



400 Longwater Avenue, Reading  
Green Park Reading No.1 LLP

Sustainability Statement  
Rev. 00  
14<sup>th</sup> March 2016



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## 1.0 Executive Summary

This Sustainability Strategy has been prepared in support of the full planning application for the office development at 400 Longwater Avenue, Reading, hereafter referred to as the Proposed Development.

This strategy outlines how the Proposed Development would seek to meet the policy targets of Reading Borough Council (RBC).

This report includes a review of both national and local planning policies of Reading Borough Council (RBC). Specifically, the following policy documents have been reviewed:

### *National Policy and Guidance*

- The National Planning Policy Framework (March 2012)
- Building Regulations Part L (October 2013)

### *Local Policy – Current and Emerging*

- Reading Borough Council Core Strategy (Alteration January 2015)
- The Supplementary Planning Documents (SPD)
  - Reading Station Area Framework (December 2010)
  - Sustainable Design and Construction (July 2011)
  - The Sites and Detailed Policies Document (October 2012)
- Community Infrastructure Levy – Charging Schedule (January 2015)

Relevant policy requirements / targets; that is, those pertaining to energy and sustainability and how these are addressed by the Proposed Development are outlined in this report.

### *The Wider Context of Sustainability*

The Proposed Development will bring benefits to the Borough by offering new employment opportunities and utilising undeveloped land within the Green Park Business Park.

The Applicant seeks to optimise the potential of the site by bringing forward these development proposals.

### *Proposed Sustainability Targets*

As a principal target, The Applicant is aspiring to target a BREEAM 'Excellent' rating in line with RBC planning policy.

### *Principles of Sustainable Development*

The Proposed Development intends to implement best practice principles of sustainable design, as follows:

### *Community Engagement and Facilities*

Engage with the local community throughout design, construction and operation to deliver a sustainable development, built for purpose and well used and appreciated by future building occupants.

### *Health and Wellbeing*

To safeguard the health and wellbeing of the future occupants of the offices at the Proposed Development by ensuring that, amongst other things, people will not be exposed to excessive noise, flickering lights or rooms at risk of overheating. The Proposed Development will seek to mitigate any negative effect to the acoustic environment that may arise nearby as a result of the Proposed Development.

### *Responsible Use of Materials*

The Proposed Development will seek to reduce the effect of materials on the environment and on building users, and would seek to make the most sustainable choices in terms of material selection.

### *Minimisation of Waste*

The Proposed Development will seek to reduce the amount (volume and mass) of waste sent to landfill throughout construction and operation of the Proposed Development over its lifetime, through effective management and regard to the waste management hierarchy.

It is intended that at least 80% of construction and demolition waste would be diverted from landfill, in line with BREEAM targets, with the aspiration to achieve higher where feasible. Likewise, it is intended that opportunities are provided to maximise the diversion of operational waste from landfill.

### *Reducing Energy Demand & CO<sub>2</sub> Emissions*

The Proposed Development will have a reduced effect on climate change by reducing CO<sub>2</sub> emissions associated with energy use in buildings. The Proposed Development will reduce energy demand through passive design and energy efficiency measures such as best practice levels of insulation, and low fabric air permeability. Through these measures, the Proposed Development is anticipated to achieve an 18% reduction in regulated CO<sub>2</sub> emissions beyond the requirements of the Building Regulations Part L 2013 'baseline'.

The feasibility of incorporating Combined Heat and Power (CHP) at the Proposed Development has been assessed, finding that due to the relatively low thermal demand (approximately 30% of the total energy requirement) CHP is not suitable.

The viability of installing renewable technologies in the Proposed Development has been assessed, given the roof space available. A 43kWp PV array installed on-site would achieve an approximate further 2% CO<sub>2</sub> emissions reduction beyond the Building Regulations Part L (2013) 'baseline'.

The Development will exceed Part L 2013 Regulations with a 20% reduction in CO<sub>2</sub> emissions reduction to contribute to achieving a BREEAM 'Excellent' rating.

### *Pollution Control*

The Proposed Development aims to reduce pollution to ensure that the buildings do not have a negative effect on the local environment, the people coming into contact with the buildings during construction, or people using the buildings post construction. For example, it is intended that boilers with low rates of Oxides of Nitrogen (NOx) emissions, and materials with low Volatile Organic Compounds (VOCs) will be selected where feasible.

### *Minimising Water Use*

The Proposed Development aims to be water efficient and is aiming to achieving a 40% improvement over the BREEAM baseline office building. This will be achieved through incorporating measures to reduce potable water consumption through use of efficient fixtures and fittings and consideration will also be given to the use of rainwater harvesting to limit the need for potable water where feasible.

It is intended that water meters would also be provided to enable users to monitor usage and target reductions where feasible.

### *Managing Flood Risk*

Sustainable Urban Drainage Systems (SUDS) will be incorporated into the landscaping strategy where feasible to provide areas for water retention during periods of rainfall. These will be designed to accommodate suitable volume of water to mitigate the potential flood risk to the Proposed Development

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### *Improving Ecology & Biodiversity*

The Proposed Development intends to maintain and improve ecology and biodiversity on the Site beyond pre-existing conditions, where feasible. A specialist ecologist is appointed to advise on potential means to improve ecology and biodiversity. As a minimum, it is intended that there is no negative effect on existing ecology and biodiversity.

### *Sustainable Transport*

Accessible and safe pedestrian and cyclist routes will be provided to maximise sustainable transport options, while also having health and well-being benefits for future users of the Proposed Development. .

It is intended that cycle parking for staff and visitors, and ancillary changing and showering facilities for staff will be included within the Proposed Development.

## 2.0 Introduction

### 2.1 The Application

This sustainability strategy has been prepared on behalf of Green Park Reading No. 1 LLP, hereafter referred to as the Applicant, in support of a full planning application for the office development at 400 Longwater Avenue, Reading, hereafter referred to as the Proposed Development.

#### Development Description

The Proposed Development will be two five storey office buildings (B1) with floor plate sizes in the order of 2,000 – 3,000m<sup>2</sup> with a glass to glass dimension of circa 18m plus edge zone, totalling circa 27,000m<sup>2</sup> and associated car parking structures creating approximately 722 spaces in total (including 20 disabled parking bays).

The Proposed Development sits within the boundary of Green Park and is bound by Longwater Lake to the South and East.

#### Aim

This strategy summarises the pertinent regulatory and planning policies applicable to the Proposed Development, and sets targets commensurate with these policies, which the Proposed Development will seek to achieve. This strategy summarises the sustainability measures that will be implemented for the detailed application areas of the development.

#### Approach

The objective of this document is to set out the measures that are likely to be implemented to achieve the Proposed Development's targets. The approach of this strategy is therefore to describe how the design will seek to address the aspects of sustainability outlined in Figure 2.2.

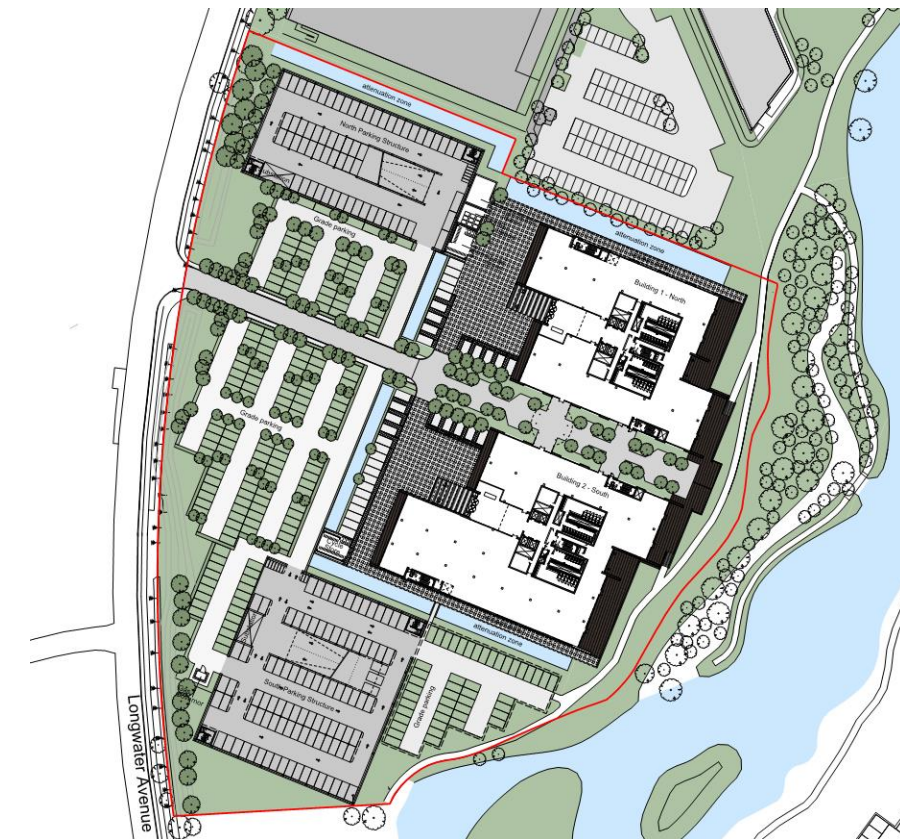


Figure 2.1: 400 Longwater Avenue Proposed Development Layout.



