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Sustainability Statement

Warmhaze Ltd

17-27 & 25 Ferdinand Street

Final

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ABOUT HODKINSON CONSULTANCY

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.

Executive Summary

The purpose of this Sustainability Statement is to demonstrate that the proposed development at 17-27 and 25 Ferdinand Street by Warmhaze Ltd in the London Borough of Camden is considered sustainable, as measured against relevant local, regional and national planning policies.

The proposed development consists of 20 new residential dwellings within a part new build and part refurbishment development.

A commitment to achieve a minimum of Code for Sustainable Homes Level 3 for new build dwellings and BREEAM Domestic Refurbishment 'Excellent' for dwellings within refurbished parts of the building represents a high level of sustainable design and construction. An option to achieve Code Level 4 is also presented.

Through 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.

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

> The proposed new build dwellings will achieve a minimum Code for Sustainable Homes rating of Level 3, representing a high level of sustainable design and construction, with the option to achieve Code Level 4 through the installation of PV on the roof in preference to a green roof;

> The dwellings within the refurbished parts of the existing building will achieve a BREEAM Domestic Refurbishment rating of 'Excellent';

> Within the Code for Sustainable Homes assessment, at least 50% of the available credits will be achieved in the Energy (subject to preferred strategy regarding the use of PV or a green roof), Water and Materials categories;

> Within the BREEAM Domestic Refurbishment assessment, at least 60% of the available credits will be achieved in the Energy and Water categories and 40% of the available credits will be achieved in the Materials category;

> The development will target a 35% CO_2 reduction over the Part L 2013 baseline in line with the London Plan. Achieving this target is subject to installing PV on the roof in preference to a green roof;

> Water efficiency measures and devices will be installed in the dwellings to achieve a maximum daily water usage of 105 litres/person/day;

> Recycling facilities will be provided for domestic and construction related waste;

> The use of sustainable transport modes will be encouraged with the provision of cycle storage;

> Each dwelling in the proposed development will include the provision of Home Office facilities, reducing the need to travel to work;

> Enhancements will be implemented where appropriate to improve the site's ecological value;

> The development includes the incorporation of a green roof (subject to preferred strategy);

> Where practical, building materials will be sourced locally to reduce transportation pollution and support the local economy. Materials will be selected based on their environmental impact, with preference given to 'A+' or 'A' rated materials from the BRE Green Guide to Specification where possible;

> All timber will be legally obtained from sustainable sources;

> All dwellings will be designed to meet all applicable Lifetime Homes requirements;

> An Architectural Liaison Officer or Secured by Design Officer will be consulted to provide advice on physical security; and

> Sound insulation values are to target an improvement by at least 5dB on Building Regulations Part E where possible.

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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 Warmhaze Ltd (hereafter referred to as 'the Applicant'). This Statement sets out the sustainable design and construction measures included in the planning application for the proposed development at 17-27 and 25 Ferdinand Street in the London Borough of Camden.

Site Location

1.2 The site is located in the London Borough of Camden on Ferdinand Street to the north of Chalk Farm Road.

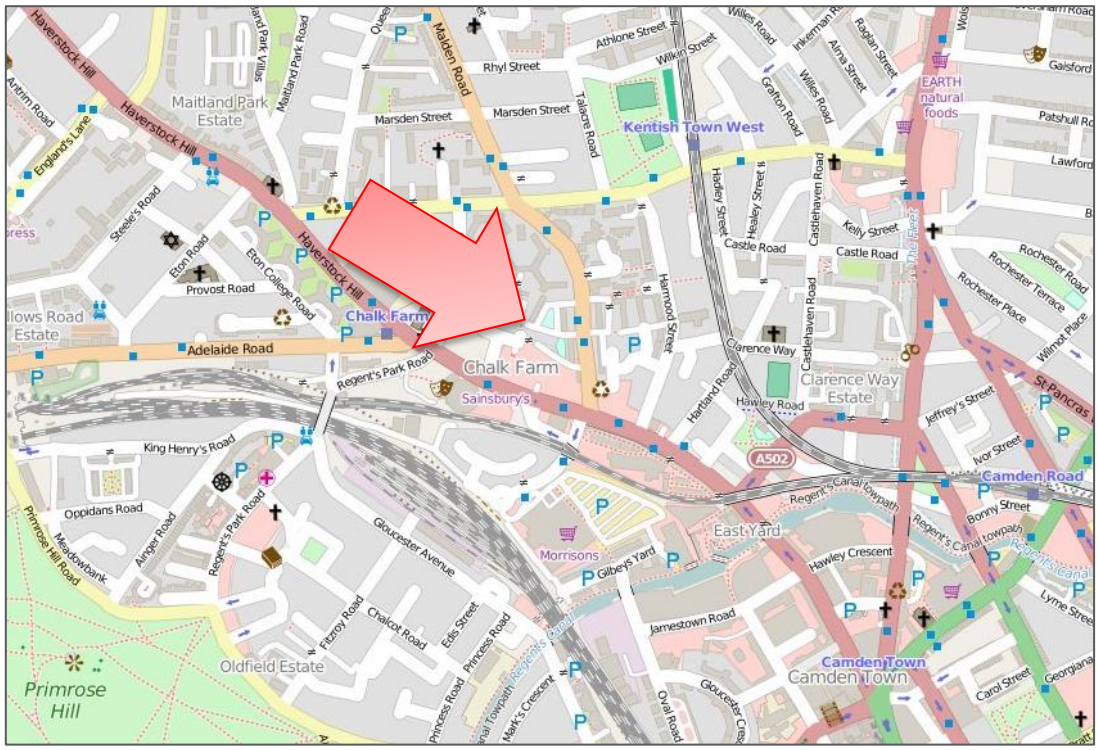

Figure 1: Site Location

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Background Information

1.3 The application site was subject to a previous planning application, reference 2012/4782/P which proposed the following:

Erection of an additional 4th and 5th floor, erection of a 5 storey extension to courtyard (west) elevation and erection of a single storey extension to east elevation all at 17 and 27 Ferdinand Street, and redevelopment of 25 Ferdinand Street to create a 5 storey building, to provide 9 residential units (Class C3) (2 x 1-bed, 4 x 2-bed, 2 x 3-bed, 1 x 4-bed) and office space (Class B1), including an external terraced area at 5th floor level, creation of green roof, and associated alterations.

1.4 In terms of sustainability the application targeted Code for Sustainable Homes Level 3 for the residential units and BREEAM Very Good for the office space. The application was approved in December 2012.

Development Proposal

1.5 The proposal consists of the redevelopment of the existing site to provide 20 new residential apartments. It includes outdoor space, cycle parking provision, refuse and recycling storage areas and a green roof. An option has also been presented within this report and the Energy Statement for the green roof to be replaced with Photovoltaics in the proposed design.

1.6 In terms of built form, the proposed development of this current application matches that of the previously approved design, application reference 2012/4782/P. The predominant change is the alteration to a completely residential use throughout the site to provide the 20 proposed apartments.

Sustainability Statement Structure & Methodology

1.7 The formulation of the Sustainability Strategy for the proposed development has taken into account several important priorities, including:

> To achieve the maximum viable reduction in CO_2 emissions through the application of the London Plan Hierarchy with an affordable, deliverable and technically appropriate strategy;

> To address all national, regional and local planning policies and requirements;

> Provision of high quality homes that are adaptable to future changes in climate;

> To minimise the negative impact on the proposed development on both the local and wider climate and environment;

> To achieve the highest viable levels of sustainable design and construction environmental assessment methodologies;

> To minimise emissions of pollutants such as oxides of nitrogen and particulate matter;

> To create a pleasant, safe and friendly working and living environment that will be flexible to its residents' needs.

1.8 In preparing this Sustainability Statement the policy documents set out in Section 2 have been used to guide and inform the sustainability strategy for the proposed development.

1.9 Sections 3 – 12 highlight the sustainability of the Proposed Development in relation to the policy documents listed in Section 2.

2. PLANNING POLICIES AND PROPOSED DEVELOPMENT REQUIREMENTS

2.1 The following planning policies and requirements will inform the Energy and Sustainability Strategy for the proposed development.

National Planning Policy

2.2 **The National Planning Policy Framework (NPPF)** was published on 27 March 2012. This document sets the overarching policies for development in England and states that:

"At the heart of the NPPF is a presumption in favour of sustainable development, which should be seen as a golden thread running through both plan-making and decision-taking.

For decision-taking this means:

> *Approving development proposals that accord with the development plan without delay; and*

> *Where the development plan is absent, silent or relevant policies are out-of-date, granting permission unless:*

> *Any adverse impacts of doing so would significantly and demonstrably outweigh the benefits, when assessed against the policies in this Framework taken as a whole; or*

> *Specific policies in this Framework indicate development should be restricted."*

2.3 Paragraph 95 of the NPPF states that:

"To support the move to a low carbon future, local planning authorities should:

> *Plan for new development in locations and ways which reduce greenhouse gas emissions;*

> *Actively support energy efficiency improvements to existing buildings; and*

> *When setting any local requirement for a building's sustainability, do so in a way consistent with the Government's zero carbon buildings policy and adopt nationally described standards*."

2.4 The document also makes it clear that the delivery of a wide choice of well-designed high quality homes is central to delivering sustainable development.

Regional Policy

2.5 **The London Plan (July 2011)** sets out an integrated economic, environmental, transport and social framework for the development of London over the next 20 – 25 years. On 11 October 2013, the Mayor published Revised Early Minor Alterations to the London Plan (REMA). From this date, the REMA are operative as formal alterations to the London Plan (the Mayor's spatial development strategy) and form part of the development plan for Greater London.

2.6 The following outlines key policies set out in the London Plan which must be addressed by new developments and which are relevant to the Proposed Development.

2.7 **Policy 5.2 – Minimising Carbon Dioxide Emissions** requires that all residential buildings between 2013 – 2016 achieve a 40% improvement on 2010 Building Regulations. The London Plan Sustainable Design and Construction SPG (2014) updates this target stating that the Mayor will adopt a carbon dioxide improvement target beyond Part L 2013 of 35%.

