Sustainability Statement

35 Great James Street

London, WC1N 3HB

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Prepared for:

Marek Wojciechowski Architects
66-68 Margaret Street
London
W1W 8SR

eb7 Ltd, Studio 1B, 63 Webber Street, London, SE1 0QW I 020 7148 6290 I info@eb7.co.uk I www.eb7.co.uk

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1.0 Introduction

This report sets out the sustainability issues and targets intended for the proposed development at 35 Great James Street, London, WC1N 3HB.

The development comprises an application for a change of use from Office (B1) to a single family dwelling (C3), including limited works to extend the closet wing & introduce an internal lift, rebuild a reduction to the existing rear extension with the reinstatement of the rear lightwell. Overall, the completed project would have a gross internal area of circa 360sqm.

The existing property consists of a 5-storey Victorian terraced building, arranged over lower ground to third floor levels, and is Grade II listed; Great James Street is also located in the Bloomsbury Conservation Area.

1.1 Planning Context

There is a requirement to submit a sustainability statement that will demonstrate how the project will aspire to the sustainability requirements of Camden Core Strategy Policy CS13 (Tackling climate change through promoting higher environmental standards) and LDF Policy DP22 (Promoting sustainable design and construction).

Keys points highlighted within the above policy documents are:-

The Council will encourage all development to meet the highest feasible environmental standards that are financially viable during construction and occupation, *by:-*

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, such as the King's Cross, Gower Street, Bloomsbury and proposed Euston Road decentralised energy networks.*
- *Generating renewable energy on-site;*

DP22 requires development to incorporate sustainable design and construction measures; Schemes must demonstrate how sustainable development principles have been incorporated into the design.

Further guidance on the energy efficiency of existing buildings is taken from Camden Planning Guidance 3 (Sustainability) (CPG 3) as well as seeking to adopt the principles behind the Code for Sustainable Home and/or Eco Homes 2006; where possible and feasible.

The applicant acknowledges the current issue with regard to concerns about climate change and the contribution that building stock makes in the form of emissions to the atmosphere, the use of water, waste generation and the use of polluting materials.

Accordingly, the applicant has taken specific guidance from within Camden's CPG 3 and has noted that, as a guide, at least 10% of the project cost should be spent on environmental improvements and that sensitive improvements can be made to historic buildings to reduce carbon dioxide emissions; indeed CPG 3 gives specific guidance on the approach to energy efficiency measures undertaken on historic buildings:-

- In order to identify the most appropriate measures, we recommend taking the following approach, which takes into account measures best suited to individual buildings and households (i.e. taking human behaviour into consideration as well as the building envelope and services):
- Assess the heritage values of the building;
- Assess the condition of the building fabric and building services;
- Assess the effectiveness and value for money of measures to improve energy performance;
- Assess their impact on heritage values; and
- Assess the technical risks.

In co-operation with the design team, this report seeks to inform the above process and offer potential solutions, subject to the required permissions and feasibility as set out against the above parameters.

2.0 Sustainability

2.1 Energy Efficiency

2.1.1 Building Fabric

The scheme will be designed to limit the emissions of carbon dioxide to the atmosphere from the operation of the building services via the use of good building fabric, i.e. be lean – use less energy; step 1 of the Mayor's energy hierarchy. To achieve this, the development will adopt the principles of "best practice" u-values for the new build extension as noted in CPG 3:-

Newly laid floor to lower ground floor level – u = 0.15

New external walls to lightwell and new rear extension – u = 0.20

New flat roof to rear extension and upper floor roof terrace– u =0.13

New pitched roof – u = 0.13

New glazing to lightwell to rear extension and new rooflights – u =1.5

To further improve fabric efficiency of the proposed dwelling, the developer will undertake the following retrofitting works as identified in Appendix 1 of CPG 3:-

Investigate the condition of the existing hard wood single glazed timber window units, refurbish, draft-proof and replace as required - subject to the appropriate consents.

The design team will also investigate the opportunity to install conservation style double and/or secondary glazing to rear elevations to enhance thermal performance, again subject to the appropriate consents.

2.1.2 Building Services

In terms of the operation of building services, the following strategies will be adopted:-

The current office use has old floor standing boilers in poor condition. New high efficiency gas boilers will be installed as part of the conversion, with weather compensation to further enhance efficiency.

Controls will be upgraded via the use of TRVs, programmable wall thermostats and timers to provide full interlock mechanism to ensure that boilers are only firing when required. In additional, the heating will be zoned on a floor-by-floor basis.

The above controls will be enhanced by smart metering to ensure that the occupants as informed about the electrical and gas consumption at any point in time, and also alerted to any periods of excessive use.

Under floor heating will be installed in the newly laid lower ground floor to take advantage of the thermal mass of the floor structure and to enable the heating system to run at lower temperatures in those heating zones, and therefore operate more efficiently.

Internal service pipework will be insulated to reduce transmissions losses.

Where possible the use of LED low energy lighting will be adopted, where this is not possible, dedicated compact fluorescent lighting pendants will be installed. The overall target will be to introduce a 100% low energy strategy for lighting.

Proximity detection will be installed in toilet, store and secondary use areas to ensure that lighting is not left on unnecessarily.

Further energy efficiency measures to assist the reduction of consumption of unregulated energy use are noted under **2.4**, below.

2.2 Efficient Energy Supply

The energy hierarchy goes on to consider how energy can be supplied more efficiently via connection to decentralised supplies such as community heating or CHP provisions.

Clearly, for a small change of use/refurbishment/extension project, the provision of community heating within the development is not practical and would offer no efficiency savings.