Figure 2.2: Sustainability Wheel.

### 3.0 Policies and Drivers

This section provides a summary of the relevant national and local sustainability planning policies (energy and sustainability) – including, the national planning policy framework and the local policies of the Reading Borough Council (RBC).

This strategy has endeavoured to respond positively to the targets set and achieve the requirements where feasible. The policy documents summarised below are applicable to this development and have been reviewed in this report – see Appendix C for details.



Figure 3.1: Key Policy Documents.

#### The National Planning Policy Framework (March 2012)

The National Planning Policy Framework (NPPF) was published on 27<sup>th</sup> March 2012 and superseded all Planning Policy Statements (PPS) and Planning Policy Guidance (PPG) documents.

The National Planning Policy Framework sets out the Government's economic, environmental and social planning policies for England. In combination, these policies articulate the Government's vision of sustainable development, which should be interpreted and applied locally to meet local aspirations.

It provides a framework within which local people and their accountable councils can produce their own distinctive local and neighbourhood plans, which reflect the needs and priorities of their communities. The NPPF states that: "Proposed redevelopment that accords with an up-to-date Local Plan should be approved and proposed redevelopment that conflicts should be refused unless other material considerations indicate otherwise."

#### Building Regulations Part L (October 2013)

The assessment of the Proposed Development against policy targets has been carried out using the Building Regulations Part L 2013 methodology.

Criterion One of the current Building Regulations requires that the building as designed does not generate CO<sub>2</sub> emissions in excess of that set by the Target Emission Rate (TER) calculated in accordance with the National Calculation Methodology for non-dwellings.

#### Current Policy Framework

The policies of Reading Borough Council (RBC) are contained within the Local Plan documents:

Those applicable to the Development are:

- Reading Borough Council Core Strategy (Alterations Adopted January 2015)
- The Supplementary Planning Documents (SPD):
  - Reading Station Area Framework (December 2010)
  - Sustainable Design and Construction (July 2011)
  - The Sites and Detailed Policies Document (October 2012)

Summary of Reading Borough Council Core Strategy Policies

| Policy Reference      | Target                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|-----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| CS Policy CS1         | <ul style="list-style-type: none"><li>BREEAM 'Very Good' – All new commercial developments.</li><li>BREEAM 'Excellent' – 50% of all major developments (over 1,000m<sup>2</sup>).</li><li>Maximise the use of energy efficiency and energy conservation measures to reduce overall energy demand</li><li>20% of CO<sub>2</sub> reduction to be achieved via passive design, on site renewables and CHP where appropriate. <i>The Sustainable Design &amp; Construction SPD confirms that Part L 2013 Building Regulations have exceeded this target, therefore it no longer applies.</i></li></ul> |
| CS Policy CS2         | <ul style="list-style-type: none"><li>Demonstrate measures to minimise the generation of waste in the construction, use and life of buildings and promote more sustainable approached to waste management including the reuse and recycling of construction waste.</li><li>Minimise construction waste and provide adequate space for operational waste.</li></ul>                                                                                                                                                                                                                                 |
| CS Policy CS3         | <ul style="list-style-type: none"><li>Demonstrate measures to enhance social inclusion in terms of access to housing, employment, services, community facilities, leisure, health and education.</li></ul>                                                                                                                                                                                                                                                                                                                                                                                         |
| CS Policy CS5         | <ul style="list-style-type: none"><li>All buildings should be located, sited and designed to provide suitable access to, into and within, its facilities, for all potential users, including disabled people, so that they ac use them safely and easily.</li></ul>                                                                                                                                                                                                                                                                                                                                |
| CS Policy CS7         | <ul style="list-style-type: none"><li>Developments must be of high design quality that maintains and enhances the character and appearance of Reading.</li><li>Developments should ensure that they create safe and accessible environments where crime and disorder or fear of crime does not undermine quality of life or community cohesion.</li></ul>                                                                                                                                                                                                                                          |
| CS Policy CS20 – CS24 | <ul style="list-style-type: none"><li>Provide alternatives to use of private cars and implement a Travel Plan.</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| CS Policy CS29        | <ul style="list-style-type: none"><li>All new development should make provision for the open space needs of the development.</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| CS Policy CS30        | <ul style="list-style-type: none"><li>New developments should make provision for, or contribute to, improvements to road and other crossings to improve access to green space.</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                           |
| CS Policy CS31        | <ul style="list-style-type: none"><li>Encouraging the development of new, extended or improved community facilities in accessible locations.</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                             |

| Policy Reference      | Target                                                                                                                                                                                                                                     |
|-----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| CS Policy CS32        | <ul style="list-style-type: none"><li>Limiting the impacts on Community Facilities.</li></ul>                                                                                                                                              |
| CS Policy CS34        | <ul style="list-style-type: none"><li>Development will only be permitted where it would not be damaging to the environment through air, land, noise or light pollution.</li></ul>                                                          |
| CS Policy CS35        | <ul style="list-style-type: none"><li>No development in areas of high flood risk.</li></ul>                                                                                                                                                |
| CS Policy CS36 & CS38 | <ul style="list-style-type: none"><li>Retain, protect and incorporate features of biodiversity or geological interest.</li><li>Individual trees, groups of trees, hedges and woodlands will be protected from damage or removal.</li></ul> |

Table 3.1: Summary of RBC Sustainability Policies.



4.0 A Sustainable Development

4.1 The Wider Context of Sustainability

The Proposed Development seeks to contribute to the business and sustainability ethos of Green Park through the provision of modern office buildings to attract new businesses to the area.

Place Making

New Open Spaces

The Proposed Development will develop an under-utilised plot in the Green Park Boundary, enhancing the pathways along Longwater Lake and will provide a positive public realm for the future occupants of the Proposed Development. It is intended that spaces will be highly attractive and would seek to bring nature into the development by ensuring greenery and water-courses inclusive of Sustainable Urban Drainage Systems (SUDS) are included.

Land Use

Responding to the Natural Context

The Proposed Development aims to maximise the greenery as far as practically possible, commensurate with Green Park ambitions.

Scale and Massing

The scale and massing of the Proposed Development seeks to respond to the context including the existing buildings and spaces that surround them with an appropriate scale.

4.2 Sustainable Vision

A Sustainable Vision

The Applicant has a clear vision for a sustainable development, and will strive during detailed design stages to include means to optimise the sustainability of the Proposed Development wherever practical and feasible to do so. Additionally the Applicant aims to fully integrate the health and wellbeing of the future occupants of the building.

4.3 Proposed Development Targets

Good Practice Environmental Assessment

It is intended that the Proposed Development will be designed in reference to good practice industry recognised environmental assessment methodologies such as BREEAM, in line with RBC CS Policy 1.

BREEAM

BREEAM has been in use since 1990 and is considered to be one of the foremost environmental assessment methodologies for the benchmarking of sustainable design proposals.

The Proposed Development will aim to achieve an ‘Excellent’ rating, exceeding RBC’s policy requirement.

See Appendix B for indicative BREEAM pre-assessment for the Proposed Development. A detailed review of the potential of the BREEAM assessment methodology will be undertaken during detailed design stages.

Table 4.1 summarises some of the key elements of a BREEAM assessment that would likely be undertaken.

| Consideration | General Principles                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Energy        | <ul style="list-style-type: none"><li>The target for passive design and energy efficiency (before the implementation of LZC technologies) is to achieve compliance with Building Regulations Part L 2013 as a minimum. This will be applied to all use classes throughout the Proposed Development</li><li>Consideration of passive design, energy efficiency and LZC technologies will be given during detailed design stages to ensure compliance with relevant Part L CO<sub>2</sub> emission targets.</li></ul> |
| Waste         | <ul style="list-style-type: none"><li>Construction waste to be guided by a Site Waste Management Plan and best practice waste minimisation / recycling measures to be implemented.</li><li>Aim to utilise construction materials from recycled or reclaimed sources.</li><li>Dedicated storage for recyclable waste in each building, and specific storage allocated to recyclables in apartment blocks.</li></ul>                                                                                                  |
| Water         | <ul style="list-style-type: none"><li>Best practice water efficiency:<ul style="list-style-type: none"><li>At least a 40% reduction beyond the BREEAM ‘base building’ for commercial areas.</li><li>Rainwater harvesting and other solutions to be considered, especially for irrigation and other non-potable uses.</li></ul></li></ul>                                                                                                                                                                            |
| Flood Risk    | <ul style="list-style-type: none"><li>It is intended that the volume and run-off rates of storm-water would not increase beyond existing conditions, through use of sustainable urban drainage solutions.</li><li>The inclusion of green / brown roofs to be considered.</li><li>Watercourse pollution to be minimised by adopting appropriate techniques.</li><li>Attenuation of pre-development run-off rates including an allowance for climate change would be considered.</li></ul>                            |
| Transport     | <ul style="list-style-type: none"><li>Consideration of sheltered, secure cycle storage provided across the Site. Storage to be available for staff and visitors.</li><li>Site layout to allow for safe and secure pedestrian / cyclist access routes.</li></ul>                                                                                                                                                                                                                                                     |
| Biodiversity  | <ul style="list-style-type: none"><li>An ecologist to be appointed (prior to the commencement of development works on-site) to undertake ecological surveys.</li><li>An ecologist is involved in the landscape proposals in order to improve, where possible, the ecological value / biodiversity across the Site.</li></ul>                                                                                                                                                                                        |
| Materials     | <ul style="list-style-type: none"><li>‘A+’ and ‘A’ rated materials (under the BRE Green Guide to Specification) to be preferred for selection where feasible.</li><li>100% of non-reclaimed timber in permanent and temporary works to be FSC certified and legally sourced.</li></ul>                                                                                                                                                                                                                              |

Table 4.1 BREEAM Targets.



