1015 Oxford Road Sustainability Statement

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1. Executive Summary

This report describes the sustainability strategy for 1015 Oxford Road, setting out how the proposed development will respond to current local and national planning policy and regulations on sustainability.

1.1. Energy Efficiency & Carbon Emissions

Energy efficiency will be increased and carbon emissions reduced by following a strategy of reducing energy consumption first by utilising passive design techniques to improve the building fabric. Once this has been achieved, low and zero carbon technologies and on-site electricity generation will improve the overall sustainability of the development.

There are no suitable decentralized energy systems to connect this development to.

1.2. Flood Risk & Drainage

The development is located in an area of low flood risk, both due to surface water and flooding from rivers. Proposals have been put forward with the aim of reducing the amount of surface water leading to public sewers, including rain water harvesting, use of permeable paving surfaces and installation of a green roof.

1.3. Water Conservation

Water resources will be conserved by installing efficient water fittings such as aerating taps and low flush WCs, installing high efficiency white goods and harvesting rain water and/or grey water where feasible.

1.4. Adaptation to Climate Change

A preliminary investigation into overheating has been carried out and the development is found to be at a moderate risk. In order to mitigate these risks, consideration will be given to medium thermal mass building elements and internally fit light coloured curtains or blinds.

1.5. Transportation

The development is within short walking distance (approximately 280m) to Tilehurst train station and is located on a bus route which is served by the 89, 143 and BB3 buses. The development will also provide 12no. car parking spaces and a bicycle store for residents.

As part of the planning application submission for this development, a transport statement will be provided separately. Please refer to this report for further details.

1.6. Material Usage

The sustainability of material usage is proposed to be increased by:

- Reducing waste during construction by reusing materials from demolition wherever possible.
- Producing a site waste management plan to set targets to minimise and monitor the waste produced during construction.
- Carrying out an audit of available materials for reuse prior to demolition.
- Maintaining close communication between professionals to ensure that materials are specified in the correct amounts.
- Ensuring adequate facilities are available for suitable waste disposal, including recycling bins and provisions for food waste recycling.
- Ensuring that all materials are sourced from ethical manufacturers.
- Ensuring that the materials used have a minimal impact on the environment by not using materials that deplete non-renewable resources and have no adverse impact on the environment whenever possible.

1.7. Pollution

During the life of the building, proposals outlined in the energy efficiency statement mean there would be no on-site CO2 emissions produced owing to the use of low and zero carbon technologies to provide heating and domestic hot water, as well as the use of on-site electricity generation via PV panels.

2. Introduction

The proposed development at 1015 Oxford Road, Reading, RG31 6TL involves the demolition of an existing residential property and the construction of a new 3-storey block of 10no. two bedroom flats and 2no. one bedroom flats (12no. flats total) with an approximate gross internal area of 720m^2. The development is located in close proximity to Tilehurst train station and Arthur Newbery Park.

Figure 1: 1015 Oxford Road location

This report has been produced to form part of the planning application submission for 1015 Oxford Road and intends to summarise how the proposed development intends to comply with national and local regulations and strategies pertaining to sustainability. The report includes sustainability targets to reduce the development's environmental impact throughout the lifecycle of the building.

3. Sustainability Policies

3.1. National Policies & Regulations

The following documents are understood to be current national policies for sustainable development:

- National Planning Policy Framework (NPFF), 20th July 2021
- Building Regulations Part L1, 2021
- Building Regulations Part O, 2021

3.2. Local Policies

Local policies for development are set out in the Reading Borough Local Plan (November 2019). The relevant policies for an Energy Efficiency Statement are as follows:

3.2.1. Policy CC2: Sustainable Design & Construction

Policy CC2 states that proposals for new developments will be acceptable where the design of buildings and site layouts use energy, water, minerals, materials and other natural resources appropriately, efficiently and with care and take into account the effects of climate change.

