



HODKINSON



**Sustainability
Statement**

The Drapers' Almshouse Charity

**Edmansons
Close**

Final

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Our team of technical specialists offer advanced levels of expertise and experience to our clients. We have a wide experience of the construction and development industry and tailor teams to suit each individual project.

We are able to advise at all stages of projects from planning applications to handover.

Our emphasis is to provide innovative and cost-effective solutions that respond to increasing demands for quality and construction efficiency.

This report has been prepared by Hodkinson Consultancy using all reasonable skill, care and diligence and using evidence supplied by the design team, client and where relevant through desktop research.

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Executive Summary

The purpose of this Sustainability Statement is to demonstrate that the proposed development at Edmansons Close by The Drapers' Almshouse Charity in the London Borough of Haringey is considered sustainable, as measured against relevant local, regional and national planning policies.

The proposed development involves reworking the existing almshouses and gatehouse to create 27 houses. These are listed buildings and there are sensitive heritage conditions to consider. In addition, the development will include a new apartment building comprising of 16 flats, two corner pavilion buildings with an additional four apartments, and one new build house. In total, the new scheme provides 48 dwellings.

The sustainability-related aspects of the proposed development have been given equal consideration for both the refurbished and new dwellings, ensuring that upgrades to the former have been made where required. Through the incorporation of sustainable design and construction methods, energy and water saving measures, sustainable transport methods, waste reduction techniques and measures to enhance the ecological value of the site, a good quality and sustainable development is proposed.

The key sustainability features outlined in this Sustainability Statement are listed below:

- > **Energy strategy:** The development will target a 71% reduction in Regulated CO₂ emissions over Part L 2013 baseline for the new build development through energy efficiency measures, air source heat pumps, and PV panels. A 25.2% reduction is expected over the baseline for the refurbished development.
- > **Overheating:** The scheme has been designed to ensure overheating risk is reduced to acceptable levels in accordance with CIBSE TM59:2017 requirements based on tailored mitigation measures for the new and refurbished dwellings.
- > **Water efficiency:** Flow control devices and water efficient fixtures and fittings will be installed in all dwellings to target a maximum internal daily water consumption of 105 litres/person/day. Fittings within the refurbished dwellings will be upgraded to achieve this requirement. Rainwater butts will be installed for the houses to reduce the demand on potable water and promote effective use of water supplies.
- > **Waste and recycling:** Adequate facilities will be provided for domestic and construction related waste, including segregated bins for refuse and recycling.
- > **Circular Economy:** The principles of a circular economy shall be incorporated into the development, where possible.
- > **Materials:** Where practical, new building materials will be sourced locally to reduce transportation pollution and support the local economy. The proposed refurbishment of the dwellings significantly reduces material use. New materials will be selected based on their environmental impact and responsible suppliers will be used where possible.

- > **Flood Risk and SUDs:** The proposed development site lies in a low flood risk zone and will benefit from SUDs such as permeable paving, green roofs, detention basins and rainwater harvesting butts.
- > **Security:** The proposed development will be aiming to incorporate the principles of Secured by Design where appropriate to ensure the safety and security of its residents.
- > **Sound insulation:** The dwellings are to target an improvement on Building Regulations Part E through party walls and floors.
- > **Inclusive access:** 90% of the new dwellings will be designed to meet Building Regulations Approved Document M4(2) and 10% will meet Part M4(3).
- > **Sustainable transport:** The site will benefit from a good existing public transport network and sustainable modes will be encouraged through the provision of 83 cycle storage spaces and electric vehicle charging points in accordance with Building Regulations Part S.
- > **Biodiversity and ecology:** Enhancements will be implemented through the provision of landscaped areas, play space and additional planting across the site.
- > **Sustainable construction:** The site will aim to achieve a Very Good score with the Considerate Constructors Scheme and will closely monitor construction site impacts.

CONTENTS

Executive Summary	3
1. INTRODUCTION	6
2. DEVELOPMENT OVERVIEW	7
3. RELEVANT PLANNING POLICY	9
4. ENERGY AND CO₂ REDUCTION	16
5. WATER REDUCTION	18
6. WASTE MANAGEMENT	19
7. CIRCULAR ECONOMY	21
8. MATERIALS	22
9. POLLUTION	23
10. FLOOD RISK & SURFACE WATER RUN-OFF	25
11. BUILDING QUALITY	27
12. TRANSPORT AND LOCAL AMENITIES	29
13. BIODIVERSITY AND ECOLOGY	33
14. SUSTAINABLE CONSTRUCTION	36
15. CONCLUSION	38
16. REFERENCES	40
APPENDICES	41
Appendix A Water Efficiency Calculator	

1. INTRODUCTION

- 1.1** This Sustainability Statement has been prepared by Hodkinson Consultancy, a specialist energy and environmental consultancy for planning and development, appointed by The Drapers' Almshouse Charity (hereafter 'the Applicant').
- 1.2** This Statement sets out the sustainable design and construction measures included in the planning application for the proposed development at Edmansons Close in the London Borough of Haringey.

Sustainability Statement Structure and Methodology

- 1.3** The formulation of the Sustainability Strategy for the proposed development has taken into account several important objectives, including:
- > To address all national, regional and local planning policies and requirements;
 - > To achieve a viable reduction in CO₂ emissions with an affordable, deliverable and technically appropriate strategy;
 - > To provide a high-quality development that is adaptable to future changes in climate;
 - > To minimise the negative impact of the proposed development on both the local and wider climate and environment;
 - > To achieve the highest viable levels of sustainable design and construction;
 - > To minimise emissions of pollutants such as oxides of nitrogen and particulate matter; and
 - > To create a pleasant, safe and friendly working environment that will be flexible to its occupants' needs.
- 1.4** This Sustainability Statement does not duplicate the work of the technical reports prepared in support of the application, but presents the findings in the overall context of sustainability.
- 1.5** **Chapter 2** provides an introduction to the site and the proposed development. **Chapter 3** sets out the relevant national, regional and local policy documents which have been used to guide and inform the sustainability strategy for the proposed development. **Chapters 4 to 14** outline the sustainability strategy of the proposed development in relation to the policy documents listed in Chapter 3. **Chapter 15** provides a summary of the key sustainability features associated with the proposed development.

2. DEVELOPMENT OVERVIEW

Site Location

- 2.1 The proposed development site in the London Borough of Haringey is located at Edmansons Close, Bruce Grove, Tottenham, N17 6XD, as shown in Figure 1.

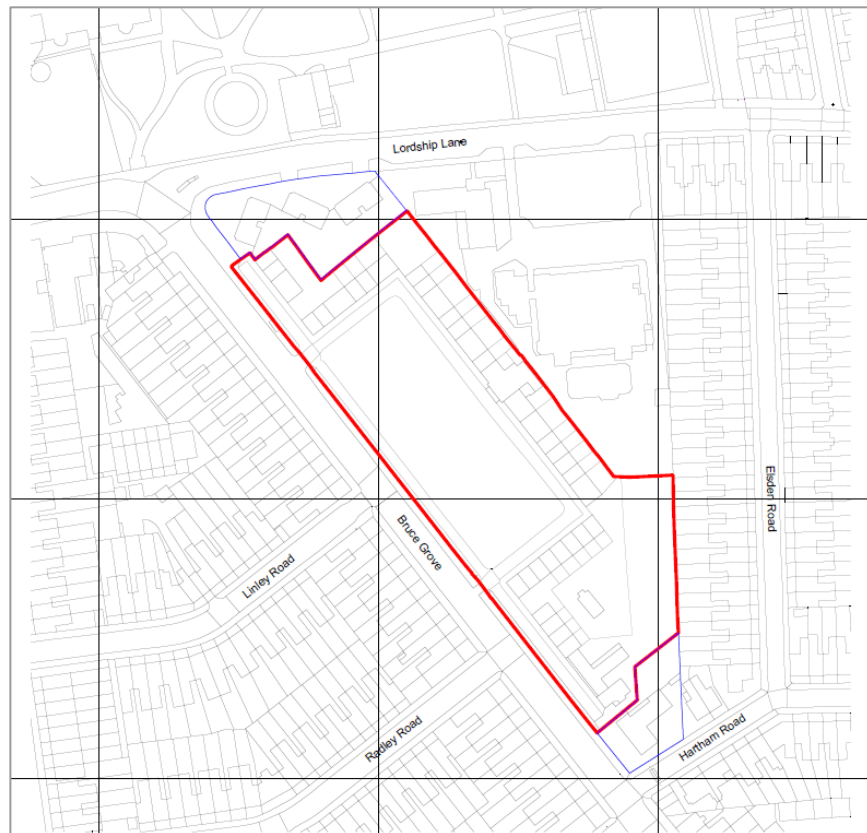


Figure 1: Site Location Plan (d+b Studios, 2022)

- 2.2 The Site occupies an area of circa 1ha and is located to the north of Tottenham. It consists of a series of terraced almshouses built around a central green.

Proposed Development

2.3 The proposed development is described as follows:

“Demolition of existing laundry building and 1970s infill building; alterations and extensions to 44 existing almshouses to create 8 x 1 bed, 12 x 2 bed and 6 x 3 bed units; alterations to existing Gatehouse to provide 1 x 2 bed unit; construction of 1 x new build 3 bed almshouse to replace 1970s infill building; construction of a new apartment building comprising 7 x studio units and 9 x 1 bed units; construction of 4 x new build 2 bed units within two new pavilions (2 units in each pavilion, 4 units in total); with landscaping; improvements to access; car parking; and ancillary development thereto.”

