the highest practicable standards of accessible and inclusive design so they can be used safely, easily and with dignity by all.
- expect spaces, routes and facilities between buildings to be designed to be fully accessible.
- encourage accessible public transport; and
- secure car parking for disabled people.

A.7.3 Policy A2 Open Space

- ensure developments seek opportunities for providing private amenity space.
- apply a standard of 9 sqm per occupant for residential schemes.
- give priority to play facilities and the provision of amenity space which meet residents' needs where a development creates a need for different types of open space.
- seek opportunities to enhance links between open spaces recognising the multiple benefits this may bring.

A.7.4 Policy A3 Biodiversity

- designate and protect nature conservation sites and safeguard protected and priority habitats and species.
- seek the protection of other features with nature conservation value including gardens, wherever possible.
- assess developments against their ability to realise benefits for biodiversity through the layout, design and materials used in the built structure and landscaping elements of a proposed development, proportionate to the scale of development proposed.
- secure improvements to green corridors, particularly where a
- development scheme is adjacent to an existing corridor.
- seek to improve opportunities to experience nature, in particular where such opportunities are lacking.
- require the demolition and construction phase of development, including the movement of works vehicles, to be planned to avoid disturbance to habitats and species and ecologically sensitive areas, and the spread of invasive species.
- secure management plans, where appropriate, to ensure that nature conservation objectives are met.
- resist the loss of trees and vegetation of significant amenity, historic, cultural or ecological value including proposals which may threaten the continued wellbeing of such trees and vegetation.
- require trees and vegetation which are to be retained to be satisfactorily protected during the demolition and construction phase of development in line with BS5837:2012 'Trees in relation to Design, Demolition and Construction' and positively integrated as part of the site layout.
- expect replacement trees or vegetation to be provided where the loss of significant trees or vegetation or harm to the wellbeing of these trees and vegetation has been justified in the context of the proposed development.
- expect developments to incorporate additional trees and vegetation wherever possible.

A.7.5 Policy A4 Noise and Vibration

- Developments are to stay within Camden's noise and vibration thresholds.

A.7.6 Policy D1 Design

This policy notes that it will ensure that each development:

- is sustainable in design and construction, incorporating best practice in resource management and climate change mitigation and adaptation.
- is of sustainable and durable construction and adaptable to different activities and land uses.
- is inclusive and accessible for all.
- promotes health.
- is secure and designed to minimise crime and antisocial behavior.
- responds to natural features and preserves gardens and other open space.
- incorporates high quality landscape design (including public art, where appropriate) and maximises opportunities for greening for example through planting of trees and other soft landscaping.
- incorporates outdoor amenity space.

A.7.7 Policy CC1 Climate Change Mitigation

The policy will:

- promote zero carbon development and require all development to reduce carbon dioxide emissions through following the steps in the energy hierarchy.
- require all major development to demonstrate how London Plan targets for carbon dioxide emissions have been met.
- support and encourage sensitive energy efficiency improvements to existing buildings;.
- require all proposals that involve substantial demolition to demonstrate that it is not possible to retain and improve the existing building; and
- expect all developments to optimise resource efficiency.

To ensure that the Council can monitor the effectiveness of renewable and low carbon technologies, major developments will be required to install appropriate monitoring equipment.

A.7.8 Policy CC2 Adapting to Climate Change

All development should adopt appropriate climate change adaptation measures such as:

- the protection of existing green spaces and promoting new appropriate green infrastructure.
- not increasing, and wherever possible reducing, surface water run-off through increasing permeable surfaces and use of Sustainable Drainage Systems.
- incorporating bio-diverse roofs, combination green and blue roofs and green walls where appropriate; and
- measures to reduce the impact of urban and dwelling overheating, including application of the cooling hierarchy.

Any development involving 5 or more residential units or 500 sqm or more of any additional floorspace is required to demonstrate the above in a Sustainability Statement.

A.7.9 Policy CC3 Water & Flooding

The Council will seek to ensure that development does not increase flood risk and reduces the risk of flooding where possible. It will require development to:

- incorporate water efficiency measures.
- avoid harm to the water environment and improve water quality.
- consider the impact of development in areas at risk of flooding (including drainage).
- incorporate flood resilient measures in areas prone to flooding.
- utilise Sustainable Drainage Systems (SuDS) in line with the drainage hierarchy to achieve a greenfield run-off rate where feasible; and
- not locate vulnerable development in flood-prone areas.

