

3. Sustainability

Introduction

- 3.1 This chapter of the Environmental Statement discusses the sustainability of the proposals. The structure of the chapter varies from the format of other chapters due to the nature of this topic and less relevance of baseline conditions.

Policy

National Policy

- 3.2 The UK Government published its sustainable development strategy in 1999 entitled "A better quality of life: A strategy for sustainable development in the UK". This sets out four main objectives for sustainable development in the UK:

- Social progress that recognises the needs of everyone;
- Effective protection of the environment;
- Prudent use of natural resources; and
- Maintenance of high stable levels of economic growth and employment.

- 3.3 This definition of sustainable development has been set down and expressed in subsequent Government documents including "Sustainable Communities: Building for the Future", and recent planning policy statements including PPS1: Delivering Sustainable Development (reference 1.2).

- 3.4 A number of documents and Government consultation papers were published at the end of 2006, and reflect the growing concerns about Climate Change and a rapidly changing planning agenda (all December 2006):

- Stern Review and Eddington Transport Study (references 6.1 and 6.2);
- Planning and Climate Change : Supplement to PPS 1 (DCLG) Consultation paper (reference 6.3);
- Building a Greener Future : Towards Zero Carbon Development (DCLG) Consultation Paper (reference 6.4);
- Water Efficiency in New Buildings (DCLG) Consultation Paper (reference 6.5);
- Code for Sustainable Homes (DCLG) (reference 6.6);
- PPS 25 : Development and Flood Risk (DCLG) (reference 1.14).

- 3.5 The PPS 1 Supplement, although at consultation stage clearly sets out how the Government sees the role of planning in helping to reduce emissions, steering and shaping new development so that it is resilient to the effects of climate change, and also to take account of its unavoidable consequences.

Regional Policy

Regional Planning Guidance (RPG9) for the South East (March 2001)

- 3.6 The Regional Planning Guidance for the South East was published in March 2001 and covers the period up to 2016.
- 3.7 The primary purpose of this guidance is to provide a regional framework for the preparation of local authority development plans. In addition, it also provides the spatial framework for other strategies and programmes including, the preparation of local transport plans by local authorities, the regional strategies of the South East of England Development Agency (SEEDA) and East of England Development Agency (EEDA), as well as the strategies prepared by the Mayor of London including those for economic development and transport.
- 3.8 The main objectives of the plan focus on promoting economic success throughout the Region while ensuring increased management of natural resources, a more sustainable pattern of development, the concentration of development in urban areas, the promotion of regeneration and renewal and the provision of a wider choice in travel options in order to decrease reliance upon the private car.

The 'Draft' South East Plan (March 2006)

- 3.9 This is a new document which supersedes the Regional Planning Guidance (RPG9) and which was submitted to the Government on 31 March 2006 and which is expected to receive final government approval in 2008.
- 3.10 The South East Plan sets out a vision for the future of the South East region to 2026, outlining the challenges facing the region such as housing, the economy, transport and protecting the environment. The plan aims to ensure that the South East remains economically successful and an attractive place to live for future generations.
- 3.11 The core objectives of the plan focus on balancing continued economic growth with increasing standards of environmental management along with reduced levels of social exclusion and natural resource consumption in the period up until 2016.
- 3.12 The core of the South East Plan comprises cross-cutting policies such as sustainable development, climate change, sustainable construction and resource use as well as policies for specific topics such as the economy or the countryside.

Local Policy

Arun's District Community Strategy 'Our Kind of Place' (April 2000)

- 3.13 The strategy sets out 17 key themes each with specific aims which combine to provide a future vision for the District which the local plan has translated into land use and development policies.
- 3.14 Implementing the strategy is the role of the Arun Local Strategic Partnership which consists of agencies and organisations from the public, private and voluntary sectors which work together in order to deliver an action programme of changes over a period of years.

Arun District Local Plan (1996-2011)

- 3.15 The Local Plan was published in 1993 and is due to be replaced by the Local Development Framework once it has been adopted. There are a number of saved development plan policies outlined in the plan which are relevant to sustainability and the environment. These are as follows:

- Policy GEN9 Foul and Surface Water Drainage;
- Policy GEN10 Tidal Flooding and Coastal Defence;
- Policy GEN14 Public Transport;
- Policy GEN21 Renewable Energy;
- Policy GEN25 Water Resources.