2.4 Figure 2 below illustrates the proposed site layout.

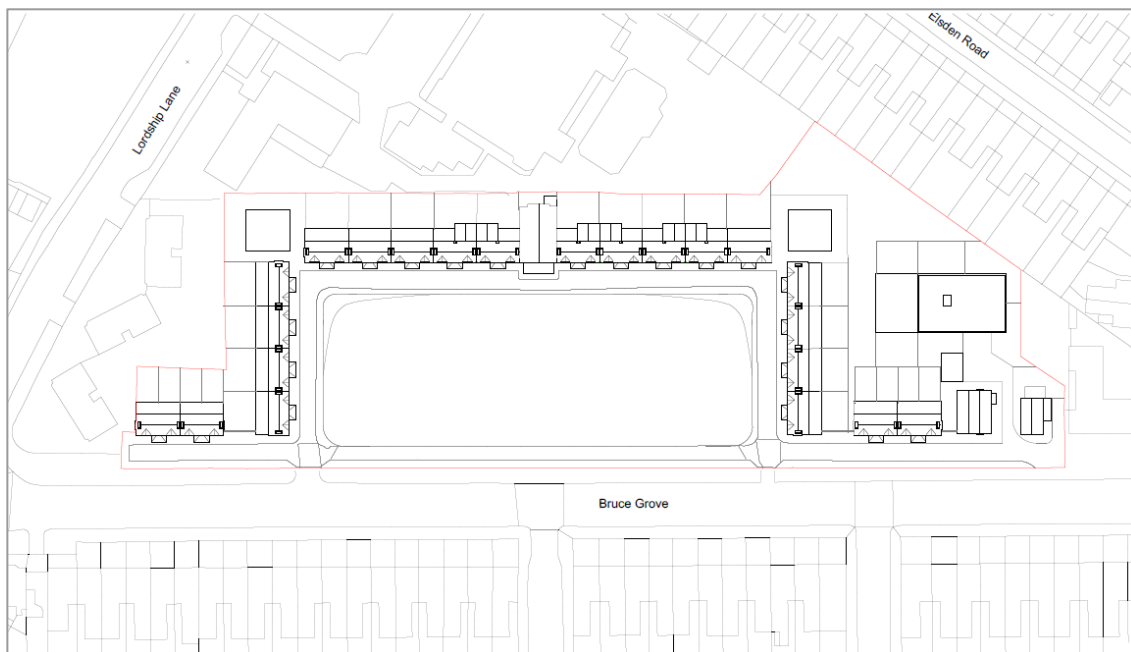


Figure 2: Proposed Block Plan (d+b studios, 2022)

3. RELEVANT PLANNING POLICY

- 3.1 The following planning policies and requirements have informed the sustainable design of the proposed development.

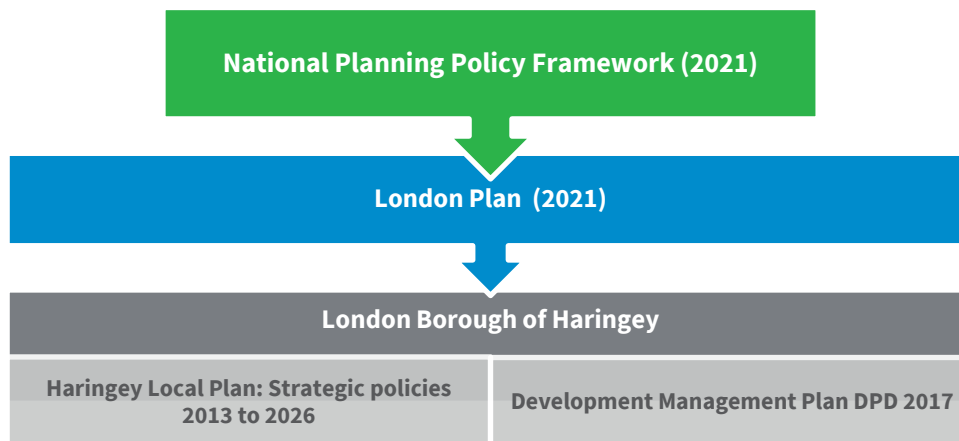


Figure 3: Relevant Planning Policy Documents

National Policy: NPPF

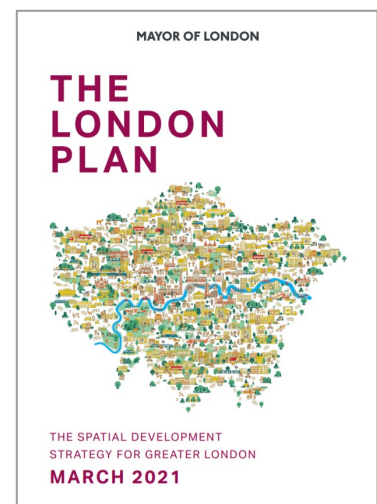
- 3.2 The revised National Planning Policy Framework (NPPF) was published on the 20th July 2021 and sets out the Government's planning policies for England.
- 3.3 The NPPF provides a framework for achieving sustainable development, which has been summarised as "*meeting the needs of the present without compromising the ability of future generations to meet their own needs*" (Resolution 42/187 of the United National General Assembly). At the heart of the framework is a **presumption in favour of sustainable development**.
- 3.4 The document states that the planning system has three overarching objectives which are interdependent and need to be pursued in mutually supportive ways:
- a) **An economic objective** – to help build a strong, responsive and competitive economy, by ensuring that sufficient land of the right types is available in the right places and at the right time to support growth, innovation and improved productivity; and by identifying and coordinating the provision of infrastructure;
 - b) **A social objective** – to support strong, vibrant and healthy communities, by ensuring that a sufficient number and range of homes can be provided to meet the needs of present and future generations; and by fostering a well-designed, beautiful and safe places, with accessible services and open spaces that reflect current and future needs and support communities' health, social and cultural well-being; and

- c) **An environmental objective** – to protect and enhance our natural, built and historic environment; including making effective use of land, improving biodiversity, using natural resources prudently, minimising waste and pollution, and mitigating and adapting to climate change, including moving to a low carbon economy.

Regional Policy: The London Plan

The London Plan (2021)

- 3.5** The London Plan sets out an integrated economic, environmental, transport and social framework for the development of London. The following policies are considered relevant to the proposed development and this Statement:
- 3.6** **Policy G5 Urban Greening** states that urban greening should be included as a fundamental element of site and building design by incorporating measures such as landscaping, green roofs, green walls and nature-based sustainable drainage. Boroughs should develop an Urban Greening Factor and in the interim, the Mayor recommends a target score of 0.4 for residential development.
- 3.7** **Policy SI1 Improving Air Quality** states that development should seek opportunities to identify and deliver further improvements to air quality. Where emissions need to be reduced to meet the requirements of Air Quality Neutral or to make the impact of development on local air quality acceptable, this is done on-site.
- 3.8** **Policy SI2 Minimising Greenhouse Gas Emissions** states that major development should be net zero-carbon. This means reducing greenhouse gas emissions in operation and minimising both annual and peak energy demand.
- 3.9** **Policy SI3 Energy Infrastructure** states that energy masterplans should be developed for large-scale development locations which establish the most effective energy supply options.
- 3.10** **Policy SI4 Managing Heat Risk** states that major development proposals should demonstrate through an energy strategy how they will reduce the potential for internal overheating and reliance on air conditioning systems in accordance with the cooling hierarchy.
- 3.11** **Policy SI5 Water Infrastructure** states that in order to minimise the use of mains water, water supplies and resources should be protected and conserved in a sustainable manner. Development proposals should 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). Commercial development should achieve at least the BREEAM excellent standard for the 'Wat 01' category.



- 3.12 Policy SI7 Reducing Waste and Supporting the Circular Economy** states that referable applications should promote circular economy outcomes and aim to be net zero-waste.
- 3.13 Policy T2 Healthy Streets** states that development should deliver patterns of land that facilitate residents making shorter, regular trips by walking or cycling. Development Plans should demonstrate the application of the Mayors Healthy Streets Approach.

Local Policy: London Borough of Haringey

- 3.14** The London Borough of Haringey's Local Plan was adopted in 2013. The following policies are considered relevant to this Statement:
- 3.15 Policy SP2- Housing** indicates that the Council aims to provide homes to meet housing needs and to make full use of Haringey's capacity for housing by maximising the supply of additional housing to meet and exceed the minimum target of 19,802 homes from 2011-2026 (820 units per annum from 2011-2014 and 1,502 units per annum).
- 3.16 Policy SP4- Working towards a low carbon Haringey** indicates that the following measures will be promoted to reduce carbon emissions from new and existing buildings.
- > All new residential development will achieve a minimum 25% reduction in total (regulated) CO₂ emissions in line with Code for Sustainable Homes Level 4 energy standards, and should aim to achieve Level 6. All new residential development shall be zero carbon from 2016 onwards;
 - > All developments should identify and implement, where viable, site-wide and area-wide decentralised energy facilities including the potential to link into a wider network;
 - > Establish local networks of decentralised heat and energy facilities by requiring developers to prioritise connection to existing or planned networks where feasible;
 - > Work with neighbouring boroughs and other partners to explore ways of implementing sub-regional decentralised energy networks;
 - > All new developments are required, where viable, to achieve a reduction in predicted carbon dioxide emissions of 20% from on-site renewable energy regeneration, which can include connections to local sources of decentralised renewable energy.
- 3.17 Policy SP5- Water management and flooding** states that all developments must be water-efficient during construction and operation and reduce all forms of flood risk. In particular developments should minimise water use and illustrate how development would contribute to general and flash flooding; account for flood risk vulnerability classification as set out in paragraph 100 of the NPPF and will apply the NPPF Sequential Test and Exception Test; prevent (or mitigate as last resort) local surface water and downstream flooding; and implement Sustainable Drainage Systems from strategic to individual site level to improve water attenuation, quality and amenity.