Where an assessment of flood risk is required, developments should consider surface water flooding in detail and groundwater flooding where applicable.

A.7.10 Policy CC4 Air Quality

Air Quality Assessments (AQAs) are required where development is likely to expose residents to high levels of air pollution. Where the AQA shows that a development would cause harm to air quality, the Council will not grant planning permission unless measures are adopted to mitigate the impact. Similarly, developments that introduce sensitive receptors (i.e. housing, schools) in locations of poor air quality will not be acceptable unless designed to mitigate the impact.

Development that involves significant demolition, construction or earthworks will also be required to assess the risk of dust and emissions impacts in an AQA and include appropriate mitigation measures to be secured in a Construction Management Plan.

A.7.11 Policy CC5 Waste

- aim to reduce the amount of waste produced in the borough and increase recycling and the reuse of materials to meet the London Plan targets of 50% of household waste recycled/composted by 2020 and aspiring to achieve 60% by 2031.
- deal with North London's waste by working with our partner boroughs in North London to produce a Waste Plan, which will ensure that sufficient land is allocated to manage the amount of waste apportioned to the area in the London Plan.

- make sure that developments include facilities for the storage and collection of waste and recycling.

A.7.12 Policy T1 Prioritising Walking, Cycling and Public Transport

In order to promote walking in the borough and improve the pedestrian environment, this Policy seeks to ensure that developments:

- improve the pedestrian environment by supporting high quality public realm improvement works.
- make improvements to the pedestrian environment including the provision of high-quality safe road crossings where needed, seating, signage and landscaping.
- are easy and safe to walk through ('permeable').
- are adequately lit.
- provide high quality footpaths and pavements that are wide enough for the number of people expected to use them. Features should also be included to assist vulnerable road users where appropriate; and
- contribute towards bridges and water crossings where appropriate.

Cycling will be promoted by requiring that development:

- provides for and makes contributions towards connected, high quality, convenient and safe cycle routes, in line or exceeding London Cycle Design Standards, including the implementation of the Central London Grid, Quietways Network, Cycle Superhighways and
- provides for accessible, secure cycle parking facilities exceeding minimum standards outlined within the London Plan (Table 6.3) and design requirements outlined within our supplementary planning document Camden Planning Guidance on transport.

Development should contribute towards improvements to bus network infrastructure including access to bus stops, shelters, passenger seating, waiting areas, signage and timetable information.

A.7.13 Policy T2 Parking and car-free development

The Council will limit the availability of parking and require all new developments in the borough to be car-free.

On-site parking will be limited to:

- spaces designated for disabled people where necessary, and/or
- essential operational or servicing needs.

A.8 Camden Supplementary Planning Guidance

A.8.1 Energy Efficiency and Adaptation CPG

Energy Efficiency and Adaptation CPG: This guidance provides advice and information on how the Council will apply its planning policies on energy efficiency and adaptation. It covers topics such as embodied emissions, passive design, efficient supply and distribution, renewable microgeneration, operational monitoring, improvements to existing buildings and resource efficiency. The guidance also provides the following policy references and targets:

- Policy CC1: Reduce carbon dioxide emissions from new buildings by at least 35% beyond Building Regulations (Part L 2013) and make a financial contribution towards the Council's carbon offset fund for any remaining emissions.
- Policy CC2: Reduce carbon dioxide emissions from existing buildings by at least 20% when undertaking major refurbishment or extensions.
- Policy CC3: Incorporate renewable energy systems where feasible and viable, aiming for at least 20% of the development's energy demand to be met by on-site renewable energy generation.
- Policy CC4: Demonstrate how the development will minimise overheating and cooling demand and provide adequate ventilation and shading.
- Policy CC5: Submit a sustainability and energy proforma with planning applications, which should demonstrate how the development will meet the requirements of the London Plan and the Local Plan.