2.8 **Policy 5.3 – Sustainable Design and Construction** states that the highest standards of sustainable design and construction should be achieved in London to improve the environmental performance of new developments. Major development should meet the minimum standards outlined in the London Plan Supplementary Planning Guidance and this should be clearly demonstrated. The standards include the following sustainable design principles (summarised):

> Minimising CO_2 emissions;

> Avoiding internal overheating and contributing to the urban heat island effect;

> Efficient use of natural resources (including water);

> Minimising pollution (including noise, air and urban run-off);

> Minimising the generation of waste and maximising reuse and recycling;

> Avoiding impacts from natural hazards (including flooding);

> Ensuring developments are comfortable and secure for users;

> Securing sustainable procurement of materials, using local suppliers where feasible; and

> Promoting and protecting biodiversity and green infrastructure.

2.9 **Policy 5.5 – Decentralised Energy Networks** states that the Mayor expects 25 per cent of the heat and power used in London to be generated through the use of localised decentralised energy systems by 2025. The Mayor will prioritise the development of decentralised heating and cooling networks at the development and area wide levels, including larger scale heat transmission networks.

2.10 **Policy 5.6 - Decentralised Energy** requires that all developments should evaluate the feasibility of Combined Heat and Power (CHP) systems, and examine the opportunities to extend the system beyond the site boundary to adjacent sites.

2.11 **Policy 5.7 – Renewable Energy** states that within the framework of the energy hierarchy, major development proposals should provide a reduction in expected carbon dioxide emissions through the use of on-site renewable energy generation, where feasible.

2.12 **Policy 5.8 – Innovative Energy Technologies** encourages the more widespread use of innovative energy technologies to reduce use of fossil fuels and carbon dioxide emissions.

2.13 **Policy 5.9 – Overheating and Cooling** seeks to reduce the impact of the urban heat island effect, reduce potential overheating and reduce reliance on air conditioning systems.

2.14 **Policy 5.10 – Urban Greening** encourages new planting in the public realm (including streets, squares and plazas) and green infrastructure, to contribute to the adaptation to, and mitigation of, the effects of climate change.

2.15 **Policy 5.12 – Flood Risk Management** states that new developments must comply with the flood risk assessment and management requirements, and will be required to pass the Exceptions Test addressing flood resilient design and emergency planning.

2.16 **Policy 5.13 – Sustainable Drainage** requires that developments should use sustainable urban drainage systems (SUDS) unless there are practical reasons for not doing so, and should aim to achieve greenfield run-off rates and ensure that surface water run-off is managed as close to its source as possible.

2.17 **Policy 5.15 – Water Use and Supplies** requires that development should minimise the use of mains water by incorporating water saving measures and equipment and that residential development is designed so that mains water consumption meets a target of 105 litres/person/day or less.

2.18 **Policy 7.3 – Designing Out Crime** requires that development should reduce the opportunities for criminal behaviour and contribute to a sense of security without being overbearing or intimidating.

2.19 **The London Plan Supplementary Planning Guidance – Sustainable Design and Construction (2014)** includes guidance on:

> Energy efficient design;

> Meeting carbon dioxide reduction targets;

> Decentralised energy;

> How to off-set carbon dioxide where the targets set out in the London Plan are not met;

> Retro-fitting measures;

> Support for monitoring energy use during occupation;

> An introduction to resilience and demand side response;

> Air quality neutral;

> Resilience to flooding;

> Urban greening;

> Pollution control;

> Basements policy and developments; and

> Local food growing.

2.20 Each section of the Supplementary Planning Guidance sets out the Mayor's priorities for the particular topic area, which the Mayor seeks developers to address in all development proposals. Some sections also contain best practice ambitions, which the Mayor strongly encourages be delivered in appropriate developments. To support these approaches, the Supplementary Planning

Guidance includes detailed guidance for boroughs and developers, signposts to further information and best practice examples.

2.21 **The London Housing Supplementary Planning Guidance (2012)** states that designers should seek to achieve a minimum of Level 4 of the Code for Sustainable Homes in all new development.

Local Policy: The London Borough of Camden

Core Strategy

2.22 The Camden Core Strategy was adopted in November 2010. The following policies are considered to be pertinent to this Statement:

2.23 **Policy CS13 – Tackling climate change through promoting higher environmental standards**: The Council will require all development to take measures to minimise the effects of, and adapt to, climate change and encourage all development to meet the highest feasible environmental standards that are financially viable during construction and occupation by:

> Ensuring patterns of land use that minimise the need to travel by car and help support local energy networks;

> Promoting the efficient use of land and buildings;

> Minimising carbon emissions from the redevelopment, construction and occupation of buildings by implementing, in order, all of the elements of the following energy hierarchy: Ensuring developments use less energy; making use of energy from efficient sources; generating renewable energy on-site;

> Ensuring buildings and spaces are designed to cope with, and minimise the effects of, climate change.

2.24 The Council will promote local energy generation and networks by working with partners and developers to implement local energy networks and protecting existing local energy networks where possible.

2.25 The Council will make Camden a water efficient borough and minimise the potential for surface water flooding by:

> Making sure development incorporates efficient water and foul water infrastructure;

> Requiring development to avoid harm to the water environment, water quality or drainage systems and prevents or mitigates local surface water and down-stream flooding.

2.26 **Policy CS18 – Dealing with our waste and encouraging recycling:** The Council will make sure developments include facilities for the storage and collection of waste and recycling.

Development Policies

2.27 Camden's Development Policies were adopted in November 2010. The following policies are considered to be pertinent to this Statement:

2.28 **Policy DP6 – Lifetime homes and wheelchair housing**: All housing development should meet lifetime homes standards. 10% of homes developed should either meet wheelchair housing standards, or be easily adapted to them.

2.29 **Policy DP16 – The transport implications of development**: The Council will seek to ensure that development is properly integrated with the transport network and is supported by adequate walking, cycling and public transport links.

2.30 **Policy DP17 – Walking, cycling and public transport**: Development should make suitable provision for pedestrians, cyclists and public transport.

2.31 **Policy DP22 – Promoting sustainable design and construction**: The Council will require development to incorporate sustainable design and construction measures. Schemes must:

> Demonstrate how sustainable development principles have been incorporated into the design and proposed implementation;

> Incorporate green or brown roofs and green walls wherever suitable.

2.32 The Council will promote and measure sustainable design and construction by:

> Expecting new build housing to meet Code for Sustainable Homes Level 3 by 2010 **and Code Level 4 by 2013** and encouraging Code Level 6 (zero carbon) by 2016;

> Expecting developments (except new build) of 500sqm of residential floorspace or above or 5 or more dwellings to achieve 'Very Good' in EcoHomes assessments prior to 2013 and encouraging **'Excellent' from 2013**.

2.33 The Council will require development to be resilient to climate change by ensuring schemes include appropriate climate change adaptation measures such as:

> Summer shading and planting;

> Limiting run-off;

> Reducing water consumption;

> Reducing air pollution; and

> Not locating vulnerable uses in basements in flood-prone areas.

2.34 **Policy DP23 – Water**: The Council will require developments to reduce their water consumption, the pressure on the combined sewer network and the risk of flooding by:

> Incorporating water efficient features and equipment and capturing, retaining and re-using surface water and grey water on-site;

> Limiting the amount and rate of run-off and waste water entering the combined storm water and sewer network through the measures above and other sustainable urban drainage methods to reduce the risk of flooding;

2.35 **Policy DP26 – Managing the impact of development on occupiers and neighbours**: Developments will be required to provide facilities for the storage, recycling and disposal of waste and facilities for bicycle storage.

Camden Policy Guidance - Sustainability

2.36 This Policy Guidance document has been prepared by Camden to support the adopted Core Strategy and Development Policies. This Policy Guidance was last updated in September 2013. Relevant guidance within this document considered pertinent to this Statement includes the following:

> All developments are expected to reduce their carbon dioxide emissions by following the steps in the energy hierarchy, Be Lean, Be Clean, Be Green, to reduce energy consumption;

> Developments are to target a 20% reduction in carbon dioxide emissions from on-site renewable energy technologies unless it can be demonstrated that such provision is not feasible;

> The performance of water minimisation measures will be assessed against the water category in the Code for Sustainable Homes assessment;

> Prioritise the reduction, re-use and recycling of materials and sourcing materials responsibly;

> **Code for Sustainable Homes Level 4 should be achieved (2013-2015) achieving 50% of the credits available in the Energy, Water and Materials categories**;

> **EcoHomes 'Excellent' should be achieved (2013+) achieving 60% of the credits available in the Energy and Water categories and 40% of the available credits in the Materials category**;

> Green and brown roofs should be incorporated;

> Drainage and surface water should be managed on-site using Sustainable Drainage Systems (SUDS);

> Biodiversity considerations should be incorporated into the development.

Sustainability Targets

2.37 The nature of this development is one consisting of both refurbishment and retention of parts of an existing building and new build elements. It is therefore considered appropriate in this case for two methodologies to be applied to the sustainability assessment of the development; Code for Sustainable Homes and BREEAM Domestic Refurbishment.

2.38 BREEAM guidance states the following to differentiate between a newly constructed building and a refurbishment project:

A newly constructed dwelling is a building that has been constructed from scratch and in general does not incorporate any part of an existing building. Where a building is constructed on the site of a pre-existing building, it can only be defined as a new build dwelling where it will not incorporate any part of the former building above ground level, with the exception of a retained cellar, basement and ground floor slab. The only situation where a building may still be defined as a new build whilst incorporating an existing building is where:

> *No more than one façade (or two on a corner site) of a pre-existing building must be retained as an explicit condition as part of Planning Permission;*

> *The newly constructed dwelling is a semi-detached building or terrace and incorporated party walls of a pre-existing building and may also include a façade which is being retained due to explicit requirement by statutory planning consent;*

> *A building or dwelling is being extended to create an additional dwelling that is contained entirely within the extension with no internal access between the two buildings.*

Code for Sustainable Homes

2.39 All dwellings classed as new build within the proposed development will be assessed against national recognised environmental assessment methodology, Code for Sustainable Homes.

2.40 The Code for Sustainable Homes is a national standard for assessment on the sustainability and energy efficiency of new developments. The Code assesses the sustainability of a dwelling under nine categories and there are a total of 34 issues organised under these categories.

