Sustainability Statement

Mixed use development

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London

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Report prepared for:

CHASSAY STUDIO LTD

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1. Introduction

This sustainability statement has been prepared to accompany the detailed planning application for the proposed development of a mixed used development comprising 9 dwelling units and Type B1 non-domestic commercial space at 30a Highgate Road London being submitted by the developer [Developer/Applicant Name].

1.1. Development Overview

The development is proposed for the site of 30a Highgate Road, a collection of existing Victorian brick built buildings previously used as light industrial/commercial units. The existing site will be demolished and cleared for the proposed new build properties.

The proposed new development comprises two buildings orientated South East/North West facing each other over an access road.

The domestic units will be split across the two buildings, with SE orientated building being divided internally into one block of flats comprising 6 individual dwelling units set over two floors. The NW orientated building will accommodate 3 individual dwelling units set over 3 floors and located at the eastern end of the building divided from the non-domestic space by an access stairwell.

The non domestic unit is to be built as a 'Shell & Core' building with building services provided to accommodate Type B1 Offices and Workshop businesses. The total floor area is 682m2 set over 3 floors with the ground incorporating a loading bay area and lift access to the upper floors.

Full details can be found in the Design and Access Statement and the submitted architectural drawings.

1.2. Policy and Guidance

The proposed development is responding to a number of national and local policies and guidance:

National:

PPS1 – Sustainable Development

PPS12 – Plans

PPS14 – Waste

PPS22 – Renewables

PPS23 – Pollution

PPS24 – Noise

PPS25 – Flooding

Regional:

The London Plan (Supplementary Planning Guidance on Sustainable Design, Construction and Pollution Control)

Local:

Camden Development Plan Policy 22 – Section 3 – 'A Sustainable & Attractive Camden'
Camden SPG 3 – 'Sustainability'

1.3. Sustainability Approach

The overarching sustainability strategy addresses three main areas:

Environmental Sustainability

Efficient use of the site and the resources consumed by the dwellings (whether in construction or in use), minimisation of waste and creation of new habitats.

Economic Sustainability

Measures taken during the design and construction that will reduce future running costs. Crucially; measures within the proposals that are taken to avoid, or greatly delay, future obsolescence, whether such obsolescence arises from technology change, or changes in living standards and patterns, or even future effects of climate change.

Social Sustainability

Access to a living environment that is wholly fit for purpose; one where the future occupants health and well being opportunities are not compromised by any limitations imposed by the design of the buildings. This includes avoiding "sick building syndrome" and designing out crime. In addition, adding value to and improving the existing neighbourhood in which the proposed dwellings are situated so that it does not compromise the health and wellbeing of existing residents.

2. Environmental Sustainability

2.1. Efficient Site Use

The site is currently brownfield; containing a number of Victorian brick built buildings that have previously been used as commercial/light industrial workshop units and is almost entirely hard standing. The proposal seeks to improve the existing site by bringing it back into use through the addition of infill accommodation and new commercial space. The development will be built on virtually the same footprint as the to be demolished existing buildings and will enhance the appearance of the site by adding buildings in keeping with the

surrounding vernacular and through the addition of landscaping of public spaces. The reduction in hard standing will also help to improve the surface drainage potential of the site.

2.2. Energy and CO2

The majority of the energy consumed through this development will be due to the lifetime energy consumption of the dwellings from regulated and unregulated energy usage arising from occupation of the dwellings and non-domestic space. The proposed design seeks to address energy efficiency through a number of measures. Our primary strategy is to take a fabric first approach to reduce energy demand for space heating and DHW provision but also a number of other design criteria. This will be achieved by including the following:

- Orientation and compact building form
- Enhanced insulation and air tightness
- Good quality construction to reduce the effect of thermal bridging heat losses
- Natural ventilation
- Highly efficient Building Services

2.2.1. Orientation, location and Built Form

The shape and access to the site lends its self to the arrangement of two shallow-plan buildings facing each and creating a natural sheltered 'courtyard' area. In conjunction with the compact design this brings the following benefits:

- The rooms are predominately North West or South East facing. In a north and south facing buildings only the south façade requires solar shading whereas in an east and west facing building both façades would have to be treated. Furthermore the high-angle summer sun on south-facing windows is easier to deal with than the low-angle morning sun on east facing windows, or afternoon sun on west facing windows.

- The relatively compact building form provides a good surface area to volume ratio which inherently makes the dwellings more energy efficient.