3.18 Policy SP6- Waste and recycling indicates that the council supports the objectives of sustainable waste management set out by the Government in PPS10 Planning for Sustainable Waste Management and the Mayor's London Plan. As a result, the following should be adhered to:

- > Site Waste Management Plans for all major applications must identify volume and types of demolition and construction waste and to demonstrate how waste will be minimised and managed during construction and occupation;
- > Development should include integrated, well-designed recycling facilities to be incorporated into all new developments;

3.19 Policy SP7- Transport states that the Council is working on promoting the travel demand management schemes to tackle climate change, improve local place shaping and public realm, and environmental and transport quality and safety. It encourages car-free housing wherever possible.

3.20 Policy SP11- Design requires all new development to enhance and enrich Haringey's built environment and create places and buildings that are high quality, attractive, sustainable, safe and easy to use. The development should:

- > Be of the highest standard of design that respects its local character and historic significance;
- > Ensure impacts on health, climate change, natural resources and biodiversity are minimised by adopting and improving sustainable design and construction techniques;
- > Incorporate solutions to reduce crime and the fear of crime and apply the principles set out in 'Secured by Design' and Safer Places;
- > Promote high quality landscaping on and off site, seek the highest standards of access in all buildings and places, and be designed to be adaptable;
- > Applications for tall buildings should include an assessment supporting tall buildings in a Characterisation Study; comply with the Development Management Policies criteria for Tall and Large Buildings siting and design; and comply with relevant recommendations as set out in CABE / English Heritage "Guidance on Tall Buildings", 2007.

3.21 Policy SP12- Conservation indicates that the historic significance of Haringey's assets, their setting, and the wider environment should be conserved. Where archaeological excavation is required, findings should be published, disseminated, and used as the basis for archaeological interpretation on site. Where possible, development should help increase accessibility to the historic environment.

3.22 Policy SP13- Open space and biodiversity states that new developments should protect and improve Haringey's parks and open spaces. In particular, developments should provide amenity space, manage the impact of the development in areas adjacent to designated open space, seek on-site or financial contributions towards open space from new developments as set out in the Open

Space and Recreational Standards SPD. New development should provide opportunities for children's play space either directly or indirectly.

- 3.23 Policy SP16- Community facilities** indicates that developments that increase the demand for community facilities and services will be expected to make appropriate contributions towards new facilities or improving existing ones.

Development Management DPD

- 3.24** This document gives effect to Haringey's spatial strategy and the key objectives of the Strategic Policies Local Plan by supporting proposals that contribute to the delivery of sustainable development in accordance with the strategy. The following are the relevant policies:
- 3.25 Policy DM1- Delivering high quality design** indicates that all new development and changes of use must achieve a high standard of design and contribute to the distinctive character and amenity of the local area. Development proposals should have regard to heights, form, and other building characteristics. Development proposals shall demonstrate how the landscaping and planting are integrated into the development as a whole. Development proposals must ensure a high standard of privacy and amenity for the development's users and neighbours. In particular, proposals should:
- > Provide appropriate sunlight, daylight and open aspects (including private amenity space where required) to all parts of the development and adjacent buildings and land;
 - > Provide an appropriate amount of privacy to their residents and neighbouring properties to avoid overlooking and loss of privacy;
 - > Address issues of vibration, noise, fumes, odour, light pollution and microclimatic conditions likely to arise from the use and activities of the development.
- 3.26 Policy DM2- Accessible and safe environments** indicates that new developments must be able to be used safely, easily and with dignity by all; protect, improve and create, where appropriate, safe and accessible pedestrian and cycling routes and should not impede pedestrian and cycling permeability; are designed so that the layout improves people's access to social and community infrastructure, including local shops and public transport; and have regard to the principles set out in 'Secured by Design'.
- 3.27 Policy DM4- Provision and design of waste management facilities** states that proposals should consider how to sustainably manage waste arising from the development during the design, construction and occupation phases of new developments; and make on-site provision for general waste, the separation of recyclable materials and organic material for composting. In addition, proposals for new multi-storey flatted residential development should provide adequate temporary storage space within each flat, allowing for separate storage of recyclable materials; adequate communal storage for waste; and storage and collection systems at each floor.

- 3.28 Policy DM6- Building Heights** states that building heights should be of an appropriate scale which respond positively to the site's surroundings, the local context, and the need to achieve a high standard of design in accordance with Policy DM1.
- 3.29 Policy DM7- Development on infill, backland and garden land sites** states that there will be a presumption against the loss of garden land unless it represents comprehensive redevelopment of a number of whole land plots. Development proposals for infill, backland and garden land should meet the requirements of Policies DM1 and DM2 in addition to other specific policies.
- 3.30 Policy DM9- Management of the Historic Environment** states that a development that conserves and enhances the significance of a heritage asset and its setting will be supported.
- 3.31 Policy DM10- Housing supply** states that the Council will support proposals for new housing on sites allocated for residential development, including mixed-use residential development, within the Site Allocations DPD and Area Action Plans.
- 3.32 Policy DM11- Housing mix** indicates that proposals for new residential development should provide a mix of housing with regard to target mix for affordable housing, in accordance with Policies SP2 and DM13, and the Council's Housing Strategy. The Council will not support proposals which result in an overconcentration of 1 or 2 bed units unless they are part of larger developments or located within neighbourhoods where such provision would deliver a better mix of unit sizes which include larger and family sized units.
- 3.33 Policy DM12- Housing Design and Quality** states that all new housing and residential extensions must meet or exceed the minimum internal and external space standards of the London Plan and the Mayor's Housing SPG. Extensions or alterations to residential buildings, including roof extensions will be required to be of a high, site specific, and sensitive design quality, and respect and/ or complement the architectural characteristics of the original buildings. New rooms created by an extension should comply with space and amenity requirements set out in the London Plan Mayor's Housing SPG. Proposals for residential extensions should have regard to the Council's relevant Supplementary Planning Documents.
- 3.34 Policy DM13- Affordable Housing** states that the Council will seek the maximum reasonable amount of affordable housing provision when negotiating on individual private residential and mixed-use schemes with site capacity to accommodate more than 10 dwellings.
- 3.35 Policy DM21- Sustainable Design, Layout and Construction** states that all new development will be expected to consider and implement sustainable design, layout and construction techniques. Proposal should apply the energy and cooling hierarchies to minimize energy use, maximise opportunities to enhance biodiversity on-site, use building materials with high environmental performance ratings; and seek opportunities for locally sourced labour. The Council will support appropriate measures to sustainably retrofit existing homes and non-residential buildings. Consideration will be given to the use of carbon offset payments.

3.36 Policy DM22- Decentralised Energy states that subject to other policy requirements, proposals that contribute to the provision and use of Decentralised Energy network infrastructure will be supported.

3.37 Policy DM23- Environmental Protection

- > Air quality: Development should consider air quality and be designed to improve or mitigate impact on air quality in the Borough and in the development. Air quality assessments will be needed for development proposals where appropriate and adequate mitigation must be provided.
- > Noise and vibration: Proposals for potentially noisy development must suitably demonstrate that measures will be implemented to mitigate its impact. A noise assessment will be required to be submitted if the proposed development is a noise-sensitive development.
- > Light pollution: Development proposals that include external lighting must mitigate potential adverse impacts from such lighting. They must be designed to minimise and provide protection from glare and light spillage and be energy efficient.
- > Contaminated land: Any risks associated with land contamination, including to human health and the environment, must be adequately addressed.

3.38 Policy DM24- Managing and reducing flood risk states that all proposals for new development should avoid and reduce the risk of flooding to future occupants and not increase the risk of flooding. All proposals for new development will be required to manage and reduce surface water run-off and manage water and waste water discharges.

3.39 Policy DM25- Sustainable Drainage System states that Sustainable Drainage Systems (SuDS) must be sensitively incorporated into new development by way of site layout and design. All minor development proposals should aim to achieve a greenfield run-off rate and, at a minimum, achieve a 50 per cent reduction on existing site run-off rates. Where this is not possible, justification must be provided.

3.40 Policy DM27- Protecting and Improving Groundwater Quality and Quantity indicates that new developments must identify existing and potential new sources of groundwater pollution and where appropriate, submit a relevant desktop study to demonstrate this has been fully considered.