2.41 The previously approved application for the site targeted Code for Sustainable Homes Level 3 which was considered acceptable and the application was approved. However, the previous application

was submitted and approved prior to 2013; Camden policy stipulates that from 2013, Code for Sustainable Homes Level 4 should be achieved, achieving 50% of the credits available in the Energy, Water and Materials categories.

2.42 The nature of the building is such that the minimum 19% CO_2 emission saving required to achieve Code Level 4 is not achievable through energy efficiency measures alone. As such, PV could be installed on the roof to enable the development to meet this requirement. However, this would mean sacrificing the incorporation of a green roof which was included in the previously approved application. If the green roof is retained in the proposed development, it is only feasible for Code Level 3 to be achieved. If the PV replaces the green roof, Code Level 4 can be achieved. The Energy Statement should be referred to for more detail and calculation on this matter.

2.43 Given the above, **the proposed dwellings will achieve a minimum of Code for Sustainable Homes Level 3 with an option to achieve Code Level 4, achieving 50% of the credits available in the Energy (subject to preferred option), Water and Materials categories** in accordance with Camden policy.

2.44 The pre-assessment at Appendix A presents an illustrative route to Code for Sustainable Homes Level 4 certification through the installation of PV on the roof. The pre-assessment at Appendix B presents an illustrative route to Code for Sustainable Homes Level 3 certification through a scheme incorporating a green roof and no PV. The actual route to achieving these targets would be further refined during detailed design and may vary from that presented here.

BREEAM Domestic Refurbishment

2.45 Camden policy references EcoHomes as the methodology to be used in the assessment of domestic refurbishment projects. EcoHomes has now been replaced by BREEAM Domestic Refurbishment and as such the proposed new dwellings in the converted parts of the existing building will be assessed against BREEAM Domestic Refurbishment.

2.46 BREEAM Domestic Refurbishment provides a design and assessment method for sustainable domestic refurbishment projects. In addition to the overarching principles of BREEAM, the Domestic Refurbishment scheme has been developed in accordance with the following set of principles:

> Promote low cost, sustainable refurbishment;

> Recognise the limitations of existing buildings including their inherent built form and location;

> Drive market transformation by promoting best practice and innovation in the refurbishment of existing buildings;

> Provide a holistic environmental assessment that works effectively across different building and project types;

> Recognise the different starting points of our existing building stock.

2.47 The scheme can be applied to domestic conversions and change of use projects, such as the proposed development. This is where a new dwelling is formed by change of use from a building which was not previously used for domestic purposes.

2.48 BREEAM Domestic Refurbishment consists of thirty-three individual assessment issues spanning seven environmental categories, plus an eighth category called 'Innovation' for which credits can be achieved for the recognition of sustainability related benefits or performance levels which are not currently recognised by standard BREEAM assessment issues and criteria.

2.49 Camden policy and guidance requires an EcoHomes rating of 'Excellent' from 2013. It is therefore considered appropriate for a **BREEAM Domestic Refurbishment rating of 'Excellent' to be targeted**. Camden policy also requires **60% of the available credits in the Energy and Water categories to be achieved and 40% in the Materials category**; this will also be applied to the BREEAM Domestic Refurbishment assessment.

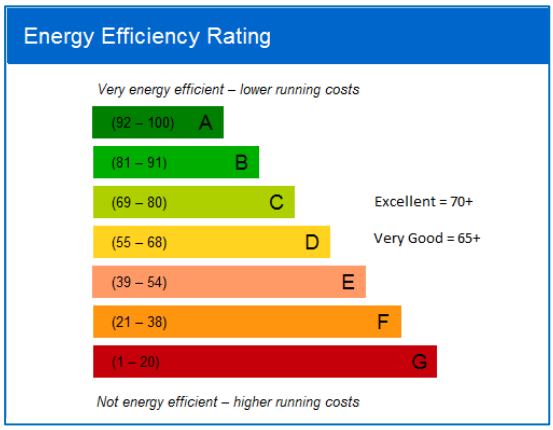
2.50 The pre-assessment at Appendix C presents an illustrative route to BREEAM Domestic Refurbishment 'Excellent'. The actual route to achieving this target would be further refined during detailed design and may vary from that presented here.

BREEAM Minimum Standards

2.51 In order to ensure that certain environmental issues are not overlooked when achieving the required rating, BREEAM has set out Minimum Standards of performance in key areas. To achieve the required 'Excellent' rating, the overall percentage score must be achieved as well as the Minimum Standards.

2.52 **Energy Efficiency Rating Post Refurbishment** requires a minimum post refurbishment Energy Efficiency Rating of 70. SAP is carried out to calculate the Energy Efficiency Rating of the building prior to any refurbishment works being carried out; this will provide the required benchmark which will allow the assessor to compare the dwellings rating pre and post refurbishment.

2.53 The Energy Efficiency Rating can be found on the Energy Performance Certificate, an example can be seen in the diagram below.



2.54 **Internal Water Use** requires that internal water consumption is between 107 and 118 litres per person per day.

2.55 **Ventilation** requires that the dwelling achieves one of the following requirements:

2.56 A minimum level of background ventilation is provided (with trickle vents or other means of ventilation) for all habitable rooms, kitchens, utility rooms and bathrooms, compliant with Section 7 of the Building Regulations Approved Documents Part F, 2010;

2.57 A minimum level of extract ventilation is provided in all wet rooms (kitchens, utility rooms and bathrooms) compliant with Section 5 of the Building Regulations Approved Documents Part F, 2010;

2.58 A minimum level of purge ventilation is provided in all wet rooms, compliant with Section 7 of the Building Regulations Approved Documents Part F, 2010;

2.59 If the building is unable to comply with the above due to its Historic Building Status, then the ventilation will need to comply with Section 3.11 to 3.16 of the Building Regulations Approved Documents Part F, 2010.

2.60 **Safety** requires the dwelling to be fitted with a compliant Grade fire alarm system and compliant carbon monoxide detector.

2.61 A **Flood Risk** Assessment with be required to confirm that the assessed dwellings have a low probability of flooding.

2.62 To comply with the Minimum Standard for **'Responsible Sourcing'** dwellings must comply with the UK Government's timber procurement policy.

Summary of Sustainability Features

2.63 The main sustainability features included in the development are listed below:

> The new dwellings will benefit from the provision of energy efficiency measures aiming to achieve a reduction in regulated CO_2 emissions of at least 35% over 2013 Building Regulations in line with the London Plan and exceeding the mandatory energy requirements for Code Level 4. The achievement of this target is subject to the inclusion of PV in preference to a green roof;

> In addition to this, all dwellings will be provided with energy efficient lighting, white goods with high efficiency ratings and energy display devices to monitor heat and electricity consumption;

> Water efficiency measures and devices will be installed to achieve a maximum daily water usage of 105 litres/person/day (in accordance with the London Plan);

> Recycling facilities will be provided for domestic and construction related waste;

- The use of sustainable transport modes will be encouraged with the provision of cycle storage;
- The proposed development includes the provision of Home Office facilities, reducing the need to travel to work;
- At least a 'neutral' change to the sites' ecological value is expected;
- Where practical, building materials will be sourced locally to reduce transportation pollution and support the local economy. Materials will be selected based on their environmental impact, with preference given to 'A+' or 'A' rated materials from the BRE Green Guide to Specification where possible. Materials will also be sourced from sustainable suppliers where possible;
- All dwellings will be designed to meet all applicable Lifetime Homes requirements;
- A Secured by Design Officer will be consulted to provide advice on physical security;
- Sound insulation values are to be improved by at least 5dB on Building Regulations Part E where possible;
- All insulation materials are to have a GWP of less than 5 and any boilers are to have low NO_x emissions; and
- Construction site impacts are to be closely monitored and a 'beyond best practice' Considerate Constructors score is expected to be achieved.

3. ENERGY AND CO_2 CONSERVATION

3.1 The Energy Strategy for the Proposed Development has been formulated following the London Plan Energy Hierarchy: Be Lean, Be Clean and Be Green. The overriding objective in the formulation of the strategy is to maximise the reductions in CO_2 emissions through the application of this Hierarchy with a cost-effective, viable and technically appropriate approach and to minimise the emission of other pollutants.

3.2 The Site will be built under Part L 2013 of the Building Regulations; therefore, in line with the London Plan, will target a 35% CO_2 reduction over the Part L 2013 baseline.

3.3 A range of advanced Be Lean energy efficiency measures are proposed. They enable the proposed development to exceed Part L1A 2013 Target Emission Rate (TER) and Target Fabric Energy Efficiency (TFEE) minimum standards for the residential aspect of the development through energy efficiency measures alone. A site-wide 4% and 2% reduction in regulated and total CO_2 emissions

respectively is predicted over the Part L 2013 baseline. This represents a high level of sustainable design and construction.

3.4 In line with the London Plan, the feasibility of decentralised energy production as a Be Clean measure has been assessed. There are currently no existing or proposed district heat networks in the area. It has been concluded that a communal heating strategy is inappropriate for a development of this size as it would substantially increase capital costs and operational costs (and resident energy bills).

3.5 The full spectrum of Be Green renewable energy generating technologies has been considered. PV panels are considered the most appropriate but conflicts with the proposed green roofs on the development which are a Camden council preference. The applicant has therefore explored two scenarios:

> Scenario 1: Green Roofs and Carbon Offsetting Payment (no solar PV) - The overall energy strategy measures employed (Be Lean only) will result in a 4% reduction in regulated CO_2 emissions and 2% reduction in total (including unregulated) CO_2 emissions over the Part L 2013 baseline. A carbon offsetting cost of £13,853 will therefore be paid to Camden Borough Council. This strategy complies with the London Plan, Code for Sustainable Homes Level 3 and Camden Borough Council policies.

> Scenario 2: Solar PV but No Green Roofs – 16.5kWp solar PV will be installed instead of green roofs to achieve an estimated further regulated and total CO_2 emission reduction of 32% and 16% after Be Lean emissions. The combination of Be Lean and Be Green measures will result in a 35% reduction in regulated CO_2 emissions and 18% reduction in total (including unregulated) CO_2 emissions over the Part L 2013 baseline. This strategy complies with the London Plan, Code for Sustainable Homes Level 4 mandatory energy credits and Camden Borough Council policies.

3.6 For more information and detail regarding the above, the Energy Statement compiled by Hodkinson Consultancy should be referred to. The applicant seeks guidance from Camden Borough Council on which strategy they would favour taking forward.

