



# **Sustainability Strategy**

Local Centre - Kingsmere: Bicester

Countryside Properties (Bicester) Ltd

**Turley**  
Sustainability

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**Contact:** Colin Morrison

**Office Address:** 9 Colmore Row, Birmingham  
B3 2BJ

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# 1. Introduction

## *This Sustainability and Energy Statement has been prepared to present the sustainability strategy proposed for the development of the Local Centre at Kingsmere.*

In 2008, Countryside Properties (Bicester) Ltd secured outline planning permission (OPP) (ref 06/00967/OUT) for the development of up to 1585 new dwellings plus associated non-domestic development (including a new local centre) at Kingsmere, Bicester.

The outline planning application was supported by a design code which stated that all non-domestic buildings would aspire to secure a BREEAM Very Good rating and would implement a range of sustainability measures as set out in page 158 of the Design Code.

Planning condition 7 of the OPP referred to the Design Code and the need for buildings to secure a BREEAM/ Ecohomes Good/ Very Good rating.

Countryside are now submitting a reserved matters application to construct a new mixed use Local Centre.

Since the publication of the OPP and Design Code there have been materially significant changes to national and local planning and sustainability policy which permits the submission of an alternative sustainability strategy to BREEAM but that secures the original objective of sustainable, low carbon buildings.

In addition, discussions with Cherwell District Council (CDC) and the Kingsmere Residents Association, whom it is proposed will occupy and manage the community centre, has identified several sustainability features which Countryside would like to incorporate into the proposed

development that are an addition over and above the BREEAM Very Good requirement in certain categories.

This report therefore presents a sustainability strategy in lieu of BREEAM certification but which clearly demonstrates;

1. Technical justification for the need for an alternative strategy in lieu of BREEAM
2. Details of the alternative strategy and how this meets the targets as set out in the Design Code, the requests of the District Council and exceeds BREEAM 'Very Good' Mandatory Requirements.

The proposed development comprises of a mixed use local centre. Buildings include;

- *Community Centre*
- *Nursery*
- *Retail Units*

## Site and Surroundings

The application site is approximately 0.85 ha in size and forms part of the wider Kingsmere development site and is located approximately 2km to the south west of Bicester centre.

The local centre will be at the heart of the wider Kingsmere development.

The centre will include local convenience shops, designed to serve local catchments, and a community hall along with commercial spaces. A central public space will be hard landscaped and include cycle and car parking with bus stops nearby.

The community space will include a youth centre and a main community centre at the heart of the new development.

Figure 1: Site outline



## 2. Policy Context

*This section provides an overview of the relevant national and local planning policy and guidance relating to sustainability and the development of the Kingsmere Local Centre, Bicester.*

### **UK Sustainable Development Strategy**

In 2005, the Government published an updated strategy for implementing sustainable development across the UK.

This strategy acts as an overarching document from which a range of specific policies and legislation was derived. Although published in 2005, the strategy has taken a recently renewed

focus in light of the Government's definition of Sustainable Development in the NPPF.

One of the key aims of this strategy is to recognise the threats of climate change and ensure that the UK develops a strategy to mitigate and adapt to this phenomenon.

The document established five key principles that will underpin the national sustainable development strategy:

- 1. Living within Environmental Limits;**
- 2. Ensuring a Strong, Healthy and Just Society;**
- 3. Achieving a Sustainable Economy;**
- 4. Promoting Good Governance; and**
- 5. Using sound science responsibly.**

The strategy will be implemented at a national level through the development of more specific strategies at a Government department or sector level.

With regards to planning and the built environment, this document set the basis for the development of plans and policies that promote development that mitigates and adapts to climate change.

### **Climate Change Act**

The Climate Change Act (2008) sets a legally binding target for reducing UK CO<sub>2</sub> emissions by least 80% on 1990 levels by 2050.

It established the Committee on Climate Change, which is responsible for setting binding interim carbon budgets for the Government over successive five year periods. The first three carbon budgets were announced in the Budget 2009, resulting in an interim target of a 34% reduction in CO<sub>2</sub> equivalent emissions on 1990 levels by 2020.

## UK Carbon Plan

In 2011, the Government published an updated Carbon Plan setting out how the UK will achieve decarbonisation and make the transition to a low carbon economy. It sets this objective within a framework of mitigating and adapting to climate change and maintaining energy security in a way that minimises costs and maximises benefits to the economy.

With regards to development, the Carbon Plan presents the Government's approach to promoting the delivery of low carbon, resilient and adaptive buildings and enabling sustainable transportation as positively contributing to these national carbon reduction targets.

## Building Regulations

Whilst not planning policy, the Building Regulations, and specifically Approved Documents Part L; Conservation of Fuel and Power, are relevant as they determine the energy efficiency and carbon emission standards required by new buildings.

The primary mechanism for reducing carbon emissions in new development is progressive changes to Part L aiming to deliver zero carbon commercial buildings by 2019.

The zero carbon policy sets out a plan for progressive changes to Part L of the Building Regulations to eventually achieve zero carbon

buildings. In April 2014 the Part L regulations changed and it is now a requirement for new homes to deliver a 6% reduction in carbon emissions compared to equivalent 2010 Part L standards. This change aims to strike a balance between the commitments to reducing carbon emissions and improving energy efficiency and ensuring that the overall effect of regulation upon consumers and businesses does not stifle growth.

The Government has stated that developers will continue to have flexibility in how they meet carbon reduction targets, however, the emphasis of these changes is on using a fabric first approach and this is reinforced through the introduction of a new target for fabric energy efficiency.

## National Planning Policy Framework

Following its publication in March 2012, national planning policy is now provided by the NPPF which sets out the government's planning policies for England and how these are expected to be applied. It also sets out the requirements for the planning system only to the extent that it is relevant, proportionate and necessary to do so.