- The buildings are Shallow plan - good for both day lighting and natural ventilation.

- The two separate terraces naturally create areas of wind shelter in the courtyard spaces between.

The optimal orientation and shallow-plan building form make a useful contribution toward reducing the overall energy consumption.

2.2.2. Insulation and Airtightness

Insulation levels approximately twice as high as the Building Regulations minima and air permeability targets set at third of the Building Regulations maxima are proposed.

Accredited construction details will be adopted as a minimum to ensure heat losses arising from thermal bridging are reduced to a minimum.

2.2.3. Highly efficient Building Services

A site wide communal heating and hot water system is proposed to improve efficiency and cost effectiveness through reduction in overall plant required. By providing this type of system and future proofing it with the inclusion of plate heat exchangers the site will facilitate easy connection to future district wide heating schemes

2.2.3.1. Heating and Domestic Hot Water

A gas fired high efficiency heat pump using wet under floor heating emitters is currently proposed (i.e. pipe-in screed/timber floor) for space and domestic hot water (DHW) provision. The inherent efficiency of this type of heating arises from the following:

- Rooms with under floor heating feel comfortable at 18 deg C whereas rooms with radiators feel comfortable around 20 deg C. The ability to maintain comfort at lower temperatures reduces both the number of hours per year that heating is required and the actual heat output needed on those occasions that heating is called for.

- There is less stratification with under floor heating, thereby reducing heat losses through roofs and the upper part of walls.

- Under floor heating does not have the localised elevation of temperatures on external walls typically associated with radiators.
    1.
- Centralised hot water storage and delivery to minimize standing losses from individual hot water cylinders

- Compact DHW pipe work layout which is well insulated to reduce losses and non usable internal gains

  Use low-flow taps and low-flow showers to minimise the amount of water used. The proposed target for domestic water usage is less than 105 litres/person/day.

2.2.3.2. Ventilation Strategy

For the domestic units, the proposed ventilation strategy is natural ventilation through the use of high efficiency intermittent extract fans located in rooms of high humidity or pollutants (kitchens and wet rooms). Natural summer ventilation will enabled by fully openable windows

on both north and south facades enabling cross ventilation and passive night time cooling to mitigate summer overheating without the need for mechanical cooling.

The inherent efficiency of this approach arises from the following:

- The extract fans will be speed-controlled to make use of the variations in demand.
- A simple extract fan consumes very little energy compared to a conventional balanced heat recovery ventilation system - there is no plate heat exchanger to force air through, or filters, and there is only one fan instead of 2. The result is a Specific Fan Power of around 0.25 W/l/s compared to around 2.0 W/l/s for an equivalent centralised heat recovery ventilation system.

- The buildings can be ventilated on summer nights without compromising building security; this "night cooling" will help avoid (or at least minimise) the need for air-conditioning systems.

For the non-domestic units the proposed ventilation strategy is also natural ventilation but on demand ventilation via area specific extract fans will also be provided. Nigh time summer ventilation via secure open able louvers in above ground floor windows will also installed to mitigate summer heat buildup.

2.2.3.3. Cooling

Preliminary assessment indicates there are no significant risks of summer overheating for the domestic properties and therefore no requirement for an active cooling strategy. Passive cooling will be proposed:

The building orientation is North and South facing instead of East and West which limits the high summer solar gains of low angle sun. Solar shading on south-facing windows will be provided through a combination of roof eaves, blinds and external louvers.

The non-domestic space, in order to reduce the need for comfort cooling to a bare minimum (i.e. server rooms where IT heat gain is greater than 30W/m2) a passive cooling strategy will be adopted.

- Inclusion of medium to high thermal mass elements including screed floors and block internal walls.
- Night cooling that does not rely on having to leave windows open (louvers in the façade and mechanically assisted extract ventilation from each floor)
- Openable windows on all upper floors

We believe the passive cooling strategy enhances the sustainability of the buildings, by giving them a degree of resilience against possible future increases in external temperatures

2.2.3.4. Electric Lighting and Controls

The following measures are proposed to maximise the efficiency of the lighting systems:

- The form of the buildings has been developed specifically with day lighting in mind; high ceilings, large windows, shallow plan.
- All domestic fixed light fittings will be 100% low energy dedicated light fittings
- High efficient T5 flourescent lamps will be used in the non-domestic space with LED lighting specified for the corridors and access stairwells.
- Occupancy sensors will be fitted to the corridors, stairs and toilet areas.
- External lighting will be low level LED with security lighting fitted with PIRs (motion daylight sensors)

