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The Old Power Station, Vastern Road

Sustainability Statement

On behalf of **Berkeley Homes (Oxford and Chiltern) Ltd**

Project Ref: 47500 | Rev: V3 | Date: January 2020

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1 Introduction

1.1 Background

1.1.1 Peter Brett Associates LLP now part of Stantec (PBA) has been appointed by Berkeley Homes (Oxford & Chiltern) Ltd to prepare a Sustainability Statement (herein referred to as the 'Statement') in support of the full planning application for the Proposed Development at The Old Power Station, Vastern Road in Reading (hereafter referred to as 'the Site').

1.1.2 The proposed development is anticipated to include:

"Demolition of existing structures and erection of a series of buildings ranging in height up to 11 storeys, comprising 209 residential units, a café and associated parking together with a new north-south pedestrian link, connecting Christchurch Bridge to Vastern Road."

1.1.3 The initial masterplan developed for the site and illustrative layout are attached within **Appendix A** of this report.

1.2 Site Location and Existing Use

1.2.1 The Old Power Station Vastern Road site is located to the north of Reading town centre and approximately 150 m north of Reading railway station. Immediately south of the site and the southern side of Vastern Road lies the Station Shopping Park which offers several existing retail outlets. The core retail areas within Reading town centre of Broad Street and the Oracle are 600 m and 820 m south of the site respectively.

1.2.2 The River Thames bounds the northern edge of the site with Christchurch Bridge providing a connection over the river to Christchurch Meadows and the southern residential areas of Caversham.

1.2.3 The site forms part of the former Scottish and Southern Energy (SSE) Reading depot and has boundaries clearly defined by the River Thames to the north, retained SSE electrical transformers and associated works to the east, Vastern Road to south and residential properties fronting Lynmouth Road to the west.

1.2.4 The site currently comprises 2 and 3 storey buildings with frontage directly onto Vastern Road at the southern boundary.

1.2.5 Outside of the site boundary the former depot site has a centrally located substation and a series of transformers along the eastern edge which are to be retained and do not form part of the application site. **Appendix B** illustrates the site boundary in the context with the adjacent land uses and ownership boundaries.

1.3 Development Proposals

1.3.1 The proposed development is anticipated to include:

"Demolition of existing structures and erection of a series of buildings ranging in height up to 11 storeys, comprising 209 residential units, a café and associated parking together with a new north-south pedestrian link, connecting Christchurch Bridge to Vastern Road."

1.3.2 Creating a safe, legible and attractive pedestrian and cycle route that connects to the existing infrastructure between Reading Town Centre and Caversham is recognised as a key component of the development proposal.

1.3.3 The Application Site masterplan is enclosed within **Appendix A**.

1.4 Approach and Report Structure

- 1.4.1 The approach adopted in this Sustainability Statement is to review national and local policies in order to establish a 'sustainability framework' for development at the site that achieves both over-arching national sustainability goals and site-specific objectives.
- 1.4.2 Consultation has been undertaken between PBA and Reading Borough Council (RBC¹) to confirm the scope of the Sustainability Statement and the topics that should be addressed. Consultation took place between 17th May 2019 and 21st May 2019. This pre-application consultation is provided in **Appendix C**.
- 1.4.3 The Sustainability Statement has been structured using the 'Sustainable Design and Construction Checklists' (Appendix 1 – pg. 32) of the RBC's Sustainable Design & Construction SPD December 2019) as guidance. A copy of this document can be found in **Appendix D**.
- 1.4.4 This report refers to a number of accompanying reports submitted as part of the planning application. These include:
- Townscape and Visual Impact Assessment – Barton Willmore
 - Energy Statement – Hodkinson Consultancy
 - Waste Strategy as part of the DAS – Berkeley Homes (Oxford & Chiltern)
 - Flood Risk Assessment – PBA
 - Sustainable Drainage Strategy – PBA
 - Lighting Assessment – PBA
 - Air Quality Assessment – PBA
 - Transport Statement and Travel Plan – PBA
 - Open Space Statement – Berkeley Homes (Oxford & Chiltern)
 - Phase I-II Geo Environmental Site Assessment & Remediation Method Statement – Omnia
 - Acoustic Design Review– 24 Acoustics
 - Ecological Assessment – EcoConsult
 - Tree Survey and Arboricultural Impact Assessment - Greengage
- 1.4.5 Please see the relevant report for more information on a specific topic.

1.4.6 The topics structuring this statement are in line with Sustainable Design and Construction Checklists (**Appendix D**). It also includes a section in 'Transport' as it was considered of sustainable importance for the proposed development. The structuring topics include:

- Section 2: Policy Context;
- Section 3: Energy;
- Section 4: Water;
- Section 5: Surface Water Run-off;
- Section 6: Materials & Waste;
- Section 7: Pollution;
- Section 8: Health & Well-being;
- Section 9: Management;
- Section 10: Transport;
- Section 11: Ecology; and
- Section 12: Summary.

2 Policy Context

- 2.1.1 The policies that apply to the Proposed Development in relation to sustainable development are multi-layered and complex. The following section presents a summary of the main policies that are directly related to defining sustainable development in this location and highlight the key sustainability objectives that need to be met.
- 2.1.2 The Proposed Development lies within the administrative boundary of Reading Borough Council (RBC). The planning policy and guidance is set out in a series of adopted documents. These documents contain policies which are related to sustainable development in the area and provide guidance on key sustainability requirements for new developments.

2.2 National Planning Policy Framework (2019)

- 2.2.1 The National Planning Policy Framework (NPPF) sets out the government's planning policies for England and how these are expected to be applied. The NPPF 2019 is the updated version of the NPPF 2018, which replaces the previous National Planning Policy Framework published in March 2012.
- 2.2.2 The National Planning Policy Framework (NPPF) (2019) supports the role of the local plan process and maintains the "presumption in favour of sustainable development".
- 2.2.3 The framework focuses on sustainable development, which is described as '*meeting the needs of the present without compromising the ability of future generations to meet their own needs*'. It sets out the three mutually dependent roles that the planning system needs to consider to deliver sustainable development. These are:
- **An economic objective** – to help build a strong, responsive and competitive economy, by ensuring that sufficient land of the right types is available in the right places and at the right time to support growth, innovation and improved productivity; and by identifying and coordinating the provision of infrastructure;
 - **A social objective** – to support strong, vibrant and healthy communities, by ensuring that a sufficient number and range of homes can be provided to meet the needs of present and future generations; and by fostering a well-designed and safe built environment, with accessible services and open spaces that reflect current and future needs and support communities' health, social and cultural well-being; and
 - **An environmental objective** – to contribute to protecting and enhancing our natural, built and historic environment; including making effective use of land, helping to improve biodiversity, using natural resources prudently, minimising waste and pollution, and mitigating and adapting to climate change, including moving to a low carbon economy.
- 2.2.4 The NPPF sets out the following core land use planning principles, or 'principles' for delivering sustainable development – these form the framework against which the sustainability of new development or redevelopment is assessed:
- Building a strong, competitive economy;
 - Ensuring the vitality of town centres;
 - Supporting a prosperous rural economy;
 - Promoting sustainable transport;
 - Supporting high quality communications infrastructure;

- Delivering a wide choice of high-quality homes;
- Requiring good design;
- Promoting healthy communities;
- Protecting Green Belt land;
- Meeting the challenge of climate change, flooding and coastal change;
- Conserving and enhancing the natural environment;
- Conserving and enhancing the historic environment; and
- Facilitating the sustainable use of minerals.

2.2.5 It is important that local planning policies are aligned to the sustainable development principles set out in the NPPF.

2.3 Local Planning Policy

2.3.1 The local planning authority for the proposed development is Reading Borough Council (RBC). RBC's planning policy is set out in a series of adopted and emerging documents. This section outlines the relevant policies in relation to the proposed development.

Reading Borough Council Local Plan 2017-2036 (November 2019)

2.3.2 RBC has recently adopted a new Local Plan in November 2019, which sets out how development will be planned and delivered across Reading up to the year 2036. This Local Plan will replace all existing development plans in Reading, including the Core Strategy (adopted 2008, amended 2015), Reading Central Area Action Plan (adopted 2009) and Sites and Detailed Policies Document (adopted 2012, amended 2015).

2.3.3 RBC Local Plan 2036 encompasses policies related to sustainability and these are detailed below.

2.3.4 **Policy CC1 Presumption In Favour of Sustainable Development** requires development proposals to consider and reflect the presumption in favour of sustainable development contained in the National Planning Policy Framework (NPPF).

2.3.5 **Policy CC2 Sustainable Design and Construction** requires proposals for new development, including the construction of new buildings and the redevelopment and refurbishment of existing building stock, to use energy, water, minerals, materials and other natural resources appropriately, efficiently and with care and consider the effects of climate change. Policy CC2 requires:

- *"All major non-residential developments or conversions to residential are required to meet the most up-to-date BREEAM 'Excellent' standards, where possible;*
- *All minor non-residential developments or conversions to residential are required to meet the most up-to-date BREEAM 'Very Good' standard as a minimum;*
- *All non-residential development or conversions to residential should incorporate water conservation measures so that predicted per capita consumption does not exceed the appropriate levels set out in the applicable BREEAM standard. Both residential and non-residential development should include recycling greywater and rainwater harvesting where systems are energy and cost effective."* Pg. 22 of Local Plan 2036

2.3.6 **Policy CC3 Adaptation to Climate Change** requires developments to demonstrate how they have been designed to incorporate measures to adapt to climate change. These measures include:

- “Where 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, 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 plants that are carefully selected, managed and adaptable to meet the predicted changed climatic conditions; and
- All development 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.” Pg. 23 of Local Plan 2036.

2.3.7 **Policy CC4 Decentralised Energy** requires any developments to secure energy from a decentralised energy source. Policy CC4 states:

- “Any development of more than 20 dwellings and/ or non-residential development of over 1,000 sq m shall consider the inclusion of decentralised energy provision, within the site, unless it can be demonstrated that the scheme is not suitable, feasible or viable for this form of energy provision.
- Where there is existing decentralised energy provision present within the vicinity of an application site, further developments of 10 dwellings or more or non-residential development of 1,000 sq m or more will be expected to link into the existing decentralised energy network or demonstrate why this is not feasible.”