Improvement in Energy Efficiency Rating

3.7 Through the appropriate specification and utilisation of energy efficiency measures the proposed dwellings within the refurbished parts of the existing building will be able to improve their Energy Efficiency Rating (EER) post refurbishment. An example strategy to improve EER would be:

> Improvements should be made to the U-Value to the floors, walls and windows;

> 100% energy efficient lighting;

> SEDBUK ‘A’ rated gas boiler.

Energy Efficiency Rating Post Refurbishment

3.8 SAP is calculated prior to refurbishment works being carried out to provide the required benchmark, this will enable the assessor to compare the dwellings Energy Efficiency Rating pre and post refurbishment.

3.9 In order to comply with the BREEAM Domestic Refurbishment 'Excellent' Minimum Standard, an Energy Efficiency Rating of 70 or more is required.

3.10 Energy Advice will be discussed in greater detail at the design stage of the assessment, which will provide the design team with options on how to achieve the required Minimum Standards. Further information is also available within the Energy Statement submitted with this application, compiled by Hodkinson Consultancy.

Ventilation

3.11 To avoid problems associated with the build-up of pollutants and humidity levels whilst avoiding excessive heat loss, ventilation should be designed to meet the requirements of Building Regulations Parts L & F.

3.12 All homes will benefit from openable windows allowing natural convective ventilation and night-purging should the occupant desire. Diagram 1 below demonstrates the concept of natural ventilation.

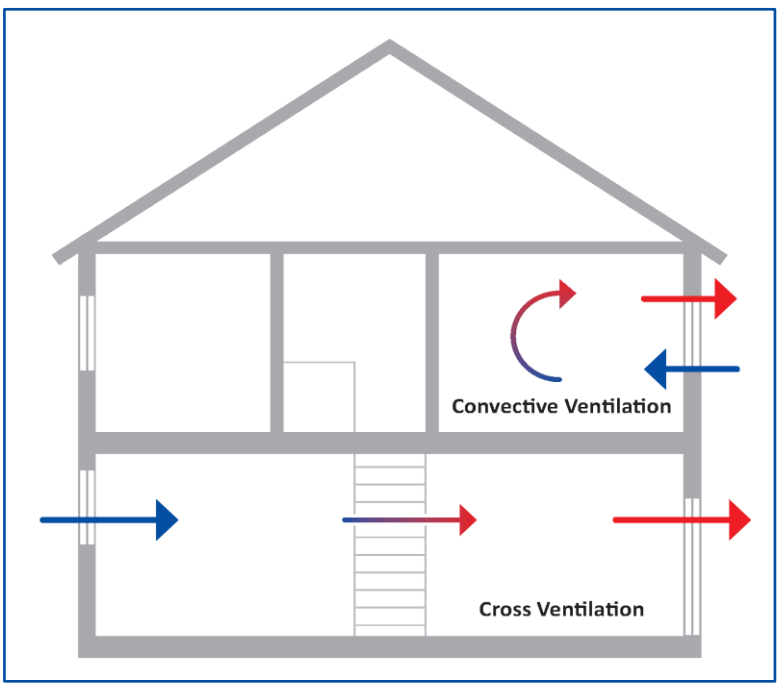


Diagram 1 - Natural Ventilation

Lighting

3.13 All lighting to the residential units will be dedicated energy efficient fittings, with a luminous efficacy greater than 40 lumens per circuit watt, and with appropriate controls. All external lighting, and any security lighting, will be adequately controlled either using PIR sensors, daylight cut-off sensors or time switches.

Energy Efficient White Goods

3.14 Where installed, energy efficient white goods will meet the following specification and energy efficient ratings under the EU Energy Efficiency Labelling Scheme (as per the Code for Sustainable Homes and BREEAM assessments):

> Fridges, freezers and fridge-freezers: A+ rating;

> Washing machines: A++ rating;

> Dishwashers: A+ rating; and

> Tumble dryers and washer-dryers: A rating.

3.15 Energy display devices which monitor consumption data for electricity and/or primary heating fuel may be provided, empowering the occupants to be more aware of and therefore reduce their energy usage.

Education

3.16 Home User Guides will be provided to the occupants of the new dwellings providing advice and information on how to best operate the services within their dwelling. This method can be one of the most effective means to reduce energy use both in the short and long term. The type of information incorporated into the Home User Guide will include the following subjects:

> Energy efficiency;

> Water use;

> Transport facilities;

> Materials and waste;

> Emergency information; and

> Local amenities.

4. WATER REDUCTION

4.1 Conservation of water is crucial to the sustainability debate. The processing of water into fresh, drinking water uses large amounts of energy. Using water in our homes contributes around 35 million tonnes of greenhouse gas a year (on average 1.5 tonnes per family). Additionally, water is a finite resource and during times of drought supplies can run low. Many natural ecosystems in the United Kingdom can suffer as a result of water abstraction.

4.2 The minimum standard for BREEAM Domestic Refurbishment 'Excellent' is for water usage of between 107-118 litres/person/day. However, policy 5.15 of the London Plan and Code for Sustainable Homes Level 4 requires the internal potable water usage in the dwellings to be no more than 105 litres/person/day; therefore this will be targeted for all dwellings. In addition, Camden policy guidance requires at least 50% of the credits in the Water category of the Code for Sustainable Homes assessment and 60% in the BREEAM assessment to be achieved.

4.3 To achieve the above targets, internal water consumption will be reduced through the use of practical and hygienic water saving measures. An evaluation of the devices to be used will be undertaken based on technical performance, cost and appeal. These may include dual flushes, low flow taps and shower heads and, if white goods are to be provided, they should be best practice with respects to both water use and energy efficiency. A suitable strategy would include the following:

> Dual flush WCs (6/4L per min);

> Wash hand basin tap flows of 3L/min;

> Shower flow rates of 9L/min;

> Bath capacity of up to 140L;

> Kitchen tap flows of 3L/min.

4.4 Waste water reduction advice will be provided to the occupants within a comprehensive Home User Guide, to enable optimum use to be made of the devices installed.

5. SUSTAINABLE MATERIAL SELECTION

5.1 The Building Research Establishment (BRE) Green Guide will be used to assess the building materials as part of the Code and BREEAM assessments. As part of this, materials are rated from 'A' to 'E', with the rating reflecting the Life Cycle of the materials in question.

5.2 New materials required in the development will be sourced where possible to ensure that environmentally friendly and low embodied energy materials are used. Where possible, "A+/A" rated materials and element construction will be sourced to enable the development to be as environmentally friendly as possible.

5.3 Preference will be given to the use of local materials and suppliers where viable. This will be considered as part of the detailed design and construction process.

5.4 In line with the Government's policy for timber procurement, all timber and wood derived products used on the site, including timber used in the construction phase, such as hoarding, fencing and scaffolding, will be sourced from sustainable sources (e.g. PEFC and FSC). The use of recycled materials (e.g. crushed concrete from waste used for hard-standing) has zero embodied energy impact, other than that expended in their processing or transport.

5.5 At least 50% of the credits will be secured under the Materials category of the Code for Sustainable Homes assessment and 40% in the BREEAM Domestic Refurbishment assessment, in accordance with Camden policy guidance.

6. POLLUTION

6.1 The building materials within the proposed development will all meet the following criteria:

> Use traditional and/or long-established materials that do not emit pollutants;

> Use materials that are stable, durable and appropriate;

> Do not use materials that contain heavy metals, biocides or known toxins such as lead or asbestos;

> Make sure that mineral and other fibres are completely encapsulated;

> Use low or nil-formaldehyde-emitting materials;

> Minimise the use of paints, using organic, water-based or mineral paints wherever practicable;

> Avoid timber preservatives;

> Avoid harmful cleaning agents, solvents and smoke from open fires; and

> All insulation materials to have Ozone Depleting Potential of zero and a Global Warming Potential of less than 5.

6.2 The Applicant will ensure all plant and machinery is readily accessible to facilitate regular maintenance and inspection. All plant and machinery will be subject to a regular service agreement to maintain operational efficiency and to minimise emissions.

6.3 Where applicable, dwellings will be installed with high efficiency, low NO_x boilers.

6.4 Overall, the proposed development will reduce emissions by use of energy efficient structure, onsite low and zero carbon technology, encouraging sustainable transport behaviour, and measures in the CEMP to reduce air pollution during construction.

7. FLOOD RISK & DRAINAGE

7.1 The Environment Agency's Flood Map for Planning denotes that the site is located in Flood Zone 1 and is therefore at low risk of flooding. This means that development of this type, in this location, is suitable.

7.2 In accordance with Camden Policy and Guidance, the applicant has included extensive green roofs which will significantly reduce the surface water run-off from the development and creates a Sustainable Urban Drainage System. Its presence will minimise the strain on the traditional drainage network thus consequently reducing the risk of flooding in the local area and further afield. More information regarding green roofs is included in the Ecology section of this report.

8. WASTE MANAGEMENT

Household Waste

8.1 Adequate internal storage containers for household recycling will be provided within the apartments with a minimum capacity of at least 30 litres, in accordance with the measures outlined in the Code for Sustainable Homes and BREEAM assessments.

8.2 External storage for waste and recycling will be provided to all dwellings within the development and all external waste storage areas will be designed in accordance with the Inclusive Design Principles where possible and the requirements of Camden Council.

8.3 A Home User Guide will be provided to the occupants of the new dwellings which will provide advice and information on the most effective means and methods to recycle and minimise waste.

Construction Waste

8.4 Construction waste is a key element to be considered in achieving a reduction in all waste. It is estimated that some 40% of all waste is construction related. It has also been shown on a number of housing sites that as soon as the issue of waste starts to be addressed, significant improvements follow quickly across the site. There are two key elements to be considered:

> Appropriate construction methods and effective management;

> Re-use/recycling of materials on site.

8.5 The amount of waste materials arising from construction can be reduced by introducing regular audits to monitor and control site activities more closely, for example reviewing materials ordering and site practices to prevent damage and cross-contamination. Attention to the quantity of materials purchased and the way that these are offloaded, labelled and stored, can significantly reduce the amount of materials wasted. Wherever possible, the use of packaging and non-returnable pallets should be avoided, or they should be recycled or reused.