This policy also sets out expectations for the performance of new-build homes in terms of emissions. However as the development is a new-build residential project, the expectations are deferred to Policy H5 (Standards for New Housing Policy).

3.2.2. Policy CC3: Adaptation to Climate Change

Policy CC3 states that all developments will demonstrate how they have been designed to incorporate measures to adapt to climate change. The following measures are required to be incorporated into the development:

- Wherever possible, new buildings shall be orientated to maximise the opportunities for both natural heating and ventilation and reducing exposure to wind and other elements.
- Proposals involving both new and existing buildings shall demonstrate how they have been designed to maximise resistance and resilience to climate change, for example by including measures such as solar shading, thermal mass, heating and ventilation of the building and appropriately coloured materials in areas exposed to direct sunlight, green and brown roofs, green walls, etc.
- Use of trees and other planting, where appropriate as part of a landscape scheme, to provide shading of amenity areas, buildings and streets and to help to connect habitat, designed with native plants that ae carefully selected, managed and adaptable to meet the predicted changed climatic conditions.
- All developments shall minimise the impact of surface water runoff from the development in the design of the drainage system, and where possible incorporate mitigation and resilience measures for any increases in river flooding levels as a result of climate change.

3.2.3. Policy CC4: Decentralised Energy

Policy CC4 states that there is a requirement for consideration to be given to securing energy for the development from decentralised energy sources. Developments of 10 dwellings or more will be required to link into the existing decentralised energy network or otherwise demonstrate why this is not feasible.

This policy aims to promote the integration of technologies such as combined heat and power (CHP) and community heating where feasible.

3.2.4. Policy CC5 : Waste Minimisation & Storage

Policy CC5 states that the development should demonstrate measures to minimise the generation of waste in the construction, use and life of the building and promote more sustainable approaches to waste management, including the reuse and recycling of construction waste and the promotion of layouts and designs that provide adequate, well designed space to facilitate waste storage, reuse, recycling and composting.

3.2.5. Policy EN18: Flooding & Sustainable Drainage Systems

Policy EN18 states that there is a requirement for developments to be directed to areas at the lowest risk of flooding in the first instance, following the Sequential and Exceptions Test set out in the NPPF, and taking into account the effects of climate change,, It will consider flooding from all sources, including fluvial, surface water, ground water and sewer flooding. Where development in areas at risk of flooding is necessary, it will not reduce the capacity of the flood plain to store floodwater, impede the flow of floodwater or in any way increase the risks to life and property arising from flooding. Wherever possible, development should be designed to reduce flood risk, both on- and off-site.

All major developments must incorporate sustainable drainage systems (SuDS) as appropriate and in line with the Government's Technical Standards. Smaller schemes are encouraged to incorporate SuDS, where possible. Runoff rates should aim to reflect greenfield conditions and, in any case, must be no greater than the existing conditions of the site. Schemes should ensure that the movement of water through vertical infiltration as well as horizontal run-off does not worsen contamination effects. Wherever possible, SuDS provision should maximise ecological benefits, link into the existing Green Network, incorporate tree planting and landscaping and avoid damage to existing significant trees, including through changes to the site hydrology. All new developments in areas of flood risk should give priority to SuDS.

3.2.6. Policy H5: Standards for New Housing Policy

Policy H5 states that new build housing should be built to the following standards, unless it can be clearly demonstrated that this would render a development unviable:

- All new build housing outside the Central Area as defined on the Proposals Map will comply with the nationally-described space standard.
- All new build housing will be built to the higher water efficiency standard under Regulation 36(3) of the Building Regulations.
- All major new-build residential development should be designed to achieve zero carbon homes.
- All other new build housing will achieve at a minimum a 19% improvement in the dwelling emission rate over the target emission rate, as defined in the 2013 Building Regulation.
- All new build housing will be accessible and adaptable in line with M4(2) of the Building Regulations, unless it is built in line with M4(3).
- On developments of 20 or more new build dwellings, at least 5% of dwellings will be wheelchair user dwellings in line with M4(3) of the Building Regulations, Any market homes provided to meet this requirement will be "wheelchair adaptable" as defined in Part M, whilst homes where the Council is responsible for allocating or nominating an individual may be "wheelchair accessible".