2.2.3.5. 2.2.4 On-site renewable

We propose to use Photo Voltaic panels as the primary on-site renewable. A 10.2 kWp installation of roof mounted PV panels will be installed in two banks on the SE roof space of each building. This will equate to ~80m2 of panels in total split equally between each South East facing roof space. Subsequent in depth solar shading analysis will be performed to determine the optimum position of the panels

The gas absorption heat pump is capable of providing domestic hot water up to a temperature of 65^0C. To increase efficiency of the centralized hot water store and delivery system it will be linked to a 22.5m2 solar thermal installation located on the South East roof of the mixed used development block. The primary function being a pre heat to the incoming feed of the gas absorption heat pump.

This combination of Solar PV and Solar thermal panels will provide the required 20% additional reduction in CO2 emissions as advocated by the London Plan policy.

See the energy statement for full details

We believe this approaches offers the best and most cost effective solution to reducing energy demand

2.3. Water Conservation

As a minimum the dwellings will meet the building regulations requirements of 125 l water usage per person per day with the aim to reduce water usage to 105 l per person. This will be achieved with;

- Low-flow taps (2.2l/min),
- showers (7l/min),
- low volume toilet flush (2.8l per flush)
- water metering devices to encourage efficient water use behavior
- greywater recycling for the flushing of toilets.

For the non-domestic element we propose further water reduction measures including

- leak detection and pulsed-output meters on the incoming supply
- Leak prevention on the sanitary accommodation

2.4. Waste

The sustainability of a new building also includes the construction phase of the project, where environmental and energy issues can be equally as challenging. Waste management through the construction phase is being addressed through the Considerate Constructor scheme, where we aim to meet as a minimum the best practice guidelines specified under the scheme.

Wherever practicable, construction waste will be recycled/re-used in accordance with a suitable guide such as the DTI Construction Industry Key Performance Indicator (KPI) and in accordance with the waste hierarchy. Where applicable this will include: waste segregation, storage and removal, with the aim of seeking to minimise the negative impacts of development such as construction traffic, noise and dust pollution on site.

Space for and provision of recycling facilities for both domestic waste streams and commercial waste streams will be provided so that once the building is occupied and operational, waste management will be facilitated and promoted through the local authority collection scheme. Instructions for both domestic and commercial waste management and the details of the local authority collection scheme will be included in the property user handbook.

2.5. Sustainable Materials

The proposed dwellings will use materials whose manufacture has low impact on the environment as part of the construction process and as stated within the Green Guide Specification for Buildings. Wherever practicable, materials will be sourced that are A rated and from local suppliers to minimise the transport of materials and associated CO_2 emissions.

All construction timber will be sustainably sourced (FSC or PEFC) with an appropriate Chain of Custody provided by the suppliers to ensure compliance.

As per BREEAM methodology (non-domestic element) no material with a rating of <D will be used is there is a viable alternative. The incorporation of recycled materials will be utilised wherever possible (foundations/subbase) to minimise the amount of raw material that would need to be obtained as part of the manufacturing process, and also to help reduce construction waste likely to go to landfill.

3.0 Economic Sustainability

A major benefit of the energy efficiency measures that have been proposed with Carbon Emissions in mind, is a significant reduction in Electricity and Gas bills for the residents/tenants helping to ensure a reduction in fuel poverty (domestic units) within the local authority and reduce costs for businesses (non-domestic units). The passive environmental design measures also all have benefits in terms of reducing maintenance:

- Natural ventilation = no mechanical ventilation cleaning requirement or filters to change
- Daylighting = less frequent re-lamping required
- Underfloor heating = fewer vulnerable pipes with risk of frost rupture
- In fill site with close proximity to shops and transport links means future occupants will not require the use of cars to access the site or basic amenities and will contribute to the local economy

4.0 Social Sustainability

The dwellings/commercial space and site have been designed to ensure a pleasant living/working environment in keeping with the surrounding neighborhood is produced and that the health, well being and integration of future occupants and the existing community is optimized through;

- Excellent levels of acoustic separation between the dwellings to provide the right acoustic conditions for privacy and the health and welling being of future occupants
- Pleasant living environments with adequate provision of thermal comfort in all seasons
- Fully opening windows above ground floor that permits night ventilation without the security issue of opening windows.
- Pleasant communal spaces to encourage neighborhood integration
- Well designed external areas with lighting provision to ensure the safety of residents and reduce the risk of crime potential.