However, the use of “traditional” gas boilers, with the flow and return temperatures similar to community schemes, does mean that, as and when such a network was to become available in the area – the property at 35 Great James Street would have the facility to connect to the network.

Accordingly, the applicants have considered the potential to connect into a decentralised energy grid; an extract from the London Heat map is reproduced below, which indicate a target area in close proximity to Great James Street:-

http://www.londonheatmap.org.uk/Mapping/

Camden policy is clear in requiring developments to make use of existing and proposed decentralised networks.

Clearly though, there is no existing not future network that will be available in the medium term and it is therefore proposed that specific facilities and infrastructure to connect to an external heat network would not be appropriate.

2.3 Sustainable Energies

Camden's guidance on renewable technologies within CPG3 states

"Buildings can also reduce their energy consumption by generating their own energy in the form of heat or electricity using low carbon and renewable technologies which use little or no energy"

Specifically, the guidance requires the consideration of the retro-fitting of

- Solar thermal (hot water) panels
- Solar PV panels
- Ground source heat pumps

Therefore this report will briefly considered the feasibility of these technologies:

Solar hot water

Solar thermal systems harness the suns energy to heat hot water via roof mounted panels. There is access to a limited area of west facing pitched roof to the rear of the property that could accommodate solar thermal panels.

However, a solar thermal will be displacing the CO_2 emissions from efficient gas boilers, the carbon saving would not be as great when compared to other technologies

The Renewable Heat Incentive (RHI) has been introduced into the domestic market in April 2014 and will offer a financial return for renewable heat generated for such systems, albeit not as great from that achieved via the use of solar PV; ven with the RHI in place, the pay back periods for solar systems, particularly when "competing" against high efficiency means for the production of hot water – gas - have proven to be in excess of 20 years. Indeed the Government's original announcement of the launch of the RHI concedes that solar thermal is "more costly per unit of energy than other technologies"

Photovoltaic systems

Solar "PV" systems are roof mounted panels with photocells that generate electricity from the Sun's light; a relatively simple technology that is simple to install and offers a financial yield (circa 8-9%) via the Feed in Tariff.

There is a limited availability of suitable roof space; rear facing and not visible from the street (in line with CPG 3 guidance), with a south-westerly aspect. As such, it would be considered more appropriate to install solar PV; potentially a 3 or 4 panel/1.0Kwp PV array, generating some 600 - 800 Kwh/annum - a saving of up to 0.4t/CO_2 per annum.

This of course, would be subject to planning and English Heritage consents. It is understood from the design team that this is unlikely to be forthcoming.

Ground source heating

Ground source heat pumps extract the heat from the ground (or bodies of water) through collector loops prior to passing through a refrigeration "evaporation/compression" heat exchange cycle which passes the heat into central heating systems.

Although a highly efficient system, its efficiency is derived from the use low flow/return temperatures in well insulated properties and using the thermal mass via under floor heating systems set in screeded floors. It also requires either, large areas of external space for shallow collector loops, or deep bore thermal "wells" if ground area is limited.

Given the confined urban environment, the lack of external ground space – which would render the costs unfeasible – and the lack of high level thermal efficiencies, a ground source heat pump cannot be considered.

2.4 Eco Homes & Code for Sustainable Homes Principles

Due to the small scale nature of the development, LDF Policy DP22's requirement for a formal Eco Homes assessment does not apply. However, the developer is committed to adopting many of the principles of Eco Homes and the Code for Sustainable Homes, as well as taking on board the recommendation contained within Camden's CPG 3 , Appendix 1:-

Energy

Unregulated energy use will be reduced via the provision of clothes drying facility within the lower ground floor utility area – appropriate levels of ventilation will ensure that moist air is evacuated from the area to prevent long term damage to internal fabric.

All external lighting will be energy efficient and will have appropriate timer or photocell controls to prevent daytime operation.

Information on the EU Energy Rating system will be provided to the occupants as part of the operations manual to enable informed purchasing of white goods for the home.

Water

All newly installed sanitary ware will be selected to reduce wholesome water use – dual flush toilets, showers, basin and kitchen taps with flow restrictors and selecting baths with limited capacity. Overall, a target of 105l/person/day will be targeted under the Part G wholesome water use calculations.

Materials

The re-use of much of the building structure is sustainable by definition as much material is retained in situ. In addition, the developer will ensure that the suppliers of building materials, where practical, can demonstrate a policy of responsible sourcing – ewamples include FCS, BES6001 & ISO14001.

Waste

The main contractor will be required to put in place a site waste management plan to ensure minimal waste arising from site and to ensure that much of the construction waste is diverted from landfill. In addition, the main contractor will be required to join the Considerate Constructors Scheme and meet the minimum level of "Best Practice"

Pollution

All insulants used within the development will have a rating of zero for ODP and have GWP of less than 5. New high efficiency natural gas boilers will be selected that have NOx emissions at less than 40mg/Kwh

Ecology

The nature of the development will have limited effect on the ecology of the site, indeed, the Code for Sustainable Homes would rate the effect as "neutral". The applicants will however, investigate the potential to encourage bio-diversity via the use of insect and bird nesting boxes.

3.0 CONCLUSIONS/SUMMARY

It is the intention of the developer to deliver a sustainable development as defined within the policies of Camden Council; the same polices that have informed this report and the recommendations within.

Although the policies did not require the developer to commit to the principles of the energy hierarchy and Eco Homes, the applicant has identified opportunities when they are able to do so, and will deliver these principles as part of the development, thereby meeting the minimum sustainability requirements of Camden Council and advancing the development beyond those requirements.