5.0 The Principles of Sustainable Design

The overall aim of the Proposed Development is to deliver a sustainable office development in Green Park, Reading.

5.1 Community Engagement and Facilities

RBC Adopted Policy Summary

| Policy Reference | Target                                                                                                                                     |
|------------------|--------------------------------------------------------------------------------------------------------------------------------------------|
| CS Policy CS7    | ▪ Developments must be of high design quality that maintains and enhances the character and appearance of Reading.                         |
| CS Policy CS29   | ▪ All new development should make provision for the open space needs of the development.                                                   |
| CS Policy CS30   | ▪ New developments should make provision for, or contribute to, improvements to road and other crossings to improve access to green space. |
| CS Policy CS31   | ▪ Encouraging the development of new, extended or improved community facilities in accessible locations.                                   |
| CS Policy CS32   | ▪ Limiting the impacts on Community Facilities                                                                                             |

Table 5.1: Summary of RBC Policies for Community.

Intent

Engage with the local community throughout design, construction and operation to deliver a sustainable development, built for purpose and well used.

To provide community facilities appropriate to the scale of the Proposed Development.

Approach

The following steps outline the approach that will be followed, to address RBC Core Strategic policies described in Table 5.1.



Local Community Engagement

As part of the planning application a well-considered consultation and engagement process will be undertaken.



Apprenticeship and Local Employment

The Proposed Development will seek to boost the local economy by using local business and suppliers where viable and consider schemes promoting local employment.

There will also be a commitment to jobs brokerage throughout the construction phase. As needs change, consideration would be given as to how local and long-term unemployed are given opportunities to gain appropriate skills. Additionally an employment skills plan will be prepared as part of any Section 106 agreement.



Improving Existing Sites

The Proposed Development is being built on underused brownfield land. The Proposed Development will re-vitalise the area and enhance the existing ethos of Green Park.



## 5.2 Health and Wellbeing

### RBC Adopted Policy Summary

| Policy Reference | Target                                                                                                                                                                                                                                                                                                                                                       |
|------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| CS Policy CS3    | <ul style="list-style-type: none"> <li>Demonstrate measures to enhance social inclusion in terms of access to housing, employment, services, community facilities, leisure, health and education.</li> </ul>                                                                                                                                                 |
| CS Policy CS5    | <ul style="list-style-type: none"> <li>All buildings should be located, sited and designed to provide suitable access to, into and within, its facilities, for all potential users, including disabled people, so that they can use them safely and easily.</li> </ul>                                                                                       |
| CS Policy CS7    | <ul style="list-style-type: none"> <li>Developments must be of high design quality that maintains and enhances the character and appearance of Reading.</li> <li>Developments should ensure that they create safe and accessible environments where crime and disorder or fear of crime does not undermine quality of life or community cohesion.</li> </ul> |

Table 5.2: Summary of RBC Policies for Health and Wellbeing.

### Intent

To safeguard the health and wellbeing of the future staff and visitors of the Proposed Development by ensuring that, amongst other things, there will be good indoor air quality and the people will not be exposed to excessive noise, flickering lights or overheating rooms.

### Approach

In order to achieve a sustainable development, it will be vital to ensure that safety is considered to be high amongst users. The Proposed Development layout is configured to avoid unsighted dark corners or dead-ends, promoting a light and visible permeability.

The following steps outline the approach that will be followed by the Proposed Development to address RBC Core Strategic policies described in Table 5.1.



### Secured by Design

In order to achieve a sustainable development which encourages visitors to the Proposed Development it will be vital to ensure that safety is considered to be high amongst staff and visitors.

The Site layout is configured to avoid unsighted dark corners or dead-ends, promoting a light and visible permeability.

Consideration will be given to the principles of 'Secured by Design' during the detailed design phase to ensure security is at the heart of the Proposed Development. It is understood that forthcoming amendments to the Building Regulations would incorporate elements of 'Secured by Design'. These will be adhered to in the design of the Proposed Development.



### Thermal Comfort

Thermal comfort contributes significantly to the perception of an individual to the quality of a space.

Thermal comfort varies depending on the amount of clothing people wear in different situations, and the extent to which a person is active.

During detailed design, calculations would be undertaken to demonstrate that through passive design and other measures, that the risk of overheating at the Proposed Development would be mitigated to ensure that compliance with Part L of the Building Regulations (2013) is achieved.



### Lighting Quality

Good quality lighting installations can work in tandem with good architecture to define great spaces.

During detailed design, an energy efficient lighting strategy will be devised for the Proposed Development, to be designed in line with good practice for visual performance and comfort.

As such, all fluorescent and compact fluorescent lamps will be fitted with high frequency ballasts to minimise the risk of health problems related to the flicker of fluorescent lighting for the Proposed Development in line with current industry standards.

Lighting may also be dimmable and linked to daylight sensors to minimise glare discomfort.



### Noise

Transmission of internal noise within the office space will be minimised.

Any negative effect to the acoustic environment nearby as a result of the Proposed Development will be mitigated as far as practically possible.



5.3 Construction Management

RBC Adopted Policy Summary

| Policy Reference | Target                                                                                                                                                                                                                                                                       |
|------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| CS Policy CS2    | <ul style="list-style-type: none"><li>Demonstrate measures to minimise the generation of waste in the construction, use and life of buildings and promote more sustainable approached to waste management including the reuse and recycling of construction waste.</li></ul> |

Table 5.3: Summary of RBC Policies for Construction Management

Intent

The Proposed Development seeks to manage the project in such a way that sustainability standards are assessed and maintained from the design stages through to end-of-life.

Approach

The Applicant will ensure that the contractors for the Proposed Development sign up to the Considerate Constructors Scheme (CCS) as outlined below.



Construction Management Plan & Considerate Constructors Scheme (CCS)

A construction management plan will be written to ensure construction of the Proposed Development achieves good practice. The plan will be written in reference to the CCS.

The CCS has worked well since introduction to ensure constructors implement practices which embody good neighbourliness and concern for the environment. The aim will be to require contractors to achieve at least a 'good practice' score under the CCS.



5.4 Responsible Use of Materials

RBC Adopted Policy Summary

| Policy Reference | Target                                                                                                                                                                                                                |
|------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| CS policy CS1    | <ul style="list-style-type: none"><li>Use materials in an appropriate way to lower energy consumption and associated greenhouse gases. Have the materials meet BREEM “Very Good” and “Excellent” standards.</li></ul> |
| Cs policy CS2    | <ul style="list-style-type: none"><li>Demonstrate measures to minimise the generation of waste and increasing the amount that is reused or recycled.</li></ul>                                                        |
| CS policy CS7    | <ul style="list-style-type: none"><li>Use of appropriate materials that are to a high standard and will maintain and enhance the area it is located in.</li></ul>                                                     |

Table 5.4: Summary of RBC Policies for Materials.

Intent

The Proposed Development will minimise the effect of materials on the environment and on current buildings, and will seek to make the most sustainable choices in terms of material selection where feasible.

Approach

The following steps outline the way the targets can be met, for Proposed Development, by making the best choices in terms of material selection and reusability.



Reuse of Existing Materials

Reading Borough Council aims to reuse existing materials or waste, to reduce the future need on extracting the material. Reading Borough council suggests the beneficial restoration or use of existing buildings should be considered before demolition or redevelopment. This can be achieved by better waste management.



Material Sourcing

The Proposed Development will seek to source materials locally wherever possible.

This will help reduce the embodied carbon of the materials by limiting transportation related emissions.



Minimising Waste of Materials

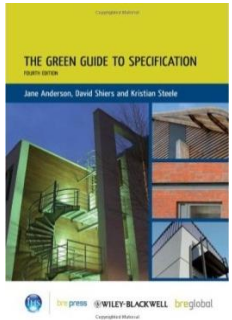
Waste of materials will seek to be reduced through exploring the use of standard size components in design detailing, considering the implementation of a ‘just-in-time’ material delivery system.



Maximise Recycled Content of Materials

A number of materials used commercially in the UK construction industry are manufactured using materials recycled from post-consumer waste. A detailed analysis of the materials available in the UK is outlined on the government ‘Waste & Resources Action Programme’ (WRAP) website and the ‘National Building Specification’ (NBS) ‘Greenspec’ website.

The Proposed Development will explore the opportunity to maximise the recycled content of materials where feasible.



The Green Guide to Specification

Materials used at the Proposed Development will be reviewed using the BRE’s online ‘Green Guide to Specification’ ([www.bre.co.uk/greenguide](http://www.bre.co.uk/greenguide)), in line with BREEAM requirements, in order to maximise the proportion of materials which are A rated, and minimise materials with the lowest ratings (E).



FSC Certified Timber

Certain timber products and materials available in the UK use tropical hardwoods from endangered or illegal sources.

