



Sustainability Statement

Jacksons Corner

For SG Capital, International House, 1-6 Yarmouth Place, W1J 7BU

May 2016

XCO2 energy

w: www.xco2energy.com :: e: mail@xco2energy.com
t: +44 (0) 20 7700 1000 :: f: +44 (0) 20 7183 6620
17-18 Hayward's Place :: Clerkenwell :: London :: EC1R 0Q

Contents

Executive Summary	3
Site	4
Planning Policies	5
Housing Standards Review	5
Reading Borough Local Development Framework 2015	6
Sustainability Standards.....	8
BREEAM Domestic Refurbishment Pre-Assessment	9
BREEAM Domestic Refurbishment Pre-Assessment Results	15
Proposed Sustainability Measures for New Build Dwellings	16
BREEAM Non-Domestic Pre-Assessment.....	20
BREEAM Pre-assessment Results	26

About us:

XCO2 Energy are a low-carbon consultancy working in the built environment. We are a multi-disciplinary company consisting of both architects and engineers, with specialists including CIBSE low carbon consultants, Code for Sustainable Homes, EcoHomes and BREEAM assessors and LEED accredited professionals.

	Issue 01	Issue 02	Issue 03	Issue 04
Remarks	Draft		Final	
Prepared by	JC	JC	JC	
Checked by	SP	SP	SP	
Authorised by	JF	JF	JF	
Date	21/03/2016	11/04/2016	4/5/2016	
Project reference	8_638	8_638	8_638	



Executive Summary

This report outlines the sustainability strategy for the proposed development at Jacksons Corner in line with the requirements set out in Reading Borough Council's Core Strategy 2015.

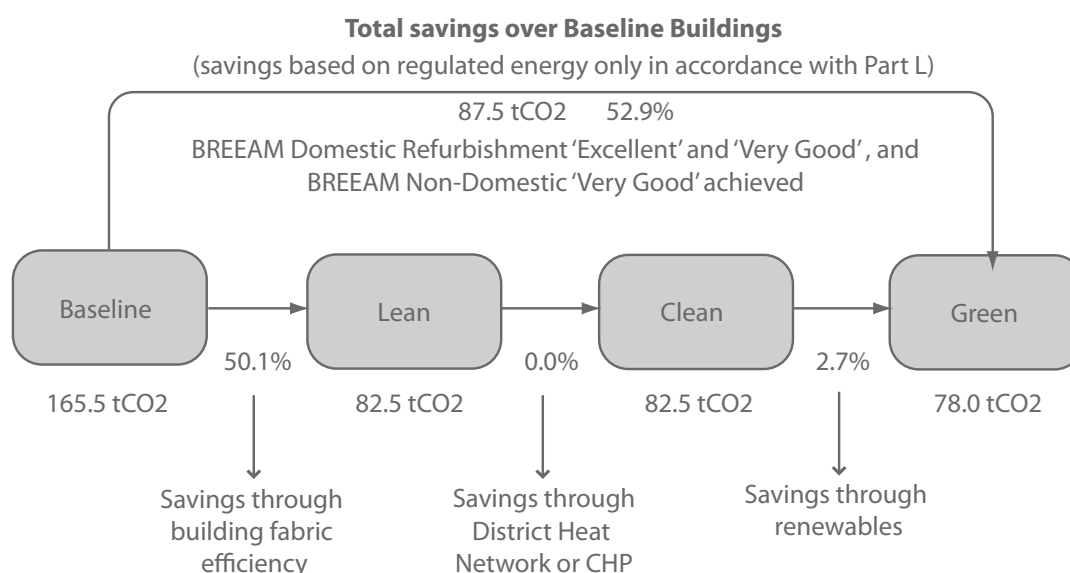
This sustainability statement is divided into two parts:

- Policy and sustainability standards
- BREEAM Domestic Refurbishment for dwellings in the retained building
- Proposed sustainability measures for new build domestic dwellings
- BREEAM New Construction for the retail units

The first part provides an overview of the site and planning policies applicable to this development in accordance with the Council's Core Strategy. The report then demonstrates how the policies have been met.

In summary, the proposed development at Jacksons Corner meets the sustainability targets set out by Reading borough Council.

The diagram below provides a summary of the average CO₂ savings achieved over the baseline buildings for the site. The 52.9% reduction in CO₂ emissions reflects regulated energy use only, in accordance with Part L Building Regulations; unregulated energy use is not taken into account (e.g. plug-in load and appliances).



Sustainability Statement

Site

The development is located on the corner of the Kings Road and the High Street, southeast of Market Square, Reading.

The proposed scheme comprises the refurbishment of 3 no. non-domestic units on the basement and ground floors, refurbished domestic units from the first to the third floors of the existing building fronting King's Road, and new-build domestic units from the first to the sixth floors at the rear of the development. The scheme would include approximately 1,126m² of non-domestic space

in the part retained building, 18 dwellings in the refurbished building and 16 new-build dwellings.

The approximate location of the proposed development is shown in the figure below.

 Proposed site at Jacksons Corner



Sustainability Statement

Planning Policies

The development has been designed in line with the requirements set out by Reading Borough Council.

Housing Standards Review

The government announced the conclusion to the Housing Standards Review on 27 March 2015. The review aimed to simplify government regulations and standards into one key set, driven by building regulations.

As an outcome from the Deregulation Bill (2015) the written ministerial statement withdrew the Code for Sustainable Homes (in England) so Local Authorities will no longer require it as a planning condition for new approvals, nor will local authorities be able to enforce it. Where there are existing contractual arrangements, for example with Registered Social Landlords under the Affordable Funding Programme 2015-2018, it is possible to continue to register and certify against the Code.

One outcome from the review is dual level Building Regulations (Access and Water), which will give local authorities some choice to require developers to build to different standards than the minimum requirements. Furthermore, with appropriate evidence, local authorities can also use the new space standards which make up the new national technical standards. There will also be a new mandatory Building Regulation for security. The Building Regulations has come into play as of October 2015.