3.41 Policy DM29- On-Site Management of Waste Water and Water Supply indicates that new developments will be required to demonstrate that the local public sewer network has adequate capacity to serve the existing and proposed development or provide suitable alternative arrangements where such capacity does not exist. They should also demonstrate that there is adequate water supply infrastructure capacity on and off site to serve the development without adversely affecting existing users; make provision for the installation and management of measures for the efficient use of mains water; and be designed to meet the London Plan target for mains water consumption.

- 3.42 Policy DM31- Sustainable Transport** states that a Travel Plan and a Transport Assessment/ Statement is required in support of development proposals in accordance with the Transport for London thresholds.
- 3.43 Policy DM32- Parking** indicates that the Council will strongly encourage contributions to car club schemes or the provision of car club bays as an alternative to on-site car parking.
- 3.44 Policy DM35- Cycle Storage in Front Gardens** states that a cycle storage on front gardens should be of high quality design, should not be visually intrusive and should not harm the amenity of surrounding properties.
- 3.45 Policy DM48- Use of Planning Obligations** states that planning obligations will be sought on a scheme-by-scheme basis having regard to the relevant policy requirements of the Local Plan, development specific impacts, appropriate mitigation, viability, and the statutory tests for the use of planning obligations.
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4. ENERGY AND CO₂ REDUCTION

Energy Strategy

- 4.1** An Energy Statement (August 2022) has been prepared by Hodkinson Consultancy and is submitted as part of this planning application. A summary of this statement has been outlined as follows however this document should be referred to for greater detail.
- 4.2** The energy strategy has been formulated following the London Plan energy hierarchy: **Be Lean, Be Clean** and **Be Green**. The overriding objective is the formulation of a strategy which effectively balances a number of key elements, including CO₂ emissions, affordability of heat, and the provision of high-quality buildings. These elements need to work with the regulatory and planning requirements for the development.
- 4.3** The proposed development will be built to the updated Part L 2021 Building Regulations. The new Part O of building regulations will also influence the energy strategy. Updated assessment software does not yet provide reliable results to assess new development against the updated requirements in Part L. Therefore, energy demand and CO₂ emissions have been estimated against the Part L 2013 baseline within this report. The calculations have been adjusted to use SAP 10.2 carbon emission factors to estimate CO₂ performance, which are more up to date than factors used in SAP 2012 methodology.
- 4.4** For the refurbished dwellings, there are limitations to the improvements that can be made due to the listed status of the buildings. A baseline assessment has been undertaken based on the expected construction of the existing building. Improvements are then proposed where possible to estimate the CO₂ reduction achieved over the existing building. The proposed improvements include draught

proofing, insulating the roof and upgrading the performance of the glazing, as well as installing new gas boilers to each dwelling. A 25.2% reduction in CO₂ emissions is estimated over the baseline.

- 4.5** For the new build development, a range of **Be Lean** energy efficiency measures are proposed. They allow the new build part of the development to achieve a **21%** reduction in site wide regulated CO₂ emissions, over a Part L 2013 baseline.
- 4.6** In line with the London Plan, the feasibility of decentralised energy production has been considered at the **Be Clean** stage. There are no existing heat networks in close proximity to the development. Due to the small scale of the development it is not proposed to install a site wide heat network as it would result in high running costs to the residents. An individual heating system for each dwelling is proposed.
- 4.7** A range of **Be Green** renewable energy technologies has been considered. It is proposed that the heating and hot water demand for the new build dwellings will be provided by individual air source heat pumps. The available roof space on the apartment building will also be used to provide 5 kWp of solar PV. This delivers a further CO₂ reduction of 50% for the new build dwellings.
- 4.8** The combination of the **Be Lean** and **Be Green** measures as outlined above result in an overall **71%** reduction over the Part L 2013 baseline for the new build development. A **25.2%** reduction is expected over the baseline for the refurbished development.
- 4.9** In line with the GLA guidance, the new build development will commit to offset the remaining CO₂ emissions through a payment to the London Borough of Haringey.

Lighting

- 4.10** All external lighting, and any security lighting, will be energy efficient and adequately controlled using PIR sensors, daylight cut-off sensors or time switches where possible. This will ensure the conservation of energy when the lighting is not in use.

Appliances

- 4.11** The EU Energy Labelling Scheme was updated in March 2021 and now uses A to G rankings only, instead of A+++ to D ratings as before. The new regulations incorporate updated standards with stricter performance requirements and calculations, making it easier to compare efficiency across products. As the energy classes are intended to be in place for at least 10 years, no products will fall into the category of Class A at the moment of instruction. It is also expected that energy classes will be significantly downgraded.

5. WATER REDUCTION

Internal Water Efficiency

- 5.1** Increased frequency of drought across Europe lines up with climate change projections and water companies in the UK capture much less rain for our use than people assume.
- 5.2** The Environment Agency updated their determination of areas of water stress in 2021¹. The water stress method takes a long-term view of the availability and the demand for public water supply, rather than a snapshot of shorter or peak periods. It accounts for future population growth, climate change, environmental needs and increased resilience. As of 2021, 15 out of the 23 water companies operating in areas of England were classified as being under 'serious' stress, including Thames Water where the site is located. This indicates the need to reduce internal water use where possible and specify water efficient fixtures and fittings in new development.
- 5.3** Reducing water consumption will not only help to preserve our water sources but will also save energy. Approximately 15% of a typical gas-heated household's heating bill is from heating water for showers, baths and taps and the energy used to heat water for devices and appliances emits an average of 875 kg of CO₂ per household per year (Energy Saving Trust, 2013). As such, internal water consumption will be significantly reduced through the use of practical and hygienic water saving measures.



Residential Water Use

- 5.4** All new dwellings will target a minimum internal water efficiency standard of **105 litres/person/day** in accordance with Policy SI5 and the optional tighter Building Regulations Approved Document G requirement (110 litres/person/day).
- 5.5** Further, the fittings in the refurbished dwellings will be upgraded to ensure these requirements are met, allowing potential for significant water savings to be made against the current consumption.

¹ <https://www.gov.uk/government/publications/water-stressed-areas-2021-classification>

- 5.6 An evaluation of the proposed fixtures and fittings will be undertaken during the detailed design however an illustrative strategy to achieve this water target is set out in the Water Efficiency Calculator in **Appendix A**.

External Water Efficiency

- 5.7 The houses will be provided with rainwater butts in the private back gardens to reduce the demand on potable water and promote effective use of our water supplies. These will be appropriately sized and capable of harvesting rainwater for external irrigation and car washing.

6. WASTE MANAGEMENT

- 6.1 Waste reduction and recycling is another key challenge of sustainable development and something which is strongly encouraged in the London Plan (Policy S17). The waste hierarchy, illustrated in Figure 4 below, prioritises those waste management options which are best for the environment. It places great importance on preventing waste in the first place. When waste is created it prioritises preparing it for re-use, then recycling, recovery and lastly disposal (e.g., landfill).

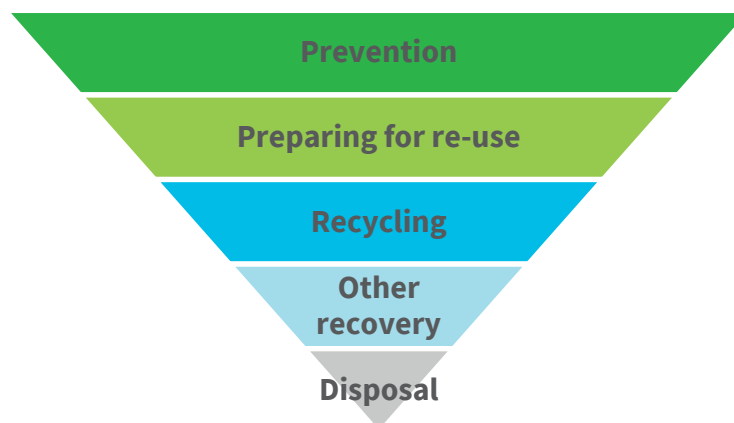


Figure 4: Waste Hierarchy

Construction Waste

- 6.2 The reduction of construction waste not only minimises environmental impacts through ensuring the responsible use of resources and waste disposal but can also significantly reduce construction costs for the developer.
- 6.3 Prior to construction, the Applicant will develop a Site Waste Management Plan which will establish ways of minimising waste at source, assess the use, reuse and recycling of materials on and off-site and prevent illegal waste activities. This plan will then be disseminated to all relevant personnel on and off-site.

- 6.4** It is noteworthy that the proposed refurbishment will generate significantly less construction waste than that which would have otherwise been generated for a new construction.
- 6.5** The following waste minimisation actions will be considered:
- > Consider opportunities for zero cut and fill to avoid waste from excavation or groundworks;
 - > Design for standardisation of components and the use of fewer materials;
 - > Return packaging for reuse;
 - > Consider community reuse of surplus materials or offcuts; and
 - > Engage with supply chains and include waste minimisation initiatives and targets in tenders and contracts.
- 6.6** As part of their commitment to divert construction waste from landfill, the Applicant will regularly monitor and record the site's waste reduction performance. This will be compared against a target benchmark where at least 85% (by volume) of non-hazardous waste is to be diverted from landfill.