8.6 A Site Waste Management Plan (SWMP) will be implemented which will result in various benefits for the development, which include:

> Better control of risks relating to the materials and waste on the site. 'Good housekeeping' of waste and improved site safety;

> Demonstrating compliance with the legislative framework;

> A mechanism for demonstrating how waste is managed and minimised and how associated costs are controlled;

> A tool to aid compliance with various environmental management systems e.g. ISO14001;

> Compliance with contractual requirements from public and private sector clients; and

> A system to help make cost savings by better managing the supply chain of materials, and their storage, handling, recovery and eventual disposal.

8.7 Recycling of materials from the construction waste stream can provide valuable construction materials and relieves the existing pressure on landfill sites. By maximising the value extracted from these materials, and extending their life in this way, the demand for such materials from new sources is reduced and there is likely to be a long-term beneficial impact on the conservation of mineral resources such as primary aggregate materials.

8.8 A minimum of 85% by weight or by volume of non-hazardous construction waste generated by the project will be diverted from landfill in order to achieve the maximum Code for Sustainable Homes credits.

9. BUILDING QUALITY

Security

9.1 The development will conform to the requirements of Section 2 – Physical Security – from Secured by Design where possible. Consultation with an Architectural Liaison Officer / Crime Prevention Design Officer will take place through the design process to ensure the development provides a safer and more secure development.

Safety

9.2 In order to comply with the minimum standard of the BREEAM Domestic Refurbishment rating, the dwellings will be fitted with a compliant Grade A fire alarm system, and a compliant carbon monoxide detector, in accordance with BREEAM Domestic Refurbishment required standards.

9.3 Further requirements are in place for the location of the alarms and their power supplies; however, these will be discussed in greater detail during the design team meetings.

Sound Insulation

9.4 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 Part E standards. An improvement of 5dB is expected to be achieved which would achieve 3 Code for Sustainable Homes credits and the maximum amount of BREEAM credits. This will be demonstrated at the design stage through either a regime of sound testing or compliance with approved Robust Details.

9.5 Construction traffic 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 in line with the Considerate Constructor's Scheme.

Lifetime Homes

9.6 All dwellings will be built to the Lifetime Homes standards in line with the London Plan policy 3.8 and Camden Development Policy DP6.

9.7 The Lifetime Homes standards are a series of 16 criteria intended to make homes more easily adaptable for use over their lifetime. The Lifetime Homes standards aim to 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.

9.8 The principles of Lifetime Homes enables 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. This will ensure that the highest standards of accessibility are achieved, for example:

> Car parking spaces with disabled access;

> Wheelchair accessible entrances which are sheltered and adequately lit;

> Accessible communal stairs and lifts;

> Doorways and hallways with clear opening widths;

> Adequate circulation space;

> Entrance level living space, bedspace, WC and shower drainage;

> Potential for through-floor lift;

> Potential for ceiling hoists between a bedroom and bathroom;

> Wheelchair accessible bathrooms; and

> Accessible locations of service controls and window handles.

Daylight and Sunlight

9.9 Daylighting will be maximised throughout the development where possible. This may be assessed as part of the Code for Sustainable Homes and BREEAM assessments, with up to three credits available for this issue, including for a 2% Average Daylight Factor (ADF) in the kitchen, 1.5% ADF in all living, dining rooms and studies, and at least 80% of the working plane (desk level height) receiving direct light from the sky. Where appropriate, solar control glazing may be installed to reduce solar gains.

9.10 A daylighting assessment would be undertaken at detailed design stage to determine the exact number of credits for this issue.

10.TRANSPORT

Sustainable Transport Strategy

10.1 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.

10.2 The site is located within approximately 500m of Chalk Farm London Underground station (Northern Line) and within approximately 550m of Kentish Town West London Overground station.

10.3 There are regular bus services available from bus stops within close proximity to the site along Ferdinand Street and along Chalk Farm Road.

10.4 The site is also located within close proximity of local amenities such as cafes, shops, leisure and entertainment facilities in Camden which are primarily located along Chalk Farm Road.

10.5 It is therefore considered that the site is sustainably located and very suitable for a residential development such as proposed.

Cycle Parking

10.6 Encouraging cycling not only makes a positive contribution to health and well-being, but also reduces pressure on existing transport systems in accordance with the London Plan.

10.7 Secure, covered cycle parking is to be provided on site. Space for at least 34 cycles will be provided through the provision of 17 Sheffield cycle standards (each stand can accommodate 2 cycles). This will be sufficient to achieve 2 credits in the Code for Sustainable Homes and BREEAM assessments.

10.8 This will be coupled with a car parking free development which will promote the use of sustainable modes of transport.

Working from Home

10.9 The concept of working from home will be promoted by the provision of internal services and infrastructure, enabling the potential for home offices to be established in each dwelling. This will contribute to the vibrancy of this scheme, whilst offering additional environmental benefits in terms of potential reduced demand for transportation.

10.10 Under both the Code for Sustainable Homes and BREEAM Home Office requirements for all housing, it is necessary for two double electrical sockets, a broadband enabled telephone point, good ventilation (preferably through an openable window), good daylighting (minimum 1.5% average daylight factor) and an available wall greater than 1.8m in length. This allows enough room for a desk and either a filing cabinet or a bookshelf.

11.ECOLOGY

11.1 In accordance with the Code for Sustainable Homes assessment, an Ecology Report will be prepared. This report will outline key and additional recommendations for enhancement of the proposed development's ecological value.

Current Ecological Value

11.2 The existing site is a previously developed brownfield site with no green landscaping. It is therefore considered that the site as existing is of low ecological value. Opportunity therefore exists for features of ecological enhancement to be incorporated into the development.

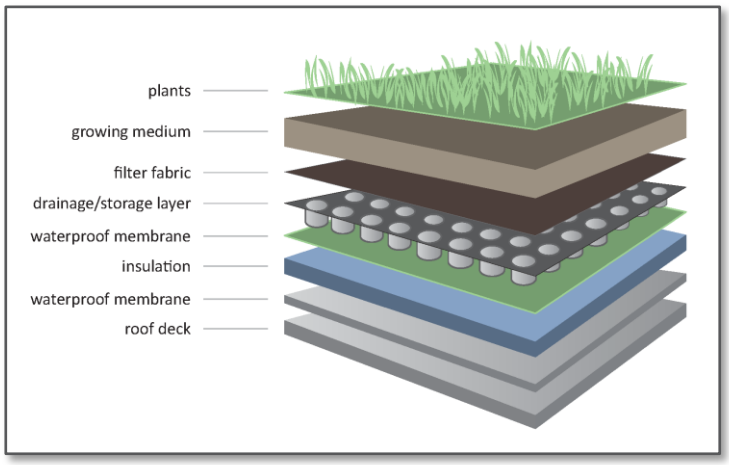
Enhancement of Ecological Value

11.3 The Applicant is committed to adopting all key and at least 30% of additional recommendations made in the Ecology Report as part of the Code for Sustainable Homes and BREEAM assessments. This would likely include the use of native species within the proposed green roof to increase the biodiversity on site. More information regarding green roofs is included in the section below.

Green Roofs

11.4 It is proposed (within one of the options for the development) to incorporate a green roof into the development in accordance with Camden Development Policy DP22 and Camden Policy Guidance on Sustainability to help maximise biodiversity on the site.

11.5 The detailed planting specification would be confirmed during detailed design, with advice from an ecologist, and would be specified to maximise credits as part of the Code for Sustainable Homes assessment.



11.6 Brown and green roofs are known to provide significant localised 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;

> Reduction in surface water run-off;

> Contribute to the provision of ecology credits as part of the Code and BREEAM assessments.

11.7 With the inclusion of the above measures for ecological enhancement, it can be concluded that a positive change in ecological value is expected to be achieved on the site as a result of the proposed development.

12.REDUCING CONSTRUCTION IMPACTS

Considerate Constructors Scheme

12.1 The development proposals will be registered with the Considerate Constructors Scheme to which the applicant is committed to achieving a 'beyond best practice' score. This is designed to encourage environmentally and socially considerate ways of working, to reduce any adverse impacts arising from the construction process in accordance with Policy 5.3 of the London Plan. It will also assist in obtaining credits under both the Code for Sustainable Homes and BREEAM assessments. The Considerate Constructors Scheme aims are as follows:

> Enhancing the appearance;

> Respecting the community;

> Protecting the environment;

> Securing everyone's safety; and

> Caring for the workforce.

Monitoring Construction Site Impacts

12.2 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.

12.3 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.

12.4 In addition to Considerate Constructors, the Code for Sustainable Homes and BREEAM assessments incorporate credits awarded for other sustainable construction practices such as security, responsible sourcing of materials and recycling.

13.CONCLUSION

13.1 The issue of sustainable development has been considered throughout the design of the proposed development. In particular, the associated effects of flood risk, drainage, water efficiency, building structure, low and zero carbon technologies and recycling have been addressed.

13.2 A commitment to a minimum of Code for Sustainable Homes Level 3 and BREEAM Domestic Refurbishment 'Excellent' represents a high level of sustainable design and construction. An option to achieve Code Level 4 is also presented.

13.3 In summary, the proposed development includes the following key commitments relating to sustainability:

> The proposed new build dwellings will achieve a Code for Sustainable Homes rating of Level 3, representing a high level of sustainable design and construction, with an option to achieve a rating of Code Level 4 through the incorporation of PV on the roof in preference to a green roof;

> The dwellings within the refurbished parts of the existing building will achieve a BREEAM Domestic Refurbishment rating of 'Excellent';

> Within the Code for Sustainable Homes assessment, at least 50% of the available credits will be achieved in the Energy (subject to preferred strategy regarding the use of PV or a green roof), Water and Materials categories;

> Within the BREEAM Domestic Refurbishment assessment, at least 60% of the available credits will be achieved in the Energy and Water categories and 40% of the available credits will be achieved in the Materials category;

> The development will target a 35% CO_2 reduction over the Part L 2013 baseline in line with the London Plan. Achieving this target is subject to installing PV on the roof in preference to a green roof;

> Water efficiency measures and devices will be installed in the dwellings to achieve a maximum daily water usage of 105 litres/person/day;

> Recycling facilities will be provided for domestic and construction related waste;

> The use of sustainable transport modes will be encouraged with the provision of cycle storage;

> Each dwelling in the proposed development will include the provision of Home Office facilities, reducing the need to travel to work;

> Enhancements will be implemented where appropriate to improve the site's ecological value;

> The development includes the incorporation of a green roof if considered to be the preferred option for the development;

> Where practical, building materials will be sourced locally to reduce transportation pollution and support the local economy. Materials will be selected based on their environmental impact, with preference given to 'A+' or 'A' rated materials from the BRE Green Guide to Specification where possible;

> All timber will be legally obtained from sustainable sources;

> All dwellings will be designed to meet all applicable Lifetime Homes requirements;

> An Architectural Liaison Officer or Secured by Design Officer will be consulted to provide advice on physical security; and

> Sound insulation values are to target an improvement by at least 5dB on Building Regulations Part E where possible.