2.3.8 **Policy H5 Standards for New Housing** outlines the standards for new build houses. Relevant to sustainability are parts b, c and d, which state that:

b. All new build housing will be built to the higher water efficiency standard under Regulation 36(3) of the Building Regulations.

c. All major new-build residential development should be designed to achieve zero carbon homes.

d. 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 Regulations.

2.3.9 This Sustainability Statement addresses Policy H5 part b. Policy H5 part c and d are addressed in the Energy Statement (Hodkinson, 2019) that accompanies the full planning permission.

2.3.10 In order to contribute towards the sustainability of the area, the proposed development should aim to protect and enhance the surrounding environment where possible. This include preserving green spaces, promoting biodiversity and reducing pollution. Other policies related to sustainability are covered and referenced in the relevant sections throughout this Sustainability Statement.

2.4 Guidance

Sustainable Design and Construction SPD (2019)

2.4.1 In support of the policies of the Reading Borough Local Plan adopted in November 2019, RBC adopted a new Sustainable Design and Construction SPD in December 2019. The SPD is intended to guide developers on the implementation of key sustainability policies set out in the Reading Local Plan. In particular, this SPD is intended to supplement policies:

- CC2: Sustainable Design and Construction;
- CC3: Adaptation to Climate Change;
- CC4: Decentralised Energy;
- CC5: Waste Minimisation and Storage;
- EN18: Flooding and Drainage; and
- H5: Housing Standards.

2.4.2 This Sustainability Statement considers all of the above policies, and illustrates how the proposed development responds to the sustainable design and construction checklist for residential developments. A summary of how the proposed development responds to the checklist can be found in **Appendix D**.

2.5 Housing Standards Review

Written Statement to Parliament – Planning Update (March 2015)

- 2.5.1 On March 2015, the Government released a written statement providing a Planning Update outlining their position on housing standards and confirming the adoption of optional new technical standards.
- 2.5.2 The Statement explains that, from the 26th March 2015, the Code for Sustainable Homes (CSH) has been withdrawn, aside from the management of legacy cases. New local plans and neighbourhood plans therefore may not refer to the Code.

3 Energy

3.1 Introduction

- 3.1.1 Improving the energy efficiency of buildings, reducing energy demands and incorporating renewable energy technologies are key practices which can improve the sustainability of a development by reducing the volume of carbon dioxide (CO₂) emitted and its associated contribution to climate change.
- 3.1.2 The main energy requirements for the development will be compliant with Part L of the 2013 Building Regulations (subject to national requirements); incorporating measures to reduce energy use and supply energy efficiently in line with the national energy hierarchy; securing the proposed development's expected energy demand from decentralised energy sources, in accordance with **Policy CC4** of RBC's new Local Plan (2018).
- 3.1.3 An Energy Statement (Hodkinson, 2019) has been prepared to support the planning application, and outlines how the Proposed Development will be designed to comply with national and local policies related to energy use and efficiency, and CO₂ emissions. This document should be read in conjunction with this section.
- 3.1.4 The Proposed Development will adopt the nationally and locally recognised energy hierarchy, presented in **Figure 3.1**. This places emphasis on reducing energy demands in the first instance, using energy efficiently and, only then, providing renewable and low carbon energy generation technologies where it is appropriate to do so.

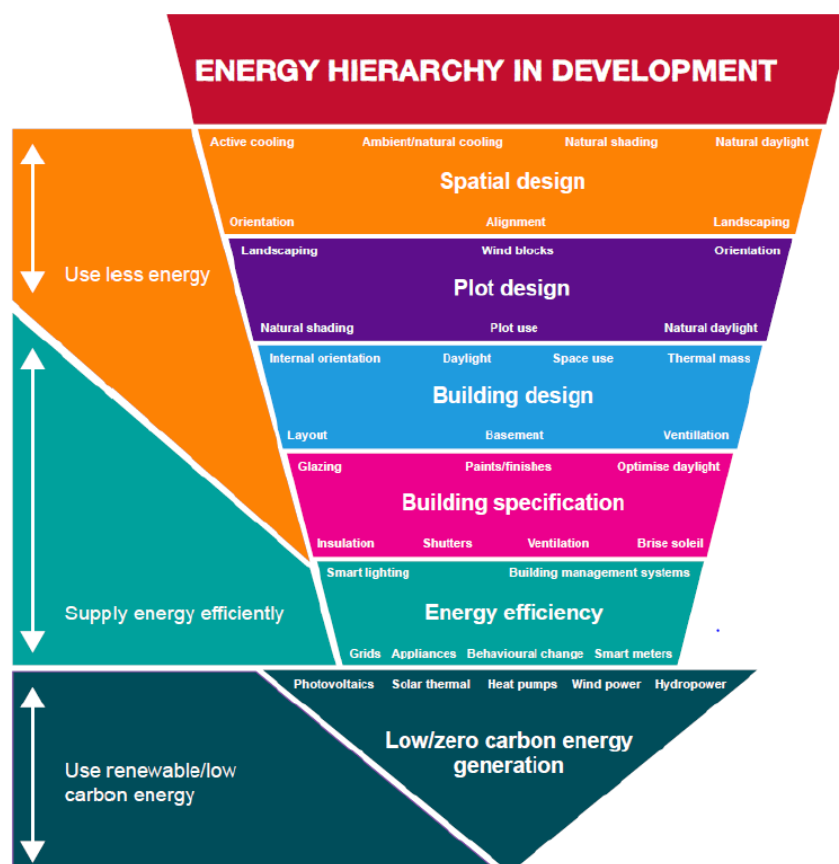


Figure 3.1: The Energy Hierarchy in New Development

3.2 Energy Consumption

- 3.2.1 This section summarises the masterplan design principles and 'passive' and 'active' design measures which are within the scheme to reduce the energy demand of the proposed development to help achieve the highest practical standards of sustainable design.
- 3.2.2 'Passive' measures are design features, which can include building orientation, appropriate internal layouts and building fabric selection, that inherently reduce a building's energy requirements. 'Active' measures are building services design features that will increase the efficiency of the energy used, and therefore also reduce the energy demand requirements.

Masterplan Design Principles

- 3.2.3 The development will benefit from masterplan principles to optimise energy demand. Passive solar gain can be optimised in many ways through design considerations, as illustrated in **Figure 3.2**.



Figure 3.2: Masterplan design principles to reduce energy demands

- 3.2.4 The proposed development is surrounded by the River Thames to the north; SSE electrical transformers and associated works to the east; Vastern Road to south and residential properties fronting Lynmouth Road to the west.
- 3.2.5 The proposed development has incorporated a planting strategy which aims to contribute to the evaporative cooling effect at night, which helps reduce the 'heat island effect'².
- 3.2.6 Despite no green open spaces present on site, a mix of sensory ornamental planting, tree planting and native species will be introduced across the entire site. There will be a total of 41 trees within the proposed development (Berkeley Homes (Oxford & Chiltern), 2019). Greenery can contribute towards lowering the 'heat island effect', as the high permeability greenery could help to facilitate air movement and enhance natural ventilation.

² The term 'heat island' describes built up areas that are hotter than nearby rural areas. This is partly caused by the replacement of natural surface by built surfaces, which absorb a higher proportion of incident radiation, which is then released as heat.

- 3.2.7 As the detail regarding the internal layouts, attention is given to the position of rooms with the residential aspects, such as locating living spaces such as the lounge, in rooms with large amounts of south facing windows (where possible) to benefit from the natural daylight and heating; and locating bathrooms or communal spaces in those areas with small north facing windows. The internal layouts produced by Berkeley Homes (Oxford & Chiltern), the architects of the development, are examples of residential units that will be replicated throughout the proposed development.

Passive Measures

- 3.2.8 The following passive design measures could be incorporated into design of the development, where appropriate:
- incorporating building materials with high (and, where appropriate, exposed) thermal mass to help keep internal temperatures stable;
 - optimising glazed areas to take advantage of natural daylight and passive solar gains, whilst managing overheating;
 - installing windows on two or more aspects (preferably opposite each other) to allow the through-flow of air and provide effective cross ventilation within a dwelling; and
 - providing passive shading to avoid overheating (e.g. strategic planting of trees).
- 3.2.9 Hodkinson (2019) proposes, within the Energy Statement, to provide high standards of fabric efficiency, where possible going beyond the requirements of Building Regulations Part L 2013. This include low air permeability rates and targeted thermal bridges.

Active Measures

- 3.2.10 The following active building services design measures could be considered in building designs:
- selection of energy efficient equipment and white goods;
 - Low energy lighting and use of efficiency systems (e.g. daylight cut-off and Passive Infra-Red, PIR, lights);
 - use of energy display devices to encourage behavioural change;
 - time and thermostat control of hot water; and
 - controls to optimise and compensate for heat variations.
- 3.2.11 Hodkinson (2019) proposes, within the Energy Statement, to provide efficient and simple systems for residents to use, high levels of control for residents' comfort and greater tariff flexibility for residents to reduce their heating costs.
- 3.2.12 The above lists of passive and active measures are not exhaustive, and greater detail can be found in the associated Energy Statement.

3.3 On-site Renewable Energy Generation

- 3.3.1 The Energy Statement has undertaken a review of renewable and low carbon technologies to identify those which are most suitable for the proposed development.
- 3.3.2 The Energy Statement (Hodkinson, 2019) recommends the application of PV panels to all suitable roof areas, providing generating potential for the overall development.

3.4 Summary

- 3.4.1 A series of design principles have been adopted within the masterplan to passively reduce the energy demand of the Development. A combination of passive and active measures will give very well insulated, airtight buildings with appropriate and efficient building services. As per the energy hierarchy discussed in **Section 3.1**, it is important to emphasise the benefits of optimising the long-lasting energy performance of buildings through fabric improvements, before employing low carbon and renewable energy technologies on site. Onsite renewable energy in form of solar PV panels have been considered in order to meet renewable energy target in line with **Policy CC4** of RBC's new Local Plan (2018).
- 3.4.2 Compliance with Building Regulations Part L will be demonstrated through the preparation of appropriate calculations at detailed design in line with Development Control requirements.