The Proposed Development will endeavour to use timber from a temperate, well managed source or manufactured from recycled timber waste.

Timber certified by the Forest Stewardship Council (FSC) which provides a product-specific chain of custody number confirming that the timber used in the manufacture of the product originates from a sustainably managed source.

For the Proposed Development it is intended that only FSC certified timber is used.



5.5 Minimisation of Waste

RBC Adopted Policy Summary

| Policy Reference | Target                                                                                                                       |
|------------------|------------------------------------------------------------------------------------------------------------------------------|
| CS Policy CS3    | <ul style="list-style-type: none"><li>Minimise construction waste and provide adequate space for operational waste</li></ul> |

Table 5.5: Summary of RBC Policies for Waste.

Intent

The Proposed Development will seek to reduce the amount (volume and mass) of waste sent to landfill during construction and throughout the lifetime of the buildings, by effective management and with regard to the waste management hierarchy.

Approach

The Proposed Development will be provided with sufficient bin storage capacity to allow for storage of recyclable and non-recyclable waste streams.

The layout and location for the waste facilities will be confirmed during detailed design stages.

Minimisation of Demolition & Construction Waste

The contractor will be required to produce a Site Waste Management Plan (SWMP), in line with BREEAM requirements, which would define measures for how to minimise the volume of waste arising from demolition and construction activities which is sent to landfill.

The design team would hold a ‘Design out Waste’ workshop in accordance with the requirements of the SWMP regulations. Therefore design, procurement and construction methodologies will be implemented to reduce waste arising at the construction stage.

Recycling of construction waste will be implemented. The Proposed Development will seek to divert at least 80% of construction, demolition and excavation waste from landfill with the aspiration to achieve a higher diversion rate if feasible.

The SWMP will ensure that the potential useful material arising from demolition waste is assessed before demolition takes place. The process for doing this may be carried out using the Institute of Civil Engineers (ICE) Demolition Protocol 2008. The SWMP will be written in compliance with ‘Department of the Environment, Food and Rural Affairs’ (DEFRA) guidance on SWMPs to implement best practice methods. It will aim to include targets and procedures to reduce waste generated on-site, develop and implement procedures to monitor, sort and recycle construction waste on-site, and follow the guidance given by bodies such as WRAP, Envirowise, DEFRA and the BRE.

Design for Recovery and Re-use

Where possible the Proposed Development will consider the use of locally sourced reclaimed materials. The use of recycled material, in particular for aggregates, will be maximised where feasible. Opportunities for the recycling of construction waste on-site will also be considered in conjunction with making this waste available for recycling elsewhere.

Optimising Materials Usage

Specifying materials in standard dimensions and reducing the number of different materials used on-site would result in reduced on-site wastage. Using design repetition, where appropriate, and simplifying construction details would reduce rework wastage and procurement costs as higher volume orders can be made.

Waste Efficient Procurement

To ensure that the design, materials, and waste strategy intent are realised during construction, the feasibility of setting sub-contractors targets for material waste minimisation, material re-use and recycling will be explored. The design will aim to explore opportunities to incorporate pre-fabricated elements and recycled aggregates where feasible.

Operational Waste

The Proposed Development will be provided with sufficient bin storage capacity to allow storage of non-recyclable and comingled recyclable waste.

Internal recyclable bins will be provided in appropriate areas of the buildings.



Figure 5.1: 1,100 Litre Eurobin and Internal Office Waste and Recycling Bins.



5.6 Energy and Carbon Emissions

RBC Adopted Policy Summary

| Policy Reference | Target                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| CS Policy CS1    | <ul style="list-style-type: none"><li>Maximise the use of energy efficiency and energy conservation measures to reduce overall energy demand</li><li>20% of CO<sub>2</sub> reduction to be achieved via passive design, on site renewables and CHP where appropriate. <i>The Sustainable Design &amp; Construction SPD confirms that Part L 2013 Building Regulations have exceeded this target, therefore it no longer applies.</i></li></ul> |

Table 5.6: Summary of RBC Policies for Energy and Carbon Emissions.

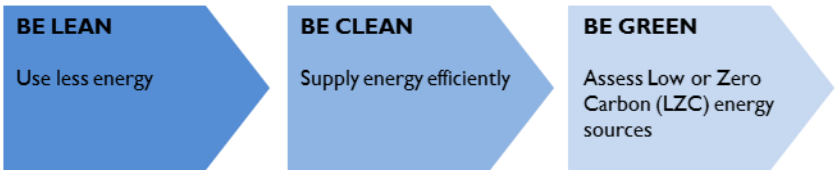
Intent

The Proposed Development will have a reduced effect on climate change by reducing CO<sub>2</sub> emissions associated with energy use. This section summarises the approach taken to reduce CO<sub>2</sub> emissions for the Proposed Development

Approach

The following steps outline the approach that will be followed by the proposed redevelopment when reducing CO<sub>2</sub> emissions and defines the structure of the Energy Strategy, submitted in support of this planning application. The Energy and CO<sub>2</sub> appraisal will follow principles of the Energy Hierarchy; summarised below:

1. Minimise Energy Requirements through Passive Design
2. Appraisal of Combined Heat and Power (CHP)
3. Appraisal of Zero Carbon Energy Technologies



The strategic approach to the design of the Proposed Development will be to reduce demand for energy consumption prior to the consideration of integrating Low or Zero Carbon (LZC) technologies, since controlling demand is the most effective way of reducing energy consumption and CO<sub>2</sub> emissions.

Further reductions would be achieved through the specification of high-efficiency building services in order to limit losses in energy supply, storage and distribution. After the inclusion of passive design and energy efficiency measures, various options have been investigated to reduce CO<sub>2</sub> emissions associated with energy supply.

Target

The target in terms of CO<sub>2</sub> emissions reduction for the Proposed Development is to achieve a 20% CO<sub>2</sub> emissions reductions beyond the requirements of the Building Regulations Part L 2013 by means of passive design and energy efficiency measures and the use of LZC technologies. *An updated version of the Sustainable Design and Construction SPD (July 2011) states the following: 'Recent changes to the Building Regulations mean that the requirement in policy CS1 to 'off-set at least 20% of predicted carbon dioxide*

*emissions' has now been superseded for both residential and non-residential developments. All other parts of policy CS1 are still relevant. For this reason, the requirement to off-set at least 20% of predicted carbon dioxide emissions from the estimated energy usage of the completed and occupied development in adopted policy CS1 is not mentioned further in this SPD'*

Appraisals

The Proposed Development has been assessed to determine the regulated energy requirements, associated CO<sub>2</sub> emissions and the risk of summertime overheating. The Proposed Development have been modelled using Dynamic Simulation Modelling (DSM) in accordance with the National Calculation Methodology (NCM) to demonstrate compliance with Building Regulations Part L2A (2013).

The Proposed Development has been assessed to determine the regulated energy requirements, associated CO<sub>2</sub> emissions and the likelihood of high internal temperature in summertime.

Passive Design & Energy Efficiency Measures

A number of passive design and energy efficiency measures are targeted at the Proposed Development:

- Suitable glazing ratio and glass g-value to balance heat losses, heat gains and daylight ingress. This is particularly important to limit reliance on artificial lighting.
- Fabric insulation and air permeability levels achieving improvements of 70% over the Building Regulations Part L (2013) requirements.
- Efficient low-energy lighting throughout all areas. Passive infrared occupancy sensors and daylight dimming provision where appropriate.
- Highly efficient space heating, cooling and mechanical ventilation systems.
- Insulated pipework and ductwork (and air sealing to ductwork) to minimise losses and gains.
- Variable speed pumps and fans to minimise energy consumption for distribution of services.

Implementation of these measures throughout the Proposed Development is anticipated to exceed compliance with the requirements of the Building Regulations Part L (2013) with a 18% CO<sub>2</sub> emissions reduction, through passive design and energy efficiency measures, i.e. before the inclusion of any Low or Zero Carbon (LZC) technologies.

Infrastructure and Low Carbon Energy Supply

Due to the relatively low thermal demand of the Proposed Development (~30% of the total energy demand) inclusion of a Combined Heat and Power engine is not considered to be feasible for the site.

On-Site Renewable Energy Generation

The viability of installing renewable technologies in the Proposed Development has been assessed, given the roof space available. A 43kWp PV array installed on-site would achieve an approximate further 2% CO<sub>2</sub> emissions reduction beyond the Building Regulations Part L (2013) 'baseline'.



Overall CO<sub>2</sub> Emissions Reduction

A summary of the anticipated CO<sub>2</sub> emissions and reduction at each step of the energy hierarchy is given in Figure 1.1.