HODKINSON

APPENDICES

Appendix A
Code for Sustainable Homes Pre-Assessment – Code Level 4

Appendix B
Code for Sustainable Homes Pre-Assessment – Code Level 3

Appendix C
BREEAM Domestic Refurbishment Pre-Assessment

Code for Sustainable Homes Pre-Assessment - 17-27 & 25 Ferdinand Street

THE CODE FOR SUSTAINABLE HOMES™

69.25	Total Predicted Score	Development Description	Completed by
Level 1 Level 2 Level 3 Level 4 Level 5 Level 6	36 Points 48 Points 57 Points 68 Points 84 Points 90 Points	Residential development in London Borough of Camden. Code 4 required with minimum 50% score in Energy, Water and Materials categories	R Schofield 15.01.15

	Issue	Credits Available	Credits Predicted	Design Assumptions Made
Energy & Carbon Dioxide Emissions	**ENE 1** Dwelling Emission Rate	10	4	To meet Code Level 4, at least a 19% improvement over 2013 Building Regulations is to be achieved through improved fabric performance and the use of renewable technologies. However, to meet the London Plan a 35% improvement is required which would achieve 4 credits. Detailed calculations and credits to be confirmed during detailed energy modelling.
	ENE 2 Fabric Energy Efficiency	9	4	To achieve credits for this issue, high levels of air tightness and fabric improvements will be required, such as enhanced insulation in the building envelope (walls, roofs, floors and glazing) to achieve average U-values better than those required by Part L (2013) Building Regulations. To achieve 4 credits, all apartments will need to achieve a target FEE of less than or equal to 45 kWh/m^2/year. This will be confirmed and refined during detailed modelling.
	ENE 3 Energy Display Devices	2	1	All dwellings will be provided with a correctly specified Energy Display Device that will display electricity and/or primary heating fuel consumption data. All devices must meet the Code criteria, but this will be outlined during the detailed design stage.
	ENE 4 Drying Space	1	1	Credit awarded for the provision of either internal or external secure drying space, capable of holding 4m+ of drying line for 1-2 bedromm dwellings and 6m+ for 3+ bedroom dwellings. Internal drying space must be adequately ventilated.
	ENE 5 Energy Labelled White Goods	2	2	One credit has been predicted at this stage where an EU Energy Efficiency Labelling Scheme is to be provided to each dwelling. Any white goods will need to have the following energy ratings: - Fridge, freezer or fridge-freezer: A+ rated; - Washing Machine: A rated; - Dishwasher: A rated; - Tumble dryer or washer-dryer: B rated.
	ENE 6 External Lighting	2	2	All external/communal lighting will be dedicated energy efficient fittings, with a luminous efficacy greater than 40 lumens per circuit watt, and with appropriate controls. Where security lighting is to be installed it must be energy efficient and have either daylight cut-off sensors, PIR sensors or time switches. If no security lighting is specified, the second credit will be awarded by default.
	ENE 7 Renewable Technologies	2	0	Credit not anticipated at this stage.
	ENE 8 Cycle Storage	2	2	Secure cycle storage is to be provided to all dwellings in the form of a communal cycle store. 2 credit should be targeted which requires the following: - 1 bedroom dwellings - storage for 1 cycle per dwelling. - 2/3 bedroom dwellings - storage for 2 cycle per dwelling. - 4 bedrooms and above - storage for 4 cycles per dwelling. All cycle storage must meet the following requirements: • Easy and direct access to/from the dwellings and to/from the cycle store to a public right of way • Located within 100m of the main entrances to the dwellings • Secure solid enclosure and a secure permanent entrance lock (BS3621 compliant) • Secure cycle fixings (steel set in concrete to allow for both wheel and frame to be secured).
	ENE 9 Home Office	1	1	Each dwelling will need to incorporate the space and services necessary for a home office. The Code requires a wall length of at least 1.8m, a broadband enabled telephone point (or 2 telephone points), two double power sockets, an openable window and an average daylight factor of at least 1.5%.
Energy & CO_2 Category Predicted Score		31	17	**Credit Weighting - 1.17**
Water	**WAT 1** Indoor Water Use	5	3	A strategy will be adopted to meet the mandatory 105 litres/person/day target. A suitable strategy would include the following: • Dual flush WC's (6/4L per min) • Wash hand basin tap flows of 3 L/min • Shower flow rates of 8 L/min • Bath capacity of up to 150L • Kitchen tap flows of 4L/min Dishwashers and washing machines (or washer-dryers) will also need to be included as part of the WAT 1 Calculator.
	WAT 2 External Water Use	1	1	Credit can be awarded by default if no garden spaces are specified.
Water Category Predicted Score		6	4	**Credit Weighting - 1.5**
Materials	**MAT 1** Environmental Impact of Materials	15	9	This score will need to be verified at the detailed Design Stage and the developers will reference the Green Guide to Housing Specification when determining their material specification. 'A+' and 'A' rated materials will be used where possible.
	MAT 2 Responsible Sourcing of Materials - Basic Building Elements	6	4	Credits have been predicted for MAT 2 and 3. The materials listed below have the ability to be sourced from sustainable sources, with certification to one of the following schemes: FSC, PEFC, CSA, SFI, BES6001:2008, MTCC, Verified, SGS, TFT, ISO 14001 and EMAS. • Brick • Tiles • Timber • Concrete • Glass • Plastics and rubbers • Metals • Dressed or building stone • Plasterboard and plaster • Resin based composite material • Cement bonded particle board • Bituminous materials • Mineral based materials • Products with recycled content.
	MAT3 Responsible Sourcing of Materials - Finishing Elements	3	2	
Materials Category Predicted Score		24	15	**Credit Weighting - 0.3**

	Issue	Credits Available	Credits Predicted	Design Assumptions Made
Surface Water Run-off	**SUR 1** Management of surface water run-off from developments	2	0	The mandatory element of this credit will be met through ensuring that no additional run off from the sites is produced as a result of the new development, or where areas of hard-standing reduces following development. To be confirmed by a Suitably Qualified drainage engineer. Water Quality Criteria 1. One credit can be awarded by ensuring there is no discharge from the developed site for rainfall depths up to 5 mm (see Calculation Procedures). 2. One credit can be awarded by ensuring that the run-off from all hard surfaces shall receive an appropriate level of treatment in accordance with The SuDS Manual to minimise the risk of pollution. Note: The SuDS Manual best practice recommendations should be followed where there is a risk to groundwater from infiltration (for example contaminated land, developments with high risk of pollution incidents)
	SUR 2 Flood Risk	2	2	According to the Environment Agency's Flood Map, the site is Flood Zone 1 therefore 2 credits may be achieved. An FRA would need to confirm this.
Surface Water Run-off Category Predicted Score		**4**	**2**	**Credit Weighting - 0.55**
Waste	**WAS 1** Storage of non-recyclable waste & recyclable household waste	4	4	External storage for waste and recycling is to be provided in communal bin stores. Bins must be adequately sized to accommodate the largest of the following two volumes: - The minimum requirements of BS5906 (170L for 2 bedroom dwellings) - The total volume of the external waste containers provided by the Local Authority. These provisions do not include garden or kitchen waste storage - see WAS 3. Internal storage for recyclable materials must also provided, with an overall capacity of at least 30L located in a dedicated position. Camden operates a service that does not require pre-collection sorting. All external waste storage areas must be designed in accordance with the IDP (Inclusive Design Principles). The Checklist IDP must be completed to show that amenities provide access and usability (for WAS 1, WAS 3 and HEA 3).
	WAS 2 Construction Site Waste Management	3	3	A compliant SWMP will include procedures and commitments for waste minimisation and diversion from landfill. Waste should be either re-used or recycled on site, or sorted on site and collected for recycling. A minimum of 85% by weight or by volume of non-hazardous construction waste generated by the project should be diverted from landfill for the full 3 credits to be awarded.
	WAS 3 Composting	1	1	Camden operate a garden and kitchen waste collection service so 1 credit is achievable for this issue.
Waste Category Predicted Score		**8**	**8**	**Credit Weighting - 0.8**
Pollution	**POL 1** Global Warming Potential (GWP) of Insulants	1	1	All insulation materials will have a zero Ozone Depleting Potential and a Global Warming Potential of less than 5.
	POL 2 NO_x Emissions	3	3	High efficiency, low NO_x (less than 40 mg/kWh) boilers are to be provided.
Pollution Category Predicted Score		**4**	**4**	**Credit Weighting - 0.7**
Health & Wellbeing	**HEA 1** Daylighting	3	1	A minimum of 1 credit should be achievable for this issue with all living & dining rooms (and any home offices) achieving a daylighting factor of at least 1.5%. The kitchens should aim to pass the required 2% daylighting factor and a view of the sky should also be achieved for all applicable areas. Exact credits cannot be determined until a detailed study has been carried out during design stage.
	HEA 2 Sound Insulation	4	3	Either sound testing or Robust Details will be used to demonstrate a 5dB improvement on Building Regulation.
	HEA 3 Private Space	1	1	Private space will be provided to some dwellings in the form of private balconies, sized to meet the minimum size requirements and compliant with the Checklist IDP.
	HEA 4 Lifetime Homes	4	4	Anticipated at this stage that all applicable Lifetime Homes requirements will be met.
Health & Wellbeing Category Predicted Score		**12**	**9**	**Credit Weighting - 1.16**
Management	**MAN 1** Home User Guide (HUG)	3	3	A compliant Home User Guide will be supplied to each dwelling to provide information on the environmental performance of the home, information regarding the site and its surroundings, and be made available in other formats (e.g. CD and Braille).
	MAN 2 Considerate Constructors Scheme	2	2	There will be a commitment to achieve 'best practice' under the Considerate Constructors Scheme, achieving a score between 35 and 50 with no section scoring less than 7.
	MAN 3 Construction Site Impacts	2	2	The development should monitor and reduce construction site impacts to reduce the affect of construction on the local area. This can involve the limitation 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.
	MAN 4 Security	2	2	An Architectural Liaison Officer (ALO) or Crime Prevention Design Advisor (CPDA) will be appointed to provide advice that will inform the design and ensure that the dwellings meet all aspects of Section 2 – Physical Security of Secured by Design – New Homes.
Management Category Predicted Score		**9**	**9**	**Credit Weighting - 1.11**
Ecology	**ECO 1** Ecological Value of Site	1	1	It is assumed that the site has low ecological value therefore 1 credit may be achieved. This will need to be confirmed by a Suitably Qualified Ecologist (SQE).
	ECO 2 Ecological Enhancement	1	1	The SQE will provide advice and recommendations on ecological enhancements to the sites. The developers will commit to all key recommendations and at least 30% of additional recommendations to achieve this credit.
	ECO 3 Protection of Ecological Features	1	1	Again, it is assumed that the site has low ecological value therefore this credit should be achieved by default. This will need to be confirmed by an SQE.
	ECO 4 Change of Ecological Value of Site	4	2	At least a neutral change in species assumed. To be confirmed during detailed design by a Suitably Qualified Ecologist.
	ECO 5 Building Footprint	2	1	Any credits achieved will be verified by calculations at the design stage.
Ecology Category Predicted Score		**9**	**6**	**Credit Weighting - 1.33**