4 Water

4.1 Introduction

- 4.1.1 This section focuses on the efficient management of water resources. There is need for developments to be more water efficient and limit their water demand. Water consumption can be reduced through installing water efficient features in dwellings and incorporating green infrastructure which can survive on precipitation alone.

4.2 Water Conservation Strategy

Potable Water Consumption

- 4.2.1 The development will be designed to reduce mains water usage compared to Building Regulations Part G requirements (110 litres/person/day). A range of water saving measures will be employed to reduce water demand, this may include the following:
- Flow restrictors to reduce the flow rate of kitchen sink and bathroom basin taps;
 - Low-flow showers;
 - Small capacity baths;
 - Dual-flush toilets with appropriate controls; and
 - Water efficient appliances such as dishwashers and washing machines (where provided).

4.3 Climate Change Adaptation

- 4.3.1 The proposed development should incorporate design features that plan for and adapt to anticipated levels of climate change. This will include consideration of the climate within the landscaping strategy and building design.
- 4.3.2 The Landscaping chapter from the Design and Access Statement (Berkeley, 2019) has been prepared and should be read in conjunction with this section.

Landscaping

- 4.3.3 The proposed development has incorporated a planting strategy which aims to provide evaporative cooling at night to help reduce the 'heat island effect', the effect whereby built up urban areas become hotter than the surrounding rural area.
- 4.3.4 Additionally, a mix of sensory ornamental planting as well as native species delineating the site will aim to provide resilience to riverside flooding as well as a form of sustainable drainage to aid water management on site.
- 4.3.5 There are a total of 41 trees proposed to be introduced across the proposed development.
- 4.3.6 The landscaping strategy will focus on using plant species that are suitable for the site and that rely on seasonal precipitation rather than irrigation and supplemental watering (xeriscaping). This will include where necessary drought resilient plants and grasses. Evergreen planting will also be introduced at main access to the site. This will reduce the need for water consumption associated with landscaping.

4.4 Summary

- 4.4.1 Water consumption targets have been identified for the proposal in line with local policy guidance (**Policy CC2 and EN16 'Pollution and Water Resources'**) and Building Regulations Part G requirements. The proposed development at Vastern Road will aim to reduce water consumption to a maximum 110 litres per person per day.
- 4.4.2 A number of measures have been identified to increase the water efficiency of the development and help reduce pressure on local water resources.

5 Surface Water Run-off

5.1 Introduction

- 5.1.1 The Proposed Development will comply with the relevant flood risk advice published by the Environment Agency and incorporate design features to address potential flood risk that may arise due to and from the proposal. This section is in line with the **Policy EN18 'Flooding and Drainage'**.
- 5.1.2 A Flood Risk Assessment (FRA) (PBA, 47500/4001, 2019) and a Drainage Strategy (PBA, 47500/2000, 2019) have been prepared and should be read in conjunction with this section.

5.2 Flooding

- 5.2.1 As outlined in **Section 3 of the FRA**, (PBA, 2019), the Environment Agency (EA) Flood Zone map shows the northern end of the site is bordered by a corridor of Flood Zone 3 'High Probability' associated with the adjacent River Thames. The site lies partly within Flood Zone 2 'Medium Probability' (as defined in NPPF Planning Practice Guidance (PPG) 'Flood Risk and Coastal Change' Table 1) as follows:

Flood Zone 2 'Medium Probability' (greater than 1 in 1000 (0.1%) annual probability of river flooding).

- 5.2.2 The proposals for this residential development constitute a 'More Vulnerable' land use (ref: NPPF PPG Table 2), which is considered appropriate within Flood Zone 2 subject to passing the Sequential Test (ref: NPPF PPG Table 3). The site was allocated for development within Reading Borough Council's Local Plan, indicating the Sequential Test and Exception Test have been completed and passed.

5.3 Surface Water Drainage

- 5.3.1 A surface water strategy for the proposed development is presented within the FRA which has considered provisions to accommodate from predicted future climate change (e.g. increases in rainfall).
- 5.3.2 Surface water runoff from roofs and paved areas enters either the northern or southern surface water drainage network. These are separate surface water drainage networks that do not collect foul water.
- 5.3.3 Until percolation testing is completed it is considered as a worst-case scenario that infiltration Sustainable Urban Drainage Systems (SuDS) are not possible. The proposed drainage strategy is to discharge surface water to the River Thames and the culverted Vastern Ditch watercourses.
- 5.3.4 The proposed foul water drainage strategy is to discharge to the existing Thames Water foul sewer in Lynmouth to the south west of the site.
- 5.3.5 The proposal is to utilise the existing 225 mmØ foul sewer that leaves the south-western corner of the site that leads towards Lynmouth Road. This foul drain is believed to eventually discharge into 225 mmØ Thames Water sewer in Lynmouth Road.
- 5.3.6 A consultation with Thames Water was conducted to confirm that there is sufficient capacity in the existing network for the foul flows from the development.
- 5.3.7 A system which utilises cellular attenuation is proposed. This will follow the principles of the NPPF SuDS requirements by reducing flood risk and removal of pollutants / contaminants through the use of trapped gullies, oil interceptors and catchpits / silt traps.

- 5.3.8 A private maintenance contractor will be responsible for the long-term maintenance of the proposed system and will undertake inspection and maintenance in accordance with this Strategy.
- 5.3.9 As stated in **Section 4.2**, dwellings will also be designed, where viable, to allow provision for rainwater harvesting measures to be incorporated which can help secure a reduction in overall flood risk.
- 5.3.10 Additionally, the proposed development will include wetland species located within a series of sustainable drainage systems to aid with water management on site.

5.4 Flood Resilience and Resistance of Buildings

- 5.4.1 The NPPF PPG 'Climate Change Allowances' guidance confirms the site criteria requires consideration of peak river flow allowances ranging from +25% ('Central' allowance) to +35% ('Higher Central' allowance).
- 5.4.2 Dwellings will be designed to reduce the effect of potential flooding by incorporating design features which would reduce the potential for flood water to enter buildings and reduce the severity of damage that could be caused if water did enter.
- 5.4.3 The flood risk mitigation strategy for the development consists of the following elements:
- Ground floor levels set at 38.61 m AOD or above, providing a minimum 300 mm freeboard above the design 1 in 100 annual probability plus allowance for climate change flood level;
 - Removal of the existing northern boundary wall, and re-grading of the land behind it to provide a significant improvement in floodplain storage capacity as well as an ecological buffer along the boundary with the River Thames footpath;
 - Incorporation of a continuous crest level running east-west across the north side of the site at a minimum of 38.6 m AOD, which will tie in to the wider flood defence proposals of the EA Reading and Caversham Flood Alleviation Scheme;
 - Safe access during the 1 in 100 annual probability flood event. In more extreme scenarios, allowing for climate change, there will be significant advance warning and the residual risk will be addressed through a Flood Management and Evacuation Plan in line with the requirements of the Reading Strategic Flood Risk Assessment (SFRA);
 - A surface water drainage strategy has been prepared demonstrating a significant reduction in peak runoff rates through incorporation of on-site SuDS attenuation measures.

5.5 Climate Change Adaptation

- 5.5.1 The proposed development should incorporate design features that plan for and adapt to anticipated levels of climate change. This will include consideration of the climate within the landscaping strategy, and building design.
- 5.5.2 The Landscaping chapter from the Design and Access Statement (Berkeley, 2019) has been prepared and should be read in conjunction with this section.

Biodiversity and Landscaping

- 5.5.3 The proposed development has incorporated a planting strategy which aims to provide evaporative cooling at night to help reduce the 'heat island effect', the effect whereby built up urban areas become hotter than the surrounding rural area.

- 5.5.4 Additionally, a mix of sensory ornamental planting as well as native species delineating the site will aim to provide resilience to riverside flooding as well as a form of sustainable drainage to aid water management on site.
- 5.5.5 There are a total of 41 trees proposed to be introduced across the proposed development.
- 5.5.6 The landscaping strategy will focus on using plant species that are suitable for the site and that rely on seasonal precipitation rather than irrigation and supplemental watering (xeriscaping). This will include where necessary drought resilient plants and grasses. Evergreen planting will also be introduced at main access to the site. This will reduce the need for water consumption associated with landscaping.
- 5.5.7 Garden landscape planting will focus on species requiring reduced irrigation.

5.6 Summary

- 5.6.1 The surface water management strategy for the proposal has been designed in accordance with local and national guidance and has incorporated SuDS measures throughout the development including provision of cellular attenuation tanks. The SuDS will be designed so they will integrate within the wider landscape proposals and will provide opportunities, where possible, to enhance other aspects of the site such as biodiversity.
- 5.6.2 The flood risk strategy will mitigate the risk of flooding; it does not increase flood risk and does not detrimentally affect third parties. The landscaping strategy will consider potential impacts of climate change and will incorporate species that rely on seasonal precipitation. The FRA details measures that will allow proposed buildings to be prepared for the impacts of climate change, in line with national and local planning requirements.

6 Materials & Waste

6.1 Introduction

- 6.1.1 Waste arising from the construction and operation of the Proposed Development will be managed in accordance with local and national policy. This section is in line with RBC's **Policy CC5 'Waste Minimisation and Storage'**.
- 6.1.2 A Waste Strategy within the DAS (Berkeley, 2019) should be read in conjunction with this section.
- 6.1.3 Waste will be managed in accordance with the waste hierarchy presented in **Figure 6.1** in order to reduce the volume of material being sent to landfill and the negative environmental impacts associated with this method of disposal.