4. Sustainability Strategy

4.1. Energy Efficiency & Carbon Emissions

This section provides a summary for the energy efficiency and carbon emissions strategies & considerations that will be in place for compliance with planning policies. For a more detailed overview, please refer to the Energy Efficiency Statement.

4.1.1. Carbon Emissions

Carbon emissions are proposed to be reduced by implementing passive design principles to reduce total energy demands and by utilising low and zero carbon technologies such as PV panels and heat pumps. The proposals mean there would be no on-site carbon emissions from the development and would aim for a reduction of a dwelling emissions rate 35% lower than the target emissions rate set out in Part L1.

For further details, please refer to the Energy Efficiency Statement.

4.1.2. Renewable Energy Sources

It is proposed that solar PV be installed to provide a source of renewable electricity on site and reduce the reliance on the power grid.

For further details, please refer to the Energy Efficiency Statement.

4.1.3. Decentralised Energy

As per Policy CC4, a preliminary study has been carried out to determine the suitability for connection to decentralized energy systems the development could connect to.

The map below shows the proposed locations for district heating in Reading. As the facilities are not operational at the time of writing, and based in Central Reading, district heating will not be proposed for this development.

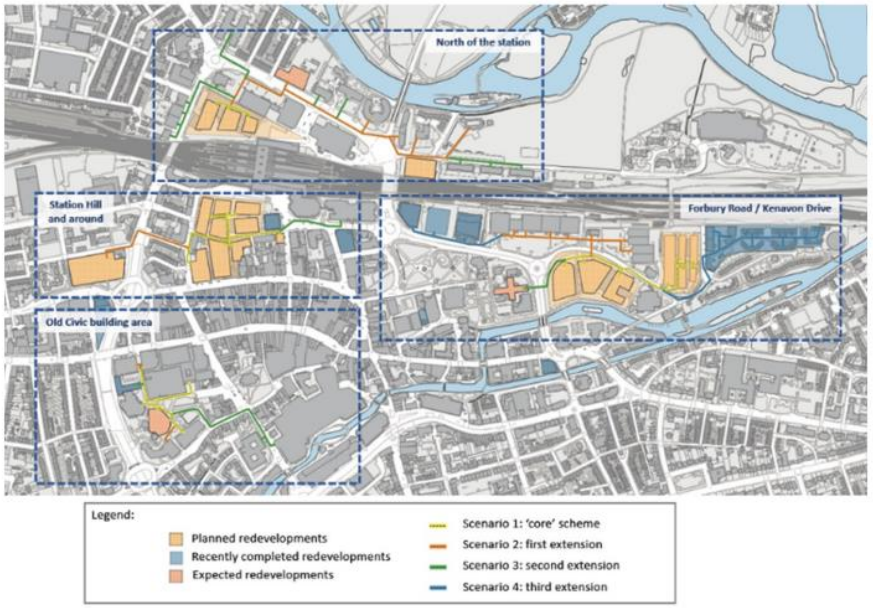

Figure 2: Proposed locations for district heating schemes in Reading

4.2. Flood Risk & Drainage

Information from the Environment Agency and the Ordnance Survey show that 1015 Oxford Road is at a low risk of surface water flooding (0.1% - 1% chance of flooding each year) and a very low risk of river or sea flooding (less than 0.1% chance each year).