The Government has made clear its expectation that the planning system should positively embrace well-conceived development to deliver the economic growth necessary and the housing we need to create inclusive and mixed communities.

The NPPF states that: 'The purpose of the planning system is to contribute to the achievement of sustainable development'. It states clearly that in order to deliver sustainable development, the planning system must perform three distinct roles, aligned to the three pillars of sustainability, which must not be taken in isolation and should be pursued jointly:

**An economic role** contributing to building a strong, responsive and competitive economy, by ensuring that sufficient land of the right type is available in the right places and at the right time to support growth and innovation; and by identifying and coordinating development requirements, including the provision of infrastructure;

**A social role** supporting strong, vibrant and healthy communities, by providing the supply of housing required to meet the needs of present and future generations; and by creating a high quality built environment, with accessible local services that reflect the community's needs and support its health, social and cultural well-being; and

**An environmental role** contributing to protecting and enhancing our natural, built and historic environment; and, as part of this, helping to improve biodiversity, use natural resources prudently, minimise waste and pollution, and mitigate and adapt to climate change including moving to a low carbon economy.

## Demonstrating Sustainable Development

Paragraph 6 of the NPPF states that:

*“The purpose of the planning system is to contribute to the achievement of sustainable development. The policies in paragraphs 18 to 219, taken as a whole, constitute the Government’s view of what sustainable development in England means in practice for the planning system”.*

The policies referred to in Paragraph 6 of the NPPF have been divided into 13 themes;

1. **Building a Strong Competitive Economy**
2. **Ensuring the Vitality of Town Centres**
3. **Supporting a prosperous rural economy**
4. **Promoting sustainable transport**
5. **Supporting high quality communications infrastructure**
6. **Delivering a wide choice of high quality homes**
7. **Requiring good design**
8. **Promoting healthy communities**
9. **Protecting Green Belt Land**

## 10.Meeting the challenge of climate change, flooding and coastal change

### 11.Conserving and enhancing the natural environment

### 12.Facilitating the sustainable use of minerals

Should a proposed development demonstrate that it is supporting the relevant policies of the NPPF then it is deemed to be ‘Sustainable Development’.

Chapter 10 of the NPPF; Meeting the challenge of climate change, flooding and coastal change gives essential guidance on meeting the challenge of climate change through the planning process. Guidance encourages new development to;

- *Shape places to secure reductions in greenhouse gas emissions, minimising vulnerability and providing resilience to the impacts of climate change*

## National Planning Policy Guidance

In March 2015 the Government released the updated National Planning Policy Guidance (the Guidance). The Guidance provides information to local authorities on how to implement the policies of the NPPF and approach specific policy aims.

The guidance sets out how local authorities should include policies that protect the local environment and strategies to mitigate and adapt to climate change. It reiterates that local authorities should set sustainability policies for new housing in line with the Government’s Zero Carbon Buildings Policy and the findings of the Housing Standards Review.

Following the release of the Productivity Plan in July 2015, the government confirmed its intention to no longer proceed with the zero carbon Allowable Solutions carbon offsetting scheme, or the proposed 2016 increase in on-site energy efficiency standards. The plan did confirm however that energy efficiency standards will be kept under review, recognising that existing measures to increase energy efficiency of new buildings should be allowed time to become established’.

Due to the Productivity Plan’s very recent release there has not yet been clarification on the effects of this change on local and national policy. The importance of the ‘well designed, functional developments’ that are adaptable for the future will continue to be integral to sustainability and planning policy and therefore will be supported by any changes following the plans release.

The National Planning Policy Framework (NPPF) was published on 27 March 2012 and replaced all the previous Planning Policy Statements, however, PPS1 Supplement is still considered relevant and applicable.

## Infrastructure Act 2015

In June 2014 the Queen's Speech proposed a new Infrastructure Bill which includes details on the zero carbon standard.

The Infrastructure Act was published in February 2015 and detailed the changes to Building Regulations to create provision for off-site carbon abatement measures.

The Act confirmed the Government's intention to introduce an 'Allowable Solutions' mechanism which allows developers to meet a portion of the zero carbon target through cost effective, offsite carbon abatement measures.

## Fixing the Foundations

Following the election of the Conservative government in May 2015 the government has produced a number of policy documents including "Fixing the Foundations" published in July 2015.

The document includes a statement outlining the government's intention to no longer continue with the Allowable Solutions scheme or impose any increases in on-site energy efficiency standards in 2016.

At this stage the government aims to keep energy efficiency standards under review, recognising that existing measures to increase

energy efficiency of new buildings should be allowed time to become established.

## The Development Plan

The adopted local development plan for Cherwell comprises:

### Cherwell Local Plan 2011 – 2031 (Part 1)

The emerging Local Plan Part 1 and all supporting documents were submitted to the Secretary of State on 31st January 2014 for formal examination. The plan was formally adopted on the 20<sup>th</sup> July 2015 and replaces the Non-Statutory Cherwell District Local Plan 2011 previously used as interim policy guidance.

The relevant policies to the development are detailed as follows;

**Policy ESD 1: Mitigating and Adapting to Climate Change** states that measures are encouraged to be taken to mitigate the impact of development within the district on climate change and improve the development microclimate.

**Policy ESD 2: Energy Hierarchy and Allowable Solutions** recognises it would be counter-productive to encourage generation of renewable energy if energy is being wasted by inefficiency. As such the policy supports the use of the 'energy hierarchy' to guide reductions in energy and associated carbon emissions as follows:

- *Reducing energy use, in particular by the use of sustainable design and construction measures;*
- *Supplying energy efficiently and giving priority to decentralised energy supply;*
- *Making use of renewable energy;*
- *Making use of allowable solutions*

An Energy Statement will be required for proposals for all non-residential development.