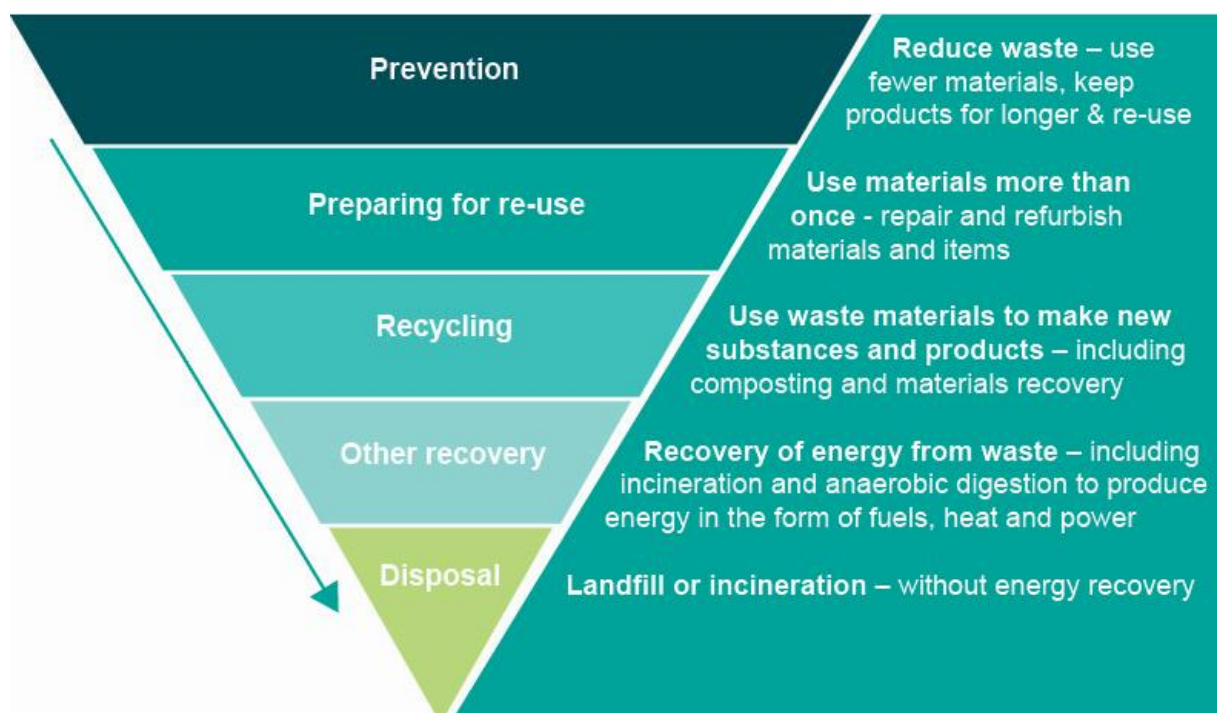


Figure 6.1 The Waste Hierarchy, Defra 2011

6.2 Recycled and Responsibly Sourced Materials

- 6.2.1 Materials that reduce the use of resources and are from sustainable sources will be used where appropriate in order to reduce the environmental impact of the proposed development.
- 6.2.2 Low impact building materials are extremely important for implementing a sustainable development.
- 6.2.3 Building materials will be procured through Berkeley Homes (Oxford & Chiltern) and their development partners' sustainable supply chain framework. A sustainable supply chain framework relates to the procurement of materials from 3rd party suppliers with environmental certification. This framework would be prepared and adopted by Berkeley Homes (Oxford & Chiltern) prior to the construction phase.

6.2.4 The framework could include a range of materials covered by a range of certification standards such as:

- FSC or PEFC for timber;
- ISO 14001 Environmental Management Systems; and
- BES 6001 for quarried products such as bricks and concrete.

6.2.5 In addition, policies will be specified to procure materials locally where possible. All timber and other materials such as window units, bricks, aggregate and minerals will be legally sourced, and a significant proportion will come from sustainable sources.

Specification of Materials

6.2.6 Materials that reduce the use of resources, are from sustainable sources and that provide a healthy environment for users of the buildings should be used where appropriate in order to reduce the environmental impact of the proposed development.

6.2.7 To sustainably source products one must:

- Know how to procure and identify responsibly sourced materials (FSC/PEFC and responsibly sourced products e.g. BES6001) and healthy materials (e.g. low VOC products);
- Gain information on a wide range of commonly used building materials and their associated environmental profiles which are based on factors such as climate change, mineral extraction and waste disposal;
- Understand the principles of embodied carbon and other issues such as resource depletion, reuse and recycling potential waste; and
- Understand the principles of the circular economy.

6.2.8 The industry is moving towards the use of Life Cycle Assessment (LCA) in order to understand the environmental impacts from construction products and materials.

6.2.9 LCA is used to appraise a range of different design options with the aim of improving the construction product related environmental performance of the building. The results of the LCA are presented in an environmental product declaration (EPD) in order to provide the causes for assessing buildings and identify those which cause less stress to the environment.

6.2.10 The proposed development at Vastern Road could use, at an early design stage, the LCA tool to identify what are the most sustainable materials suitable for the proposed development.

6.2.11 Materials used should be responsibly sourced in accordance with any national and local policy such as the UK Government's Timber Procurement Policy.

6.2.12 Where appropriate local suppliers should be used in order to reduce emissions relating to the transportation of materials and equipment to and from site.

6.3 Construction Waste Management

6.3.1 During the construction process and the occupation of the development, the waste strategy will follow the principles of the waste hierarchy – “eliminate, reduce, reuse and recycle” – to reduce waste sent to landfill and to allow that the environmental, social and economic risks from waste are reduced and, where possible, turned into opportunities (**Section 6** of the Waste Strategy prepared by PBA).

- 6.3.2 The principal contractor will be charged with responsibility for the management and coordination of all waste streams during each stage of the construction of the houses.
- 6.3.3 In order to facilitate this a Site Waste Management Plan (SWMP) should be prepared post planning, prior to construction. This will promote waste reduction and managed in accordance with the 'waste hierarchy'. The waste hierarchy underpins all waste management policy in the UK.
- 6.3.4 The production of a SWMP is no longer a legal obligation, but is still considered to be best practice and valuable to both the environment and the development. Berkeley Homes (Oxford & Chiltern) will register the site as part of the Considerate Constructors Scheme. Berkeley Homes (Oxford & Chiltern)'s internal team of dedicated sustainability practitioners will undertake regular site sustainability audits at least once every three months (DAS, Berkeley Homes Oxford & Chiltern, 2019).
- 6.3.5 The SWMP will highlight the commitments and targets the design team must deliver, which helps to ensure waste arisings are reduced and that site activities are compliant with legislative requirements.
- 6.3.6 The preparation of a SWMP is still considered important to encourage the efficient management of building materials, the legal disposal of waste, reducing fly tipping, and reusing, recovering and recycling materials.
- 6.3.7 A SWMP typically has three stages:
- Pre-Construction - development of the SWMP;
 - Construction Phase - managing and updating the SWMP process; and
 - Post-Construction - verifying and reporting the SWMP actions.
- 6.3.8 The key to good on-site waste minimisation and legal compliance management is to develop a flexible Construction Environmental Management Plan (CEMP). A CEMP is being developed for this application and will inform later construction phase CEMP(s). The CEMP(s) will allow the Principal Contractor to use a toolbox of information to manage a wide set of environmental requirements including waste legal compliance. A construction phase SWMP can form part of a construction phase CEMP document (**Section 4** of the Waste Strategy prepared by PBA).
- 6.3.9 As part of the CEMP and in accordance with the BREEAM strategy, a Resource Management Plan (RMP) will be developed covering the non-hazardous waste related to on-site construction and dedicated off-site manufacture or fabrication generated by the buildings design and construction.
- 6.3.10 Where existing hard surface will be demolished, a pre-demolition audit will be undertaken to improve the recovery of material for subsequent high grade/value applications.
- 6.3.11 The Design and Access Statement (DAS, Berkeley Homes Oxford & Chiltern, 2019) Chapter 3.11 outlines how the proposed development will address waste sustainably, including during construction. As a continuation of the commitment to reducing the impact the development has on its surroundings, Berkeley Homes (Oxford & Chiltern) aims to reduce construction waste by 10% and re-use or recycle at least 90% of total waste produced on site.
- 6.3.12 Potential construction waste generation can also be designed-out through good design practices or via off-site fabrication. In addition, the use of materials with some form of recycled content would help reduce the net waste generation in the project.

6.4 Operational Waste

Storage Provisions

- 6.4.1 The proposed development will provide sufficient measures for the storage of waste, including recycling waste bins, which are integrated into the scheme in order to reduce visual impact. The waste storage requirements will align with RBC collection practices.
- 6.4.2 Kitchen and utility room design will allow space for the segregation of recyclable waste in to a single co-mingled and recyclables container and another for general waste. Premises with gardens will be provided with a third container for home compostable kitchen waste.
- 6.4.3 Suitable and sufficient space must be provided so the likely volume of waste arising each week can be stored in bulk bins, including the separate storage of co-mingled recyclables in orange banks.

Collecting the Waste Generated

- 6.4.4 The scheme design will be developed to meet the requirements of the RBC kerbside collection arrangements.
- 6.4.5 Both mixed recycling and non-recyclable waste will be collected on a fortnightly basis on alternate weeks.
- 6.4.6 Accessibility to bins will be in accordance with local highways guidance, so that waste collection vehicles can safely access all dwellings that comprise the development
- 6.4.7 Sufficient access will be provided within the internal roads to allow for the manoeuvring and turning heads of refuse and delivery vehicles to safely access and exit the development without blocking any of the housing.

6.5 Summary

- 6.5.1 The proposed development will aim to incorporate sustainably sourced material in line with national and local policy and, where appropriate, will utilise adequate speciation to reduce the environmental impacts of the development.
- 6.5.2 Waste generated through the construction process will be reduced and managed in accordance with the waste hierarchy. A SWMP will be developed, prior to construction, to promote effective management of construction waste.
- 6.5.3 Operational waste will be managed in accordance to RBC collection practices. Appropriate internal and external storage will be provided to facilitate moving waste up the waste hierarchy. The development's road layout will allow for appropriate access and servicing by RBC's waste collection team.

7 Pollution

7.1 Introduction

- 7.1.1 This section summarises the current condition of the site in relation to air, noise and light pollution. It also identifies sources of pollution that may be introduced during the construction and operation of the Proposed Development and measure that have been identified to mitigate potential adverse effects. This section follows requirements outlines in **Policy CC2; EN15 'Air Quality'; EN16 'Pollution and Water Resources'; and EN17 'Noise Generating Equipment'**.

7.2 Air Quality

- 7.2.1 The Site is not situated in a declared Air Quality Management Area (AQMA)³. The nearest AQMA is located in Reading (approximately 5 miles away).
- 7.2.2 An Air Quality Assessment (PBA, 2019) has been prepared and should be read in conjunction with this section.