Figure 3: Extent of flooding risk from surface water

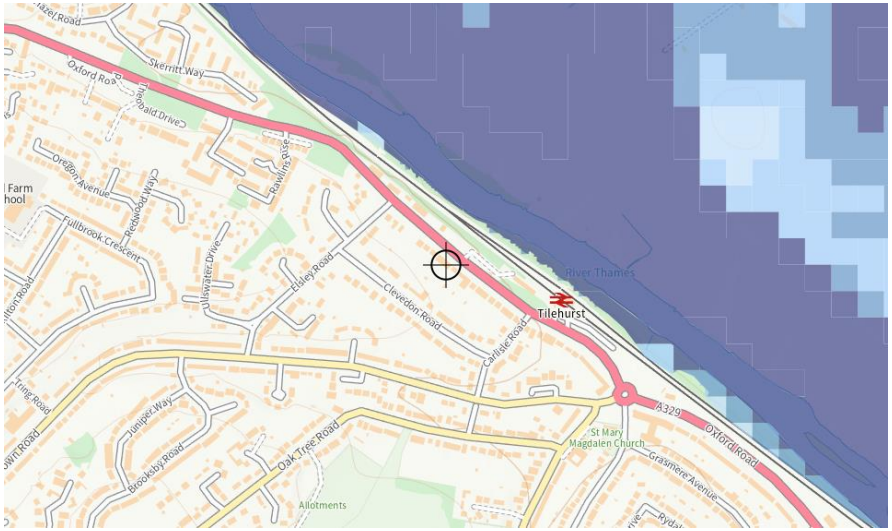

Figure 4: Extent of flooding risk from rivers or the sea

As the total proposed paved and developed areas are comparable to the existing plot, it is assumed that the total surface water run-off will be the same.

In order to further reduce the risk of flooding due to surface water, consideration shall be given to the following Sustainable Drainage Systems (SuDS):

- Rainwater harvesting via an external water butt to provide sustainable garden irrigation.
- Replacement of existing pavement with permeable surfaces such as gravel and/or specialised permeable paving slabs.
- Installation of a green roof

By utilising these systems, the total surface water runoff, and hence flooding risk for the area, will be reduced. Furthermore, during peak flow these systems will add a level of time attenuation to help prevent the mains surface water drainage systems from overflowing.

For further details, please refer to the sustainable drainage assessment.

4.3. Water Conservation

The South East of England has one of the highest per-capita levels of water consumption in the UK. Additionally the Thames Water area is classed a “water-stressed area” by the Environmental Agency. As a consequence, internal water consumption is expected to be below 110 litres per person per day. This will be achieved by implementing the following:

- Installation of efficient water fittings such as aerating taps, low flush WCs.
- Installation of high efficiency white goods (washing machines, dishwashers, etc.). In order to increase the efficient life expectancy of this equipment, a water softener should also be considered.

- Harvesting of rainwater as outlined in Section 4.2

Further to these points, a grey water recycling system will also be considered at the design stage, in order to provide recycled water for toilet flushing. This will reduce the total water demand for the new development but will require further assessment from a cost-benefit perspective.

4.4. Adaptation to Climate Change

A preliminary investigation into overheating has been carried out and the development is found to be at a moderate risk. In order to mitigate these risks, consideration will be given to medium thermal mass building elements and internally fit light coloured curtains or blinds. At the design stage, a dynamic thermal model should be assessed in accordance with Building Regulations Part O and CIBSE TM59 in order to determine the extent of overheating risks.

4.5. Transportation

In terms of public transport, the development is within short walking distance (approximately 280m) to Tilehurst train station and is located on a bus route which is served by the 89, 143 and BB3 buses. The development will also provide 12no. car parking spaces and a bicycle store for residents.

As part of the planning application submission for this development, a transport statement will be provided separately. Please refer to this report for further details.