**Policy ESD 3: Sustainable Construction** states that all new non-residential development will be expected to meet at least BREEAM 'Very Good' subject to review over the plan period to ensure the target remains relevant. The demonstration of the achievement of this standard should be set out in the Energy Statement.

The strategic site allocations identified in this Local Plan are expected to reflect exemplary contributions to carbon emissions reductions and to wider sustainability.

Cherwell District is in an area of water stress and the Council will seek a higher level of water efficiency than required in the Building Regulations, with developments achieving a limit of 110 litres/person/day.

Further contributions to carbon reductions and wider sustainability include the following;

- *Minimising both energy demands and energy loss*



- *Maximising passive solar lighting and natural ventilation*
- *Maximising resource efficiency*
- *Incorporating the use of recycled and energy efficient materials*
- *Incorporating the use of locally sourced building materials*
- *Reducing waste and pollution and making adequate provision for the recycling of waste*
- *Making use of sustainable drainage methods*
- *Reducing the impact on the external environment and maximising opportunities for cooling and shading*
- *Making use of the embodied energy within buildings wherever possible*

**Policy ESD 4: Decentralised Energy Systems** states the use of decentralised energy systems, providing either heating (District Heating (DH)) or heating and power (Combined Heat and Power (CHP)) are to be considered in new developments for non-domestic developments above 1000m<sup>2</sup> floor space.

**Policy ESD 5: Renewable Energy** states that a feasibility assessment of the potential for significant on site renewable energy provision (above any provision required to meet national building standards) will be required for applications for non-domestic developments above 1000m<sup>2</sup> floor space.

**Policy ESD 6: Sustainable Flood Risk Management** confirms that development

proposals will be assessed according to the flood risk sequential approach and should demonstrate that:

- *There will be no increase in surface water discharge rates or volumes during storm events up to and including the 1 in 100 year storm event with an allowance for climate change*
- *Developments will not flood from surface water up to and including the design storm event (1 in 30 years).*

**Policy ESD 7: Sustainable Drainage Systems (SuDS)** states that all development will be required to use sustainable drainage systems (SuDS) for the management of surface water run-off.

**Policy ESD 8: Water Resources** confirms that the Council seeks to maintain water quality, ensure adequate water resources and promote sustainability in water use.

**Policy ESD 10: Protection and Enhancement of Biodiversity and the Natural Environment** states that in considering proposals for development, a net gain in biodiversity will be sought by protecting, managing, enhancing and extending existing resources, and by creating new resources.

**Policy ESD 15: The Character of the Built and Historic Environment** states that all new development is expected to meet high design standards and deliver buildings, places and spaces that can adapt to changing social, technological, economic and environmental conditions.

Developments are also encouraged to be compatible with up to date urban design principles, including Building for Life, and achieve Secured by Design accreditation

**Policy ESD 17: Green Infrastructure** states that the District's green infrastructure network will be maintained and enhanced through the maximisation of current infrastructure and the extension of these links to form a multi-functional network of open space, providing opportunities for walking and cycling.

**Policy C.2: Bicester** details the need for the provision of new services, facilities and infrastructure in Bicester, which will ensure the vitality and viability of the town. The wider Kingsmere site is allocated as part of the Local Plan and the plan confirms its suitability for development;

- *The site is relatively unconstrained, with low landscape sensitivity, no substantive flooding issues, and relatively low ecological value other than that provided by a small number of hedgerows and trees.*

Kingsmere is detailed as development which will provide additional services and facilities, provide an opportunity to extend green corridors, and provide improved access to the countryside with links to new community woodland between the perimeter road and Chesterton village.

**Policy Bicester 3: South West Bicester Phase 2** confirms the importance of a development with high levels of accessibility from a variety of transport types and the demonstration of climate change mitigation and adaptation measures. Key sustainability references as part of the policy are as follows;

- *Layout of development that enables a high degree of integration and connectivity with direct vehicular (including cycle) and pedestrian linkages between South West Bicester Phases 1 and 2 and to existing networks*
- *A layout that maximises the potential for walkable neighbourhoods and enables a high degree of integration and connectivity between new and existing communities*
- *Demonstration of climate change mitigation and adaptation measures including exemplary demonstration of compliance with the requirements of policies ESD 1 – 5.*

## Guidance Documents

### Kingsmere Design Code

Following on from outline consent of the application, a design code was developed by the

council for Kingsmere in 2008 to ensure high standards of design and construction. The Design Code is based upon Policy H13 and other associated policies contained within the Non-Statutory Cherwell Local Plan (2011) that was used as interim planning guidance prior to the new local plans adoption.

The Design Code includes a number of requirements within the following eight categories:

- *Eco Homes and BREEAM*
- *Energy*
- *Transport*
- *Pollution*
- *Materials*
- *Water*
- *Ecology and land-use*
- *Health and well-being*
- *Management*

Headlines requirements relevant to each category are outlined as follows:

### BREEAM

BREEAM is relevant to non-residential buildings and the design code commits construction to at least 'Very Good' with the aim to achieve a low energy design with a high environmental performance.

A number of sustainable design measures should also be considered for all properties, these include:

- *Passive ventilation*
- *Passive solar gain*
- *Low energy lighting*
- *Sustainable drainage systems*
- *Swales to store excess surface water*
- *Permeable paving and soakaways*
- *Cycle storage facilities*

### Energy

Average building fabric U values are expected to be better than those in Building Regulations Part L.

### Transport

Green Travel Plans will be produced for the site. These will promote walking, cycling and public transport over the use of private cars.

### Pollution

No materials or products containing HCFCs or CFCs will be used on the scheme. Only products with zero ozone depletion properties would be permitted for inclusion.