Construction

- 7.2.3 The principle source of potential air quality impacts associated with construction of the development are likely to relate to dust and elevated levels of Particulate Matter (PM).
- 7.2.4 The construction works should be carried out in such a way that emission of air-borne pollutants including dust and odours are reduced and managed by best practicable means. This will allow there to be minimal nuisance, loss of amenity or health effects to nearby buildings and their occupants (e.g. residents) and the local community, and that air quality objectives are not exceeded.
- 7.2.5 In order to reduce the potential air pollutants arising from construction, the principal contractor could implement construction management practices during the construction phase, including:
- Watering of roads (dust suppression) within the construction site;
 - Locating machinery and dust causing activities furthest from sensitive receptors where possible;
 - Erect barriers and screens to prevent dust leaving the site;
 - Turn off vehicle engines when stationary;
 - Only use cutting, grinding and sawing equipment with dust suppression equipment;
 - Cover stockpiles of loose building materials such as sand and ballast; and
 - Lower drop heights for deliveries.
- 7.2.6 The approach to managing these impacts could be formed within a Site Environmental Management Plan (or equivalent) by the principal contractor.

³ https://laqm.defra.gov.uk/images/aqma_maps/Reading.jpg

Operation

- 7.2.7 The Air Quality Assessment (PBA, 2019) demonstrates that the predicted pollutant concentrations within the site are below the relevant National Air Quality Objectives (NAQO). The site is therefore considered suitable for the proposed development without the need for specific mitigation in relation to air quality.

7.3 Noise

- 7.3.1 An initial Acoustic Design Review (24 Acoustics, 2019) has been prepared and should be read in conjunction with this section.

Construction

- 7.3.2 In order to reduce the impact of construction noise on the surrounding area, the principal contractor could implement construction management practices to reduce the impact of noise pollution during the construction phase, including:

- Fitting vehicles and mechanical plant used for the works with effective exhaust silencers and undertaking regular maintenance to confirm that they are in good working order;
- Selection of inherently quiet plant where appropriate;
- Machines in intermittent use should be shut down in the intervening periods between work or throttled down to a minimum;
- Materials should be handled with care and be placed, not dropped;
- Materials should be delivered during normal working hours; and
- All ancillary plant such as generators, compressors and pumps should be positioned so as to cause minimum noise disturbance, i.e. furthest from receptors or behind close boarded noise barriers.

Operation

- 7.3.3 The Acoustic Design review (24 Acoustics, 2019) only considered the requirements with SSE and mitigation of noise from substation operations.

- 7.3.4 The noise from the substation comprises two components, namely:

- Noise from the transformer cooling fans which operate intermittently; and
- Noise from the transformer units, which is a continuous tonal noise dominant at 100 Hz.

- 7.3.5 To follow the principles of good acoustic design as outlined in the ProPG: Planning and Noise – New Residential Development, the following acoustic design measures are proposed:

- An acoustician is required as a full member of the design team;
- A further noise survey should be undertaken across the site at heights of up to 10 m during an operational condition identified by SSE as worst case;
- The sound insulation of the glazing and façade elements of the buildings will be absolutely critical. The acoustic performance of all window systems must be warranted by the vendor and supported by laboratory test data;

- Many of the building facades (wall construction) will need to be upgraded to encourage adequate low-frequency sound insulation. Once detail(s) are agreed it will be necessary to build a mock-up of the façade and test it in an acoustic laboratory. Sufficient time should be allowed in the design programme for this;
- The ventilation system to the buildings should be designed so that it is not necessary to open windows to the dwellings for any reason. Consideration therefore needs to be given to provision of background and purge ventilation by mechanical means. Measures should also be incorporated to prevent overheating;
- The ventilation system should not draw or extract air into/ out of the buildings via vents in the walls/ windows. Ducted systems should be used throughout; and
- The ventilation system should be designed such that it emits a noise level no lower than NR24 at all times in habitable rooms.

7.4 Light Pollution

- 7.4.1 A Lighting Assessments (PBA, 47500/3003, 2019) has been produced and should be read in conjunction with this section. This document assesses the current lighting conditions on site, potential impacts of the proposal on light pollution and identified necessary mitigation measures.
- 7.4.2 The lighting assessment identified a number of artificial sources of lighting being on present on site including wall mounted amenity lighting and flood lighting for amenity and security which include Metal Halide (MH), High Pressure Sodium (HPS) and fluorescent lamps.
- 7.4.3 The site is not situated with a statutory or non-statutory designated area. Receptors have been identified, some of which are sensitive, within the surrounding area which could be potentially impacted by the proposed development. These include existing local residents, motorists, cyclists and pedestrians, heritage and ecology receptors. These have been listed and described in Table 5.4 of the Lighting Assessment (PBA, 2019).
- 7.4.4 No statutory designated ecological sites have been identified within this radius. The nearest statutory designated ecology site is Clayfield Copse Local Nature Reserve which is located approximately 2.7 km north of the site on the opposite site of the River Thames.
- 7.4.5 Given the existing sources of lighting present on site and the extensive existing light sources within the surrounding area, the site has been identified through the site walkover as E3 Suburban (medium district brightness), on the edge of E4 Urban (High district brightness) as set out in ILP Guidance Notes for the Reduction of Obtrusive Light GN01:2011. This classification has been agreed with RBC.

Construction

- 7.4.6 During the construction phase lighting impacts tend to lead to more obtrusive than operational lighting because of its temporary nature, and the type of lighting equipment used. For ease of deployment and use, construction lighting tends to be mobile, and focus on providing the widest coverage of light from the fewest possible units; in order to reduce time spent maintaining and installing the equipment. This, along with the fact that it is often poorly directed or installed, can result in temporary effects of glare, light intrusion and sky glow if good practice measures are not employed.
- 7.4.7 There are residential receptors located to the east and west of the site on Norman Place, Lynmouth Road and Lynmouth Close. Without mitigation there is potential for receptors to be impacted temporarily by light intrusion and glare. It is unlikely residential receptors will notice a change in sky glow given their location within the centre of Reading and the existing levels of sky glow. Therefore there is potential for a temporary **Moderate Adverse** effect (without mitigation) on nearby residential receptors.

- 7.4.8 Misdirected lighting orientated onto nearby roads can cause glare and has the potential to dazzle drivers (i.e. motorists, cyclists and pedestrians) on Lynmouth Road and Vastern Road where construction lighting is poorly orientated. Without mitigation there is therefore potential for there to be a **Moderate Adverse** effect.
- 7.4.9 The River Thames is located to the north of the site and used by bats as a foraging and commuting corridor. Lighting intrusion onto this corridor during the construction phase (e.g. from temporary flood lighting) has the potential to increase the illumination along this area and deter bats from using this route. Therefore, without the implementation of mitigation measures there is potential for there to be a **Major Adverse** effect to ecological receptors.
- 7.4.10 During the construction period the principal contractor could implement construction environmental management procedures to reduce the impact of light pollution. General principles to mitigate the adverse effects of lighting associated with construction of the proposed development are listed below:
- Construction lighting should be directed so it does not create light intrusion outside of the immediate working area;
 - Sufficient lighting units used to avoid the need for tall, wide beam lighting units to illuminate large areas;
 - Vehicle lights should be properly directed and lenses must be intact to prevent unnecessary glare and breakout of obtrusive light (this is also an MOT requirement);
 - Lighting should be reduced when not required for safety purposes. Security lighting should be kept at the minimum level needed for visual and security protection;
 - If appropriate, to reduce the need for fixed visible lighting outside working hours, the use of infrared flood lighting and CCTV systems should be considered for security;
 - All lighting related to the works will be designed and fitted to reduce light intrusion onto any sensitive habitat such the River Thames;
 - The use of visual screening, such as hoardings between more sensitive visual receptors and construction light sources in proximity to the site; and
 - Dark corridors along the River Thames should be maintained during the evening, overnight or early morning (i.e. outside approximately one hour before dusk and one hour after dawn) by avoiding light intrusion on this area. This will avoid the fragmentation of this bat corridor.

Operational

- 7.4.11 Nearby residents adjacent to the western and eastern site boundaries on Lynmouth Road, Lynmouth Court and Norman Place have the potential to be negatively affected by light intrusion and glare associated with the operation of the proposed development. Some landscaping will be provided along the eastern boundary which will act as a buffer, reducing the amount of potential for light intrusion from new internal street lighting and external lighting on new residential buildings. Along the eastern and western site boundaries there is also some low-level screening provided in the form of walls, fencing and vegetation (trees) which will help limit light intrusion and filter night-time views at the ground floor level. In the absence of mitigation, there is still potential for **Moderate Adverse** effects to existing residential receptors associated with light intrusion and glare should lighting be poorly located and orientated.

- 7.4.12 Effects of obtrusive light to road users are primarily related to glare. The existing site access will be widened and a new internal street and car parking will be provided as part of the proposed development which will be lit. Intensity limits should be used to control direct glare from luminaires. As such it is not anticipated that lighting will result in disability glare to surrounding road users. It is therefore not anticipated that operational lighting will have an adverse effect on existing or proposed road users and effects are anticipated to be **Neutral**.
- 7.4.13 There may be some light intrusion from the proposed development onto the banks of the River Thames where lighting is orientated outwards, towards the river. Where lighting is provided on the podium ramp which links to the Christchurch Bridge there is also potential for light intrusion into the River Thames. It should be noted that there is already existing lighting provided along the Thames Path. In the absence of mitigation measures, effects to ecological receptors on the River Thames are anticipated to be **Moderate Adverse**.
- 7.4.14 Potential effects on sensitive receptors during operation of the completed scheme can be avoided through appropriate lighting design. Measures to mitigate potential effects should be implemented. These include:
- Lighting should be directed away (or controlled) from the sensitive receptors to prevent obtrusive light adversely affecting them.
 - Minimising light break-out above the horizontal using 'full cut-off' lighting systems. This is achieved through placing lighting units correctly and also by fitting them at a height such that they can be directed downwards rather than horizontally.
 - Lighting should be designed to avoid reflectance from buildings and plant – so external lighting should be mounted onto buildings or on lighting stands and directed to the area where it is needed rather than facing building facades. Surfaces should be dark in colour and uniformed, i.e. no bright concrete with preferences towards tarmac and dark paving.
 - Reducing external lighting levels outside working hours (post-curfew) to levels suitable for maintaining safety and security.
 - Use of automated devices to switch lights (particularly security lighting) on and off according to activity/ambient light levels.
- 7.4.15 Ecological design objectives to reduce the adverse effects of lighting on local wildlife using River Thames as foraging and commuting corridors are listed below and will be taken into consideration during preparation of the detailed lighting design:
- The lighting design should be bat sensitive and allow 'dark corridors' along the River Thames to be maintained. This can be facilitated by fitting lamps with hoods, cowls, louvers or shields. This will help avoid the fragmentation of the habitat used by protected species such as bats, that use these features at night-time for refuge.
 - The use of a Central Monitoring System (CMS) to control lighting could be used to help reduce disturbance of bat commuting and foraging corridors by enabling lighting to be dimmed or switched off in these areas during bat commuting or emergence times. This implementation of a CMS will be considered at the detailed lighting design stage.
 - Where lighting is required in proximity to the River Thames, consideration should be given to the use of luminaires which have a lesser impact on bats, including those which have a: low or no Ultra Violet (UV) element; warm white spectrum to reduce blue light content; and/or feature peak wavelengths higher than 550 nm (see Bat Conservation Trust and ILP – Bats and Artificial Lighting in the UK (2018) for further details).