4.6. Material Usage

4.6.1. Waste During Construction

In order to minimise the total amount of waste produced during the construction phase, the following procedures will be required:

- Prior to construction, the appointed Contractor will be required to produce a Site Waste Management Plan (SWMP), which will contain the following:
    - Targets for waste reduction and recovery based on an assessment of the likely composition and quantity of waste produced.
    - Procedures and commitments for minimising the production of waste, including methods for monitoring and assessing total waste production.
    - Procedures for sorting reusing and recycling construction waste into designated waste groups either on site or through a licensed external Contractor.
    - Targets for diverting construction and demolition waste from landfill.
- Prior to demolition of the existing building, the Contractor will also be required to carry out a pre-demolition audit in order to identify the demolition materials and assess the extent for their suitability for reuse either as part of this development or for developments elsewhere.
- Close communication between building professionals is required throughout the design and construction of this development to ensure accurate quantities of materials are ordered and delivered to site on a just-in-time basis.

4.6.2. Waste During Operation

In order to minimise waste during the operation of the building, facilities for the storage of separate food, recycling and general waste will be provided. This will be collected by the local Waste Collection & Disposal Authority (Reading Borough Council) who make use of off-site recycling facilities.

Furthermore, due to the green space available on the property, consideration shall be given to the potential use for on-site food composting in order to enrich the soil and promote local plant growth.

4.6.3. Responsible Material Sourcing

The Contractor will ensure that all products and materials to be installed are sourced from manufacturers that can demonstrate a commitment to providing sustainable products through their supply chain. Such manufacturers will likely be able to provide commitments to their business and environmental sustainability procedures in ways such as:

- General certifications such as the ISO 14000 family of standards
- Relevant industry certifications such as the Forest Stewardship Council (FSC) for timber and timber related products.
- Commitment to corporate social responsibility
- Commitment to providing ethical working environments such as paying a living wage to all staff, ensuring safe & hygienic working conditions are kept at all times and that staff working hours are not excessive.

This list is by no means exhaustive of the ways in which a material supplier can demonstrate that they are responsible and sustainable, however all suppliers are required to be able to demonstrate their ability to act and conduct business in a responsible and sustainable manner.

4.6.4. Environmental Impacts

As set out in section 4.7.1, it is proposed that, where possible, existing materials gained through demolition shall be reused wherever practical. However, when new materials are required it is important that they are sustainable such that:

- They do not deplete non-renewable natural resources.
- Have no adverse impact on the environment when used.

Whilst it is difficult to achieve this in practice, steps should be taken to mitigate the environmental impacts.

In order to preserve natural resources the following principles shall be adhered to as often as possible:

- Avoid using scarce materials such as peat or weathered limestone
- Create less waste
- Using less materials by not over-specifying performance requirements, designing minimum weight structures and by matching demand to supply.
- Using reclaimed rather than new materials
- Using renewable materials such as crops

Furthermore, adverse effects on the environment can be mitigated by implementing the following principles:

- Use materials with a low embodied energy where practical such as timber instead of steel or concrete reinforced with natural fibres
- Reduce the transport of materials and by extension associated fuel, emissions and road congestion
- Prevent waste going to landfill
- Designing and constructing for ease of reuse and recycling at end-of-life (design for deconstruction).

The principles highlighted above are to be implemented through the design and construction phases of the development. This will ensure that the environmental impact caused as a result of the materials used will be minimised as far as is reasonably possible.

4.7. Pollution

Pollution during construction shall be limited by avoiding the use of hazardous materials where possible and adhering to the material usage proposals set out in section 4.6.1.

During the life of the building, proposals outlined in the energy efficiency statement mean there would be no on-site CO2 emissions produced owing to the use of low and zero carbon technologies to provide heating and domestic hot water, as well as the use of on-site electricity generation via PV panels.

For further information about the local air quality, please refer to the air quality report.

4.8. Sustainability Statement Conclusion

The proposals for 1015 Oxford Road are set to achieve high levels of sustainability by exceeding the targets set out in local planning policies and building regulations.

Furthermore, procedures for sustainable construction and demolition practices have been set out that should generate low levels of waste as well as procedures to reduce waste sent to landfill by occupants during the buildings life in operation.