

LINDHURST  
MANSFIELD

**13. SUSTAINABILITY**

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## 13.0 SUSTAINABILITY

### 13.1 Policy Context

#### PPS1 – Delivering Sustainable Development

13.1.1 Paragraph 4 of PPS1 sets out the overarching aims of the Government's sustainable development strategy as follows:

- Social progress which recognises the needs of everyone;
- Effective protection of the environment;
- The prudent use of natural resources; and,
- The maintenance of high and stable levels of economic growth and employment.

13.1.2 Dealing with Key Principles of sustainability, paragraph 13 goes on the state :-

- Regional planning bodies and local planning authorities should ensure that development plans contribute to global sustainability by addressing the causes and potential impacts of climate change – through policies which reduce energy use, reduce emissions (for example, by encouraging patterns of development which reduce the need to travel by private car, or reduce the impact of moving freight), promote the development of renewable energy resources, and take climate change impacts into account in the location and design of development.

#### PPS1 Climate Change Supplement

13.1.3 This significantly reinforces the key sustainability principles set out in PPS1. In particular, under key planning objectives at paragraph 9, it states the LPA's should deliver strategies that :

- In providing for the homes, jobs, services and infrastructure needed by communities, and in renewing and shaping the places where they live and work, secure the highest viable resource and energy efficiency and reduction in emissions;
- Deliver patterns of urban growth and sustainable rural developments that help secure the fullest possible use of sustainable transport for moving freight, public transport, cycling and walking; and which overall, reduce the need to travel, especially by car;
- Secure new development and shape places that minimise vulnerability, and provide resilience, to climate change; and in ways that are consistent with social cohesion and inclusion;

- Conserve and enhance biodiversity, recognising that the distribution of habitats and species will be affected by climate change.

13.1.4 Paragraphs 41 and 42 also recommend that Design & Access Statements should establish the essential sustainable criteria of a proposed development, providing a checklist of expectations.

#### **PPS22 – Renewable Energy and Companion Guide (2002)**

13.1.5 This PPS advises regional and local authorities to encourage the development of renewable energies to help put the UK on a path to cut its carbon dioxide emissions. The document also recognises the value of small-scale and decentralised energy systems. It states that local planning authorities :

*“Should ensure that the requirement to generate on-site renewable energy is only applies to developments where the installation of renewable energy generation equipment is viable given the type of development proposed, its location and design” (Paragraph 8i).*

#### **East Midland Regional Plan**

13.1.6 Adopted in March 2009, the Regional Plan reflects and reinforces the latest thinking on sustainability from Government. The Regional Vision sets the need for :

*“Sustainable patterns of development that make efficient use of land resources and infrastructure, reduce the need to travel, incorporate sustainable design and construction, and enhance local distinctiveness”.*

13.1.7 Policy 1 sets out key crucial components of sustainable development, as follows :

- *To promote and enhance the environmental quality of urban and rural settlements to make them safe, attractive, clean and crime free places to live, work and invest in, through promoting :*
  - *‘Green Infrastructure’*
  - *Enhancement of the ‘urban fringe’*
- *To reduce the causes of climate change by minimising emissions of CO2 in order to meet the national target through :*
  - *Maximising ‘resource efficiency’ and the level of renewable energy generation;*
  - *Making best use of existing infrastructure;*
  - *Promoting sustainable design and construction; and*

- *Ensuring that new development, particularly major traffic generating uses, is located so as to reduce the need to travel, especially by private car.*
- *To minimise adverse environmental impacts of new development and promote optimum social and economic benefits through the promotion of sustainable design and construction techniques*

### **Mansfield District Council**

13.1.8 In its Strategic Approach to Development, MDC has made it clear that the Proposed Development must meet high standards of overall sustainability. The Council expects Lindhurst to be an exemplar ‘eco-suburb’ underpinned by an extensive green infrastructure framework which reflects MDC’s pioneering work on this topic.

## **13.2 Design Response to Sustainability Masterplan Objectives**

13.2.1 The Framework Plan for Lindhurst demonstrates that eco-suburb principles can be readily and effectively met, with the development successfully addressing the cascade of sustainability objectives set out in the development plan. Principle features can be summarised as follows :

- i) The proposals use existing infrastructure – the Sherwood Way, specifically provided as a catalyst or regeneration – as a catalyst for regeneration – as a framework for development. The site is also directly related to Mansfield.
- ii) This transport framework is then enhanced with the provision of high quality frequent public transport, with accessible stops within ten minutes walk of all new homes. Public transport provision is reinforced by an integrated network of footpath, cycleways and bridleways, connecting the development areas both with Mansfield itself and with the open countryside to the south. Genuine choices are made available to both existing and new residents as an alternative to the private car.
- iii) As a comprehensive mixed-use development, providing excellent varied employment opportunities, the proposals enable people to choose to live close to where they work. Furthermore, an appropriate level of both community, retail and leisure facilities are provided on site, reducing the need to travel further afield.
- iv) The Framework Plan is encompassed and subdivided by a very robust Green Infrastructure framework which accounts for some 40% of the total site area. This level of provision is consistent with the Governments emerging aspirations for “eco – suburbs” (as set out in the draft PPS on Eco-towns). This framework is built around the rather sparse network of existing

habitat resources found on site such as historic lanes and hedgerows. The proposal for the Forest Stone Community Park, to be designed in detail following a high level of public consultation, will deliver a significant local amenity and biodiversity resource. A robust enduring biodiversity buffer will be provided along the northern edge of Harlow Wood, with a second broad buffer along the Old Newark Road, which defines the current urban edge. This will assist in protecting the amenity of existing residential areas.