7.5 Summary

- 7.5.1 An initial review of the current baseline situation of the site in regards to pollution has been undertaken. Specific mitigation measures have been identified in relation to light pollution to be implemented to reduce potential adverse effects to an acceptable level. A number of mitigation measures have also been identified in relation to air and noise pollution during the construction phase which could be implemented by the contractor through the provision of a Site Environmental Management Plan (or equivalent).

8 Health & Well-being

8.1 Introduction

- 8.1.1 This section explores how high-quality design has been promoted to respond to the local context and needs in order to deliver safe, accessible and attractive environments for healthy communities. This draws on principles and design features and considers how impacts of urban intensification have been managed.

8.2 Access to Open Spaces & Nature

- 8.2.1 Given the constraint of the site, limited open space is provided within the proposed development. However, the proposed development is adjacent to the river Thames and will have a direct connection and access to open spaces surrounding the development. Open spaces and other amenities for recreation are accessible by foot with an approximate distance of 200 metres.
- 8.2.2 The surrounding nature and river with associated cycle paths and walkways will contribute to the health and wellbeing of residents. Access to these facilities will help encourage residents to lead healthy and active lifestyles.

8.3 Adaptation to Local & Future Needs

- 8.3.1 Design principles associated with respecting and responding to the local context include:
- Development that is well integrated within its surroundings, including excellent public transport opportunities and connections to neighbouring areas by foot and by cycle; and
 - Attractive mix of homes with a defining character influenced by the qualities of the existing town and the sites relationship with the landscape setting.

The design of development aims to address the following:

- Increase natural lighting;
- Reduce the likelihood of noise complaints;
- Incorporate private outdoor space; and
- The layout of the development also considers the needs of future occupants, in for example adapting to climate change.

- 8.3.2 The following design principals will be considered⁴ for the design or resilient buildings:

- **Building design and energy strategy:** passive and active design measures to avoid overheating in buildings including high levels of internal thermal mass, controlled secure ventilation and high levels of insulation to reduce heat gains through building fabric;
- **Weatherproofing, detailing and materials:** buildings may be subject to increased exposure due to driving rain and therefore detailing of weatherproofing and fixing may need to adapt. Material selection should also consider higher temperatures and increased UV radiation; and

⁴ http://www.arcc-network.org.uk/wp-content/D4FC/01_Design-for-Future-Climate-Bill-Gething-report.pdf

- 8.3.3 **Water conservation:** water stress may increase in summer months with the requirement for increased water conservation and the incorporation of water demand reduction

8.4 Summary

- 8.4.1 The proposed development will follow design principles in order to respond to local context and create attractive, multi-use public spaces and buildings which will foster safe, accessible and attractive living spaces for residents and visitors to the area.

9 Management

9.1 Introduction

- 9.1.1 This section explores ways in which the site will be managed in an environmentally and socially considerate manner. This includes measures taken during construction of site, mitigating environmental impacts as well as design measures to secure safety and security.

9.2 Sourcing of Sustainable Materials

- 9.2.1 The proposed development is intended to utilise high-quality and sustainable materials where possible. Materials used within the proposed development will be procured in accordance with Berkeley Homes (Oxford & Chiltern) Sustainable Procurement Policy, including the use of certified timber (DAS, Berkeley Homes Oxford & Chiltern, 2019).
- 9.2.2 Where practical, the embodied carbon of the development will be further reduced by specifying materials with low environmental impacts over their lifecycles. This may be supported by following the LCA methodology mentioned in **Section 6.2**.

9.3 Construction Environmental Management

- 9.3.1 Specific environmental impacts arising from the construction of the proposed development have been identified. The measures for socially and environmentally managing these have been described in **Section 7**. These include impacts associated with air quality, noise vibration and light pollution.
- 9.3.2 The construction of the proposed development also has an impact on ecology. The mitigating measures in relation to ecology and biodiversity are outlined in **Section 11**.
- 9.3.3 Berkeley Homes (Oxford & Chiltern) follow a vision of sustainability, considering people, planet and prosperity during their operation activities and creation of developments and places. Berkeley Homes (Oxford & Chiltern) is committed to creating a net biodiversity gain on all new developments.
- 9.3.4 The proposed development will use resources efficiently, in line with Berkeley Homes (Oxford & Chiltern) Sustainability Management System procedures. This includes ensuring the site set up is efficient and completing check-lists during the construction phase on energy reduction.
- 9.3.5 Additionally, Berkeley Homes (Oxford & Chiltern) follow the nationally recognised standards of Considerate Constructors Scheme (CCS). The CCS encourages best practice beyond statutory requirements for construction activity. The scheme covers:
- **Appearance** – Ensure sites appear professional and well managed;
 - **Community** – Utmost consideration to impacts on neighbours and the public;
 - **Environment** – Protection and enhancement of the environment;
 - **Safety** – Attainment of the highest levels of safety performance; and
 - **Workforce** – Providing a supportive and caring working environment.

9.4 Safety and Security

9.4.1 The site-wide development and individual buildings will be designed to reduce opportunities for, and the fear of, crime. Dwellings will be designed to comply with Part Q of the Building Regulations⁵. Non-residential buildings will include suitable security measures to deter crime. Security measures could include:

- CCTVs;
- Avoiding unlit passages between buildings;
- Creating active frontages; and
- Encouraging natural surveillance from adjacent buildings and surrounding areas.

9.4.2 The development will be adequately lit to reduce the fear of crime on public footpaths and open spaces.

9.5 Summary

9.5.1 The proposed development will be managed in a socially and environmentally considerate manner, taking into account the impacts during the construction and operation phase. This includes responsibly sourcing materials, as well as addressing environmental impacts with appropriate mitigation measures. Finally, the proposed development will provide safety to its inhabitants through suitable design and management measures.

⁵ HM Government (2012) *Approved Document Q – Security – Dwellings*. March 2015

10 Transport

10.1 Introduction

- 10.1.1 This section describes what are the suitable facilities and infrastructure needed to support and promote walking and cycling, as these are important aspects of creating a sustainable development.
- 10.1.2 A Transport Statement (PBA, 47500/001, 2019) and a Residential Travel Plan (PBA, 47500/002, 2019) has been prepared and submitted with the planning application which outlines the proposed transport strategy for the scheme and has identified potential impacts that the proposed development may have on the existing transport network. This document should be read in conjunction with this section.
- 10.1.3 Effectively integrating and connecting the development to existing networks, such as cycle paths, can help encourage people to walk and cycle and reduce the use of cars. This can not only help reduce CO₂ emissions, but can have positive impacts on the health and wellbeing of site users by improving air quality and supporting a more active lifestyle.
- 10.1.4 New developments should provide cycle storage and access through the site in line with guidance outlined in the Revised Parking Standards and Design SPD (2011). Further to this, consultation with RBC indicated that consideration should also be given to pedestrian and cycle accessibility.

10.2 Accessibility for Pedestrians and Cyclists

- 10.2.1 The proposed development will create significant enhancements for pedestrian and cycle connectivity, both across the site and on key sections of the surrounding network. A key consideration of the masterplan development was to enhance the pedestrian and cycle connection between Christchurch bridge and Reading Northern interchange.
- 10.2.2 Given the excellent location of the site, walking will form a widely available and attractive method of travel for residents.
- 10.2.3 The site has a direct interaction with Vastern Road which provides pedestrian footways on both sides connecting the Caversham Road / Great Brighams Mead roundabout to the west to the Reading Bridge roundabout to the east.
- 10.2.4 There are currently three signalised crossings along Vastern Road all of which are of a staggered arrangement providing north/south connections.
- 10.2.5 South of Vastern Road, Trooper Potts Way provides access to the northern station entrance and the pedestrian only underpass which leads to the main station entrance on the southern side and in turn the town centre.
- 10.2.6 To the north of the site, the Thames Path lines the southern side of the River Thames which leads to Reading Bridge, Kings Meadows, Tesco to the east and Caversham Bridge to the west. Christchurch Bridge is located centrally along the northern boundary of the site and provides a pedestrian connection to the northern side of the river.
- 10.2.7 The site has a range of existing cycling facilities available to the future occupiers of the site with access to local on and off road routes and the national cycle network.
- 10.2.8 Locally to the site, the northern footway on Vastern Road provides a shared footway / cycleway facility past the southern site boundary from Lynmouth Road the Reading Bridge to the east.

- 10.2.9 National Cycle Network (NCN) 5 is directly accessible from the northern boundary of the site along the Thames Path. This route connects the site with Caversham to the west via Christchurch Bridge, and Thames Valley Business Park to the east. To the east NCN 5 joins NCN 4 where the River Thames and Kennett meet. NCN 4 dissects the Reading area connecting Theale in the west through to Sonning and Charvil in the east.

10.3 Cycle Parking

- 10.3.1 The proposed development will provide cycle parking in accordance with RBC's Revised Parking Standards and Design SPD (2011).
- 10.3.2 Based on the development schedule, the development would therefore need to provide a minimum of 122 cycle parking spaces. The 55 Sheffield stands (122 spaces) are to be provided in secure, covered and lit cycle stores within the proposed buildings. Sheffield stands consist of a thick metal bars or tubes bent in the shape of a square arc in the floor, which enables bikes to be locked both sides. These will be covered, lit and appropriately located to increase the potential for cycling.

