

SUSTAINABILITY STATEMENT

OFFICE (CLASS E) TO RESIDENTIAL (CLASS C3)

90 LONDON STREET

READING

BERKSHIRE

RG1 4SJ

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Introduction

The Sustainability Statement supports the application for planning permission and listed building consent for the conversion from offices to residential dwellings at 90 London Street, Reading.

The proposed change of use will follow the Code for Sustainable Homes Level 4 scheme, in which the knowledge and expertise in all sustainability analysis will be demonstrated in the BREEAM report.

The site is in an urban location on the west side of London Street within the Market Place/London Street Conservation Area to the south of the Reading town centre. 90 London Street is a Grade II Listed, late 18th-century semi-detached property of three storeys with a basement.

The proposed scheme will see the building converted from offices to six residential dwellings.

Proposed Approach to Sustainability

This statement sets out the approach the applicant proposes to adopt to ensure that the proposal meets high sustainability standards. The BREEAM report includes a discussion of the full range of sustainability issues, as shown below:

- Energy & carbon emissions
- Water conservation
- Flood risk, surface & wastewater management
- Ecology & biodiversity
- Waste & Pollution
- Materials selection and sustainable construction methods

This statement will demonstrate that this proposed development will meet the requirements of policies CS1 & CS2 of the Reading Core Strategy.

Reading Borough Council's (RBC) Sustainable Design and Construction SPD (2011) also requires proposals such as this to demonstrate compliance with the 'excellent' standard of the BREEAM. Domestic Refurbishment Scheme and a separate assessment document are supplied to show how this can be met for this development and the details stated in this report dovetail with this requirement.

Energy Conservation and Carbon Emissions

It is recognised that the generation of energy to heat, light, and cool buildings is responsible for approximately half of the total CO₂ emissions of the UK. Part L of the Building Regulations requires a minimum energy efficiency standard in new and refurbishment development; however, this development intends to go beyond this.

As a first step in dealing with carbon emissions arising from energy use within buildings, it is essential to consider designing energy efficiency measures as part of the construction and refurbishment of the buildings as these can be difficult and disruptive to retrofit in the future and this will also reduce the amount of energy required by a building.

Reduction of heat loss is a crucial element of this. The proposal consists of insulation within floors, roofs and walls that will exceed the minimum standards required under Part L1 (Conservation of Fuel and Power) of the Building Regulations, as will the U-Values for replacement glazing and doors (within the context of permissions required under the Listed Building context).

Initial thoughts are to aim for U-values below minimum Part L compliance, which will be confirmed once detailed design commences, should planning permission and listed building consent be granted.

An air-tight building will also play a significant part in reducing heat loss via the external envelope and, coupled with adequate ventilation to ensure internal air quality, is an essential element in energy-efficient building design. Accordingly, attention will be given to potential areas of air ingress, such as where services enter the residential unit and seal around window units.

The exact heating and hot water system for the proposed dwellings has yet to be finalised; however,

the current thought is to install high-efficiency gas-based heating, with full-time and temperature zone control for heating and hot water delivery, meaning energy is only used as and when it is required. Other intelligent control systems, such as a weather compensation unit, may also be incorporated into the heating specification.

The use of passive solar design is essential, but in this context will remain the same as there will be no alteration to opening areas for the building. Where artificial light is required, the focus will be on providing energy-efficient lighting systems as appropriate to locational requirements.

The option to utilise solar energy technologies has also been considered. However, it is stated that the listed status of the building precludes these as options. Finally, regarding White Goods within the proposed dwelling attention will be paid to the energy specification of all electrical equipment installed within the dwelling.

Using energy-conscious design principles and a fabric-first approach means that the building should remain energy efficient for its entire lifetime, within the context of the Listed status and the overall requirement for energy input is reduced for heating and hot water.

Water Resource Management

The UK has a poor record in being wasteful with its abundant water resource, and the South-East of England is recognised as suffering from water stress; therefore, on this site, only water-efficient products will be specified.

The actual specifications of the water-using products are yet to be established; however, the following notional specification is considered realistic for this type of development. An assessment of the efficiency of the residential dwelling's domestic water-consuming components has been undertaken using the Building Research Establishment's water calculator.