### Materials

Materials should be carefully selected to achieve the sustainable objectives of the development.

Developers will be expected to achieve or exceed BREEAM targets including; using traditional materials from the region, sourcing materials where economically possible from within a 30-mile radius of the site.

The specification of the building elements and materials during the next stage of design will consider the categories specified in the Green Guide to Housing Specification.

Developers will be required to implement waste reduction techniques. Materials may be recycled with excavated material being separated into sands, gravels, ballast, aggregate and clay for reuse on site.

### Water

Developers should provide dual flush WC's and low water use showers. Sustainable drainage systems will ensure surface water is reintroduced immediately back into the groundwater.

### Ecology

Developers must have regard to the ecological management and habitat creation strategy approved pursuant to the section 106 agreement.

Kingsmere will be developed in a manner which preserves existing features of ecological value whilst enhancing diversity through the incorporation of new habitats.

### Health and well-being

Daylighting has an important impact on wellbeing and buildings will be orientated to maximize this where possible.

Developers are required to demonstrate how their design solutions have positively engaged

with challenging site factors, such as noise, and how their schemes will promote the health and well-being of residents or occupiers.

### Management

Sustainable Management of the scheme pre and post occupation has been explored under the following sub-headings;

- *Construction*
- *Waste*
- *Secured by Design*
- *User Information*

### Construction

The development will be registered under the Considerate Constructors Scheme (CCS).

### Waste

Kingsmere will be developed with a Waste Management Plan. This will drive down waste and starts from the supply chain, through deliveries on site, into waste segregation to ensure that any waste products we have can be recycled where possible.

The waste minimisation strategy should include the following:

- *Review design to ensure waste is considered regarding modular sizes etc.*
- *Use pre-fabricated assemblies where practical*
- *Re-use materials*

- *Re-cycle materials*
- *Waste segregation*
- *Ensure supply chain is aware of minimal packaging requirements*

### Secured by design

Regard will be given to the importance of creating a defensible, secure and self-policing development where empty areas are avoided and buildings, streets and spaces are positively overlooked by residents in adjacent buildings. Public spaces are well defined, used by both pedestrians and vehicles and overlooked by surrounding buildings.

Developers must demonstrate how they have incorporated *Secured by Design* principles as part of their Reserved Matters submissions.

Consultation with the relevant Architectural Liaison Officer / Crime Prevention Officer must be undertaken and the principles of Secured by Design taken into account in the design of the scheme as outlined above.

### User information

Information will be produced for building users, giving advice on how to ensure they achieve the optimum from the building with regards to energy consumption, traffic management, and the recycling of waste.

## **Sustainable Buildings in Cherwell Supplementary Planning Document**

The above is due to be developed to expand upon and provide further detail to Local Plan Part 1 policies for the environment and design. The Supplementary Planning Document is expected to be adopted in January 2017.

## **Policy Summary**

Central to the government's and Cherwell District's vision for 'Sustainable Development' is the approval of development that jointly promotes economic, social and environmental benefits.

The NPPF states that these principles should be promoted jointly and simultaneously through the planning system to achieve sustainable development. The PPS 1 Supplement set a vision of exemplar projects that encourage and enable residents to live within environmental limits in communities that are resilient to climate change.

The Design Code and OPP require new non-domestic development to meet BREEAM Good or Very Good standards as well as meeting a range of other sustainability measures.

The strategy put forward in this report clearly demonstrates that the principles of BREEAM Very Good are being implemented but in lieu of actual BREEAM certification (which is considered inappropriate for small buildings within the local centre), Countryside are offering to install a

range of sustainability measures that go beyond the requirements of BREEAM Very Good and which will have a significant benefit to the operators of the retail units, nursery and community centre.

# 3. Sustainability Strategy

*The new Local Centre will be assessed against clearly defined sustainability targets, ensuring a high level of environmental benefit through quality design and delivery.*

This section of the report clearly demonstrates the following;

1. Why BREEAM is not suitable for the Local Centre
2. The alternative Sustainability Strategy proposed which will exceed the requirements of certain BREEAM Very Good categories and meet the requirements of the Kingsmere Design Code

1. Why is BREEAM not suitable for the Local Centre?

Guidance from the Building Research Establishment states that as a result of differing benchmarks and criteria for different building functions or uses, developments on a single site which consist of a number of separate buildings offering different functional uses will require a separate assessment for each building. To measure and combine the performance of each in to a single score then makes it impractical to compare the building's BREEAM rating with other BREEAM rated buildings, as they would not be the same type of assessment.

As a result of the above guidance, the Local Centre at Kingsmere is likely to require five separate assessments under BREEAM despite all of the buildings being significantly under 500m<sup>2</sup>, which is the threshold typically set for the application of BREEAM.

In addition, a number of the decisions influencing the award of credits within BREEAM are taken early in the design and procurement process as part of the masterplanning exercise. In particular, the Management, Transport and Land use and Ecology sections include credits around site selection, proximity to good public transport links, risk of flooding or contamination from previous use. All of these issues were determined at outline planning stage meaning that approximately 20% of the BREEAM score could no longer be influenced at the reserved matters application stage.

Based on the current BRE fees (without the appointment of a licensed assessor) for the buildings proposed, the cost of the BREEAM assessments is substantial and includes registration, QA and certification. BREEAM assessor and professional design fees which will add a significant additional fee which given the small scale of the buildings proposed, could be

better invested in sustainable design and construction measures at the site.

All of the above points mean that, for the Local Centre in particular, BREEAM is not viewed as the best mechanism to deliver sustainable buildings and meet the requirements of the Design Code.