The new dual level Building Regulations have come about because of clauses within the Deregulation Act. The Act also brings in a Clause which amends the Planning and Energy Act 2008 to prevent local authorities from requiring higher levels of energy efficiency than building regulations. This second clause has yet to be commenced, and the written ministerial statement sets out how this will be implemented in 2016.

As a result of the changes in Government Policy, the new build dwellings in the proposed development of Jacksons Corner will not be assessed under Code for Sustainable Homes. However, the dwellings have been designed in line with Code for Sustainable Homes principles to ensure wellbeing of occupants, and that impacts to the environment are minimised where possible.



Sustainability Statement

Reading Borough Local Development Framework 2015

Reading Borough Council Core Strategy (adopted January 2015) sets out the following policies in relation to climate change and environmental sustainability:

Policy CS1: Sustainable Construction and Design

Proposals for new developments, including the construction of new buildings and the redevelopment and refurbishment of existing building stock, will be acceptable where the design of buildings and site layouts use energy, water, minerals, materials and other natural resources appropriately, efficiently and with care and take account of the effects of climate change.

To meet these requirements:

- All new commercial developments are required to meet the most up to date BREEAM 'Very Good' as a minimum standard;
- On larger developments of more than 1,000 m² of floorspace, ensure that 50% of the provision meets the most up to date BREEAM 'Excellent' standards;
- All new developments maximise the use of energy efficiency and energy conservation measures in their design, layout and orientation to reduce overall energy demand;
- All developments of more than 10 dwellings or 1000m² floorspace incorporate on-site generation of energy from renewable sources and energy efficient design measures (including the use of CHP where appropriate) to off-set at least 20% of predicted carbon dioxide emissions from the estimated energy usage of the completed and occupied development;
- All developments reduce mains water use and demonstrate that water conservation measures are incorporated so that predicted per capita consumption does not exceed the appropriate levels set out in the BREEAM Standards.

- Developments incorporate sustainable urban drainage facilities and techniques as part of the layout of a development as appropriate and as advised by the Environment Agency, including minimising the size of impermeable areas so that peak run-off and annual water run-off is reduced where possible and in any case is no greater than the original conditions of the site. Particular care will be needed in areas of flood risk where different solutions may be required.

Policy CS2: Waste Minimisation

Development should demonstrate measures to minimise the generation of waste in the construction, use and life of buildings and promote more sustainable approaches to waste management, including the reuse and recycling of construction waste and the promotion of layouts and designs that provide adequate space to facilitate waste storage, reuse, recycling and composting.



Sustainability Statement

Berkshire Structure Plan 2001-2016

The development at Jacksons Corner is also subject to regional and sub regional environmental sustainability targets. The Berkshire Structure Plan 2001-2016 outlines a number of these:

Policy EN5: Air Pollution and Nuisance

- *Development should not give rise, either by itself or cumulatively with other developments, to unacceptable levels of noise, smell, dust, light or noxious emissions affecting areas beyond the site boundary, or to unacceptable levels of air pollution. In addition, existing and future levels of environmental nuisance should be taken into account when the location of uses sensitive to disturbance such as new houses, schools and hospitals, is planned.*

Policy EN6: Prevention of Flooding

- *Development proposals will avoid adding to flood risk, either within the development site or elsewhere. Measures to employ sustainable drainage solutions will be encouraged.*
- *Local planning authorities and developers will carry out a flood risk assessment based on a sequential approach when identifying new development sites, or assessing development proposals to ensure that the site can be developed and occupied safely and to prevent adverse flooding effects elsewhere in the catchment.*

Policy EN8: Renewable Energy and Energy Conservation

- *All forms of development will maximize the opportunity to incorporate current best practice in energy efficiency and energy conservation into their design, layout and orientation.*
- *Generation of energy from renewable resources should be considered, and implemented wherever feasible, in all development proposals, provided that adverse impacts on landscape, biodiversity and local amenity are avoided.*
- *Development proposals for the generation of electricity and heat from renewable sources will be encouraged, provided that adverse impacts on landscape, biodiversity and local amenity are avoided.*



Sustainability Standards

Residential

Following the abolishment of Code for Sustainable Homes on 27 March 2015, there will be no requirement to assess the 16 no. of new build dwellings within this development under Code for Sustainable Homes.

The 18 no. dwellings proposed for the retained building is above the threshold for assessment under BREEAM Domestic Refurbishment 2014 in Reading Borough Council's Core Strategy 2015. As such, a full BREEAM Domestic Refurbishment assessment will be required. Site wide sustainability measures will be incorporated to ensure that 50% of the scheme achieves at least BREEAM Domestic Refurbishment 'Excellent' rating. These include:

- Building fabric
- Surface water drainage;
- Flood risk;
- Amenity space;
- Waste and recycling; and
- Improvement in biodiversity.

Despite the abolishment of Code for Sustainable Homes, the new build dwellings have been design with Code Principles in mind. These measures are detailed within the section for Proposed Sustainability Measures for Dwellings.



Non-domestic

The 1,126m² of retail units on the basement and ground floor will be assessed using BREEAM New Construction 2014. Reading Borough Council's Core Strategy stipulates that all non-domestic developments in Reading should achieve BREEAM Very Good, and for developments of over 1,000m², 50% of the non-domestic units should achieve BREEAM 'Excellent'. As it will be infeasible to split the 3 no. retail units at Jacksons Corner into 50/50, it is proposed that all 3 units to target 62.5 credits in the BREEAM assessment, which is the average between BREEAM Very Good and Excellent.



BREEAM Domestic Refurbishment Pre-Assessment

BREEAM Domestic Refurbishment is a performance based assessment method and certification scheme for domestic buildings undergoing refurbishment, providing an authoritative rating for refurbished homes, covering houses, flats and apartments. It also recognises limitations of existing buildings including their inherent built form and location. Since June 2012, BREEAM Domestic Refurbishment has superseded the EcoHomes assessment method.