A.8.2 Air Quality CPG

This guidance provides advice and information on how the Council will apply its planning policies on air quality. It covers topics such as air quality assessments, mitigation measures, low emission strategies, construction impacts and monitoring. The guidance also provides the following policy references and targets:

- Policy A1: Minimise air pollution impacts from new developments and ensure that they are acceptable in terms of air quality for future occupants and users.
- Policy A2: Contribute to improving air quality in Camden by implementing measures to reduce emissions from transport, energy use and other sources.
- Policy A3: Submit an air quality assessment with planning applications for major developments or developments in Air Quality Focus Areas, which should demonstrate how the development will minimise air pollution impacts and contribute to improving air quality in Camden.
- Policy A4: Implement a low emission strategy for major developments or developments in Air Quality Focus Areas, which should include measures such as low emission boilers, electric vehicle charging points, car club provision, green travel plans and green procurement policies.

A.8.3 Access for All CPG

This guidance provides advice and information on how the Council will apply its planning policies on accessibility and inclusion. It covers topics such as inclusive design principles, access statements, accessible housing, wheelchair housing, accessible parking, accessible public realm and play spaces, and inclusive community facilities. The guidance also provides the following policy references and targets:

- Policy D2: Ensure that all new developments are designed to be accessible and inclusive for all users, regardless of age, disability or background.
- Policy H4: Provide at least 10% of new housing units as wheelchair accessible or easily adaptable for wheelchair users.
- Policy H5: Provide at least 90% of new housing units as meeting Building Regulations requirement M4(2) 'accessible and adaptable dwellings.
- Policy T2: Provide accessible parking spaces for blue badge holders in accordance with the London Plan standards.
- Policy C3: Ensure that new or improved community facilities are accessible and inclusive for all users.

A.8.4 Biodiversity CPG

This guidance provides advice and information on how the Council will apply its planning policies on biodiversity. It covers topics such as protected species and habitats, ecological surveys and assessments, biodiversity enhancements, green roofs and walls, urban greening factor, biodiversity net gain, and biodiversity management plans. The guidance also provides the following policy references and targets:

- Policy A5: Protect and enhance Camden's biodiversity and geodiversity assets, including designated sites, priority habitats and species, and geological features.
- Policy A6: Require an ecological survey and assessment for developments that may affect biodiversity or geodiversity, and implement appropriate mitigation and compensation measures to avoid, minimise or offset any adverse impacts.

- Policy A7: Require developments to incorporate biodiversity enhancements where possible, such as native planting, bird and bat boxes, insect hotels, hedgehog highways, and green roofs and walls.
- Policy A8: Require developments to achieve an urban greening factor of at least 0.4 for major developments or 0.3 for minor developments, which measures the quantity and quality of green cover on a site.
- Policy A9: Require developments to demonstrate a net gain in biodiversity value, using a recognised metric such as the Defra Biodiversity Metric 3.0 or the London Environment Strategy Biodiversity Metric.
- Policy A10: Require developments to submit a biodiversity management plan with planning applications, which should detail how the biodiversity features will be maintained and monitored in the long term.

A.8.5 Design CPG

This guidance provides advice and information on how the Council will apply its planning policies on design. It covers topics such as design quality, character and context, heritage assets, tall buildings, basements, shopfronts, advertisements, public art, security and crime prevention. The guidance also provides the following policy references and targets:

- Policy D1: Ensure that all new developments are of high design quality and contribute positively to the character and appearance of the area.
- Policy D4: Assess proposals for tall buildings (over 30 metres) against rigorous criteria, such as strategic and local views, skyline impact, urban design, public realm, microclimate, amenity, sustainability and transport.
- Policy D5: Control the development of basements to ensure that they do not cause harm to the structural stability, appearance or amenity of the property or neighbouring properties, or to the natural environment or heritage assets.
- Policy D8: Design developments to reduce opportunities for crime and anti-social behavior, and to create safe and secure environments for people.

A.8.6 Amenity CPG

This CPG sets out a requirement for Major Developments to produce a Construction Management Plan (CMP) using Camden's template. CMPs must address transport/highways and environmental health impacts, as well as any cumulative construction impacts as a result of activity from multiple sites in close proximity to one another.

It requires applicants to consider the impact of development schemes on daylight and sunlight levels and where appropriate, carry out a daylight and sunlight assessment should submitted which should be follow the guidance in the BRE's Site layout planning for daylight and sunlight: A guide to good practice. The 45 degree and 25 degree tests cited in the BRE guidance should be used to assess ('screen') whether a sunlight and daylight report is required.