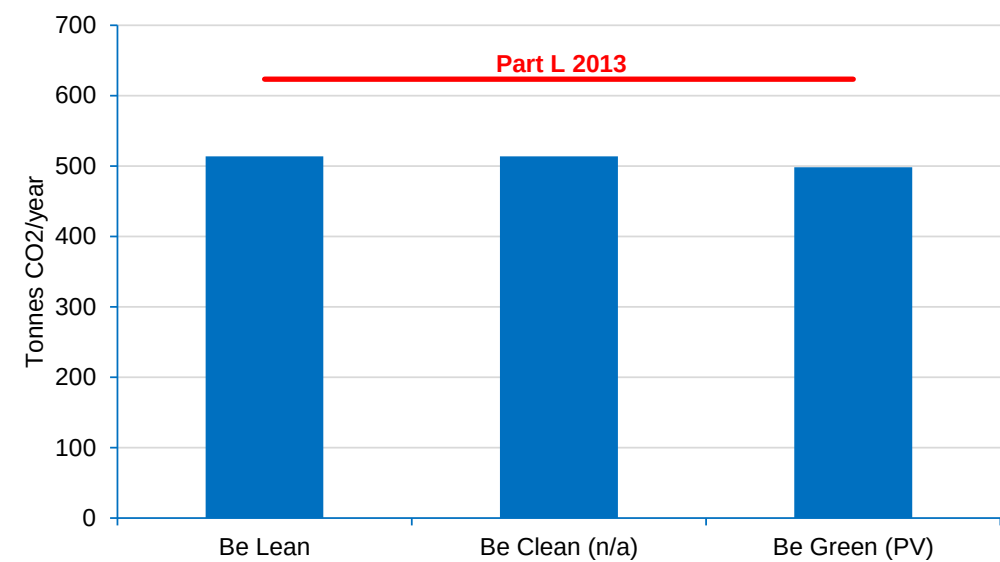


Figure 5.2: Summary of Regulated CO<sub>2</sub> Emissions Reductions.

An overall reduction in regulated CO<sub>2</sub> emissions of **20%** would be achieved when accounting for the benefits achieved through passive design and energy efficiency and PV array.

The CO<sub>2</sub> emissions reduction at the Proposed Development, as outlined in this energy strategy, will contribute to the credit requirements of the targeted BREEAM 'Excellent' rating and meet the mandatory minimum levels detailed to achieve this rating.



5.7 Pollution Control

RBC Adopted Policy Summary

| Policy Reference | Target                                                                                                                                                                           |
|------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| CS Policy CS34   | <ul style="list-style-type: none"><li>Development will only be permitted where it would not be damaging to the environment through air, land, noise or light pollution</li></ul> |

Table 5.8: Summary of RBC Policies for Pollution.

Intent

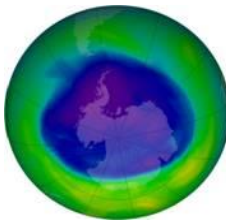
The Proposed Development aims to reduce pollution to prevent any negative effect on the local environment. Where pollution is found to exist on-site all reasonable efforts will be made to remedy conditions.

Approach

The following opportunities have been identified for The Proposed Development. These will be considered further during the detailed design stages:

- Night-time dimming of lights (where appropriate)
- Selection of luminaires to distribute light downwards
- Central plant will be selected to minimise emissions of Nitrous Oxide (NOx) and Particulate Matter (PM)

Other methods to minimise pollution include:



Zero ODP and GWP Insulation

Certain foamed plastic insulation materials available in the UK are manufactured with substances which deplete the Ozone layer and can contribute to global warming.

The Proposed Development will consider opportunities to give preference to insulation materials such as rock wool and mineral wool, which are manufactured to have an 'Ozone Depletion Potential' (ODP) of zero, and low 'Global Warming Potential' (GWP), while still giving consideration to thermal performance and fitness for purpose.



Low Formaldehyde MDF

'Medium Density Fibreboard' (MDF) is a timber panel product which can be manufactured with new or recycled timber.

Typically MDF is manufactured using Formaldehyde, which is hazardous to health and can be emitted to the building long after the building has been completed. MDF can be made without the use of Formaldehyde. The Proposed Development will seek to use low Formaldehyde MDF. The potential for the use of MDF manufactured using recycled materials will also be explored.



Low Solvent / Low VOC Paints

Certain paints contain high levels of solvents or 'Volatile Organic Compounds' (VOC). High VOC paints can emit organic compounds contained in the paint to the building, long after the building has been completed.

These chemicals which are inhaled by the building occupants are considered to be a contributing factor in sick building syndrome, leading to nausea and headaches. Low VOC products also have a benefit to construction workers in terms of health and safety. For the Proposed Development it is intended that materials with low percentage of VOC will be used.



Petrol interceptors

The use of petrol interceptors within car parks, loading bays and manoeuvring areas will be explored at detailed design, to minimise watercourse pollution by capturing oil and petrol that may leak from vehicles and potentially contaminate the ground and water supply.



Light Pollution

Potential sources of light pollution at the Site will be mitigated through measures such as night-time dimming of lights, and selection of luminaires to distribute light downwards.



Environmental Effects

The Proposed Development will aim to record no environmental incidents on-site. Examples of environmental incidents include pollution or contamination of ground and water sources through paint, oil or cement powder spillage.



Waste Storage

Adequate waste storage facilities will be provided at the Proposed Development with capacity to allow storage of non-recyclable and comingled recyclable waste. A collection strategy will also be developed to ensure that there is not excessive build-up. For further detail please refer to section 5.5: Waste.



5.8 Minimising Water Use

RBC Adopted Policy Summary

| Policy Reference | Target                                                              |
|------------------|---------------------------------------------------------------------|
| CS Policy CS1    | ▪ Limit water consumption to levels set out in the BREEAM standards |
| CS Policy CS2    | ▪ Incorporate sustainable urban drainage facilities and techniques. |
| CS Policy CS35   | ▪ No development in areas of high flood risk                        |

Table 5.9: Summary of RBC Policies for Water and Flood Risk.

Intent

The Proposed Development aims to be water efficient, incorporating measures to reduce potable water consumption through efficient fixtures, careful management and recycling strategies.

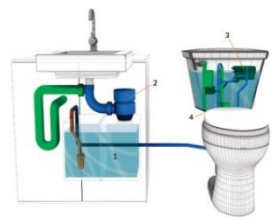
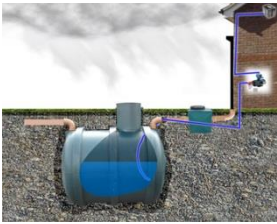
The following opportunities to reduce water use have been identified for the Proposed Development and will be considered further during the detailed design stages. The measures are listed and discussed further below:

- Rainwater harvesting
- Water efficiency measures
- Major leak detection
- Sub-metering



Water Efficiency Measures

Water fixtures and fittings will have a high water efficiency in order to reduce water consumption by at least 40% beyond BREEAM ‘baseline’ building.



Rainwater Harvesting

During the detailed design stage, the feasibility of a rainwater harvesting system will be explored for irrigation and for WC flushing where feasible. Due consideration will be given to the space requirements and energy use that will arise should a rainwater harvesting system be included.

Grey-Water Recycling

The opportunity to include the use of a grey-water recycling system at the Proposed Development will be explored where feasible.

This could also potentially be used for WC flushing.

Major Leak Detection Systems

The proposed development will also include a leak detection system capable of detecting a major water leak on the main water supply within the office blocks and between the buildings and the utilities water meter.

Sustainable Drainage

Sustainable Urban Drainage (SUDs) systems will be considered for the Proposed Development. The opportunities for green roofs, permeable paving and attenuation tanks and other suitable measures to be advised by the drainage consultant.

Sub-Metering

The Proposed Development will be provided with analogue water meters to enable the facilities management to record their water consumption. Pulsed output meters will be provided in line with BREEAM requirements.



5.9 Managing Flood Risk

RBC Adopted Policy Summary

| Policy Reference | Target                                                                                                              |
|------------------|---------------------------------------------------------------------------------------------------------------------|
| CS Policy CS2    | <ul style="list-style-type: none"><li>▪ Incorporate sustainable urban drainage facilities and techniques.</li></ul> |
| CS Policy CS35   | <ul style="list-style-type: none"><li>▪ No development in areas of high flood risk</li></ul>                        |

Table 5.10: Summary of RBC Policies for Water and Flood Risk.

Intent

The Proposed Development aims to identify and manage the flood risk level to minimise the risk of localised flooding both on- and off-site, watercourse pollution and other environmental damage.

Approach

Figure 5.1 shows that the Proposed Development is on the boundary of Flood Zone 1 and 2, indicating that part of the site has a medium risk of flooding from fluvial or tidal sources.

It is proposed that, wherever possible, the finished floor levels will be raised in order to protect the Proposed Development from flooding.

Sustainable Urban Drainage Systems (SUDs) will also be utilised, where feasible, to mitigate potential flood events resulting from rainfall.

For further details, please refer to the flood risk assessment submitted in support of this planning application.