BREEAM Domestic Refurbishment measures the sustainability of a development against design categories, rating the entire development as a complete package. Each standard requires developments to gain credits by meeting sustainable design principles over seven key areas:

1. Management
2. Health and Wellbeing
3. Energy
4. Water
5. Materials
6. Waste
7. Pollution

Reading Borough Council requires major refurbishments and conversions to achieve a minimum BREEAM Domestic refurb target of 50% 'Excellent' and 50% 'Very Good'.

The following section outlines the measures adopted for 50% of the refurbished dwellings at Jacksons Corner to achieve BREEAM Domestic Refurbishment 'Excellent' and 50% to achieve 'Very Good', reflecting the client and design team's aspirations in incorporating appropriate sustainability measures.

Management

MAN 1 Home User Guide

A 'Home User Guide' will be made available to the main dwellings providing occupants with an understanding of the energy associated with the operation of their home. This non-technical guide will include operational instructions, recommendations on improving energy use and information on the surrounding area (local amenities) to obtain full credits in this section.

MAN 2 Responsible Construction Practices

The tender specification will require contractors to be compliant with the Considerate Constructors Scheme (CCS). Additional credits have been awarded as it is expected that formal certification will be achieved and that contractors will operate beyond best practice.

MAN 3 Construction Site Impacts

To minimise the construction impacts of the site, contractors will be required to monitor, report and set targets for the reduction of CO₂ arising from site activities in respect to energy, water and materials.

MAN 4 Security

All external doors and windows will meet minimum security standards and be appropriately certified. A security consultant will also be consulted, with their recommendations incorporated into the design to meet Secure by Design.

MAN 5 Protection and Enhancement of Ecological Features

An ecological survey will be carried out to confirm the presence of ecological features. As the site only includes the existing building itself, the site is likely to be considered to have no features of ecological value. The ecologists' recommendations will be incorporated into the scheme.

MAN 6 Project Management

All of the project team will be assigned individual and shared responsibilities including all trades on site.



Sustainability Statement

Health and Wellbeing

HEA 1 Daylighting

The dwellings in the retained building have been designed with daylight in mind, and will meet daylight targets for the living, kitchen and dining rooms.

HEA 2 Sound Insulation

Airborne sound insulation values of the building elements will be designed to be 3dB higher than Building Regulations Part E requirement. Sound testing will be carried out by a suitably qualified acoustician.

HEA 5 Ventilation

The minimum ventilation levels set out in Sections 7 of Building Regulations Approved Document Part F will be provided for all habitable rooms, kitchens, utility rooms and bathrooms.

HEA 6 Safety

Fire and carbon monoxide detection systems will be installed as part of the refurbishment and extension. A compliant fire detection and alarm system will also be provided.



Energy

ENE 1 Improvement in Energy Efficiency Rating (EER)

The Energy Efficiency Rating (EER) is a measure of the overall efficiency of a dwelling. It accounts for regulated energy use in terms of heating, hot water, equipment, lighting and auxiliary energy use.

The methodology set out by the Department of Energy and Climate Change (DECC) for assessing the energy use of dwellings is the Standard Assessment Procedure (SAP). The current version of software is FSAP 2012.

A preliminary SAP calculations were carried out to assess the potential CO₂ savings achieved through energy efficiency measures.

The preliminary SAP calculation for the proposed dwellings in the retained building at Jacksons Corner showed considerable reductions in energy demand in comparison to an existing baseline building. The SAP calculation results indicate that the EER will increase by a minimum of 26 for the main dwellings.

ENE 2 Energy Efficiency Rating (EER) Post Refurbishment

Reduction in energy demand of the proposed dwellings in the retained building will be achieved through the use of well insulated external building elements to meet Part L1B, high performance glazing, use of efficient lighting throughout the dwellings, and the installation of energy efficient space heating and hot water systems.

SAP calculations show that an average EER of greater than 75 will be achieved for Jacksons Corner. This exceeds the EER of 70 required to meet BREEAM Domestic Refurbishment 'Excellent' for 50% of the dwellings.

Sustainability Statement

ENE 3 Primary Energy Demand

An average primary energy demand of less than 140 kWh/m²/year will be achieved after refurbishment works are carried out for the development at Jacksons Corner.

ENE 5 Energy Labelled White Goods

The dwellings will be supplied with energy efficient fridges and freezers or fridge freezers, washing machines and dishwashers that are recognised as Energy Saving Trust recommended appliances.

ENE 6 Drying Space

The proposed refurbishment will include provisions for clothes drying, thereby reducing the amount of electricity consumed through the use of tumble dryers. The dwellings will include at least 4m of retractable drying lines for 2 bedroom dwellings or 6m for 3 bedroom dwellings, either internally or externally.

ENE 7 Lighting

External - Energy efficient light fittings will be installed in the external spaces. Existing external lighting will also meet the compliance requirements. In addition, external lights will be fitted with controls to reduce the energy consumption of the building during periods of infrequent use:

- external space lighting will include energy efficient fittings
- security lighting will include daylight cut-off devices, with a maximum wattage of 150W and PIR.

Internal lighting will have a maximum average wattage across the total floor area of 9 watts/m².

ENE 8 Energy Display Devices

Energy display devices will be installed in the main dwellings to enable the occupants to gain an understanding of their energy consumption and to enable them to reduce their energy use in the future. The display device will provide information on current electricity and primary heating consumption data.

ENE 9 Cycle Storage

Cycle storage spaces will be provided for the dwellings to reduce the frequency of short car journeys. The cycle storage space will be adequately sized, secure and accessible to all residents.