Code for Sustainable Homes Pre-Assessment - 17-27 & 25 Ferdinand Street

THE CODE FOR SUSTAINABLE HOMES™

64.56	Total Predicted Score	Development Description	Completed by
Level 1 Level 2 Level 3 Level 4 Level 5 Level 6	36 Points 48 Points 57 Points 68 Points 84 Points 90 Points	Residential development in London Borough of Camden. Code 4 required with minimum 50% score in Energy, Water and Materials categories	R Schofield 26.01.15

	Issue	Credits Available	Credits Predicted	Design Assumptions Made
Energy & Carbon Dioxide Emissions	**ENE 1** Dwelling Emission Rate	10	0	To meet Code Level 4, at least a 19% improvement over 2013 Building Regulations is to be achieved through improved fabric performance and the use of renewable technologies. However, to meet the London Plan a 35% improvement is required which would achieve 4 credits. Detailed calculations and credits to be confirmed during detailed energy modelling.
	ENE 2 Fabric Energy Efficiency	9	4	To achieve credits for this issue, high levels of air tightness and fabric improvements will be required, such as enhanced insulation in the building envelope (walls, roofs, floors and glazing) to achieve average U-values better than those required by Part L (2013) Building Regulations. To achieve 4 credits, all apartments will need to achieve a target FEE of less than or equal to 45 kWh/m^2/year. This will be confirmed and refined during detailed modelling.
	ENE 3 Energy Display Devices	2	1	All dwellings will be provided with a correctly specified Energy Display Device that will display electricity and/or primary heating fuel consumption data. All devices must meet the Code criteria, but this will be outlined during the detailed design stage.
	ENE 4 Drying Space	1	1	Credit awarded for the provision of either internal or external secure drying space, capable of holding 4m+ of drying line for 1-2 bedromm dwellings and 6m+ for 3+ bedroom dwellings. Internal drying space must be adequately ventilated.
	ENE 5 Energy Labelled White Goods	2	2	One credit has been predicted at this stage where an EU Energy Efficiency Labelling Scheme is to be provided to each dwelling. Any white goods will need to have the following energy ratings: - Fridge, freezer or fridge-freezer: A+ rated; - Washing Machine: A rated; - Dishwasher: A rated; - Tumble dryer or washer-dryer: B rated.
	ENE 6 External Lighting	2	2	All external/communal lighting will be dedicated energy efficient fittings, with a luminous efficacy greater than 40 lumens per circuit watt, and with appropriate controls. Where security lighting is to be installed it must be energy efficient and have either daylight cut-off sensors, PIR sensors or time switches. If no security lighting is specified, the second credit will be awarded by default.
	ENE 7 Renewable Technologies	2	0	Credit not anticipated at this stage.
	ENE 8 Cycle Storage	2	2	Secure cycle storage is to be provided to all dwellings in the form of a communal cycle store. 2 credit should be targeted which requires the following: - 1 bedroom dwellings - storage for 1 cycle per dwelling. - 2/3 bedroom dwellings - storage for 2 cycle per dwelling. - 4 bedrooms and above - storage for 4 cycles per dwelling. All cycle storage must meet the following requirements: • Easy and direct access to/from the dwellings and to/from the cycle store to a public right of way • Located within 100m of the main entrances to the dwellings • Secure solid enclosure and a secure permanent entrance lock (BS3621 compliant) • Secure cycle fixings (steel set in concrete to allow for both wheel and frame to be secured).
	ENE 9 Home Office	1	1	Each dwelling will need to incorporate the space and services necessary for a home office. The Code requires a wall length of at least 1.8m, a broadband enabled telephone point (or 2 telephone points), two double power sockets, an openable window and an average daylight factor of at least 1.5%.
Energy & CO_2 Category Predicted Score		31	13	**Credit Weighting - 1.17**
Water	**WAT 1** Indoor Water Use	5	3	A strategy will be adopted to meet the mandatory 105 litres/person/day target. A suitable strategy would include the following: • Dual flush WC's (6/4L per min) • Wash hand basin tap flows of 3 L/min • Shower flow rates of 8 L/min • Bath capacity of up to 150L • Kitchen tap flows of 4L/min Dishwashers and washing machines (or washer-dryers) will also need to be included as part of the WAT 1 Calculator.
	WAT 2 External Water Use	1	1	Credit can be awarded by default if no garden spaces are specified.
Water Category Predicted Score		6	4	**Credit Weighting - 1.5**
Materials	**MAT 1** Environmental Impact of Materials	15	9	This score will need to be verified at the detailed Design Stage and the developers will reference the Green Guide to Housing Specification when determining their material specification. 'A+' and 'A' rated materials will be used where possible.
	MAT 2 Responsible Sourcing of Materials - Basic Building Elements	6	4	Credits have been predicted for MAT 2 and 3. The materials listed below have the ability to be sourced from sustainable sources, with certification to one of the following schemes: FSC, PEFC, CSA, SFI, BES6001:2008, MTCC, Verified, SGS, TFT, ISO 14001 and EMAS. • Brick • Tiles • Timber • Concrete • Glass • Plastics and rubbers • Metals • Dressed or building stone • Plasterboard and plaster • Resin based composite material • Cement bonded particle board • Bituminous materials • Mineral based materials • Products with recycled content.
	MAT3 Responsible Sourcing of Materials - Finishing Elements	3	2	
Materials Category Predicted Score		24	15	**Credit Weighting - 0.3**

	Issue	Credits Available	Credits Predicted	Design Assumptions Made
Surface Water Run-off	**SUR 1** Management of surface water run-off from developments	2	0	The mandatory element of this credit will be met through ensuring that no additional run off from the sites is produced as a result of the new development, or where areas of hard-standing reduces following development. To be confirmed by a Suitably Qualified drainage engineer. Water Quality Criteria 1. One credit can be awarded by ensuring there is no discharge from the developed site for rainfall depths up to 5 mm (see Calculation Procedures). 2. One credit can be awarded by ensuring that the run-off from all hard surfaces shall receive an appropriate level of treatment in accordance with The SuDS Manual to minimise the risk of pollution. Note: The SuDS Manual best practice recommendations should be followed where there is a risk to groundwater from infiltration (for example contaminated land, developments with high risk of pollution incidents)
	SUR 2 Flood Risk	2	2	According to the Environment Agency's Flood Map, the site is Flood Zone 1 therefore 2 credits may be achieved. An FRA would need to confirm this.
Surface Water Run-off Category Predicted Score		**4**	**2**	**Credit Weighting - 0.55**
Waste	**WAS 1** Storage of non-recyclable waste & recyclable household waste	4	4	External storage for waste and recycling is to be provided in communal bin stores. Bins must be adequately sized to accommodate the largest of the following two volumes: - The minimum requirements of BS5906 (170L for 2 bedroom dwellings) - The total volume of the external waste containers provided by the Local Authority. These provisions do not include garden or kitchen waste storage - see WAS 3. Internal storage for recyclable materials must also provided, with an overall capacity of at least 30L located in a dedicated position. Camden operates a service that does not require pre-collection sorting. All external waste storage areas must be designed in accordance with the IDP (Inclusive Design Principles). The Checklist IDP must be completed to show that amenities provide access and usability (for WAS 1, WAS 3 and HEA 3).
	WAS 2 Construction Site Waste Management	3	3	A compliant SWMP will include procedures and commitments for waste minimisation and diversion from landfill. Waste should be either re-used or recycled on site, or sorted on site and collected for recycling. A minimum of 85% by weight or by volume of non-hazardous construction waste generated by the project should be diverted from landfill for the full 3 credits to be awarded.
	WAS 3 Composting	1	1	Camden operate a garden and kitchen waste collection service so 1 credit is achievable for this issue.
Waste Category Predicted Score		**8**	**8**	**Credit Weighting - 0.8**
Pollution	**POL 1** Global Warming Potential (GWP) of Insulants	1	1	All insulation materials will have a zero Ozone Depleting Potential and a Global Warming Potential of less than 5.
	POL 2 NO_x Emissions	3	3	High efficiency, low NO_x (less than 40 mg/kWh) boilers are to be provided.
Pollution Category Predicted Score		**4**	**4**	**Credit Weighting - 0.7**
Health & Wellbeing	**HEA 1** Daylighting	3	1	A minimum of 1 credit should be achievable for this issue with all living & dining rooms (and any home offices) achieving a daylighting factor of at least 1.5%. The kitchens should aim to pass the required 2% daylighting factor and a view of the sky should also be achieved for all applicable areas. Exact credits cannot be determined until a detailed study has been carried out during design stage.
	HEA 2 Sound Insulation	4	3	Either sound testing or Robust Details will be used to demonstrate a 5dB improvement on Building Regulation.
	HEA 3 Private Space	1	1	Private space will be provided to some dwellings in the form of private balconies, sized to meet the minimum size requirements and compliant with the Checklist IDP.
	HEA 4 Lifetime Homes	4	4	Anticipated at this stage that all applicable Lifetime Homes requirements will be met.
Health & Wellbeing Category Predicted Score		**12**	**9**	**Credit Weighting - 1.16**
Management	**MAN 1** Home User Guide (HUG)	3	3	A compliant Home User Guide will be supplied to each dwelling to provide information on the environmental performance of the home, information regarding the site and its surroundings, and be made available in other formats (e.g. CD and Braille).
	MAN 2 Considerate Constructors Scheme	2	2	There will be a commitment to achieve 'best practice' under the Considerate Constructors Scheme, achieving a score between 35 and 50 with no section scoring less than 7.
	MAN 3 Construction Site Impacts	2	2	The development should monitor and reduce construction site impacts to reduce the affect of construction on the local area. This can involve the limitation 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.
	MAN 4 Security	2	2	An Architectural Liaison Officer (ALO) or Crime Prevention Design Advisor (CPDA) will be appointed to provide advice that will inform the design and ensure that the dwellings meet all aspects of Section 2 – Physical Security of Secured by Design – New Homes.
Management Category Predicted Score		**9**	**9**	**Credit Weighting - 1.11**
Ecology	**ECO 1** Ecological Value of Site	1	1	It is assumed that the site has low ecological value therefore 1 credit may be achieved. This will need to be confirmed by a Suitably Qualified Ecologist (SQE).
	ECO 2 Ecological Enhancement	1	1	The SQE will provide advice and recommendations on ecological enhancements to the sites. The developers will commit to all key recommendations and at least 30% of additional recommendations to achieve this credit.
	ECO 3 Protection of Ecological Features	1	1	Again, it is assumed that the site has low ecological value therefore this credit should be achieved by default. This will need to be confirmed by an SQE.
	ECO 4 Change of Ecological Value of Site	4	2	At least a neutral change in species assumed. To be confirmed during detailed design by a Suitably Qualified Ecologist.
	ECO 5 Building Footprint	2	1	Any credits achieved will be verified by calculations at the design stage.
Ecology Category Predicted Score		**9**	**6**	**Credit Weighting - 1.33**