Local Development Framework

- 3.16 The Core Strategy Development Plan Document sets out the strategic direction and priorities of development in Arun for the next two decades. The Core Strategy will set out a vision and spatial strategy for the district, including identifying broad locations for development and setting out principles against which land will be allocated in the future.
- 3.17 The Council has already carried out an Issues and Options consultation and is currently preparing its Preferred Options document.
- 3.18 The key aim of the Core Strategy is to achieve 'sustainable development' in Arun. This is to be achieved through the following objectives:
- Protecting and enhancing the environment by balancing the need to protect the environment while meeting the need for new development;
 - Housing for all and working well by ensuring new housing and employment development meets local needs;
 - Creating quality places by providing an attractive living and working environment;
 - Social and community infrastructure and meeting social needs; and
 - Transport and movement

Assessment Methodology

- 3.19 The development proposals have been reviewed, taking into account the existing baseline conditions, the proposed construction process and development proposals.
- 3.20 In all sections below, the issues are divided into the following headings of sustainable development:
- Quality of design;
 - Transport and Movement: addressing public transport, car parking, cycle and pedestrian movement;
 - Building Energy and Water Resource Performance: addressing resource use, and pollution arising from the building and the overall development proposals;
 - Construction Effects: addressing materials, site effects, protection of existing ecology, construction waste.

Baseline

- 3.21 The existing Oldlands Farm site is a green field site, which is currently used for agricultural purposes. There are no existing buildings on the Site and the Site itself has good links into the town via the A9 which is approximately 2.3 kilometres to the south.

Sustainability Targets

- 3.22 It is essential that new developments aim to minimise the impacts of the development and operations on the environment.
- 3.23 The foodstore operator have a number of generic sustainability targets which will be applied to the operation on site. These are as follows:
- To produce zero landfill waste by 2010;
 - Promote and sell products from sustainable resources and which prevent harm to the environment;
 - Reduce green house gases such as carbon dioxide;
 - Reduce dependence on non renewable energy sources such as oil; and
 - Aim to be 20% more energy efficient by 2012.
- 3.24 In addition to this, consideration will be given to protecting the ecology of the Site and maximising the natural features wherever possible while reducing the risk of accidental pollution from both the construction and operation phases.

Quality of Design

- 3.25 The development design will have consideration for environmental and sustainable building standards focussing on energy efficiency, the use of renewable sources of energy and the minimisation of carbon emissions over the development lifetime.
- 3.26 The food operator will work closely with suppliers and contractors in the selection of materials for the development, which will maximise their environmental performance wherever possible.
- 3.27 Measures to be considered for incorporation into the design of the development in order to increase sustainability include:
- Using a reduced cement content in the concrete;
 - Using environmentally friendly paint;
 - Using timber from sustainable managed forests only;
 - Using sustainable plasterboard;
 - Using sustainable ceiling tiles;
 - Using recycled bollards; and
 - The use of recycled plastic.

Building Energy and Water Resource Performance

- 3.28 The Proposals are planned to incorporate measures to ensure that the buildings meet efficient standards for energy and water use.

Energy Conservation

- 3.29 There are a number of energy saving technologies which may, subject to viability, be considered in order to reduce energy consumption as well as the potential to encourage the use of renewable energy. These are outlined below.

Natural Day lighting

- 3.30 The use of extensive glazing to buildings will allow natural light to be distributed throughout the internal area of the buildings, allowing an increased spread of natural light and allowing the lighting within the buildings to be controlled via automatic switching thus reducing overall levels of energy consumed.

Geothermal Borehole

- 3.31 The use of this energy saving technology within a development is dependent upon the availability of a suitable source of groundwater extracted and returned through boreholes, approval from the Environment Agency to extract and return water as well as the availability of a sufficient quantity of water.

- 3.32 The buildings may be heated by a means of high performance water chiller, which operates as a heat pump, cooling the borehole water and transferring the heat extracted to a heating circuit, which serves the occupied spaces. In terms of energy consumption to production, 1 kilowatt of electrical energy consumed by the heat pump will provide 4.5 kilowatts of useful heat.

Ground Source Heat Pump

- 3.33 Ground Source Heat Pumps utilise energy stored in the earth's crust by taking the heat up at a certain temperature and releasing it at a higher temperature. This is achieved through the use of ground collectors or coils, in which heat exchange fluid circulates and transfers heat via a heat exchanger to the heat pump. Subject to viability, this method can provide a considerable amount of heating and cooling for the buildings which will lead to significant energy savings.

Ground Source Cooling

- 3.34 This method utilises the relatively constant ground temperature to provide summertime cooling through ground heat exchangers either through air-to-ground or water-to ground.