10.4 Public Transport

- 10.4.1 Public transport is an important factor to encourage a shift in travel in favour of sustainable modes of transport rather than the private car.
- 10.4.2 The site is located adjacent to the Northern Station Interchange. The interchange has five bus stops which serves a wider range of services to Caversham, Emmer Green, Sonning Common, Wallingford, Oxford and High Wycombe and Thames Valley business park. Furthermore, an extensive network of services is available on Station Road and Friar Street. These are less than 8 minutes' walk from the application site.
- 10.4.3 Reading Railway Station is located approximately 170 m south of the site, which is around a four-minute walking time. Reading station is situated on the Great Western Main Line, which provides access to key destinations including London Paddington and London Waterloo, as well as local services to Newbury, Swindon, Oxford, Basingstoke and Twyford.
- 10.4.4 The arrival of Crossrail at Reading, timetabled for December 2019, will further enhance the accessibility of the area, particularly as Reading station is one of the busiest stations outside London.
- 10.4.5 Crossrail is expected to provide high speeds trains to the centre of London. It is anticipated that four trains an hour at peak times will run from Reading into central London.
- 10.4.6 In compliance with the most recent BREEAM New Construction 2018 (UK) the calculation of the existing public transport Accessibility Index (AI) has been undertaken and provided. An AI of **29.23** is achieved.

10.5 Vehicular Access and Parking

- 10.5.1 The primary vehicle access to the site will be via Lynmouth Road. This is an existing access into the site which is to be improved to accommodate two-way vehicle movements.
- 10.5.2 The existing vehicle access off Vastern Road is to be retained as per its current arrangement but will be solely for access to the retained SSE infrastructure adjacent to the eastern boundary of the site.
- 10.5.3 RBC's Parking Strategy was adopted in October 2011, and contains residential parking standards, along with standards for cycle and motorcycle parking provision. The parking standards in Reading are based on RBC's zonal scheme. The site is located within Zone 1.

10.5.4 The development is proposing a total of 54 car parking spaces across the site. The majority of these spaces are located in the podium undercroft and can be accessed via the internal access road. As the development site is within Zone 1 there is no requirement for visitor parking.

10.6 Electric Charging

10.6.1 The provision of electric parking will be in accordance with the Reading Borough Local Plan adopted in November 2019, which states the following;

- *Communal car parks for residential or non-residential developments of at least 10 spaces, 10% of spaces should provide an active charging point."*

10.6.2 Therefore, a minimum of 5 car parking spaces will be required to be electric charging spaces.

10.7 Summary

10.7.1 The proposed development aims to encourage the use of more sustainable modes of transport by integrating with, and enhancing, existing routes to improve the accessibility of the surrounding area for existing local residents and future site users. The detail of the cycle and pedestrian provision within the site will be confirmed through the reserved matters stage.

11 Ecology

11.1 Introduction

11.1.1 This section will cover how the proposed development aims to maintain and enhance biodiversity on site by understanding the ecological nature of the site; identifying habitats and species which could be adversely impacted by the proposal; and proposing mitigation measures.

11.2 Site Overview

11.2.1 An Ecological Assessment Report (EAR) (EcoConsult, 2019) has been prepared and should be read in conjunction with this section. The report identifies impacts associated with the construction and operation of the proposed development and identifies mitigation and enhancement measures to be included within the proposal.

11.2.2 According to the EAR (EcoConsult, 2019) there are no international nature conservation sites located within 5km from the Site boundary. There are no national nature conservation sites located within 2km from the Site boundary. The site does not lie within a Site of Special Scientific Interest Impact Risk Zone.

11.2.3 The following non-statutory nature conservation sites are located within 1km from the site boundary:

- Cow Lane Depot Local Wildlife Site (LWS) is located 855 m southwest of the Site.
- The Warren Woodlands Complex Local Wildlife Site (LWS) is located 910 m northwest of the Site.
- The Coal, Kennetmouth and Kings Meadow East Local Wildlife Site (LWS) is located 920m east of the Site.

11.2.4 The site does not lie within a Biodiversity Opportunity Area.

11.2.5 The Phase 1 Habitat Survey carried out in April 2018 concluded the site is dominated by:

- Poor semi-improved grassland;
- Scattered scrub;
- Intact species poor hedgerow;
- Individual trees;
- Buildings; and
- Hardstanding.

11.2.6 The species identified on site include:

- Bats, including Daubenton's bat *Myotis daubentonii*, Noctule *Nyctalus noctula*, Common pipistrelle *Pipistrellus pipistrellus*, Soprano pipistrelle *Pipistrellus pygmaeus* and Brown long-eared bat *Plecotus auritus*; and
- Nesting Birds.

11.2.7 No bat roosts were recorded within the site.

- 11.2.8 The River Thames provides good bat foraging habitat. Potential impacts to bats and other wildlife from increased lighting will be mitigated through the design of a lighting scheme which reduces light levels to acceptable levels.
- 11.2.9 An Arboriculturally Impact Assessment (AIA) and a Tree Survey have also been undertaken (Greengage, 2019) which has assessed the on-site and relevant off-site trees and the impact of the proposal. Overall, 41 trees are proposed to be introduced across the proposed development.
- 11.2.10 There are no likely significant effects identified during construction phase that may impact habitats and species.
- 11.2.11 Likely significant effects have been identified at operation phase of the proposed development. These include partial shading of the River Thames, increased lighting and noise levels.
- 11.2.12 Partial shading of the River Thames corridor that may occur particularly during winter when the sun is lower in the sky. The development will cast shade to the river and western end of Fry's Island in the morning and swing around to the east side of Christchurch Bridge during the afternoon. Shade on rivers is natural, provides cooler conditions in parts of the river and is important to the ecology of a river. Naturally, shade would come from trees and/or valley sides. The River Thames in Reading is wide, largely open to the sun, has hard concrete banks, lacks natural riparian habitat (such as woodland, marsh, swamp) and also lacks individual trees and marginal vegetation.

11.3 Avoidance and Mitigation

- 11.3.1 A range of measures have been proposed to avoid and mitigate against potential adverse impacts to habitats and species present on site and to enable current levels of biodiversity to be maintained and potentially enhanced.
- 11.3.2 During the construction period, mitigation measures to be implemented include:
- CEMP (or equivalent) to reduce the risk of pollution incidents;
 - Retention and protection of the woodland areas within the site and protection of retained individual trees during construction;
 - Impacts to nesting birds will be avoided by carrying out vegetation clearance and the demolition of buildings outside the bird nesting season (March to August inclusive);
 - Careful landscaping strategy with selection of species from a palette in keeping with local landscape character to mitigate against amenity and landscape impacts due to tree removal; and
 - Erection of stout fencing around each tree to be retained in advance of site clearance, enclosing the root protection area.
- 11.3.3 Additional mitigation measures to be implemented include:
- The River Thames corridor will be enhanced by planting within the Site within 10m of the River Thames. Tree planting will include native and non-native willow species/varieties chosen to suit the particular requirements and conditions of the Site. Herbaceous planting will include a mix of native and non-native plants to suit the conditions on the Site. Species have been selected which provide biodiversity benefit including nectar producing plants and plants which provide structure for invertebrates. Locally sourced plants of Summer snowflake *Leucojum aestivum* (a Reading Biodiversity Action Plan species) will also be included.

- Lighting will be reduced through mitigation (see Lighting Assessment) to reduce impacts to bats and other wildlife. A preliminary lighting design will be submitted for the approval of RBC which will be informed by an illuminance contour plan of external lighting for the proposed development to demonstrate that obtrusive light limitations for sensitive receptors can be achieved.
- Noise levels during construction will be strictly controlled through the CEMP. Opportunities for nesting birds is limited within the Site and to some extent along the River Thames due to high disturbance levels from people.

11.4 Summary

- 11.4.1 A range of surveys have been carried out to understand the ecological nature of the Site and identify habitats and species which could be adversely impacted by the proposal. Due consideration has been given to the potential impacts of the development on biodiversity and a number of measures to protect and enhance existing habitats and species have been proposed.

12 Summary

12.1.1 Berkeley Homes (Oxford & Chiltern) Ltd are submitting a full planning application for a residential development on The Old Power Station, Vastern Road in Reading. The development will comprise up to 209 dwellings, a café, associated parking, a new north-south pedestrian link, connecting Christchurch Bridge to Vastern Road and associated landscaping.

12.1.2 This Sustainability Statement demonstrates that the proposed development meets a range of local sustainability objectives, as defined by RBC's Core Strategy and SPD checklist. The proposed development will be characterised by the following design features and objectives:

- Optimise energy demand where possible, through using the nationally recognised energy hierarchy principles, and through masterplan design principles including orientation of buildings and the incorporation of open spaces;
- Potential to provide a proportion of the development's energy supply by employing low carbon and renewable energy sources such as solar PV panels;
- Provision of a water conservation strategy to outline measures which could be included within the proposed development to help achieve the per capita consumption of potable water target;
- Manage flood risk by incorporating SuDS to help manage surface water, and by identifying design features which may be included to increase the resilience of the development to impacts from flooding;
- Appropriate management of construction waste by incorporating sustainably source material and implementation of a SWMP and managing operational waste in line with RBC waste collection requirements;
- Protecting local air quality and limiting noise and light pollution, by providing mitigation measures to limit potential polluting effects across the construction and operational phases;
- Deliver a high-quality community by designing a safe and secure development that reduces the risk of crime;
- Maintain the landscape and cultural setting of the area by mitigating and enhancing the existing character of the development;
- Promote sustainable travel modes (including walking, cycling and public transport) as an alternative to private car use by providing routes which are safe and accessible, and providing secure cycle storage facilities in line with local guidance; and
- Retain, enhance and create new habitats to preserve the ecological setting of the site, through a number of measures including water attenuation, native tree planting.