Perhaps of greater significance however are the ongoing discussions with Cherwell District Council and the Kingsmere Residents Association whom it is proposed will operate the Community Centre. CDC have requested that the building incorporate renewable or low carbon technologies that will reduce the energy costs and, hopefully (depending on the results of the current government consultation), deliver a long-term, tax free income via the Feed in Tariff (FIT) to the council.

In the interests of community engagement and localism, Countryside are keen to meet this request but require approval of this strategy in order to justify the additional expense of this investment.

It is therefore proposed that an alternative Sustainability Strategy is used in place of formal BREEAM assessment and certification to set clear targets for the new Local Centre. The targets will be based on the Kingsmere Design Code, adopted local policy and appropriate elements of the BREEAM methodology and will

include aspects from all three pillars of sustainability to demonstrate the overall performance of the development.

2. The alternative sustainability strategy proposed for the Local Centre.

The proposed Sustainability Strategy for the Local centre is set out below to reflect the following sustainability issues as set out in the Design Code:

### 3.1 – Energy

### 3.2 – Transport

### 3.3 – Pollution

### 3.4 – Materials

### 3.5 – Water

### 3.6 – Ecology and Land Use

### 3.7 – Health and Wellbeing

### 3.8 – Management

Under each heading, a number of commitments are presented to demonstrate how the sustainability performance of the building has been improved.

## 3.1 Energy

**Reduce CO<sub>2</sub> emissions across the Local Centre development using a 'fabric first' approach and utilise renewable energy technologies for the Community Centre to lower the carbon footprint of the development and provide Reduced energy costs for the Community Centre Operator.**

Over the past decade there have been significant increases in the energy performance requirements for new non-residential buildings. The current Building Regulations Part L 2013 requires new buildings to achieve an aggregated 9% decrease in carbon emissions across the different non-residential building types over the previous 2010 requirements.

At the time the OPP was consented, the 2006 Building Regulations were in place which, by meeting the 2013 regulations, ensures that the new buildings are circa 30% more efficient than 2006 levels (although considerably more expensive to construct).

National policy and best practice advocates a fabric first approach to design by reducing the primary energy demand of a building through the use of an efficient fabric and services. This is widely regarded as best practice and is therefore

the first and most important step to reducing carbon emissions.

To meet the requirements of the Design Code and the requests of the CDC and Kingsmere Residents Association, the following Performance indicators are proposed:

- *To exceed the requirements of the 2013 Building Regulations across the development where possible*
- *Improved air tightness when compared against the maximum notional building value (10m<sup>3</sup>/m<sup>2</sup>/hr) in the current Building Regulations targeting 5m<sup>3</sup>/m<sup>2</sup>/hr.*
- *Appropriate fabric U-values to demonstrate improved fabric performance where possible when compared against the maximum values permitted by Building Regulations Part L 2013.*
- *A suitable metering strategy for all building energy use with high levels of sub-metering as appropriate.*
- *Specification of high efficiency lamps and luminaires and the use of LED lighting where possible.*
- *Appropriate glazing provided on elevations to enhance daylight to occupied spaces.*

### Solar Photovoltaic Panels

In response to a request from the CDC and Kingsmere Residents Association, the feasibility of installing solar photovoltaic panels (PV) on the roof space of the Community Centre has been assessed.

Based on the available roof space and the solar additional capital cost of PV, Countryside are proposing to install a 6kWp roof mounted PV array which would reduce carbon emissions by an estimated 2,647kgCO<sub>2</sub>/yr.

This would provide a reasonable quantum of annual electricity to the Community Centre free of charge, leading to savings on utility costs for the operator.

A tax free annual income of approximately £207 per year over a 20 year period is also likely to be available to the Community Centre Operator through the Feed in Tariff (FiT) Scheme. (Based on the FiT Payments as proposed from January 2016 in the Government consultation released in August 2015, which is potentially subject to change in November 2015)

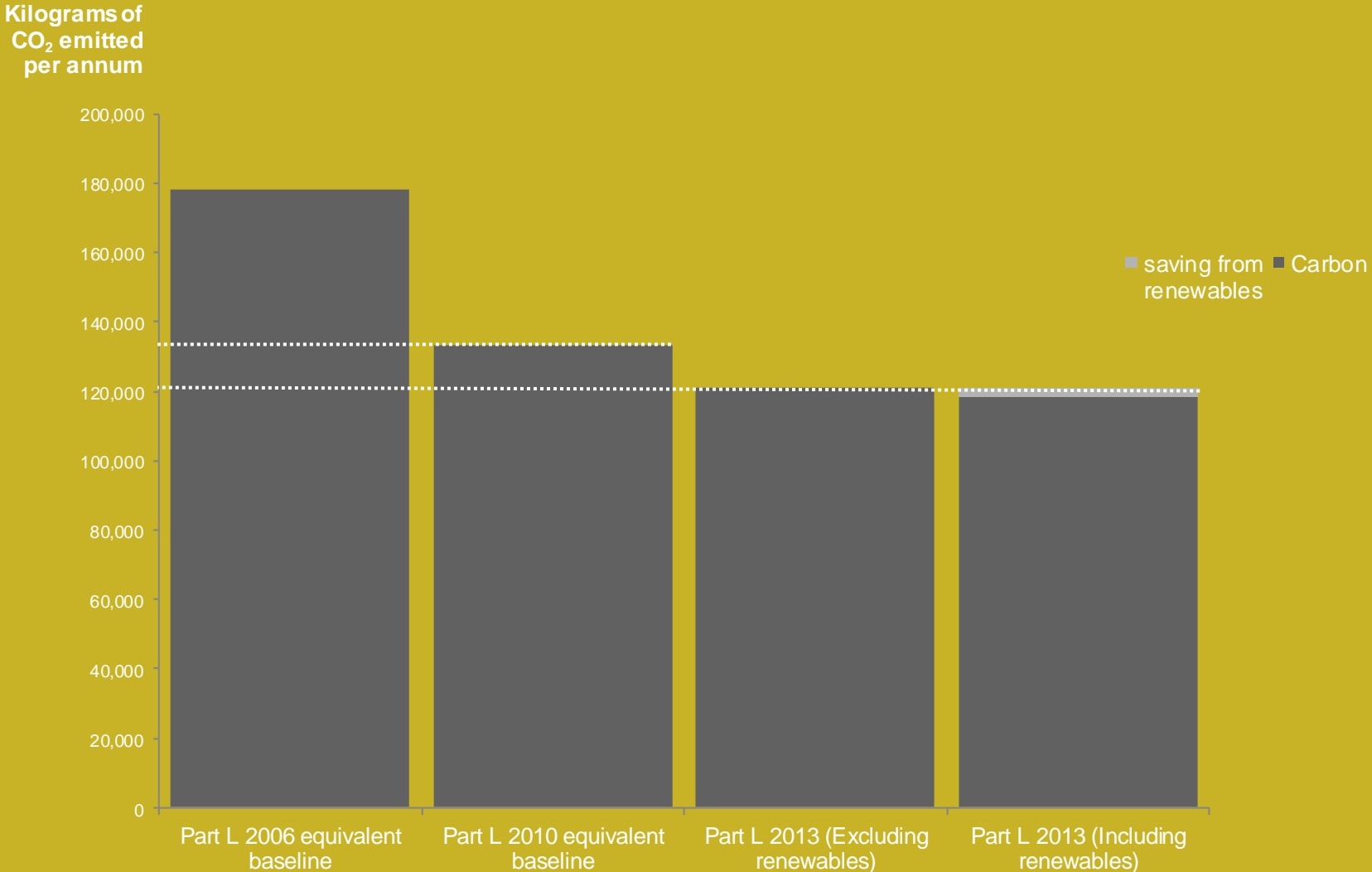
At this stage these figures are estimates and will be explored further as part of the detailed design stages. The size and layout of individual units may be revised and could contribute positively to aggregate carbon emissions reductions.