Household Waste

- 6.7** The Applicant is committed to following the above waste hierarchy and reducing waste sent to landfill.
- 6.8** As such, sufficient storage is to be provided in communal stores for the apartments. For the refurbished houses, dedicated stores will be provided for each house, where both recyclable and non-recyclable waste can be stored in accordance with Haringey Council's waste collection service.
- 6.9** In addition, space will be provided for segregated recycling waste bins within the kitchen areas. This will involve the installation of recycling bins, where waste can be segregated into paper, glass, cans, plastic and cardboard, if necessary.
- 6.10** Adequate internal and external food and garden waste storage will be provided in accordance with the London Borough of Haringey's collection service.



7. CIRCULAR ECONOMY

- 7.1** Current and future trends point toward the need for a fundamental shift in the way resources are consumed. A shift to a circular economy will provide considerable economic opportunities as a result.
- 7.2** In contrast to a linear economy (take, make, dispose), a circular economy keeps products and materials circulating through the system at their highest value for as long as possible, through re-use, recycling, refurbishment and remanufacturing. As 60% of total UK waste is generated from construction, demolition and excavation (Defra and Government Statistical Service, 2019) this transition from linear to circular is essential.

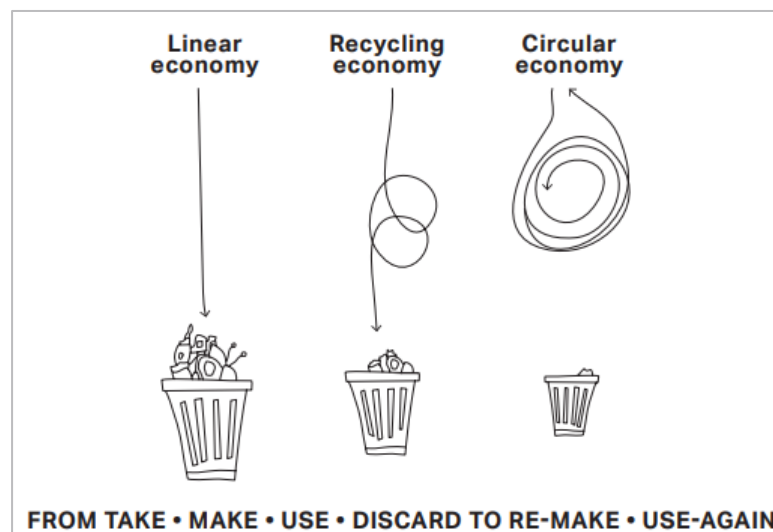


Figure 5: Linear, Recycling and Circular Economies (GLA, 2019)

- 7.3** The circular economy refers to a state whereby resources are kept in a continuous cycle of use so that:
- > Virgin resources are no longer extracted;
 - > Existing products, once used, are reused or recycled to make new products without loss of value; and
 - > No resources are disposed of and no value is lost.
- 7.4** The end goal is to retain the value of materials and resources indefinitely, with no residual waste at all. This is possible but will require a fundamental change in the way that buildings are designed, built, operated, and deconstructed.

- 7.5** Applying circular economy thinking to the built environment is complex, with many overlapping issues and trade-offs to consider. However, there are some core guiding principles that promote a regenerative and restorative whole system approach that should be applied on every project. These are as follows:
- > Conserve resources and source ethically;
 - > Design to eliminate waste (and for ease of maintenance); and
 - > Manage waste sustainably and at the highest value.
- 7.6** The proposed refurbishment of the existing dwellings already provides several opportunities to demonstrate circular economy thinking. Further, the Applicant will adopt the above-mentioned three core principles in order to significantly reduce the amount of raw and new materials required for the development. Alongside this, a reduction in vehicle movements, air pollution, noise and greenhouse gas emissions will also be beneficial.
-

8. MATERIALS

Environmental Impact

- 8.1** The proposed refurbishment of existing dwellings on-site contributes to a significantly lower environmental impact in terms of materials used, given that most of the existing structures and fabric will be retained.
- 8.2** New building materials for both the refurbishment and new dwellings will be selected, where possible, to ensure that they minimise environmental impact and have low embodied energy – from manufacture, transportation and operational stages, through to eventual demolition and disposal.
- 8.3** All insulation materials will have an Ozone Depleting Potential (ODP) of zero and a Global Warming Potential (GWP) of less than 5. In addition, all decorative paints and varnishes will meet the relevant standards in order to reduce the emission levels of volatile organic compounds (VOCs).

Local and Responsible Sourcing

- 8.4** Preference will be given to the use of locally sourced materials and local suppliers, where viable. This will benefit the local economy as well as having environmental benefits through reduced transportation.

- 8.5** The main building materials will be responsibly and legally sourced from manufacturers with environmental management systems and/or responsible sourcing credentials, such as BES 6001.
- 8.6** Timber used on site, including timber used in the construction phase, such as hoarding, fencing and scaffolding, will be sourced from sustainable forestry sources (e.g., PEFC and FSC) where possible.



Recycled Materials

- 8.7** Where feasible, the Applicant will commit to using materials that have been recycled. The use of recycled materials (e.g., crushed concrete from waste, used for hard-standing) has less embodied energy impact, other than that expended in their processing or transport.

9. POLLUTION

Noise Pollution

- 9.1** The Applicant is committed to reducing noise disturbance to internal and external areas of dwellings to improve the health and wellbeing of the occupants and to help protect community cohesion.
- 9.2** An Acoustic Design Statement has been produced by Hodkinson Consultancy (August 2022), which details the findings of an assessment of the noise impact on the proposed development. A summary is provided below, but please refer to the full report for further detail.
- 9.3** Based on the Professional Practice Guidance on Planning and Noise (ProPG) method of assessment, the results indicate that for the selected building elements of the scheme, the internal noise levels are predicted to achieve the daytime and night time criteria of 35 and 30 dB $L_{Aeq,T}$, respectively.
- 9.4** The proposed scheme will incorporate the following to ensure adequate background ventilation and allow windows to be kept closed to achieve desirable internal noise levels:
- > Standard (6mm/6mm/10mm) double glazing for habitable rooms and trickle ventilation to facades facing Bruce Grove.
 - > Standard (4mm/6mm/4mm) double glazing for habitable rooms and trickle ventilation to all other facades.
- 9.5** Overall, it is expected that no significant effects will be observed, provided the recommendations in the acoustic design statement are implemented. Therefore, the development deemed is suitable for residential purposes.

Air Quality

- 9.6** Poor air quality is the greatest environmental risk to public health in the UK and is known to exacerbate the impact of pre-existing health conditions. It is not only a major risk to human health, but it also has significant damaging impacts on both plants and animals.
- 9.7** Between 1990 and 2017, the UK's estimated emissions of nitrogen oxides reduced by 70%, and the estimated emissions of PM₁₀ particulate matter reduced by 55% (DEFRA, 2018). This must continue to fall in future years. The Applicant is committed to reducing the proposed development's negative impact on air quality during construction and operation.
- 9.8** An Air Quality Assessment has been undertaken by Air Quality Consultants Ltd. The findings indicate that the construction works have the potential to create dust. Therefore, mitigation measures will be required during construction to minimise dust emissions. Appropriate measures have been recommended and, with these measures in place, it is expected that any residual effects will be 'not significant'.
- 9.9** Air quality conditions for future residents of the proposed development have been shown to be acceptable, with concentrations below the statutory air quality objectives throughout the site. Further, emissions associated with additional traffic and energy plant emissions will have no significant effect on local air quality conditions. The overall operational air quality effects of the proposed development are judged to be 'not significant'.
- 9.10** The building and transport-related emissions associated with the proposed development are both below the relevant benchmarks. Therefore, the proposed development meets the London Plan requirement that new developments should be at least air quality neutral.
- 9.11** Please refer to the full report for further detail.

Air Tightness and Ventilation

- 9.12** Air tightness standards will conform to and exceed, Approved Document Part L requirements. By reducing air leakage loss and convective bypass of insulation, an improvement of design air permeability rate from 10m³/h.m² to 3m³/h.m² or less will further reduce space heating requirements.
- 9.13** A mechanical ventilation system with heat recovery (MVHR) system is proposed for all new-build dwellings. These systems will remove stale air and odours from kitchens and wet rooms, whilst retaining the heat within the home, allowing substantial energy savings to be made.
- 9.14** Additionally, all homes will have openable windows and therefore the ability to naturally ventilate should the occupant desire. Convective ventilation and night purging of heat will therefore be facilitated.

10. FLOOD RISK & SURFACE WATER RUN-OFF

Flood Risk

- 10.1** Developments in low flood risk areas are promoted to, not only protect homes and local communities and reduce the cost implications if flooding occurs, but to protect the environment from the transfer of pollutants during flooding events.
- 10.2** According to the Environment Agency's Flood Map shown in Figure 6 below, the proposed development lies in a low risk flood zone (Flood Zone 1).