ENE 10 Home Office

A suitable room with a minimum of 1.8m available wall length will be provided with at least two double power sockets and a telephone point. The room will also have an adequately sized openable window or alternative ventilation such as a passive stack.



Sustainability Statement

Water

WAT 1 Internal Water Use

The water category aims to reduce the consumption of potable water in the home from all sources. These are mandatory credits within BREEAM Domestic Refurbishment, with BREEAM 'Excellent' setting an upper limit of 107 litres per person per day.

The development at Jacksons corner aims to reduce water consumption through the use of water efficient fittings, including dual flush toilet, water efficient shower heads and taps.

It is estimated that the proposed refurbishment and extension will achieve a water consumption rate of less than 105 litres/person/day, exceeding the minimum requirement for BREEAM Domestic Refurbishment 'Excellent'.



Possible aerating shower head which could be installed

WAT 3 Water meter

A water meter providing visual display of mains potable water consumption will be installed at a secure and visible location within the dwellings. The water meters will be capable of recording and displaying historical water consumption, and allowing occupants to monitor their water consumption over time. The meter will also be able to display current consumption either instantaneously or at half hourly intervals.

Sustainability Statement

Materials

MAT 1 Environmental Impact of Materials

Embodied energy is the energy that is used in the manufacture, processing and the transportation of the materials to site.

The construction build-ups for each of the main building elements are rated from A+ to E. Each element to be used in the building has been rated according to the BRE Green Guide to Specification whereby:

- A+ rated elements are least likely to affect the environment
- E rated elements are most likely to affect the environment

It is assumed that most of the main building elements within this development will achieve between an A+ to C rating.

MAT 2 & MAT 3 Responsible Sourcing of Materials and Insulation

At least 80% of the materials specified will be obtained from responsible sources. This includes all basic building elements, comprising the building frame, floors, roof, external walls, foundations and internal walls and all finishing elements.

In addition, 100% of all timber used on site will be legally sourced, thereby satisfying the mandatory requirements set out in this category. Any timber used in the structural and finishing elements will be specified from certified sustainable sources such as FSC or PEFC.

Where possible, on-site materials will be reused and recycled to lower transport CO₂ emissions associated with off-site recycling. Where practicable, materials with a high recycled or waste content will be specified.

The insulation index for all new insulation used in external walls, floors, roof and building services will be more than 2 when calculated using the BREEAM Mat3 Insulation Calculator.

Waste

WAS 1 Household Waste

Recyclable: A Local Authority Collection Scheme will be in operation for the collection of mixed recyclable household waste, at least 30 litres of storage space for recycling will be provided internally at a dedicated position in the kitchen.

WAS 2 Construction Site Waste Management

The development will minimise the impact of construction waste on the environment through a Site Waste Management Plan (SWMP). This plan will include:

- benchmarks for resource efficiency
- procedures and commitments to reduce hazardous and non-hazardous waste
- monitoring hazardous and non-hazardous waste

The amount of waste generated will be recorded in the SWMP, and the volume of non-hazardous construction waste generated from the development will meet or exceed the target resource efficiency benchmark. In addition, pre-refurbishment audit of the existing building will be completed prior to works commencing on site. If demolition is included as part of the refurbishment programme, then the audit should also cover demolition materials.



Sustainability Statement

Pollution

POL 1 NOx Emissions

The section aims to reduce the release of nitrogen oxide (NOx) into the atmosphere. Space heating and hot water requirements of the dwellings will be met by individual high efficiency gas boilers with low inherent NOx emissions. Gas boilers with NOx emissions of less than 40 mg/kWh will be specified.

POL2 Surface Water Runoff

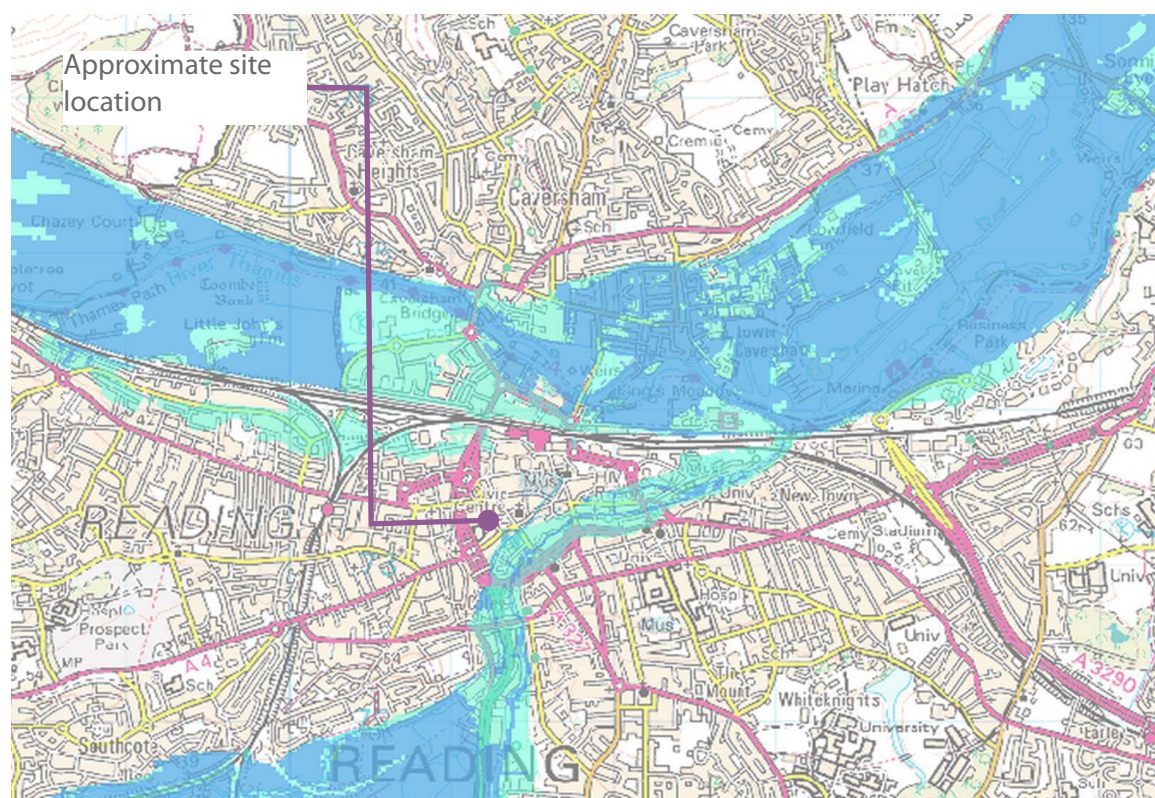
The building footprint will remain the same after the refurbishment, therefore there will be a neutral impact on surface water.