HODKINSON

BREEAM Domestic Refurbishment Planning Pre-Assessment - 17-27 & 25 Ferdinand Street

BREEAM®

72.14	Total Predicted Score	Development Description	Completed by
Pass Good Very Good **Excellent** Outstanding	30 Points 45 Points 55 Points 70 Points 85 Points	Part conversion of existing building into residetnial apartments	R Schofield

	Issue	Credits Available	Credits Predicted	Design Assumptions Made
Management	**MAN 1** Home User Guide (HUG)	3	3	Three credits - provision of a home users guide – containing the information listed in the User Guide Contents List User Guide Contents List The list below indicates the type of information that should be included About BREEAM Domestic Refurbishment Recommendations Report Energy Efficiency Water Use Transport Facilities Materials and Waste Emergency Information Local Amenities Provision of Information in Alternative Formats Links and references
	MAN 2 Responsible Construction Practices (+ 1 Innovation Credit)	2	2	Considerate Constructors Scheme (CCS) score of between 35-39 with a score of 7 in each section.
	MAN 3 Construction Site Impacts	1	1	Construction site impacts are assessed against BREEAM Domestic Refurbishment Checklists. The checklists consider issues such as CO_2 production, water consumption and the sourcing of construction materials.
	MAN 4 Security	2	2	First Credit - achieving best practice security requirements for external doors and windows and minimum security requirements for retained doors and windows. Second Credit - implementing the principles and guidance for Secured by Design - Section 2
	MAN 5 Protection and Enhancement of Ecological Features (+ 1 Innovation Credit)	1	1	Enhancement expected through implementation of green roof. One exemplary performance credit also achieved.
	MAN 6 Project Management (+ 2 Innovation Credit)	2	2	First Credit - assigning Project Roles and Responsibility Second Credit - arranging a handover meeting and implementing a minimum of 2 methods of aftercare Two Innovation credits are available for exemplary performance
Total Management Category Predicted Score		**11**	**11**	**Credit Weighting - 1.09**
Health & Wellbeing	**HEA 1** Daylighting	2	1	First Credit - maintaining good daylighting levels Second Credit - achieving the minimum daylighting standards
	HEA 2 Sound Insulation	4	4	Credits are awarded for bringing the home up to and beyond national regulations. An improvement of 5db over Building Regulations is anticipated.
	HEA 3 Volatile Organic Compounds	1	0	Credit not sought at this stage.
	HEA 4 Inclusive Design	2	2	Dwellings to meet all applicable Lifetime Homes requirements.
	HEA 5 Ventilation **Minimum Standard**	2	2	First Credit—achieving minimum ventilation requirements for background, extract and purge ventilation. Second Credit—achieving advanced ventilation requirements in line with Building regulations Part F
	HEA 6 Safety **Minimum Standard**	1	1	One Credit—implementation of appropriate fire and carbon monoxide detection and alarm systems.
Total Health & Wellbeing Category Predicted Score		**12**	**10**	**Credit Weighting - 1.41**
rbon Dioxide Emissions	**ENE 1** Improvement in Energy Efficiency Rating	6	3	Up to 6 credits for the improvement to the dwellings Energy Efficiency Rating. This issue is assessed using the Energy calculator and SAP or RdSAP - credit allocation is based on exceeding EER improvement benchmarks, from the baseline EER.
	ENE 2 Energy Efficiency Rating Post Refurbishment **Minimum Standard**	4	3	Up to 4 credits available for the Energy Efficiency Rating post refurbishment. Two exemplary credits are available. Minimum Standards BREEAM Excellent level requires a minimum EER of 70
	ENE 3 Primary Energy Demand	7	4	Up to 7 credits available for the primary energy demand. Credit allocation is based on exceeding refurbishment benchmarks.
	ENE 4 Renewable Technologies	2	0	Credits not sought at this stage.
	ENE 5 Energy Labelled White Goods	2	1	First credit - provision of fridges, freezers and fridge freezers with the appropriate label/information Second credit – provision of washing machines, dishwashers and washer dryers with the appropriate label/information

	Issue	Credits Available	Credits Predicted	Design Assumptions Made
Energy & Ca	ENE 6 Drying Space	1	1	An adequate, secure internal or external space with posts and footings, or fixings holding: a. 1-2 bedrooms: 4m+ of drying line b. 3+ bedrooms: 6m+ of drying line
	ENE 7 Lighting	2	2	First credit – energy efficient external space and security lighting. Second credit – internal lighting that does not exceed the maximum average wattage across the total floor area - 9 watts/m^2
	ENE 8 Energy Display Devices	2	1	One credit – energy display device displays either electricity consumption data or heating fuel consumption data Two credits – energy display device displays both electricity and primary heating fuel consumption data An exemplary credit is available
	ENE 9 Cycle Storage	2	2	Two credits available for providing compliant cycle spaces, with the number of spaces required depending on the number of bedrooms in the dwelling.
	ENE 10 Home Office	1	1	One credit - provision of a compliant home office space.
Total Energy & CO2 Category Predicted Score		**29**	**18**	**Credit Weighting - 1.48**
	WAT 1 Indoor Water Use (+ 1 Innovation Credit) **Minimum Standard**	3	3	Credit allocation based on the water consumption of terminal fittings Water consumption targets required for the following BREEAM ratings: BREEAM Very Good level requires consumption to be 129-139 litres per person per day London Plan requires consumption to be no more than 105 litres per person per day
	WAT 2 External Water Use	1	1	Credit achieved where dwellings have no individual or communal garden space or where a compliant rainwater collection system has been provided.
	WAT 3 Water Meter	1	0	Credit not sought at this stage.
Total Water Category Predicted Score		**5**	**4**	**Credit Weighting - 2.75**
Materials	MAT 1 Environmental Impact of Materials	25	12	Up to 25 credits available for the embodied impact and the thermal performance of; roofs, external walls, internal walls, windows and upper and ground floors. Depending on the Green Guide rating of new materials and the impact of those materials on improving the thermal performance of the materials that make up these elements.
	MAT 2 Responsible Sourcing of Materials - Basic Building Elements **Minimum Standard**	12	6	Up to 12 credits are available depending on the responsible sourcing tier levels of the applicable new materials. Minimum standards - that all new timber is legally sourced.
	MAT3 Insulation	8	8	Any new insulation in external walls, ground floors, roofs and building services is assessed as a minimum requirement. First four credits – embodied impact of new insulation –assessed using the Mat3 calculator based on the insulation index. Second four credits – responsible sourcing of a minimum of 80% of insulation OR where no new insulation is specified and the dwelling achieves a minimum of 2.5 credits in issue Ene 02.
Total Materials Category Predicted Score		**45**	**26**	**Credit Weighting - 0.17**
Waste	WAS 1 Household Waste	2	1	First credit – provision of recycling storage facilities Second credit – provision of composting facilities
	WAS 2 Refurbishment Site Waste Management (+ 1 Innovation Credit)	3	1	Credits are awarded for the implementation of a SWMP. The requirements of the SWMP differ depending on the value of the project. Innovation credits are available
Total Waste Category Predicted Score		**5**	**2**	**Credit Weighting - 0.6**
Pollution	POL 1 NOx Emissions	3	3	Credit allocation is tiered and awarded based on the amount of NOx emissions arising from the operation of space heating and hot water systems.
	POL 2 Surface Water Run off	3	1	No change in the size of the building footprint or hard standing as a result of the refurbishment.
	POL 3 Flooding **Minimum Standard**	2	2	Site located in Flood Zone 1. FRA to confirm low risk of flooding.
Total Pollution Category Predicted Score		**8**	**6**	**Credit Weighting - 0.75**
Innovation	INN 1 Innovation	10	2	Exemplary credits likely to be achieved for MAN5 and MAN6.
Total Innovation Category Predicted Score		**10**	**2**	