Appendix A Illustrative Layout



NOTES

- THIS DRAWING IS BASED ON BERKELEY HOMES LAYOUT. XXXXXXXX
- THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH ALL OTHER LANDSCAPE DRAWINGS AND DOCUMENTS
- THIS DRAWING IS NOT INTENDED FOR CONSTRUCTION
- DO NOT SCALE FROM THIS DRAWING
- ANY DISCREPANCIES WITHIN THIS DRAWING OR BETWEEN THIS DRAWING AND ANY OTHER INFORMATION IS TO BE REPORTED TO BERKELEY HOMES GROUP CHILTERN FOR CLARIFICATION

KEY

APPLICATION AREAS & CONTOURS

- OUTLINE PLANNING APPLICATION SITE BOUNDARY
- EA BUFFER
- BM OFFSET
- EARTHWORKS CONTOURS

PROPOSED LEVELS

- PROPOSED LEVELS
- HIGHER ABOVE PROPOSED LEVELS

EXISTING LEVELS

- EXISTING LEVELS
- EXISTING LEVELS

SOFT LANDSCAPE

EXISTING TREES RETAINED

- LARGE FEATURE TREES
- MEDIUM URBAN TREES
- SMALL URBAN TREES
- LARGE RIPARIAN FEATURE TREES
- MEDIUM RIPARIAN URBAN TREES
- SMALL RIPARIAN URBAN TREES
- AMENITY SHRUB MIX
- HERBACEOUS PLANT MIX
- NATIVE RIPARIAN SHRUB MIX
- BULB PLANTING
- HEDGEROW
- AMENITY GRASS MIX
- SPECIES RICH GRASSLAND MIX
- SPECIES RICH WET GRASSLAND MIX

PROPOSED HARD LANDSCAPE & BOUNDARY TREATMENTS

- ASPHALT ROAD SURFACE
- CONCRETE BLOCK PAVING 1
- CONCRETE BLOCK PAVING 2
- CONCRETE BLOCK PAVING 3
- CONCRETE FLAG PAVING 1
- CAFE TERRACE DECKING
- RESIN BOUND GRAVEL SURFACE
- LOOSE BARK MULCH
- BESPOKE IN-LAY PAVING DETAIL
- BENCH SEATING
- LITTER BINS
- ILLUMINATED BOLLARDS
- METAL BOLLARDS
- METAL BOLLARDS
- BOULDERS
- CAFE TERRACE RAILING
- ECOLOGY BUG HOTEL

revision

revision	date	description
1		

DRAFT

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project
VASTERN ROAD

drawing
LANDSCAPE GENERAL ARRANGEMENT PLAN

date
December 2019

scale
1:250 (1:500)

drawn
TN

drawing number
448.LA.101

revision
/

LANDSCAPE GENERAL ARRANGEMENT PLAN



Appendix B Site Land Uses



Appendix C Correspondence Between Francesca Prestinoni & RBC Planning

From: Prestinoni, Francesca
Sent: 22 May 2019 11:35
To: Becker, Abbie
Subject: FW: Planning/Policy enquiry

From: Worringham, Mark <Mark.Worringham@reading.gov.uk>
Sent: 21 May 2019 10:31
To: Prestinoni, Francesca <francesca.prestinoni@stantec.com>
Subject: RE: Planning/Policy enquiry

Francesca

The requirements for Sustainability Statements are set out in our Sustainable Design and Construction SPD, which is on our website:
<http://www.reading.gov.uk/media/1069/Sustainable-Design-and-Construction-Supplementary-Planning-Documents-Adopted-July-2011/pdf/Sustainable-Design-and-Construction-Supplementary-Planning-Documents.pdf>. It states that a Sustainability Statement should generally follow the checklists in Appendix 5 of that document. There is one for schemes under BREEAM and one for schemes under the Code for Sustainable Homes. Whilst the Code no longer applies, we consider that the basic matters covered by the checklist still apply.

I hope that's helpful

Regards

Mark

Mark Worringham
Planning Policy Team Leader
Planning Section | Directorate of Economic Growth and Neighbourhood Services

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From: Prestinoni, Francesca [<mailto:francesca.prestinoni@stantec.com>]
Sent: 20 May 2019 16:31
To: Worringham, Mark
Subject: FW: Planning/Policy enquiry

This is an EXTERNAL EMAIL. STOP. THINK before you CLICK links or OPEN attachments.

Dear Mr. Worringham,

I was advised by the Reading Council Customer Service to forward my email below to you. I have tried both last Friday and today to get in contact with you regarding my enquiry. I have questions on Sustainable Appraisal Framework and structure I would like to use for a sustainability statement supporting a planning application.

Would you kindly be able to read the email below and get back to me at your earliest convenience? I truly appreciate your help.

Kind regards,

Francesca Prestinoni
Graduate Environmental Planner

Direct: 01189520629
Francesca.prestinoni@stantec.com
fprestinoni@peterbrett.com



PBA has joined the Stantec family, find out more at peterbrett.com.



From: Prestinoni, Francesca
Sent: 17 May 2019 16:04
To: pleadmin@reading.gov.uk; info@reading.gov.uk
Subject: Planning/Policy enquiry

Hi,

I tried calling the Council earlier today and I was advise raise my enquiry by email in order to be directed to the right person.

I am currently working for a development project that will be submitting an outline planning application for 53-55 Vastern Road, Reading for circa 240 new dwellings. I can see from your policies and checklist validation that a sustainability statement is required to support the planning application. I am in the process of producing this document following the guidance of the [Sustainability Appraisal Framework](#) available online.

My question was regarding what appropriate topics the Council expects the sustainability statement to cover? I have come up with a list of topics that seem to cover the sustainability objectives set out in the Sustainability Appraisal Framework and also topics that align with the Reading Borough Council's policies. Does this seem appropriate? The topics that I am to cover include:

- Energy and CO2 emissions;
- Water Management;
- Materials & Waste;
- Pollution;
- Surface Water run off & Landscaping;
- Safety, Health and Well-being;
- Sustainable Transport;
- Ecology.

Could you please confirm this meets the Council's expectations and that the topics listed above are suitable for a Sustainability Statement supporting an outline planning application?

Thank you in advance for your help.

Kind regards,

Francesca Prestinoni
Graduate Environmental Planner

Direct: 01189520629
Francesca.prestinoni@stantec.com
fprestinoni@peterbrett.com



PBA has joined the Stantec family, find out more at peterbrett.com.



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Appendix D Sustainable Design and Construction Checklist

	Sustainable Design Checklist for Residential Development	Source of Evidence
Energy / CO ₂		
1.	How has the development been designed to optimise the use of the energy from the sun and limit heat losses?	See Energy Statement (Hodkinson, 2019)
2.	How has the development been designed to optimise natural daylighting, energy efficient lighting, external lighting and natural ventilation?	See Energy Statement (Hodkinson, 2019)
3.	How will the design of the building make efficient use of energy? (e.g. use of thermally massive materials, levels of insulation, energy efficient white goods and use of green/ brown roofs etc.).	See Energy Statement (Hodkinson, 2019)
4.	Has local energy generation from renewables and/or decentralised energy been considered as part of the scheme?	Yes – see Energy Statement (Hodkinson, 2019)
5.	How have cycle storage facilities been considered?	Yes – see Section 10.3 Cycle Parking and the Travel Plan (PBA, 2019)
6.	Does the development meet the requirements of policies H5? Is this clearly illustrated?	Yes – see 2.3.8 which outlines how this development addresses policy H5
7.	Is a Section 106 contribution required? If so, what amount?	Yes – see Energy Statement (Hodkinson, 2019)
Water		
8.	How will the development incorporate the use of water saving devices to achieve the higher water efficiency standard under Regulation 36(3) of the Building Regulations?	See Chapter 4 Water
9.	How will the development incorporate recycling rainwater and reduce the use of potable water?	See Chapter 4 Water
10.	Has the collection, treatment and re-use of grey water been considered? If so, how will these facilities be incorporated within the development?	Yes – the collection of grey water was considered but has been discounted due to the technical constraints with incorporating grey water system in flats.
Materials		
11.	How will the selected materials help retain local character, ensure long life and ensure a low environmental impact, including consideration of embodied energy?	See Chapter 6 Materials & Waste
Surface Water Run-off		
12.	How has the development considered flooding and pollution?	See Flood Risk Assessment (PBA, 2019)

13.	Has the design considered the use of sustainable drainage systems (SuDS) and how will they be incorporated within the development?	See Flood Risk Assessment (PBA, 2019)
14.	Does the development meet the requirements of policy EN18?	See Flood Risk Assessment (PBA, 2019)
Waste		
15.	How will the development minimise waste sent to landfill?	See Waste Strategy within the DAS (Berkeley Homes, 2019)
16.	How will the development make the maximum use of construction and demolition waste?	See Waste Strategy within the DAS (Berkeley Homes, 2019)
17.	How will the development make maximum use of re-used and recycled materials?	See Waste Strategy within the DAS (Berkeley Homes, 2019)
18.	How will provision be made for the storage and recycling of waste for all users of the site?	See Waste Strategy within the DAS (Berkeley Homes, 2019)
Pollution		
19.	What measures have been incorporated to ensure that noise and light pollution will be minimised through the development?	See Acoustic Design Report (24 Acoustics, 2019) and Lighting Assessments (PBA, 2019)
20.	What measures have been incorporated to reduce nitrogen oxide emissions and reduce the global warming potential of insulants?	Mitigation measures have been outlined in the Air Quality Assessment (PBA, 2019)
21.	What measures have been incorporated to reduce the release of pollution into the atmosphere?	See the Air Quality Assessment (PBA, 2019)
Management		
22.	How has the development been designed to maximise natural lighting, reduce the likelihood of noise complaints, incorporate private outdoor space and ensure the layout of the development can be easily adapted to meet the needs of future occupants?	See Chapter 9 Management
23.	What measures have been taken to ensure the construction of the site is managed in an environmentally and socially considerate manner, mitigating environmental impacts?	Berkeley Homes (Oxford & Chiltern) will register the site as part of the Considerate Construction Scheme. Further details can be found in the DAS (Berkeley Homes Oxford & Chiltern 2019)
24.	How has the development been designed to ensure people feel safe and secure?	See section 9.4 Safety and Security
Ecology		
25.	How have the wildlife habitats and natural features on and adjacent to the site been considered and how will they be retained, protected and enhanced?	See Ecology Assessment Report (EcoConsult, 2019)