POL3 Flooding

The Environment Agency flood map on the following page, shows the proposed development to be located within an area at low risk of flooding. It also shows that the development is in an area that benefits from flood defences.

Key

-  Flooding from rivers or sea without defences
-  Extent of Extreme flood
-  Areas benefiting from flood defences



Environment Agency flood map shows that the site is located in an area at low risk from flooding. (Source: EA flood map - <http://maps.environment-agency.gov.uk>)

BREEAM Domestic Refurbishment Pre-Assessment Results

A BREEAM Domestic Refurbishment pre-assessment was carried out for the dwellings at Jacksons Corner using the targets set by the client and project team. The table below summarises the number of credits achieved for the dwelling in each of the BREEAM categories, using the BRE Pre-Assessment Estimator.

50% of the refurbished dwellings at Jacksons Corner achieve a total of 72.24 credits, which exceeds BREEAM 'Excellent'. The remaining dwellings will achieve BREEAM 'Very Good'.

				Score Assessment		
		Credit Score	Credits Available	Sub Total	Weighting Factor	Points Score
Management	MAN 1 Home User Guide	3	3	10	12%	10.91
	MAN 2 Responsible Construction Practices	2	2			
	MAN 3 Construction Site Impacts	1	1			
	MAN 4 Security	2	2			
	MAN 5 Protection & Enhancement of Ecological Features	1	1			
	MAN 6 Project Management	1	2			
Health & Wellbeing	HEA 1 Daylighting	1	2	5	17%	7.08
	HEA 2 Sound Insulation	2	4			
	HEA 3 Volatile Organic Compounds	0	1			
	HEA 4 Inclusive Design	0	2			
	HEA 5 Ventilation	1	2			
	HEA 6 Safety	1	1			
Energy	ENE 1 Improvement in Energy Efficiency Rating	3.5	6	22	43%	32.62
	ENE 2 Energy Efficiency Rating Post Refurbishment	3	4			
	ENE 3 Primary Energy Demand	6.5	7			
	ENE 4 Renewable Technologies	0	2			
	ENE 5 Energy Labelled White Goods	2	2			
	ENE 6 Drying Space	1	1			
	ENE 7 Lighting	2	2			
	ENE 8 Display Energy Devices	2	2			
	ENE 9 Cycle Storage	1	2			
	ENE 10 Home Office	1	1			
Water	WAT 1 Internal Water Use	2.5	3	4.5	11%	9.90
	WAT 2 External Water Use	1	1			
	WAT 3 Water Meter	1	1			
Materials	MAT 1 Environmental Impact of Materials	8	25	17	8%	2.83
	MAT 2 Responsible Sourcing	5	15			
	MAT 3 Insulation	4	8			
Waste	WAS 1 Household Waste	1	2	4	3%	2.40
	WAS 2 Refurbishment Site Waste Management	3	3			
Pollution	POL 2 Surface Water Runoff	1	3	6	6%	4.50
	POL 3 Flooding	2	2			
Innovation		2	10	2	N/A	2.00
Level Achieved: Excellent/Very Good				Total Point Scored: 72.24		

Sustainability Statement

Proposed Sustainability Measures for New Build Dwellings

Following the abolishment of Code for Sustainable Homes on 27 March 2015, there will be no requirement to assess the 16 no. new-build dwellings within this development under the Code for Sustainable Homes.

Nevertheless, the dwellings have been design with Code Principles in mind. These measures are detailed in the following section.

Energy

Dwelling Emission Rate and Fabric Energy Efficiency

The methodology set out by the Department of Energy and Climate Change (DECC) for assessing the energy use of dwellings is the Standard Assessment Procedure (SAP). The current version is SAP 2012.

Preliminary SAP calculations were carried out to assess the potential CO₂ savings achieved through

- Energy efficiency measures
- The efficient supply of energy and
- Renewable systems

The preliminary calculations showed a significant improvement over Part L Building Regulations 2013, amounting to a 20.0% reduction in regulated CO₂ emissions in the new build dwellings.

The energy demand of the dwellings will be reduced significantly through the adoption of high levels of insulation and good levels of air tightness to improve the buildings fabric efficiency. SAP calculations were based on a building fabric with low U-values and an air permeability rate of 5m³/m² at 50 Pa.

Drying Space

The proposed dwellings will include provisions for internal clothes drying where appropriate, thereby reducing the amount of electricity consumed through the use of tumble dryers.

Energy Labelled White Goods

The dwellings will be supplied with an EU Energy Efficiency Labelling Scheme Leaflet to help the tenants choose energy efficient white goods.

External Lighting

Energy efficient light fittings will be installed throughout the development where appropriate. In addition, external lights will be fitted with controls to reduce the energy consumption of the building during periods of infrequent use:

- External space lighting will include energy efficient fittings
- Security lighting will include daylight cut-off devices, with a maximum wattage of 150W and PIR

Low or Zero Carbon Technologies

A feasibility study was carried out to determine the energy strategy for the proposed development. The installation of PV was considered to be the most suitable zero carbon technology for the Jacksons Corner development. The low and zero carbon reductions from this will be 20% when compared to the Part L notional Building baseline for the new build dwellings only.