The estimated water consumption is at most 125 litres per person per day following Approved Document G2. Water Efficiency is to be calculated using the 'Water Efficiency Calculator for New Dwellings', and results will be submitted to building control before works commence on site.

Water calculation to follow Code for Sustainable Home Level 4 as the Local Planning Authority stipulates. Example calculation below;

WC 5/3 (dual flush)

Taps (excluding kitchen taps) 4

Baths 180

Shower 8

Kitchen sink taps 6

Washing machine 8.17 (not supplied)

Dishwasher 1.25 (not supplied)

Water recycling 0 (not supplied)

Predicted per capita consumption (Code) 103.28

Having looked into the possibility of water-saving devices such as rainwater harvesting and greywater systems, these will not be utilised as the carbon footprint arising from the pumps involved with such a system is heavy, and it is more efficient to specify the low flush WCs.

The provision of water meters is also recognised as an essential tool in reducing water usage. In a domestic context, they can encourage people to monitor and reduce their water consumption by an average of 10% to 15%. Therefore, the residential units will have an easily accessible water meter installed as part of the specification.

Flood Risk, Surface & Waste Water Management

The Environment Agency's Flood Mapping for the area shows the site is not located within an area considered to be at risk from flooding. There are no additional areas of hard-standing or roof area on site as a result of the proposed scheme and the existing surface water runoff provision is adequate for site needs and will be retained in full. The information can be viewed online via www.gov.uk.

Waste & Pollution

Waste arising from the construction process has been an area of focus for some years now, with the industry making good strides in reusing and reducing materials, which not only helps the environment but also engenders significant cost savings for developers.

The appointed contractor for the scheme will be encouraged to develop a comprehensive site waste management plan (SWMP) prior to the start of construction, reflecting the recognition that the reduction of waste begins in the design and ordering stage of a project and carries on through to the sign-off of the building. This SWMP will set targets and procedures for the sorting, reusing, and recycling construction waste into defined waste groups, either on-site or through a licensed contractor at a waste transfer station. As the proposal is an internal alteration with no exterior design applied, the site waste will be kept to a minimum. Still, a refurbishment audit will also be undertaken to see if any of the removed materials can be recycled for use on this or other building projects in the area or if the materials can be recycled for use by others.

The generation of waste continues beyond the end of the construction process, and adequate provision will be supplied to the proposed residential units and externally to the rear of the dwelling to allow for the sorting of general waste from recyclable materials.

Pollution can occur in various guises, and attempts will be made to design out or mitigate against a several issues are identified below.

Light pollution will be countered using external lighting, which only involves energy-efficient fittings, daylight detectors and angling/capping to prevent unnecessary glare. This idea will also be kept to a minimum.

Materials Selection & Sustainable Construction Methods

The final material specification in terms of actual product and suppliers has yet to be confirmed for this project and will be subject to planning and listed building considerations. However, plenty of new materials are expected to be optional for a building structure, and most of the new materials will be timber-based and plasterboard.

The applicant is committed to ensuring that all materials used score as highly as possible in the Building Research Establishment's Green Guide to specification.

In addition, wherever possible, all building and finishing materials will be sought from local suppliers, and manufacturers registered to an environmental management scheme such as FSC or PEFC (for timber-based products), BES6001, ISO14001 or EMAS. This product will ensure that the materials have been sourced from suppliers certified as ethical and responsible as far into the supply chain as possible.

All insulation materials selected for the building will have a Global Warming Potential of below five and, where possible, be made from natural products. Finally, attention will also be paid to materials specified for the internal environment, focusing on materials/finishes containing low/no volatile organic compounds (VOCs) to improve the internal environment for occupants, as internal air pollution is increasingly recognised as having negative impacts on health.

Summary

In summary, this development demonstrates a solid commitment to sustainability, albeit within the building's listed status.

It incorporates many sustainable features that are consistent with achieving a high level of overall sustainability and, subject to confirmation of certain issues that can only be resolved post the granting of planning permission, that meets the BREEAM Domestic Refurbishment Scheme Report with the requirement of "Excellent".

In short, given the nature of the scheme having minimal impact on the existing structure, along with the intentions outlined within this report, the proposed development is deemed to meet the levels of sustainability required by RBC.