Levels of reported daylight and sunlight will be considered flexibly taking into account site-specific circumstances and context. The Council may seek independent verification of sunlight and daylight reports if necessary.

Artificial lighting should be considered at the design stage and not affect the amenity of neighbours or wildlife.

The Council will assess the impact of noise and vibration through the consideration of acoustic reports submitted by applicants. Noise mitigation (where appropriate) is expected to be incorporated into developments at the design stage. The Council will secure mitigation measures through planning condition or legal agreement where necessary.

A.8.7 Planning for Health and Wellbeing CPG

This guidance provides advice and information on how the Council will apply its planning policies on health and wellbeing. It covers topics such as health impact assessments, the impacts of certain town centre uses on health and wellbeing, and the enhancement of quality of life for population groups with greater health and wellbeing needs. The guidance also provides the following policy references and targets:

- Policy C1: Promote healthy and active lifestyles, social cohesion and mental wellbeing through the design and layout of developments, the provision of open space, sports, leisure and community facilities, and the protection of environmental quality.
- Policy C2: Require health impact assessments for major developments or developments likely to give rise to significant health impacts, which should identify the potential effects of the development on health and wellbeing and propose appropriate mitigation and enhancement measures.
- Policy C3: Manage the impacts of certain town center uses, such as hot food takeaways, betting shops, payday loan stores and pawnbrokers, on health and wellbeing, by applying locational and operational criteria, such as proximity to schools, cumulative impact and opening hours.
- Policy C4: Support the provision of health and social care facilities that meet the needs of Camden's population and resist the loss of existing facilities unless they are no longer required or suitable alternative provision is made.

A.8.8 Transport CPG

This guidance provides advice and information on how the Council will apply its planning policies on transport. It covers topics such as assessing transport impact, travel plans, delivery and servicing plans, parking and car-free development, car parking management and reduction, vehicular access and crossovers, cycling facilities and electric vehicle charging points. The guidance also provides the following policy references and targets:

- Policy T1: Prioritise walking, cycling and public transport over car use, and promote sustainable transport choices that reduce congestion, improve air quality and encourage healthy lifestyles.
- Policy T2: Require transport assessments for major developments or developments likely to have significant transport implications, which should demonstrate how the development will minimise transport impacts and maximise sustainable transport modes.
- Policy T3: Require travel plans for major developments or developments likely to have significant travel implications, which should include measures to reduce car use, increase sustainable transport modes, monitor travel patterns and review travel plan effectiveness.
- Policy T4: Require delivery and servicing plans for major developments or developments likely to have significant delivery and servicing implications, which should include measures to minimise delivery and servicing trips, reduce environmental impacts, avoid peak times and conflict with other road users, and use low emission vehicles.
- Policy T5: Require car-free development for all new developments in the borough, except for disabled parking provision.

A.8.9 Water and Flooding CPG

This guidance provides advice and information on how the Council will apply its planning policies on water efficiency and flooding. It covers topics such as water efficiency standards, grey water recycling, sustainable drainage systems (SuDS), flood risk assessments, flood resilience measures, and water infrastructure. The guidance also provides the following policy references and targets:

- Policy CC3: Ensure that all developments are designed to be water efficient and to minimise the need for further water infrastructure. The policy also protects the borough's existing water infrastructure to ensure an adequate water supply as well as adequate water storage and foul water capacity.

- Policy CC3a: Require residential developments to meet a water efficiency standard of 110 litres per person per day (including 5 litres for external water use).
- Policy CC3b: Encourage major developments and high or intense water use developments to include grey water recycling systems where feasible and viable.
- Policy CC3c: Require all developments to incorporate sustainable drainage systems (SuDS) where possible, aiming to achieve greenfield run-off rates and improve water quality.
- Policy CC3d: Require flood risk assessments for developments in areas at risk of flooding or that may increase flood risk elsewhere, which should demonstrate how the development will avoid or reduce flood risk and manage residual risk.
- Policy CC3e: Require developments in areas at risk of flooding to incorporate flood resilience measures, such as raised floor levels, flood barriers, waterproof materials and safe access and escape routes.

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