Sustainability Statement

Cycle Storage

Cycle storage spaces will be provided within the development for use by users of the residential units to reduce the frequency of short car journeys.

Water

Indoor Water Use

The development at Jacksons Corner aims to reduce water consumption to below 115 litres per person per day, in line with the lower criteria within Part G of the Building Regulations proposed for October 2015, through the use of water efficient fittings, and these are listed below.

Recommended specification for sanitary fittings

Fitting	Consumption per Use
WC (full flush)	6 litres per flush
WC (half flush)	4 litres per flush
Kitchen sink tap	6 litres per min
Wash basin tap	4 litres per min
Bath	180 litres to overflow
Shower	9 litres/min
Washing machine	8.17 litres/kilogram
Dishwasher	1.25 litres/place setting



Materials

Embodied energy is the energy that is used in the manufacture, processing and the transportation of the materials to site.

The construction build-ups for each of the main building elements are rated from A+ to E. Each element to be used in the building has been rated according to the BRE Green Guide to Specification whereby:

- A+ rated elements are least likely to affect the environment
- E rated elements are most likely to affect the environment

It is assumed that most of the main building elements within this development will achieve between an A+ to C rating where possible.

Aggregates from the demolition of any existing hard surfacing/landscaping on site will be crushed and used as substrate material for the building base and road surfaces where possible. All timber used during site preparation and construction to be FSC certified, and all non-timber materials to be certified with Environmental Management Systems (ISO 14001 OR BES 6001) where possible.

Sustainability Statement

Waste

Household Waste

Dedicated external waste storage for the dwellings will be provided to meet the Code and Local Authority requirements.

Adequate internal storage for recyclable waste will be provided to all dwellings in a dedicated position. The Local Authority provides recyclable household waste collection and sorting.

Construction Site Waste Management

The development will minimise the impact of construction waste on the environment through a Site Waste Management Plan (SWMP). This plan will include:

- Benchmarks for resource efficiency
- Procedures and commitments to reduce hazardous and non-hazardous waste
- Monitoring hazardous and non-hazardous waste

Pollution

Global Warming Potential (GWP) of Insulants

Global warming potential (GWP) is a measure of how effective a gas is at preventing the passage of infrared radiation. Blowing agents, used in the production of insulation, are a common source of gases with high GWPs.

The development will specify insulation materials that have a low Global Warming Potential (GWP).

NOx Emissions

Space heating and hot water requirements are to be met through efficient gas boilers with inherently low NOx emissions.

Health and Wellbeing

Daylighting

The dwellings have been designed with daylight in mind and measures have been taken to maximise daylight where possible.

Sound Insulation

The development proposes that airborne sound insulation will comply or exceed current Building Regulations Part E standards.

Private Space

Private external spaces will be provided for all new build flats in this development with the aim of improving the quality of life of the occupants.

Lifetime Homes

All dwellings will be Lifetime Homes compliant, ensuring that they are easily adaptable for future use.

Management

Considerate Constructors Scheme

The tender specification will require contractors to be compliant with the Considerate Constructors Scheme (CCS). The development will achieve a total score of 40 or more under the current scheme, and at least a score of 7 under every section.

Construction Site Impacts

To minimise the construction impacts of the site, contractors will be required to monitor, report and set targets for:

- The production of CO₂ arising from site activities
- Water consumption from site activities

In addition, contractors will be required to adopt best practice policies for air (dust) and water (ground and surface) pollution occurring on site. All timber will be sourced following the Government's Timber Procurement Policy.



Sustainability Statement

Ecology

Ecological Value of Site & Protection of ecological features

The site is located on previously developed land and is of low ecological value, this has been confirmed by a Suitably Qualified Ecologist (SQE) through a site survey.

Ecological Enhancement

Recommendations provided by the ecologist will be adopted.

Building Footprint

The proposed development will increase the density of the site. This will ensure that the land is used efficiently whilst maximising the building area.

Pollution

NOx emissions

Space heating and hot water requirements are to be met through high efficiency individual boilers with inherently low NOx emissions.

Surface Water Run-off

Landscaped areas have been maximised to reduce the amount of surface water run off from the site.

The Environment Agency flood map shows the proposed development to be located within an area at low risk of flooding.

Flooding

The Environment Agency flood map on page 14, shows the proposed development to be located within an area at low risk of flooding.



Sustainability Statement

BREEAM Non-Domestic Pre-Assessment

BREEAM New Construction 2014 is a performance based environmental assessment method and certification scheme to assess the sustainability of new construction projects. The primary aim of BREEAM New Construction is to mitigate the impacts of new developments on the environment over the entire life-cycle of the building in a comprehensive and cost-effective manner. This is achieved through the integration of the BREEAM scheme at key stages of the design and procurement process.

A BREEAM Shell only Pre-Assessment was carried out for the non-domestic portions of the development. The retail units were jointly assessed under the Retail Building type.

The pre-assessment tool uses established benchmarks to evaluate a building's specification, design, construction and operation, over a broad range of categories and criteria:

- Management processes
- Health and wellbeing
- Energy use
- Transport
- Water use
- Materials
- Waste
- Land use and ecology
- Pollution

The outcome of the pre-assessment is expressed as a single certified BREEAM rating, ranging from Pass (30%) to Outstanding (85%).

Reading Borough Council's Core Strategy stipulates that all non-domestic developments in Reading should achieve BREEAM Very Good, and for developments of over 1,000m², 50% of the non-domestic units should achieve BREEAM 'Excellent'. As it will be infeasible to split the 3 no. retail units at Jacksons Corner into 50/50, it is proposed that all 3 units to target 62.5 credits in the BREEAM assessment, which is the average between BREEAM Very Good (55 credits) and Excellent (70 credits).