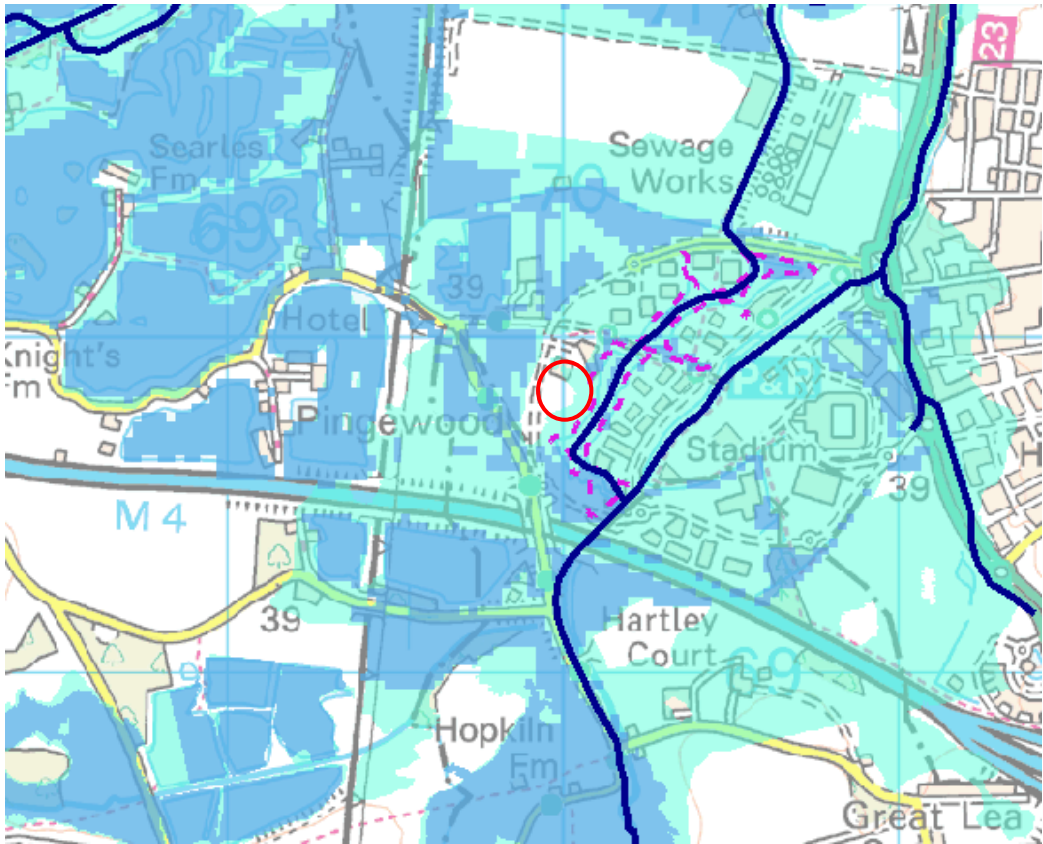


Figure 5.3: Extract from the Environment Agency Flood Risk Map.

- Approximate Site Location
- Flood Zone 3, High Risk of flooding from rivers or the sea, without the presence of defences
- Flood Zone 2, Medium Risk of flooding from rivers or the sea, without the presence of defences
- Flood Zone 1, Low Risk of flooding from rivers or the sea
- Main river
- Flood Defences



5.10 Ecology

RBC Adopted Policy Summary

| Policy Reference      | Target                                                                                                                                                                                                                                    |
|-----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| CS Policy CS36 & CS38 | <ul style="list-style-type: none"><li>Retain, protect and incorporate features of biodiversity or geological interest.</li><li>Individual trees, groups of trees, hedges and woodlands will be protected from damage or removal</li></ul> |

Table 5.11 Summary of RBC Policies for Ecology.

Intent

Green Park received the Corporate Achievement Award by the Chartered Institute of Ecology and Environmental Management in 2015 for merging commercial and biodiversity interests. Green Park is also the first business park in England to receive the Biodiversity Benchmark Award accreditation, which was awarded by the Wildlife Trust in December 2015. The Proposed Development intends to maintain and improve upon the existing on-site ecology and biodiversity, in accordance with the objectives set out in the in Green Park Biodiversity Management Plan (PBA, 2014). A suitably qualified ecologist has been appointed to provide advice on improving ecology and biodiversity. The ecologist has identified mitigation and enhancement measures, to be delivered as part of scheme design, which will safeguard and improve site ecology during the construction and operation stages.

Approach

The Ecological Appraisal, submitted in support of this application, confirms that the site is considered to be of limited ecological value. The following opportunities to improve ecology and biodiversity have been identified for the Proposed Development and will be considered further during the detailed design stages.

The ecological measures implemented on site will form connectivity with the surrounding green space and features of Green Park and present the opportunity for biodiversity enhancement.



Native Planting

The Proposed Development will deliver ecological enhancement of habitats through the introduction of native tree and shrub planting and incorporation of areas of species-rich meadow grassland. The new ditches and swales to be incorporated as part of the drainage strategy will enhance the wetland resource associated with the site and create opportunities for flora, invertebrates and amphibians.



Habitat Creation

The new ditches and swales to be incorporated as part of the drainage strategy will enhance the wetland resource associated with the site and create opportunities for flora, invertebrates and amphibians.



Retaining Trees

Whilst the majority of the existing trees will be removed, these have been classified as 'insignificant'. The tree strategy seeks to enhance and integrate the built form into the landscape, whilst providing accents and focal points to the key nodal spaces. 150+ new trees, including a variety of natives are proposed to enhance the landscaped-character of the site.



Opportunities for Nesting Birds

Opportunities to mitigate for the loss of habitat suitable for nesting birds will be incorporated as part of scheme design.



Reptile & invertebrate Habitats

It is anticipated that the potential for the site to support grass snakes and invertebrates will increase as part of its development through the retention and expansion of areas of shrub planting and creation of new habitat such as species-rich grassland and ephemeral waterbodies (as part of the SUDs scheme).



Environmental Effects

Appropriate controls will be adopted as part of construction to avoid impacts on protected species and nearby valued habitats such as Longwater Lake.



5.11 Sustainable Transport

RBC Adopted Policy Summary

| Policy Reference      | Target                                                                                                                  |
|-----------------------|-------------------------------------------------------------------------------------------------------------------------|
| CS Policy CS20 – CS24 | <ul style="list-style-type: none"><li>Provide alternatives to use of private cars and implement a Travel Plan</li></ul> |

Table 5.12: Summary of RBC Policies for Transport.

Intent

It is the intention that a Travel Plan identifying sustainable modes of transportation is provided, along with suitable facilities such as cycle storage space. The Travel Plan will assist in encouraging staff and visitors to travel sustainably.

The Proposed Development will endeavour to provide accessible, safe pedestrian and cyclist routes within the site to maximise sustainable transport options.

Approach

The site benefits from good access to local bus, cycling and walking routes. However, in addition, the following opportunities for sustainable transport have been identified for the Proposed Development will be considered further during the detailed design stages:

- The provision of cyclist’s facilities such as lockers and showers
- Suitable pedestrian access routes
- 136 cycle spaces are to be provided and 14 motorcycle spaces to encourage alternative forms of transport to work.



6.0 Appendix A: Sustainable Design Checklist

This Sustainable Design Checklist is provided in the Revised Sustainable Design and construction SPD to address how new developments respond to BREEAM. These measures have been outlined in Section 5 and are summarised below to highlight how the Proposed Development intends to respond to the RBC’s sustainability design checklist for BREEAM.

| BREEAM - Sustainable Design Checklist                                                                                                                                                                                                                  |                                                                      |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------|
| Management                                                                                                                                                                                                                                             | Development's Response                                               |
| 1. Will guidance for the non-technical building user be provided so they can understand and operate the building efficiently and understand how the design reduces the overall environmental impact of the building and raise environmental awareness? | Yes, Man 04 has been targeted. See Appendix B.                       |
| 2. What consideration has been given to resource use, energy consumption and pollution in terms of the construction site impacts?                                                                                                                      | See sections 5.4-5.7above.                                           |
| 3. Will site investigation and appropriate remedial action be undertaken?                                                                                                                                                                              | Yes, however, the site is not contaminated.                          |
| 4. Will the community and stakeholders be involved in the design process encouraging flexibly designed buildings which cater for shared use with the local community?                                                                                  | Yes, Man 01 has been targeted. See Appendix B.                       |
| 5. How has the building been designed to reduce the opportunity for and the fear of crime?                                                                                                                                                             | Yes, Hea 06 has been targeted. See Appendix B and section 5.2 above. |
| 6. What consideration has been given to the maintenance of the building?                                                                                                                                                                               | A maintenance strategy will be developed.                            |
| Health and Well-being                                                                                                                                                                                                                                  | Development's Response                                               |
| 7. How has the development been designed to ensure users have sufficient daylight, an external view, adequate and appropriate lighting, ventilation, air quality and drinking water?                                                                   | Hea 01, Hea 02 and Wat 01 have been targeted. See Appendix B.        |
| Energy                                                                                                                                                                                                                                                 | Development's Response                                               |
| 8. How has the building been designed to minimise CO <sub>2</sub> emissions associated with their operational energy consumption?                                                                                                                      | See section 5.6 above.                                               |
| 9. How has the development been designed to optimise the use of the energy from the sun, natural daylighting and controlled natural ventilation?                                                                                                       | Covered in Energy Strategy submitted for planning application.       |