The graph on page 15 details the provisional carbon footprint of the buildings that make up Kingsmere Local Centre. The new buildings are considerably more energy efficient than those built in accordance with previous 2006 and 2010 regulations, showing the progressive energy efficiency targets of Part L Building Regulations.

The Graph also includes the estimated carbon saving through installation of the Solar PV, resulting in around a 2% site-wide carbon emission reduction.

# Carbon Footprint of Kingsmere Local Centre

The graph below illustrates the estimated regulated carbon emissions of the proposed Kingsmere Local Centre compared with the performance of non-domestic buildings built to previous standards in accordance with Part L Building regulations.





## 3.2 Transport

**Promote sustainable transport methods to reduce the number of journeys required by private car.**

A Transport Assessment has been carried out by WSP Group which reviews the impact the new Local Centre will have on the wider Kingsmere development and the Bicester area. It also details the sustainable transport options and improvements outlined by the proposals.

The proposed Local Centre is located approximately 1.5 km from Bicester Town Centre, with much of the Bicester central area within 2km of the site.

As noted within the Design Code document, Kingsmere is in a highly sustainable location with many community, retail, health, education and employment opportunities within easy reach on foot, by bike or bus.

There are existing bus stops on the spine road which runs along the western edge of the local centre; services from these stops are the S5 and 26 which connect the site to Bicester and Oxford. The bus services run at frequent intervals with an average journey time to Bicester Town Centre of 11 minutes.

The town has two railway stations Bicester Village and Bicester North, both approximately 2km from site but easily accessed via bus for rails services to Oxford and London.

Route 51 is a national cycle route that lies adjacent to the main access to the proposed Local Centre site via Oxford Road. Route 51 connects Bicester to Oxford, Milton Keynes and beyond. There are also a number of local cycle routes in and around Bicester that support opportunities for cycling journeys to replace car journeys.

The new Local Centre will enhance its location by supporting the use of the available public transport services, promoting walking and cycling and improving access to community facilities.

To ensure the Local centre promotes sustainable transportation the following measures will be undertaken:

- *Strategic pedestrian and cycle networks which provide links to new and existing footpaths across the wider Kingsmere urban expansion.*
- *Safe access to the Local Centre from new homes on the Kingsmere development and the wider Bicester area.*
- *Provision of a minimum of 20 covered public cycle storage spaces across the Local*

*Centre for visitors to encourage journeys by bicycle.*

- *Provision of suitable cycle parking facilities for Local Centre staff.*
- *Appropriate signage/provision of information to enable pedestrians and cyclists to navigate the local area and find public transport links.*
- *The Local Centre will be designed to enable connectivity to existing public transport links, promoting local accessibility.*
- *Consideration of the Local Centre within the Travel Plan.*

More detailed information on how the development aims to promote sustainable transportation is contained within the Transport Statement that accompanies the planning application.

## 3.3 Pollution

**Adopt best practice policies with respect to minimising pollution throughout construction.**

The design code requirements are based on the use of products with 0 ODP (Ozone Depleting

Properties) as per previous iterations of the BREEAM methodology. However, given that these products are now industry standard this issue is no longer assessed under BREEAM.

Countryside commit to the use of materials without HCFC or CFC content and additionally, in accordance with updated best practice will target the following Performance Indicators:

- *The use of low NOx plant to deliver heating and hot water.*
- *The use of products with low Volatile Organic Compound (VOC) levels.*
- *An external lighting strategy that minimises obtrusive light in line with appropriate industry guidance.*
- *Appropriate attenuation of plant items to ensure the closest residential areas are not affected by plant noise as a result of the development.*

### 3.4 Materials

**Maximise the use of locally sourced, sustainable materials.**

Cherwell Local Policy ESD 3 (Sustainable Construction) confirms that development should

aim to incorporate the use of locally sourced building materials. Making use of local and reused materials is beneficial to the environment and can be a way to reduce construction costs. The extent of available materials can be assessed to determine potential usage; these materials could include concrete, timber and asphalt.