BREEAM 2014 Ratings	Percentage of Credits Required
Outstanding	85%
Excellent	70%
Very Good	55%
Good	45%
Pass	30%



Sustainability Statement

Management

Man 01 Project brief and design

Prior to completion of the Concept Design (RIBA Stage 2 or equivalent), a project delivery will be held to identify and define their roles and responsibilities at each key stage of the project delivery. A BREEAM AP has been involved at Stage 2 to set BREEAM targets for the development.

Man 02 Life cycle cost and service life planning

An elemental Life cycle cost (LCC) analysis should be carried out at Process Stage 2 (RIBA Stage 2 - Concept Design). Capital cost of the building will be reported in pounds (£k/m²), via the BREEAM Assessment Scoring and Reporting tool.

Man 03 Responsible construction practices

All timber used in the project will be 'legally harvested and traded' timber. This is a prerequisite for the following issues which will also be included for this project:

- The principal contractor will operate a compliant Environmental Management System covering their main operations and will achieve exemplary compliance with the Considerate Constructors Scheme and go beyond best practice with exemplary performance levels (more than 40 points).
- Transport movements and impacts resulting from the delivery of major construction materials to site and construction waste from site will be monitored and recorded.
- Energy use and water consumption from on-site construction processes will be monitored and recorded.

Man 04 Commissioning and Handover

A schedule including a time scale for commissioning and testing all building services and control systems will be completed, in addition to inspecting the building fabric via a thermographic survey or airtightness test in accordance with the Building Regulations, BSRIA and CIBSE guidelines.

A Building User Guide and a training schedule will be prepared for the building occupier and user, to ensure the efficient operation and maintenance of the building.



Sustainability Statement

Health and Well being

Hea 01 Visual comfort

All fluorescent and compact fluorescent lamps specified will be fitted with high frequency ballasts. Appropriately maintained internal illuminance levels will be achieved in line with the SLL Code for Lighting 2012, CIBSE Lighting Guide 2009 and other relevant industry standards.

All external lighting will be designed to provide illuminance levels that enable the users to perform outdoor visual tasks efficiently at night. External lighting will be specified in accordance with BS 5489- 1:2013 and BS EN 12464- 2:2014.

Hea 04 Thermal comfort

A thermal model will be built in accordance with CIBSE AM11 to inform the development of a thermal zoning and control strategy, which considers the influence of the projected climate change scenarios, or demonstrates how the building can be adapted in future using passive design solutions.

Hea 05 Acoustic performance

The building will be designed to meet the acoustic performance standards and internal ambient noise levels in compliance with the design ranges given in BS 8233:2014. A programme of pre-completion testing will be carried out by a compliant test body.

Hea 06 Safety and security

Where external site areas are present, safe access will be designed for pedestrians and cyclists.

A suitably qualified security specialist (SQSS) should conduct a Security Needs Assessment (SNA) during the Concept Design stage (RIBA Stage 2) of the project, and the resulting set of recommendations implemented on site.

Energy

Ene 01 Reduction of energy use and carbon emissions

An SBEM calculation was carried out to determine the energy demand and CO₂ emissions for the notional and actual buildings. The results were subsequently applied to the Ene01 calculator within the BREEAM 2014 Pre-assessment Scoring tool.

An overall building energy performance ratio (EPR_{NC}) of ≥ 0.375 is achieved for the proposed development through a number of energy efficiency measures which are discussed in the accompanying Energy Statement.

Ene 03 External lighting

All external luminaries are to be energy efficient and all light fittings are to be controlled for the presence of daylight. Daylight sensors will help to ensure that artificial lights are not used when daylight levels are sufficient.

The average initial luminous efficacy of the external light fittings within the construction zone is not less than 60 luminaire lumens per circuit Watt.

Sustainability Statement

Ene 04 Low Carbon Design

The first credit within HEA 04 (Thermal Comfort) should be achieved. In addition, the project team will analyse the feasibility of passive design measures to reduce the overall building energy demand (including an analysis of free cooling) by at least 5% at the Concept Design stage (RIBA Stage 2).

Transport

Tra 01 Sustainable transport solutions

The proposed development will be accessible by public transport, being served by buses (including night time services) and rail services. The site has a PTAL of 4, showing good accessibility to public transport with an Accessibility Index of 13.89.

Tra 02 Proximity to amenities

There is a leisure centre, food outlets and a cash point in close proximity to the building site.

Tra 03 Cyclist facilities

A minimum of 15 no. cycle storage spaces for retail staff will be provided. These will be within proximity of the main building entrance. The spaces will be protected from the weather while the cycles are secured within spaces in racks. Both the covered area and the racks will be set in or fixed to a permanent structure.



Water

Wat 02 Water monitoring

A water meter with a pulsed or other open protocol output will be provided on the mains water supply to each retail unit to accurately monitor the building's water usage.

Wat 03 Water leak detection and prevention

A leak detection system will be employed on the main water supply.

Materials

Mat 01 Environmental impact of materials

The materials specified for the main building elements will have a low environmental impact. For this development, the external walls, windows, upper floor slabs, internal walls, roof and floor finishes will achieve Green Guide ratings of between A+ and C.

Mat 03 Responsible sourcing

All timber and timber based products specified will be legally harvested and traded timber.

In addition, at least 50% of the responsible sourcing of materials (RSM) points must be achieved in accordance with the BREEAM methodology.

Mat 04 Insulation

All insulation specified for the development will have a low embodied environmental impact relative to its thermal properties. Insulation specified for use within external walls, ground floor, roof and building services will be assessed and the Insulation Index should be equal to or greater than 2.5.



Sustainability Statement

Mat 05 Designing for Durability and Resilience

Suitable durability and protection measures or designed features will be incorporated into the building to prevent damage to vulnerable parts.

Relevant building elements incorporate appropriate design and specification measures to limit material degradation due to environmental factors.