| 10. How will the design of the building make efficient use of energy? (E.g. Use of thermally massive materials, levels of insulation and use of green / brown roofs etc.)                                                                      | Covered in Energy Strategy submitted for planning application.  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|
| 11. Have renewable energy sources or decentralised energy been considered for this development and if so, how would they be incorporated within the development?                                                                               | Covered in Energy Strategy submitted for planning application.  |
| Transport                                                                                                                                                                                                                                      | Development's Response                                          |
| 12. How has the design and layout incorporated measures to reduce the need to travel, especially by car, and promote alternative and sustainable modes of transport such as walking, cycling and the use of public transport?                  | See section 5.11 above.                                         |
| 13. How have public transport networks been considered in terms of the location of the development and proximity to local amenities?                                                                                                           | Tra 01 is targeted. See Appendix B.                             |
| 14. How have deliveries and the manoeuvring of delivery vehicles been considered?                                                                                                                                                              | Covered in the Travel Plan.                                     |
| Water                                                                                                                                                                                                                                          | Development's Response                                          |
| 15. How will the development incorporate the use of water saving devices to achieve a maximum consumption of 5.5 cubic metres per year per person for office developments? (Or the most appropriate benchmark for other types of development). | Wat 01 has been targeted. See Appendix B and Section 5.8 above. |
| 16. Will the development and access to and from it such as roads and paths be located away from areas of potential flooding?                                                                                                                   | See section 5.9 above                                           |
| 17. How will the development incorporate harvesting and re-use of rainwater?                                                                                                                                                                   | See section 5.8 above.                                          |
| Materials                                                                                                                                                                                                                                      | Development's Response                                          |
| 18. How will the selected materials help retain local character, ensure long life and ensure a low environmental impact?                                                                                                                       | Covered within the Design and Access Statement                  |
| 19. What consideration has been given to reusing materials in-situ, responsibly sourcing materials and re-using existing structures?                                                                                                           | See section 5.4 above.                                          |
| Waste                                                                                                                                                                                                                                          | Development's Response                                          |
| 20. Has an audit of the materials present on the site been conducted with an assessment of the extent to which materials could be re-used?                                                                                                     | See section 5.4 above.                                          |
| 21. How will the development make the maximum use of construction, demolition waste and recycled materials?                                                                                                                                    | See section 5.4 above.                                          |
| 22. How will provision be made for the storage and recycling of waste for all users of the site?                                                                                                                                               | See section 5.4 above.                                          |

| Land Use and Ecology                                                                                                                                                                    | Development's Response                                                 |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------|
| 23. 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 section 5.10 above.                                                |
| 24. What consideration has been given to not using previously undeveloped land?                                                                                                         | Site is brownfield.                                                    |
| 25. What consideration has been given to the removal of contamination from the land?                                                                                                    | No known contamination.                                                |
| Pollution                                                                                                                                                                               | Development's Response                                                 |
| 26. What measures have been incorporated to ensure that noise and light pollution plus pollution transported through surface water runoff will be minimised throughout the development? | See sections 5.7 above.                                                |
| 27. What measures have been incorporated to ensure that light pollution will be minimised throughout the development?                                                                   | See section 5.7 above.                                                 |
| 28. What consideration has been given to reducing refrigerants and minimising nitrogen oxide emissions?                                                                                 | See section 5.7 above.                                                 |
| Flooding                                                                                                                                                                                | Development's Response                                                 |
| 29. How has the development been sited to minimise the impact of flooding.                                                                                                              | Covered within the Flood Risk Assessment. Also, see section 5.9 above. |
| 30. How has the design considered the use of sustainable drainage systems (SUDS) and how will they be incorporated within the development?                                              | See section 5.8 and 5.9 above.                                         |
| Innovation                                                                                                                                                                              | Development's Response                                                 |
| 31. What consideration has been given to innovative sustainability measures in terms of a procurement strategy, design feature, management process or technological development?        | To be reviewed at the next stage of the design.                        |

## 7.0 Appendix B: BREEAM Pre-Assessment Summary

The development will be assessed using BREEAM 2014 New Construction (NC). RBC requires all new development to achieve a BREEAM 'Very Good' rating as a minimum, with 50% of the components achieve a BREEAM 'Excellent' rating.

The Proposed Development is targeting a BREEAM 'Excellent' Rating with a score of 71.10%.

The anticipated performance for the development is illustrated in Figure 7.1 below and an indicative route to achieving the required 'Excellent' target is shown in Table 7.1.

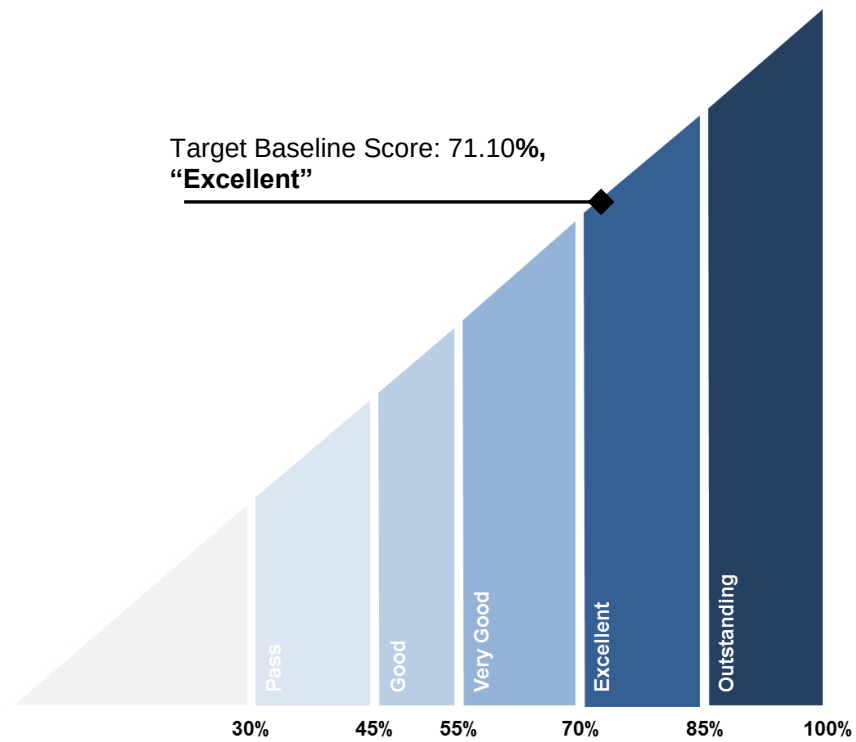
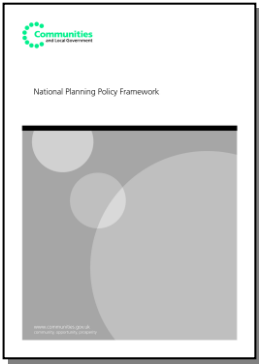


Figure 7.1: BREEAM 2014 Pre-Assessment Scale and Score.

| Category             | Issue                                                                           | Credits                    |                       |
|----------------------|---------------------------------------------------------------------------------|----------------------------|-----------------------|
|                      |                                                                                 | Available                  | Targeted              |
| Management           | Man 01: Project Brief and design                                                | 4                          | 4                     |
|                      | Man 02: Lifecycle Cost and Service Life Planning                                | 4                          | 3                     |
|                      | Man 03: Responsible Construction Practices (M <sub>e</sub> ), (M <sub>o</sub> ) | 6                          | 6                     |
|                      | Man 04: Commissioning and Handover (M <sub>e</sub> ), (M <sub>o</sub> )         | 4                          | 4                     |
|                      | Man 05: Aftercare                                                               | 3                          | 3                     |
| Health & Wellbeing   | Hea 01: Visual Comfort                                                          | 4                          | 2                     |
|                      | Hea 02: Indoor Air Quality                                                      | 5                          | 4                     |
|                      | Hea 04: Thermal Comfort                                                         | 3                          | 2                     |
|                      | Hea 05: Acoustic Performance                                                    | 3                          | 2                     |
|                      | Hea 06: Safety and Security                                                     | 2                          | 2                     |
| Energy               | Ene 01: Reduction of CO <sub>2</sub> Emissions (M <sub>e</sub> )                | 12                         | 5                     |
|                      | Ene 02: Energy Monitoring (M)                                                   | 2                          | 2                     |
|                      | Ene 03: External Lighting                                                       | 1                          | 1                     |
|                      | Ene 04: Low Carbon Design                                                       | 3                          | 1                     |
|                      | Ene 06: Energy Efficient Transportation Systems                                 | 3                          | 3                     |
| Transport            | Ene 08: Energy Efficient Equipment                                              | 2                          | 0                     |
|                      | Tra 01: Public Transport Accessibility                                          | 3                          | 1                     |
|                      | Tra 02: Proximity to Amenities                                                  | 1                          | 0                     |
|                      | Tra 03: Cyclist Facilities                                                      | 2                          | 2                     |
|                      | Tra 04: Maximum Car Parking Capacity                                            | 2                          | 1                     |
| Water                | Tra 05: Travel Plan                                                             | 1                          | 1                     |
|                      | Wat 01: Water Consumption (M)                                                   | 5                          | 3                     |
|                      | Wat 02: Water Monitoring (M)                                                    | 1                          | 1                     |
|                      | Wat 03: Water Leak Detection and Prevention                                     | 2                          | 2                     |
|                      | Wat 04: Water Efficient Equipment                                               | 1                          | 1                     |
| Materials            | Mat 01: Life Cycle Impacts                                                      | 5                          | 3                     |
|                      | Mat 02: Hard Landscaping and Boundary Protection                                | 1                          | 1                     |
|                      | Mat 03: Responsible Sourcing of Materials (M)                                   | 4                          | 2                     |
|                      | Mat 04: Insulation                                                              | 1                          | 1                     |
|                      | Mat 05: Designing for Durability and Resilience                                 | 1                          | 1                     |
| Waste                | Mat 06: Material Efficiency                                                     | 1                          | 0                     |
|                      | Wst 01: Construction Waste Management (M <sub>o</sub> )                         | 4                          | 3                     |
|                      | Wst 02: Recycled Aggregates                                                     | 1                          | 0                     |
|                      | Wst 03: Operational Waste (M <sub>e</sub> ), (M <sub>o</sub> )                  | 1                          | 1                     |
|                      | Wst 04: Speculative Floor and Ceiling Finishes                                  | 1                          | -                     |
| Land Use and Ecology | Wst 05: Adaptation to Climate Change                                            | 1                          | 1                     |
|                      | Wst 06: Functional Adaptability                                                 | 1                          | 1                     |
|                      | LE 01: Site Selection                                                           | 2                          | 0                     |
|                      | LE 02: Ecological Value of Site and Protection of Ecological Features           | 2                          | 2                     |
|                      | LE 03: Minimising Impact on Existing Site Ecology (M)                           | 2                          | 2                     |
| Pollution            | LE 04: Enhancing Site Ecology                                                   | 2                          | 2                     |
|                      | LE 05: Long Term Impact on Biodiversity                                         | 2                          | 2                     |
|                      | Pol 01: Impact of Refrigerants                                                  | 3                          | 1                     |
|                      | Pol 02: NO <sub>x</sub> Emissions                                               | 3                          | 3                     |
|                      | Pol 03: Surface Water Run-off                                                   | 5                          | 2                     |
| Innovation           | Pol 04: Reduction of Night-time Light Pollution                                 | 1                          | 1                     |
|                      | Pol 05: Noise Attenuation                                                       | 1                          | 1                     |
| Innovation           | Inn 01: Approved Innovation & Exemplary Level                                   | 10                         | 1                     |
|                      |                                                                                 | Weighted Score:<br>Rating: | 71.10%<br>'Excellent' |