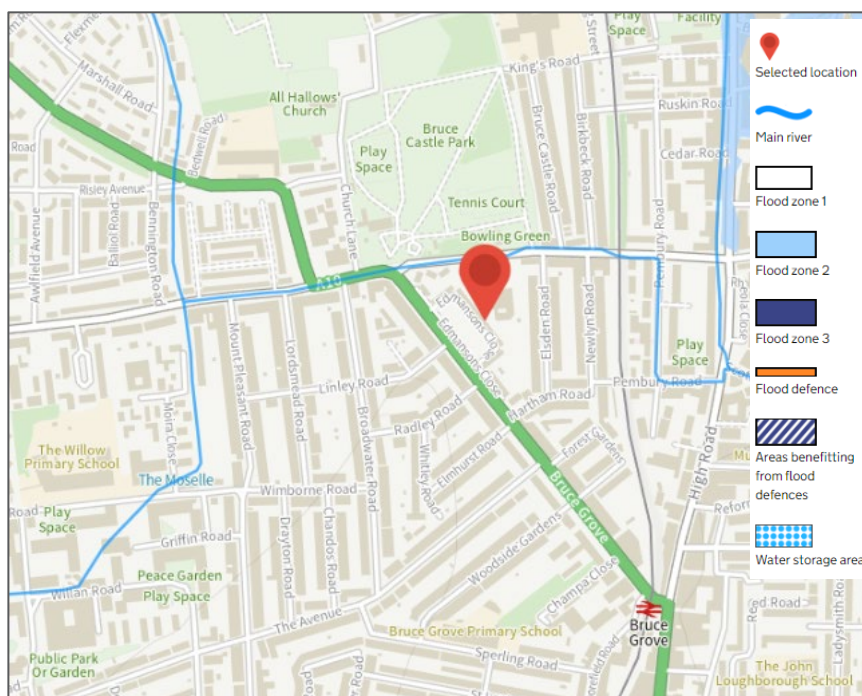


Figure 6: Environment Agency Flood Map – <https://flood-map-for-planning.service.gov.uk>

Sustainable Drainage Systems

- 10.3** Sustainable drainage systems (SuDS) can deliver multiple benefits which broadly fit into four categories: water quantity, water quality, amenity and biodiversity, shown in Figure 7 below. The overarching principle of SuDS design is that surface water runoff should be managed for maximum benefit.
- 10.4** Long term environmental and social factors must be included in decisions regarding sustainable drainage. Sustainable drainage takes account of the quantity and quality of runoff, and the amenity and aesthetic value of surface water in the urban environment.

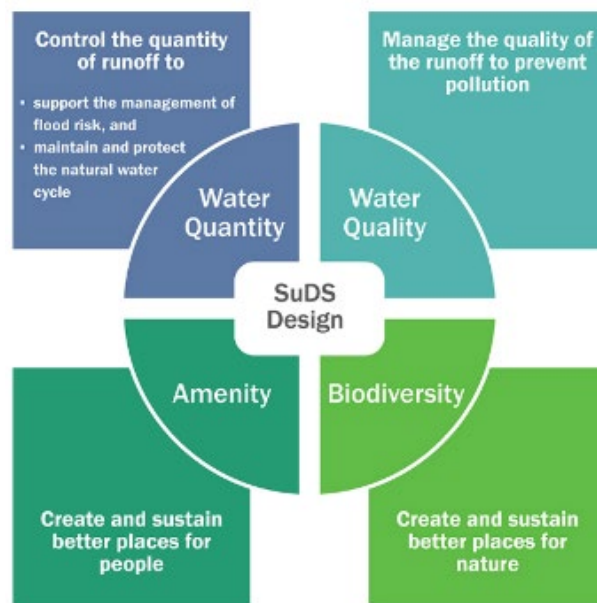


Figure 7: The four 'pillars' of SuDS – CIRIA SuDS Manual (2015)

10.5 A Drainage Strategy has been designed by GeoSmart Information Ltd (February, 2022). The following listed SuDS are proposed as part of this strategy. These will not only help to attenuate surface water but will provide the necessary water treatment.

- > **Green roofs** will help to intercept and retain precipitation, reducing the volume of runoff and attenuating peak flows.
- > **Detention basins** will treat the water by trapping the silt, which contain a high proportion of the pollutants.
- > **Permeable paving** will allow rainwater to infiltrate downwards and be temporarily stored before infiltration to the ground, reused or directed towards the cellular attenuation tanks.
- > **Rainwater harvesting butts** will store runoff from roofs in a holding tank which can then be used for external irrigation and car washing.

10.6 Surface water will be discharged to the public surface water sewer at a restricted rate of 2.0 l/s.

10.7 This would ensure surface water runoff is managed according to national and local policy in all events up to and including the 1% AEP event plus a 40% allowance for climate change. Please refer to the full report for further detail.

11. BUILDING QUALITY

Security

11.1 The Applicant is committed to ensuring the development is safe and secure for the occupants; reduce the risks and costs associated with crime; and improve occupiers' quality of life by reducing the fear of crime.

11.2 As such, the proposed development will be aiming to incorporate the principles of Secured by Design where appropriate. For example, passive surveillance measures have been considered, the private gardens to the houses extend to the site boundary to avoid hidden passages at the rear, etc.



Sound Insulation

11.3 In order to reduce the likelihood of noise complaints and to ensure a high-quality development is created, the development will be aiming to achieve airborne sound insulation values that will improve upon the performance standards outlined within the Building Regulations for England and Wales, Approved Document E.

Inclusive Design

11.4 The Applicant's commitment to inclusivity will ensure that the proposed development is scaled appropriately so as to respond to the needs of all its users. The Applicant will endeavour to incorporate the requirements of the Equality Act (2010) into their design, making reasonable adjustments to enable disabled access, regularly reviewing whether the buildings are accessible and effective, and providing necessary design adjustments where it is practical to do so.

11.5 In addition, 90% of the new dwellings will be designed and built to Building Regulations Approved Document M4(2) standards, with 10% to Part M4(3) in accordance with London Plan Policy D7. These standards will ensure accessible and adaptable accommodation for everyone; young families, older people, individuals with a temporary or permanent physical impairment, and allow residents to stay in their home despite developing disabilities. They also enable flexibility, visitability (facilitating ease of visiting access to the homes by everyone, regardless of mobility or disability) and future-proofing i.e. the accommodation will be adaptable and able to respond to changing technological and environmental conditions.

Daylight and Sunlight

11.6 The promotion of good daylighting levels contributes to sustainability through improving the occupant's quality of life and reducing the building's energy consumption by minimising the need for artificial lighting.

11.7 A Daylight and Sunlight Assessment (August 2022) has been undertaken by Hodkinson Consultancy.



11.8 The report finds that 85 out of the 138 assessed habitable rooms (62%) meet the BRE recommended criteria for daylight levels. 101 out of the 138 assessed habitable rooms (73%) meet the BRE recommended criteria for sunlight exposure. Overall, the proposed development will experience good internal daylight and sunlight levels within habitable rooms. The daylight and sunlight levels have been maintained as far as reasonably practicable for the exiting refurbished almshouses considering the heritage status of the buildings. Please refer to the full report for further detail.

Overheating

11.9 Minimising the risk of summer overheating and high uncontrollable temperatures is important so as to ensure that homes are comfortable for their occupants and remain comfortable in the future. The Applicant commits to ensuring that all dwellings will not have a high risk of summer overheating and will adopt appropriate measures to ensure this is delivered.

11.10 A Dynamic Overheating Assessment (August 2022) of a sample of representative dwellings for the proposed scheme has been undertaken by Hodkinson Consultancy. The analysis has been undertaken in line with the Greater London Authority's guidance on preparing energy assessments and the Cooling Hierarchy in Policy SI4 of the London Plan (2021).

11.11 The assessment assumed that dwellings will utilise openable windows as the primary means of ventilation, with a background mechanical ventilation system. Passive measures such as high efficiency building fabric, solar control glazing, enhanced mechanical ventilation rates have been explored as far as practicable to avoid the need for active cooling. Additionally, building design and window locations have been optimised to mitigate overheating

11.12 The performance of the newly developed dwellings has been assessed against the guidelines from the new Approved Document O (2021) and the Chartered Institution of Building Services Engineers (CIBSE) guidance TM59 Design methodology for the assessment of overheating risk in homes (2017). The dynamic overheating assessment of the representative dwellings demonstrates that an acceptable overheating risk is achieved.

- 11.13** The dwellings tested demonstrate compliance with the CIBSE TM59 overheating assessment criteria under the mandatory weather file (DSY1 for the 2020s, high emissions, 50% percentile scenario). The results are based on key design features and passive mitigation measures following the London Plan cooling hierarchy.
- 11.14** For the refurbished dwellings, mitigation measures were assessed based on feasibility and possible impacts and it was concluded that, for this development, adding internal blinds and increased air change rates are the most feasible measures to mitigate overheating on site.
-

12. TRANSPORT AND LOCAL AMENITIES

Sustainable Transport

- 12.1** Sustainable transport links are central to the sustainability debate. They provide a positive contribution to environmental, societal and economic sustainability of the places they serve.
- 12.2** The provision of alternative sustainable transport options and associated facilities reduces dependency on traditionally fuelled cars and has the following benefits:
- > Encourages active travel and helps improve people's health and wellbeing;
 - > Reduces congestion and encourages clean travel which helps to improve the air quality of the local area; and
 - > Provides cost savings compared with maintaining and running traditionally fuelled cars.
- 12.3** A Transport Statement (August 2022) has been written by Motion Ltd. A summary has been provided below, but please refer to the full report for further details.
- 12.4** The report states that the proposed dwellings could generate 302 two-way total person trips, of which 121 could be vehicular. The change of use could lead to a slight increase in the number vehicular trips to the site. In the weekday morning and evening peak hours, the development could result in a net increase of 15 vehicular trips. Across an average weekday, this could result in an increase of 22 vehicular trips. Therefore, the proposal will result in a minimal difference in trips to the site, both in terms of total trips and vehicular trips during the established peak periods and over a daily profile.