Waste

Wst 01 Construction waste management

A Resource Management Plan (RMP) covering non-hazardous construction waste and dedicated off-site manufacture needs to be developed, to ensure that the amount of waste generated is lower than or equal to 7.5m³ per 100m² of gross internal floor area. In addition, 70% of non-demolition waste and 80% of demolition waste must be diverted from land fill.

A pre-demolition audit must be carried out for any existing buildings and structures or hard surfaces, to identify key refurbishment/demolition materials and highlight the potential issues in the reuse and recycling of these materials. This audit must be referenced in the RMP.

Wst 03 Operational waste

There will be dedicated space to cater for the segregation and storage of operational recyclable waste volumes generated by the assessed building/unit, its occupant(s) and activities.

Wst 06 Functional adaptability

A building specific functional adaptation strategy study needs to be conducted by RIBA Stage 2, including recommendations to incorporate measures for future building adaptation. Where practical and cost effective, these measures are to be implemented.

Land Use & Ecology

LE 01 Site Selection

100% of the proposed development's footprint in on an area of land which has previously been occupied by industrial, commercial, or domestic buildings or fixed surface infrastructure.

LE 02 Protection of ecological features

Due to its urban location and absence of ecological features on the existing site, the site is considered to be of low ecological value. This will be confirmed by a Suitably Qualified Ecologist (SQE). Any features of ecological value surrounding the site will be protected in line with BS 42020: 2013.

LE 03 Minimising impact on existing ecology

As the development is replacing an existing development, no negative change in plant species richness is expected. This will be calculated via the BREEAM LE03/L04 calculator by the SQE.

LE 04 Enhancing site ecology

The SQE will produce an Ecology Report with key recommendations. The final design and build should indicate that these recommendations have been implemented and the SQE will confirm that this would result in a small increase in the ecological value of the site.

LE 05 Long term impact on biodiversity

The appointed SQE will confirm that the protection and enhancement of the ecology will be carried out in compliance with the relevant UK and EU legislation.

An appropriate landscape and habitat management plan will be prepared, covering at least the first five years after project completion, in compliance with BS 42020:2013. This is to be handed to the building owner and occupants.

All of the additional measures recommended by the SQE to improve the long term biodiversity of the site will be implemented.



Sustainability Statement

Pollution

Pol 03 surface water run off

The Environmental Agency Flood Map provides a preliminary indication that the development is located in an area with a low probability of flooding. A Flood Risk Assessment should be carried out at detail design stage to confirm this.

An 'appropriate consultant' is appointed to ensure that the peak rate run-off from the site over the lifetime of the development is no greater than it was for the existing site including an allowance for climate change. Any additional predicted volume of run-off should be prevented from leaving the site via infiltration methods or SUDs techniques.

There should be no discharge from the site for rainfall of up to 5mm. Input from drainage consultant will be required.

Pol 04 Reduction of night time light pollution

External lighting will be confined to appropriate areas for security and safety purposes, and lighting will comply with the Institution of Lighting Engineers guidance notes for the reduction of obtrusive light. All external lighting (except for safety and security lighting) will be fitted with timers to enable them to switch off automatically between the hours of 2300hrs and 0700hrs.



Sustainability Statement

BREEAM Pre-assessment Results

A BREEAM Shell only pre-assessment was carried out for the retail units at the Jacksons Corner development, based on the sustainability targets set out by Reading Borough Council and the design measures adopted by the client and design team. The table on the following page summarises the number of credits achieved in each of the BREEAM categories.

The proposed development has the potential to achieve a total of 64.67 credits. This score surpasses the mid point (62.5 credits) between BREEAM 'Very Good' and 'Excellent', reflecting the client and design team's commitment in adopting a range of sustainability measures over the life-cycle of the development.

It is recommended that the measures included in this report be incorporated into the site strategy and building design at an early stage to ensure compliance.



Sustainability Statement

			Score Assessment		
BREEAM Section		Credit Score	Sub Total	Weighting (%)	Score (%)
Management	Man 01 Project brief and design	2	11	12.5%	8.6%
	Man 02 Life cycle cost and service life planning	3			
	Man 03 Responsible construction practices	4			
	Man 04 Commissioning and handover	2			
Health & Wellbeing	Hea 01 Visual comfort	1	5	10.0%	5.0%
	Hea 04 Thermal comfort	1			
	Hea 05 Acoustic performance	1			
	Hea 06 Safety and security	2			
Energy	Ene 01 Reduction of energy use and carbon emissions	5	6	14.5%	5.4%
	Ene 03 External lighting	1			
	Ene 04 Low carbon design	0			
Transport	Tra 01 Public transport accessibility	4	7	11.5%	8.9%
	Tra 02 Proximity to amenities	1			
	Tra 03 Cyclist facilities	1			
	Tra 05 Travel plan	1			
Water	Wat 02 Water Monitoring	1	2	4.0%	4.0%
	Wat 03 Water leak detection and prevention	1			
Materials	Mat 01 Life cycle impacts	2	7	17.5%	9.4%
	Mat 02 Hard landscaping and boundary protection	1			
	Mat 03 Responsible sourcing	2			
	Mat 04 Insulation	1			
	Mat 05 Designing for durability and resilience	1			
Waste	Wst 01 Construction waste management	3	5	11.0%	6.9%
	Wst 03 Operational waste	1			
	Wst 06 Functional adaptability	1			
Land Use & Ecology	LE 01 Site selection	1	8	13.0%	10.4%
	LE 02 Ecological value of site and protection of ecological features	2			
	LE 03 Mitigating ecological impact	2			
	LE 04 Enhancing site ecology	1			
	LE 05 Long term impact on biodiversity	2			
Pollution	Pol 03 Surface water run off	4	5	6.0%	5.0%
	04 Reduction of night time light pollution	1			
Innovation	Inn 01 Innovation	1	1		1%
BREEAM - 'Very Good'			Total Points Scored: 64.7%		