- v) The Green Infrastructure framework will also contain the sustainable drainage system for the entire development, creating a network of wetland habitats which will further enhance biodiversity.
- vi) Forest Stone Community Park provides the opportunity for productive landscapes in the form of allotments.
- vii) No development is proposed which has any potential to increase flood risk. There is no encroachment onto identified floodplain.

### **13.3 Built Environment and Climate Change Adaptation**

13.3.1 The scheme will be resilient to climate change as it is free from flood plain implications. It has the ability, as a result of its generous Green Infrastructure, to establish excellent levels of shelter and urban cooling, combined with sustainable drainage.

13.3.2 A Green Infrastructure Biodiversity Management Plan (GIBMP) will be prepared providing a rigorous maintenance regime which ensures rapid establishment. Periodic review of maintenance objectives will allow flexibility to address changing conditions and aspirations.

13.3.3 Turning to the built environment and energy conservation strategies, the development industry is now striving to improve building performance and, in parallel, refine renewable energy generation. Over the fifteen year anticipated development programme envisaged at Lindhurst, these parallel sectors will continue to evolve, offering new and improved opportunities. A flexible approach is essential so that future technical advances can be adopted as they become viable such as, for example small scale combined heat and power units for individual homes, currently being trialed.

13.3.4 At the outset, the Lindhurst project will have to meet Level 3 (a minimum reduction of regulated emissions of 25%) under the Code for Sustainable Homes (CSH), moving towards Code Level 4 (a 44% reduction in emissions) as

development progresses from 2013 onwards. Level 3 demands the following at the outset :

- A minimum reduction in regulated emissions of 25%;
- A minimum reduction in water use from a benchmark of 155 litres/person/day of 34%;
- Achieving nil detriment in both runoff rates and volumes over the current case;
- The operation of a site Waste Management Plan.

13.3.5 The Proposed Development will also strive to constantly improve the energy efficiency of individual homes and commercial buildings in order to reduce energy demand, energy loss and therefore carbon dioxide emissions. Key areas of refinement include :

- Selecting construction material based on thermal performance;
- Improving the buildings insulation and thermal performance;
- Improving the air-tightness of the building envelope; and
- Reducing thermal bridging (i.e. heat loss).

13.3.6 This work stream will be co-ordinated with research into the optimum viable solutions in low carbon renewable energy supplies. Current research suggests that the following range of solutions may be applicable at the outset to a development of the scale of Lindhurst :

- Passive Solar Design
- Solar Hot Water
- Air Source Heat Pumps
- Ground Source Pumps

13.3.7 Current research demonstrates that technologies including photovoltaic's and large scale combined heat and power (CHP) are not presently viable for Lindhurst.

13.3.8 Domestic water consumption will be set at 105 litres per person per day, approximately a 30% reduction in current levels. This can be achieved using flow restrictions on bathroom taps and showers, low capacity baths, and reduced WC flush capacities.

13.3.9 Turning to building adaptability, all affordable housing provided by the Lindhurst project together with 5% of the homes built for private sale will meet Lifetime

Homes Standards. These will therefore enable families and resident to adjust their homes as changes in lifestyle occur over the years, reducing the need to move.

13.3.10 There are opportunities for other sustainable technologies to be incorporated into the Local Centre, Community facilities and employment/commercial buildings. Here biomass boilers may be applicable, especially in collaboration with Nottinghamshire County Council who have pioneered and successfully trialled this technique for schools and community buildings. Proximity to Sherwood Forest as a source of renewable fuel makes this particularly appealing. In conjunction with this approach, green or brown roofs and green walls will also be employed on appropriate buildings, reducing water run off and enhancing biodiversity. The use of building integrated habitats, such as bat tubes and bricks, will also enhance biodiversity opportunities.

13.3.11 As a result of these strategies, the non residential elements of Lindhurst will be capable of achieving BREEAM “Very Good and will move towards “Excellent” or the equivalent in the emerging Code for Sustainable Buildings.

#### **13.4 Building For Life**

13.4.1 Utilising the twenty questions set out in the CABE – HBF Building for Life standard demonstrates that the Lindhurst Framework Plan can readily meet and exceed the Silver Standard, and would be considered for Gold. In terms of character, layout, design and construction and environment and community the proposals achieve very consistent positive marks.

#### **13.5 Statement of Effects**

13.5.1 Lindhurst will be an exemplary eco-suburb, building responsively on the opportunities offered by the site which has been created as a consequence of the construction of Sherwood Way.

13.5.2 All buildings will be designed to have minimal environmental impact, incorporating measures to improve energy efficiency and reduce carbon emissions, while sustainable urban drainage systems will be incorporated into the development. The Proposed Development will create a sustainable, well located community, making efficient use of land, distributing land uses effectively and promoting low impact modes of travel. The Development will exceed national

standards for energy efficiency and resource consumption and work with the government's evolving policy on sustainability.

- 13.5.3 The Framework Plan (Figure 2.1) provides facilities close to where people live reducing the need for longer journeys. Proposed footpaths, cycleways and public transport routes provide easy access to local facilities.
- 13.5.4 All built development and construction activities will take place outside of the 1 in 100 year floodplain. Provision of sustainable urban drainage systems includes grass swales, water detention areas and permeable hard surface areas.
- 13.5.5 A detailed energy strategy can be prepared once outline consent is granted and the Illustrative Masterplan is refined to the next level in preparation for reserved matters applications.