Local Amenities

- 12.5** The proposed development has access to the following key amenities in the local area which will help to reduce dependency on private transport:

- > Administrative services (e.g. post office, banks and cash points);
- > Health services (e.g. GP practices and pharmacies);
- > Small/large scale retail services (e.g. shops and restaurants);
- > Recreation and leisure facilities (e.g. gym); and
- > Education and community facilities (e.g. schools and community centres).

Public Transport

12.6 The site is well located within close proximity to a number of transport links, such as:

- > **Bruce Grove station** which is location approximately 600 m south of the site and provide services on the Overground to London Liverpool Street, Cheshunt, and Enfield Town;
- > **Local bus services** within the vicinity of the site, providing frequent trips in all directions, including service numbers 123, 243, and 318.

12.7 The Transport for London Public Transport Accessibility Level (PTAL) map for the site is presented in Figure 8 below. The site's PTAL rating of 5 represents a very good level of transport accessibility.

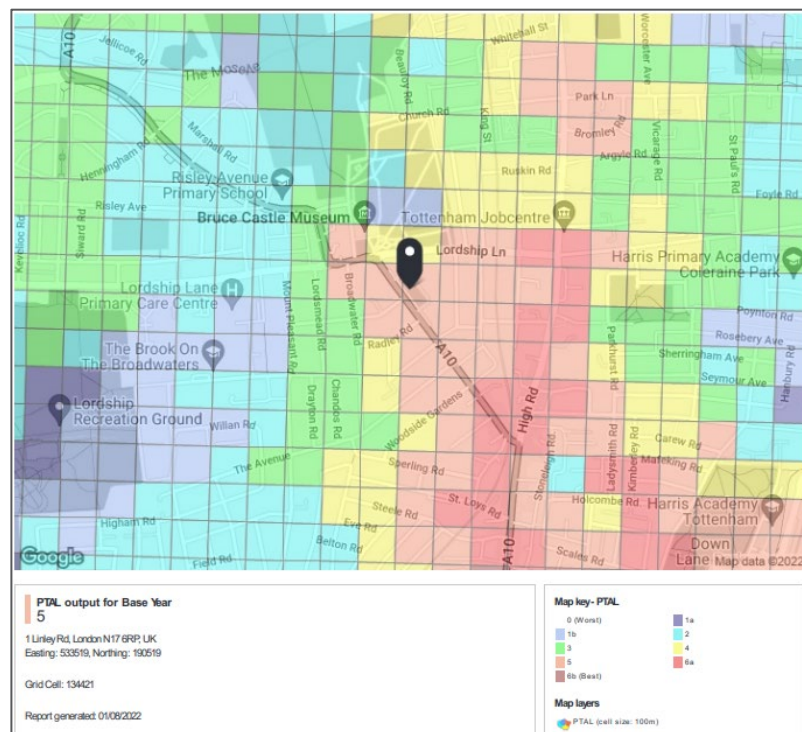


Figure 8: PTAL Map – www.tfl.gov.uk

Cycle Parking

- 12.8** Encouraging cycling not only makes a positive contribution to health and well-being, but also reduces pressure on existing transport systems in accordance with Policy T5 of the London Plan.
- 12.9** All of the dwellings will have access to secure cycle stores. For the houses, these will be within the curtilage of each dwelling while the flats will have communal sheltered secure cycle stores. A total of 81 residential spaces and 2 visitor spaces will be provided.



Car Parking

- 12.10** A total of 28 car parking spaces are to be provided across the development for occupants. A further 2 spaces will be for visitor use. The proposed apartments will be car-free.
- 12.11** With regard to Car Clubs available, Zipcar is the main car club operator within the Bruce Grove area, with three vehicles located within a 15-minute walk from the site, along Marden Road to the south west of the site and Mafeking Road to the south east of the site.

Electric Car Charging

- 12.12** Electric vehicles (EVs) have the benefit of eliminating emissions, including carbon dioxide, oxides of nitrogen, carbon monoxide and particulates that normal cars emit. With road transport accounting for 66% of particulate emissions and 42% of NO_x emissions in London, measures such as electric vehicle charging points are strongly encouraged.
- 12.13** Building Regulations Approved Document Part S has taken effect from June 2022 and brings the requirement for EV charging infrastructure into building regulations. The EV spaces will be designed in compliance with Part S requirements.



Travel Plan

- 12.14** Transport for London define a Travel Plan as a *‘long term management strategy for an organisation or site that seeks to deliver sustainable transport objectives through action and is articulated in a document that is regularly reviewed’*.
- 12.15** A Framework Travel Plan has been developed by Motion Ltd to promote sustainable transport and is submitted with this application.
- 12.16** In general, the following measures will be implemented to encourage residents to travel via sustainable modes:
- > On-site car parking bays will be marked out and allocated for 28 dwellings and 2 for visitors;
 - > Residents will not be able to access permits for on-street parking;
 - > Adequate cycle storage will be provided on site;
 - > A notice board, displaying the details of local sustainable and active travel options will be provided.
- 12.17** Please refer to the Plan for further details on the measures recommended.

13. BIODIVERSITY AND ECOLOGY

Protection of Ecological Value

- 13.1** A Preliminary Ecological Appraisal (PEA) was conducted by CSA Environmental (December 2019). The findings of the report are summarised below, but please refer to the full report for further detail.
- 13.2** The site provides good connectivity for hedgehogs, contains an active fox den, has buildings with 'low' and 'moderate' potential to support roosting bats, and supports nesting birds. Further, restricted areas of the orchard grassland at the Site show heightened levels of ecological interest by the presence of several common grassland indicator species including sheep's sorrel and common bent. The orchard at the Site is unlikely to qualify as S41 habitat of principal importance.
- 13.3** A Bat Survey Report and Update Site Walkover has been undertaken by CSA Environmental (August 2022). The findings of the report are summarised below, but please refer to the full report for further detail.
- 13.4** The bat survey confirms the presence of a small (nonbreeding) day roost utilised by common pipistrelle and a small (nonbreeding) day roost utilised by soprano pipistrelle associated with one of the buildings. However, these are considered to be of low conservation importance and, in any case, will be retained under the proposals. Further, the proposed rear extensions to certain buildings are considered unlikely to result in disturbance. Nonetheless, appropriate safeguards have been set out.
- 13.5** The survey work has further confirmed that an EPS mitigation licence will not be needed for the demolition of certain buildings owing to the likely absence of roosting bats.
- 13.6** It is understood that all existing trees at the Site are to be retained under the proposals. A 'soft' approach has been proposed should certain trees require removal or significant arboricultural works. Further surveys have been recommended to confirm the presence or likely absence of roosting bats and to inform mitigation measures where required for specific trees on site.
- 13.7** To protect existing biodiversity, a series of measures will be implemented to reduce any impact on local wildlife. These include the following:
- > All site operatives to be made aware of current legislation, including the protection of certain species;
 - > Site clearance works to be timed to avoid the main bird nesting season. If this is not possible, a check should be carried out prior to the works to determine the presence of any active nests;
 - > Suitable fencing should be erected to reduce the possibility of any damage to established vegetation;

- > Should the destruction of the fox den be required, measures should be put in place to ensure the humane displacement of any animals present and that destruction of the den is only carried out once it has been confirmed that no animals are present;
- > Internal inspections and further emergence/re-entry surveys are required to determine the presence or likely-absence of roosting bats in association with the on-site buildings. The results of these surveys will be used to inform a full impact assessment and the need or otherwise for mitigation measures;
- > In the unlikely event that any bat(s) are found at any point, works are to cease immediately and advice sought from a suitably qualified ecologist. Contractors are explicitly forbidden from handling bats;
- > No breathable roofing membranes are to be used during any of the construction/refurbishment works across the Site. Only building regulations compliant traditional bitumastic felt ('Type 1F') is to be used, to prevent the risk of entanglement of bats in fibres of breathable roofing membranes;
- > No works to the main roof of B3 (including the internal roof space) are to be undertaken (unless a thorough impact assessment has been undertaken including obtaining an EPS Mitigation licence from Natural England, if required);
- > Any new lighting scheme for the Site is to be designed to avoid illumination of the roof of B3, as well as minimising illumination of retained and created boundary vegetation, trees, hedgerows and SuDS features, which are likely to be used by bats for navigation and foraging; and
- > Native species, or species of known wildlife value, should be used for the proposed new planting.

Enhancement of Ecological Value

- 13.8** Enhancing a site's ecological value not only helps to reduce a development's environmental impact but improves the health and wellbeing of the occupants through their interaction with the natural environment.
- 13.9** The proposed landscaping strategy includes new planting, hard and soft landscaping, and play areas.
- 13.10** The strategy for ecological enhancement on site will include the following where possible:



- > Promote local ecology through the use of native seed and fruit-bearing species;
- > Attract pollinators such as bees and butterflies through the use of flowering, nectar rich species;
- > Combine natural and ornamental species to enrich the planting mix and promote local biodiversity;
- > Create new habitats to attract local fauna, including log piles and bug hotels, as well as providing foraging opportunities for birds and bats; and
- > Interconnect existing and proposed habitats of the site and its surroundings where possible.