## Appendix C: Detailed Policy Review

### 7.1 National Planning Policy and Guidance

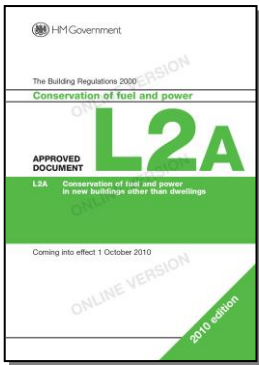


#### National Planning Policy Framework (NPPF), 2012

The National Planning Policy Framework (NPPF) was published on 27<sup>th</sup> March 2012 and superseded all Planning Policy Statements (PPS) and Planning Policy Guidance (PPG) documents.

The National Planning Policy Framework sets out the Government's economic, environmental and social planning policies for England. In combination, these policies articulate the Government's vision of sustainable development, which should be interpreted and applied locally to meet local aspirations.

It provides a framework within which local people and their accountable councils can produce their own distinctive local and neighbourhood plans, which reflect the needs and priorities of their communities. The NPPF states that: *"Proposed redevelopment that accords with an up-to-date Local Plan should be approved and proposed redevelopment that conflicts should be refused unless other material considerations indicate otherwise."*



#### Part L Building Regulations, 2013

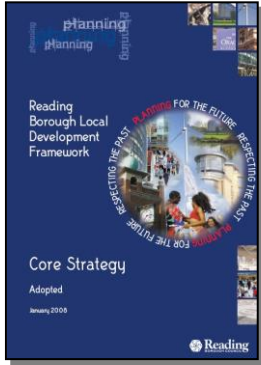
Part L of the Building Regulations, which covers the conservation of fuel and power is the mechanism by which government is driving reductions in the regulated CO<sub>2</sub> emissions from buildings and it has five key criteria which must be satisfied as follows:

- Criterion 1 - Achieving the Target Emission Rate (TER)
- Criterion 2 - Limits on design flexibility
- Criterion 3 - Limiting the effects of solar gains in summer
- Criterion 4 - Building performance consistent with the Dwelling Emission Rate (DER)
- Criterion 5 - Provision for energy efficient operation of the building

Part L 2013 came into force in April 2014 and on aggregate requires the following CO<sub>2</sub> emissions reductions:

- 6% beyond the requirements of Part L 2010 for dwellings
- 9% beyond the requirements of Part L 2010 for non-domestic buildings

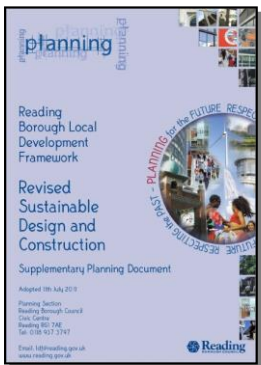
### 7.2 Local Policies and Supplementary Planning Documents



#### Reading Borough Council Core Strategy – Alterations Adopted in January 2015

The Reading Borough Council Core Strategy (2008) sets out the key elements of the planning framework for the area of Reading. The Local Plan includes the following planning policies which relate to sustainable design and development:

- Policy CS 1 (Sustainable Construction and Design)
- Policy CS 2 (Waste Minimisation)
- Policy CS 18 (Residential Conversions)
- Policy CS 20 (Implementation of The Reading Transport Strategy)
- Policy CS 22 (Transport Assessments)
- Policy CS 24 (Car/ Cycle Parking)
- Policy CS 29 (Provision of Open Space)
- Policy CS 34 (Pollution and Water Resources)
- Policy CS 35 (Flooding)
- Policy CS 36 (Biodiversity and Geology)



#### Reading Borough Council Supplementary Planning Document (SPD) on Sustainable Design and Construction – July 2011

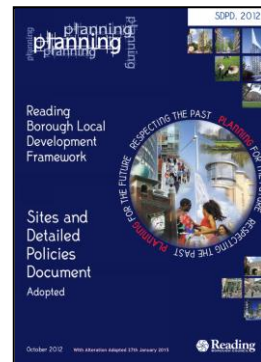
This SPD sets out material considerations on which planning applications are decided and provide more detailed guidance on how the Council's policies can be met during the planning process in relation to Sustainable Design and Construction.

- An updated version of the Sustainable Design and Construction SPD (July 2011) states the following:
  - 'Recent changes to the Building Regulations mean that the requirement in policy CS1 to 'off-set at least 20% of predicted carbon dioxide emissions' has now been superseded for both residential and non-residential developments. All other parts of policy CS1 are still relevant. For this reason, the requirement to off-set at least 20% of predicted carbon dioxide emissions from the estimated energy usage of the completed and occupied

*development in adopted policy CS1 is not mentioned further in this SPD'*

Key targets and requirements set out in the SPD are as follows:

- *Code for Sustainable Homes* - 50% of new residential units in a large development to achieve Code Level 4 with the remainder having to achieve Code Level 3.
- *BREEAM* - 50% of new commercial units in a large development to achieve BREEAM Excellent with the remainder having to achieve BREEAM Very Good.



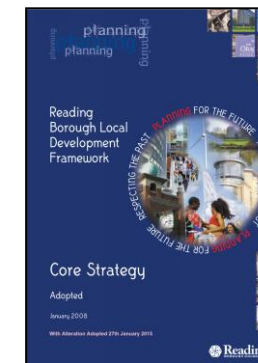
#### Reading Sites and Detailed Policies Document (SDPD) – October 2012

The Sites and Detailed Policies Document contains detailed policies to help guide decisions on planning applications and includes policies on matters, such as residents' amenity, house extensions, affordable housing, and adapting to the effects of climate change.

The Local Plan includes the following planning policies which relate to sustainable design and development:

- DM1: Adaptation To Climate Change
- DM2: Decentralised Energy
- DM3: Infrastructure Planning
- DM8: Residential Conversions
- DM10: Private And Communal Outdoor Space
- DM11: Development Of Private Residential Garden Land
- DM12: Access, Traffic And Highway-Related Matters
- DM15: Protection of Leisure Facilities and Public Houses
- DM16: Provision of Open Space
- DM17: Green Network
- DM18: Tree Planting
- DM19: Air Quality

## 7.3 Emerging Policy and Alterations to the Local Plan

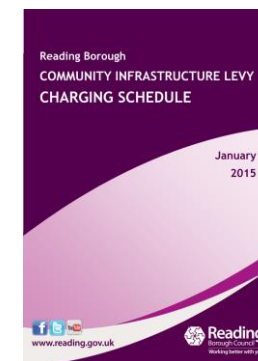


#### Alterations to the Local Plan (January 2015)

In order to take account of the national policy position on affordable housing in the National Planning Policy Framework, the following policies on affordable housing within existing development plan documents have been updated and adopted in January 2015:

- *Reading Borough Council Core Strategy* Policy CS16 of the 2008 Core Strategy: target has been reduced from 50% to 30%
- *Reading Sites and Detailed Policies Document (SDPD)*

Policy DM6 of the 2012 SDPD: the tenure of affordable housing to be provided has been removed.



#### Community Infrastructure Levy – Charging Schedule (January 2015)

In April 2010 the Government introduced the Community Infrastructure Levy (CIL) which comes into force in Reading on 1 April 2015. The levy allows local authorities to fund infrastructure to support growth and development in their area. It is chargeable on most new developments, at a pre-defined rate. There is no charge for offices outside the central core catchment.