Timber and insulation material can have a relatively high potential for embodied carbon. It is therefore important that Kingsmere Local Centre takes account of this in their procurement of these materials.

Performance Indicators include:

- *The use of FSC/PEFC certified wood across the development.*
- *Construction targets to maximise the use of local, recycled and reused materials.*
- *The use of off-site construction/ modular building techniques where possible to provide faster construction which produces less waste and promotes recycling, minimises vehicle movements to and from site and offers an improved level of site health and safety.*
- *Maximising the use of suppliers with a certified Environmental Management System to demonstrate sustainable procurement.*

- *A requirement for contractors to implement the measures set out in this strategy.*

### 3.5 Water

Potable water is an increasingly important natural resource and the conservation of water is becoming a more influential sustainability metric.

#### 3.5.1 Water efficiency

**Incorporate water efficiency measures to significantly reduce the water consumption of the development.**

Cherwell is one of the areas of the UK that is now considered to be in serious water stress, emphasising the need for new developments to minimise water potable water use.

Performance Indicators will therefore include:

- *Target 30% reduction in water consumption for each building above a standard specification through design and implementation of measures such as dual flush WCs, flow restrictors and increased water metering for areas with 10%+ of demand.*

This % reduction is measured as per the BREEAM methodology and is anticipated to be

an improvement on the Design Code target of 110 litres per person per day.

### 3.5.2 Sustainable Drainage Systems

**Implement a Sustainable Drainage Strategy to manage surface water and minimise the risk of flooding.**

A site wide Sustainable Drainage strategy has been prepared to reduce runoff rates and mitigate increased volumes of surface water as a result of increased hard standing and new buildings.

Performance Indicators therefore include:

- *Increased site drainage capacity through the incorporation of permeable surfacing to offer a reduced risk of localised surface water flooding.*
- *A drainage system integrated with the wider site strategy to ensure surface run-off is managed appropriately.*
- *Ensure surface water is in keeping with the required discharge rates of 6 l/s per hectare (permeable) 8l/s (impermeable), for a 1 in 10 year event.*

### 3.6 Ecology and Land Use

**Support and where possible, enhance site ecology.**

Local and National policy detail the importance of retaining and protecting ecological features and confirm that any potential adverse impacts from the proposed development upon the site environment should be mitigated with careful design.

Performance indicators include;

- *Contractor programming of works that seek to minimise disturbance to wildlife.*
- *Contractor training for site work force on how to protect site ecology during the project.*
- *New planting with native species including Hornbeam Hedge.*
- *Consideration of the introduction of bird and bat nesting boxes to further enhance the local wildlife.*

### 3.7 Health and Wellbeing

**The development will promote a cohesive community and support active, healthy lifestyles.**

Policy BSC8 of the Cherwell Local Plan confirms the importance of the environment on the health and well-being of local people. This is supported by the Design Code which requires Kingsmere to detail ways in which the scheme will promote the health and well-being of occupiers.

Performance Indicators include;

- *Provision of a network of pathways providing walking and cycling opportunities for site employees and local residents.*
- *Production of suitable of a Building User Guides to help occupants to utilise the buildings in the most appropriate way.*
- *Site pathways linked to Public Rights of Way to provide improved walking and cycling access to the wider Bicester area.*
- *Supporting the potential for intergenerational activities, including a youth centre, sports hall and cafe to support community cohesion*

- *Ensuring buildings have access to natural daylight and are designed to maximise passive solar gain.*
- *Secure by Design principles will be incorporated into the buildings to create a safe and secure environment.*
- *The development site will aim for be registration with the Considerate Constructors Scheme and target a score of >35.*
- *Appropriate external areas for the storage of recyclable waste to facilitate collections by the council.*

### 3.8 Waste Management

**Maximise reuse and recycling and minimise waste throughout construction and promote sustainable waste management into operation.**

Local and National policy maintains the importance of a robust plan for waste management across all phases of development. The design code requests a site minimisation strategy which incorporates recycling and waste segregation.

Performance indicators include:

- *A Construction Waste Management Plan (In compliance with the Design Code)*
- *The development will include dedicated waste storage areas and recycling points which make provision for the separate storage of recyclable materials to facilitate collections.*

## 4. Conclusion

*A summary of the proposed sustainability targets for the Kingsmere Local Centre is provided in the table below. This demonstrates that the sustainability performance of the development delivered through the bespoke Sustainability and Energy Strategy detailed in Section 3 will be equivalent to or better than that achieved through a BREEAM rating.*