13.11 The above-mentioned measures are in line with those recommended in the PEA (December, 2019) and Bat Survey Report and Update Site Walkover (August 2022) by CSA Environmental.

Living Roofs

13.12 Biodiverse living roof is to be provided on the roofs of the pavilions, apartment building and bin/cycle store in order to meet Policy G5 of the London Plan. These roofs have demonstrable sustainability benefits, including:

- > Reduction in urban heat island effect (localised cooling through increased evaporation);
- > Provision of ecological habitats for fauna and flora, particularly where these roofs can replicate pre-existing ecological conditions; and
- > Reduction in surface water run-off.

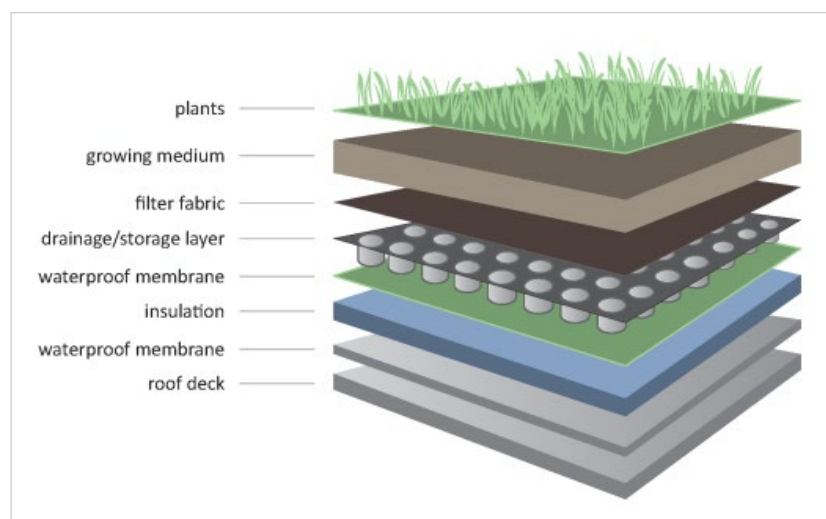


Figure 9: Indicative Build-up of Living Roof

14. SUSTAINABLE CONSTRUCTION

- 14.1** Sustainable construction involves the prudent use of existing and new resources and the efficient management of the construction process. This includes the following measures:
- > Reducing waste during construction and demolition and sorting waste on site where practical;
 - > Reducing the risk of statutory nuisance to neighbouring properties as much as possible through effective site management;
 - > Controlling dust and emissions from demolition and construction; and
 - > Complying with protected species legislation.

Considerate Constructors Scheme

- 14.2** The development site will be registered with the Considerate Constructors Scheme. This is designed to encourage environmentally and socially considerate ways of working, to reduce any adverse impacts arising from the construction process. As commonly known, the Considerate Constructors Scheme aims are as follows:
- > Respecting the community (includes appearance)
 - > Care for the environment;
 - > Value their workforce (includes site safety).
- 14.3** The site will target a Very Good score of at least 33 out of 45, with all three sections scoring at least eleven points.



Monitoring Construction Site Impacts

- 14.4** During the construction processes, control procedures will be put in place to minimise noise and dust pollution and roads will be kept clean. The management systems will generally comprise procedures and working methods that are approved by the development team together with commercial arrangements to ensure compliance.

14.5 Further to the above, additional measures will be adopted to minimise the impact on the local area during construction. This will include the limiting of air and water pollution in accordance with best practice principles, as well as the recording, monitoring and displaying of energy and water use from site activities during construction.

14.6 In terms of construction traffic, this will be minimised by restricting deliveries and arrival times in order to manage potential impacts on existing and future occupants. Work will be limited to appropriate hours to be agreed with the Council, and suppressors will be used to reduce noise from machinery.



15. CONCLUSION

- 15.1** The issue of sustainable development has been considered throughout the design of the proposed development at Edmansons Close by The Drapers' Almshouse Charity in the London Borough of Haringey. In particular, the incorporation of sustainable design and construction methods, energy and water saving measures, waste reduction techniques as well as measures to enhance the ecological value of the site, a good quality and sustainable development is proposed.
- 15.2** The key sustainability features outlined in this Sustainability Statement are listed below:
- > **Energy strategy:** The development will target a 71% reduction in Regulated CO₂ emissions over Part L 2013 baseline for the new build development through energy efficiency measures, air source heat pumps, and PV panels. A 25.2% reduction is expected over the baseline for the refurbished development.
 - > **Overheating:** The scheme has been designed to ensure overheating risk is reduced to acceptable levels in accordance with CIBSE TM59:2017 requirements based on tailored mitigation measures for the new and refurbished dwellings.
 - > **Water efficiency:** Flow control devices and water efficient fixtures and fittings will be installed in all dwellings to target a maximum internal daily water consumption of 105 litres/person/day. Fittings within the refurbished dwellings will be upgraded to achieve this requirement. Rainwater butts will be installed for the houses to reduce the demand on potable water and promote effective use of water supplies.
 - > **Waste and recycling:** Adequate facilities will be provided for domestic and construction related waste, including segregated bins for refuse and recycling.
 - > **Circular Economy:** The principles of a circular economy shall be incorporated into the development, where possible.
 - > **Materials:** Where practical, new building materials will be sourced locally to reduce transportation pollution and support the local economy. The proposed refurbishment of the dwellings significantly reduces material use. New materials will be selected based on their environmental impact and responsible suppliers will be used where possible.
 - > **Flood Risk and SUDs:** The proposed development site lies in a low flood risk zone and will benefit from SUDs such as permeable paving, green roofs, detention basins and rainwater harvesting butts.
 - > **Security:** The proposed development will be aiming to incorporate the principles of Secured by Design where appropriate to ensure the safety and security of its residents.

- > **Sound insulation:** The dwellings are to target an improvement on Building Regulations Part E through party walls and floors.
- > **Inclusive access:** 90% of the new dwellings will be designed to meet Building Regulations Approved Document M4(2) and 10% will meet Part M4(3).
- > **Sustainable transport:** The site will benefit from a good existing public transport network and sustainable modes will be encouraged through the provision of 83 cycle storage spaces and electric vehicle charging points in accordance with Building Regulations Part S.
- > **Biodiversity and ecology:** Enhancements will be implemented through the provision of landscaped areas, play space and additional planting across the site.
- > **Sustainable construction:** The site will aim to achieve a Very Good score with the Considerate Constructors Scheme and will closely monitor construction site impacts.

16. REFERENCES

- > Greater London Authority (2021) The London Plan
- > Ministry of Housing, Communities & Local Government (2021) National Planning Policy Framework. MHCLG: London
- > HM Government (2016) The Building Regulations Approved Document L1A: Conservation of Fuel and Power. NBS: London
- > Energy Saving Trust (2013) *At home with water*
- > Department for Environmental Food and Rural Affairs (2018) *Air Pollution in the UK 2017*

APPENDICES

Appendix A

Water Efficiency Calculator

Water Efficiency Calculator Edmansons Close				
	Internal Water Consumption			
Installation Type	Unit of Measure	Capacity / Flow Rate	Litres/person/day	Notes
WC	Full Flush Volume (Litres)	6	8.76	Low flush WCs will be installed to reduce the volume of water consumed during flushing. All WCs will have dual flush cisterns which will provide both part (4L) and full (6L) flushes.
	Part Flush Volume (Litres)	4	11.84	
Basin Tap	Flow Rate (Litres/minute)	4	7.90	All taps (excluding kitchen taps) will be reduced to 4 litres/minute using flow restrictors. Where multiple taps are to be provided the average flow rate will be used.
Bath	Capacity (Litres to overflow)	160	17.60	All baths will have reduced capacities of 160 litres (excluding displacement). The bath taps are not included in this calculation as they are already incorporated into the use factor for the baths.
Shower	Flow Rate (Litres/minute)	8	34.96	Shower flow rates will be reduced to a maximum of 8 litres/minute using flow restrictors fixed to the shower heads. These contain precision-made holes or filters to restrict water flow and reduce the outlet flow and pressure.
Kitchen Tap	Flow Rate (Litres/minute)	5	12.56	Kitchen taps will be reduced to 5 litres/minute using flow restrictors which will be fitted within the console of the tap or in the pipework.
Washing Machine	Water Consumption (Litres/kg)	8.17	17.16	Water efficient washing machines or washer-dryers will be specified. The make and model numbers of the appliances are unknown at this stage therefore a default figure of 8.17 litres/kg has been assumed.
Dishwasher	Water Consumption (Litres/place setting)	1.25	4.50	All dishwashers will be water efficient. The make and models numbers are unknown therefore a default figure of 1.25 litres/place setting has been assumed at this stage.
Net Internal Water Consumption (Litres/person/day)			115.3	
Normalisation Factor			0.91	
Total Internal Water Consumption (Litres/person/day)			104.9	The total <i>internal</i> water consumption target of ≤105 litres/person/day will be achieved in accordance with Regulation 36 para (2)b optional requirement Approved Document G.
Allowance for External Water Consumption (Litres/person/day)			5	
Total Water Consumption (Litres/person/day)			109.9	The <i>total</i> water consumption target of ≤110 litres/person/day will be achieved in accordance with Regulation 36 para (2)b optional requirement of Approved Document G.