Design Code Heading	Target	Performance Indicators
<b>Energy</b>	<b>Reduce CO2 emissions across the Local Centre development using a 'fabric first' approach to improved energy efficiency</b>	<ul style="list-style-type: none"> <li>Part L design performance outputs demonstrating an improvement over the current 2013 Building Regulations through the use of a Fabric First Approach and installation of solar PV (subject to the council's approval of this strategy).</li> <li>Improved air tightness when compared against the maximum notional building value (<math>10\text{m}^3/\text{m}_2/\text{hr}</math>) in the current Building Regulations targeting <math>5\text{m}^3/\text{m}_2/\text{hr}</math>.</li> <li>Appropriate fabric U-values to demonstrate improved fabric performance where possible when compared against the maximum values permitted by Building Regulations Part L 2013.</li> <li>A suitable metering strategy for all buildings energy use with high levels of sub-metering as appropriate.</li> <li>Specification of high efficiency lamps and luminaires and the use of LED lighting where possible.</li> <li>Appropriate glazing provided on all elevations to enhance natural daylight to occupied spaces, whilst managing the risk of glare and overheating.</li> </ul>
<b>Transport</b>	<b>Promote sustainable transport methods to reduce the number of journeys required by private car.</b>	<ul style="list-style-type: none"> <li>Inclusion within the design strategic pedestrian and cycle networks which provide links to new and existing footpaths across the wider Kingsmere urban expansion.</li> <li>Safe access to the Local Centre from new homes on the Kingsmere development and the wider Bicester area.</li> <li>Provision of a minimum of 20 covered public cycle storage spaces across the Local Centre for visitors to encourage journeys by bicycle.</li> <li>Provision of suitable cycle parking facilities for Local Centre staff.</li> <li>Appropriate signage/provision of information to enable pedestrians and cyclists to navigate the local area and find public transport links.</li> <li>The Local Centre will be designed to enable connectivity to existing public transport links, promoting local accessibility.</li> <li>Consideration of the Local Centre within the Travel Plan.</li> </ul>
<b>Pollution</b>	<b>Adopt best practice policies with respect to minimising pollution throughout construction.</b>	<ul style="list-style-type: none"> <li>The use of low <math>\text{NO}_x</math> plant to deliver heating and hot water.</li> <li>The use of products with low Volatile Organic Compound (VOC) levels.</li> <li>An external lighting strategy that minimises obtrusive light in line with appropriate industry guidance and utilises LED lighting where possible.</li> </ul>

Design Code Heading	Target	Performance Indicators
		<ul style="list-style-type: none"> <li>Appropriate attenuation of plant items to ensure the closest residential areas are not affected by plant noise as a result of the development.</li> </ul>
<b>Materials</b>	<b>Maximise the use of locally sourced, sustainable materials.</b>	<ul style="list-style-type: none"> <li>The use of FSC/PEFC certified wood across the development.</li> </ul>
		<ul style="list-style-type: none"> <li>Construction targets to maximise the use of local, recycled and reused materials.</li> </ul>
		<ul style="list-style-type: none"> <li>The use of off-site construction/ modular building techniques where possible to provide faster construction which produces less waste and promotes recycling, minimises vehicle movements to and from site and offers an improved level of site health and safety.</li> </ul>
		<ul style="list-style-type: none"> <li>Maximising the use of suppliers with a certified Environmental Management System to demonstrate sustainable procurement.</li> </ul>
		<ul style="list-style-type: none"> <li>A requirement for contractors to implement the measures set out in this strategy.</li> </ul>
<b>Water</b>	<b>Incorporate water efficiency measures to significantly reduce water consumption.</b>	<ul style="list-style-type: none"> <li>A target of 30% reduction in water consumption for each building above a standard specification through design and implementation of measures such as dual flush WCs, flow restrictors and increased water metering for areas with 10%+ of demand.</li> </ul>
	<b>Implement a Sustainable Drainage Strategy to manage surface water and minimise the risk of flooding.</b>	<ul style="list-style-type: none"> <li>Increased site drainage capacity through the incorporation of permeable surfacing to offer a reduced risk of localised surface water flooding.</li> </ul>
		<ul style="list-style-type: none"> <li>An integrated drainage system with the wider site strategy to ensure surface run-off is managed appropriately.</li> <li>Ensure surface water is in keeping with the required discharge rates of 6l/s per hectare (permeable) 8l/s impermeable for a 1 in 10 year event.</li> </ul>
<b>Ecology and Land Use</b>	<b>Support and where possible, enhance site ecology.</b>	<ul style="list-style-type: none"> <li>Contractor programming of works that seek to minimise disturbance to wildlife.</li> </ul>
		<ul style="list-style-type: none"> <li>Contractor training for site workforce on how to protect site ecology during the project.</li> </ul>
		<ul style="list-style-type: none"> <li>New planting with native species including Hornbeam Hedge</li> </ul>
		<ul style="list-style-type: none"> <li>The introduction of bird and bat nesting boxes to enhance the local wildlife</li> </ul>
<b>Health and Wellbeing</b>	<b>The development will promote a cohesive community and support active, healthy lifestyles.</b>	<ul style="list-style-type: none"> <li>Provision of a network of pathways providing walking a cycling opportunities for site employees and local residents.</li> </ul>
		<ul style="list-style-type: none"> <li>Production of suitable Building User Guides to help occupants to utilise the buildings in the most appropriate way.</li> </ul>
		<ul style="list-style-type: none"> <li>Site pathways linked to Public Rights of Way to provide improved walking and cycling access to the wider Bicester area.</li> </ul>
		<ul style="list-style-type: none"> <li>Supporting the potential for intergenerational activities, including a youth centre, sports hall and cafe to support community cohesion</li> </ul>
		<ul style="list-style-type: none"> <li>Ensuring buildings have access to natural daylight and are designed to maximise passive solar gain.</li> </ul>
		<ul style="list-style-type: none"> <li>Incorporation of Secure by Design principles into the Local Centre design to create a safe and secure environment.</li> </ul>
<b>Waste Management</b>	<b>Maximise reuse and recycling and minimise waste throughout construction and promote sustainable waste management into operation.</b>	<ul style="list-style-type: none"> <li>A Construction Waste Management Plan (In compliance with the Design Code).</li> </ul>
		<ul style="list-style-type: none"> <li>The development will include dedicated waste storage areas and recycling points which make provision for the separate storage of recyclable materials to facilitate collections.</li> </ul>
		<ul style="list-style-type: none"> <li>The development site will aim for be registration with the Considerate Constructors Scheme and target a score of &gt;35.</li> </ul>
		<ul style="list-style-type: none"> <li>Appropriate external areas for the storage of recyclable waste to facilitate collections by the council.</li> </ul>