Underfloor Heating and Cooling

- 3.35 The under floor system enables the distribution of heating and cooling from the ground source heat pump to the occupied area and allows better occupant comfort and control as well as avoiding the heating and cooling of any occupied spaces within buildings thus reducing loss and consumption of energy.

Combined Heat and Power (CHP)

- 3.36 CHP provides the simultaneous generation of power and heat in a single sustainable process. CHP system's waste heat is recovered, which would otherwise be lost, and is used to supply heat or hot water to nearby buildings. This means the overall efficiency of the CHP system is much

higher than conventional methods and in total, can achieve a thermal efficiency of greater than 75%.

Solar Water Heating

- 3.37 This is most commonly used to provide hot water through the heating of water by solar power. A heat collector contains fluid heated by the solar energy. These collectors should ideally be mounted on a south facing roof, although south east or south west will also function successfully. This subsequently heats up water stored in a separate hot water cylinder inside the building. This method has an energy saving of approximately 30% of the energy used by the conventional electric/gas water heating systems over the course of a year.

Wind Turbines

- 3.38 A wind turbine can be sized to generate carbon zero electricity to a level equivalent to any percentage of the total carbon emissions of an associated building subject to there being a suitable location for a turbine of the appropriate size. There are a number of planning considerations associated with this technology.

Photovoltaics

- 3.39 Also known as solar technology, photovoltaics consist of a number of cells in one or two layers of a semi-conducting material, which convert daylight and direct sunlight into electricity thus reducing conventional energy consumption.

Green Roof Provision

- 3.40 Green Roofs consist of vegetation and soil, or a growing medium planted over a waterproofing membrane and have a number of benefits including providing wildlife habitats, reducing storm water runoff, absorbing carbon dioxide and reducing the urban 'heat island' effect.

Water Conservation

- 3.41 In terms of water conservation, the proposals aim to adhere to the following standards:
- 100% metering of all newly built property; and
 - Use of grey water for all non potable uses i.e for toilet flushing
- 3.42 The use of grey water systems allows wastewater from showers and washbasins to be collected, filtered or treated and then be used for other means such as laundry, toilet flushing and the irrigation of plants. This recycles the existing water reducing total water usage.
- 3.43 Rainwater harvesting may also be incorporated into the development. This involves the fitting of water harvesting systems in order to collect rainwater from the roofs of buildings or the run off from hard standings to be used for such purposes as irrigation or the flushing of toilets.
- 3.44 There are a number of other measures which may be used to reduce water consumption which include:
- Push taps as opposed to flow taps to reduce potential water waste;
 - Flow regulators and restrictors;
 - Spray nozzles;
 - Low flush/dual flush toilets;
 - Sensor urinal flushing controls; and

- Fitting spray taps to outdoor hoses.

Water Pollution and Flooding

- 3.45 Sustainable Drainage Systems (SUDS) will be implemented wherever practical in order to manage surface run off within the Site, control the potential of pollution at the source and which to assist in protecting water resources from pollution.
- 3.46 Such methods include permeable pavements, swales and basins, infiltration trenches and filter drains and ponds and wetlands.

Air Pollution

- 3.47 A number of measures will be assessed in order to reduce and mitigate potential impacts upon existing air quality as a result of the Proposed Development.
- 3.48 Measures should include using new gas boilers which produce low levels of Nitrogen Oxide and minimising air emissions during the operation of the development by implementing measures to reduce emissions from the plant, vehicles and other sources within the development. Further Air Quality Measures are considered in Chapter 10.

Noise Pollution

- 3.49 Measures will be implemented in order to reduce noise impacts from the construction and operational phases of the Proposed Development. Further Noise measures are outlined in Chapter 9.

Waste Management and Recycling

- 3.50 In order to promote waste management and encourage recycling the following standards should be considered:
- Specify the use of reused or recycled construction materials;
 - Use prefabricated and standardised modulation components to minimise waste; and
 - Provide accessible recycling and waste facilities which can recycle up to 70% of commercial and industrial waste by 2020.

Transport and Movement

- 3.51 A Traffic Impact Assessment has been undertaken to identify any traffic effects as a result of the Proposals. The assessment will predict the anticipated number of trips generated, identify any highways or junction improvements which may be necessary as well as providing details on minimising car use and alternative modes of travel to and from the development.
- 3.52 In order to provide a sustainable development with regards to transport, the Proposals will incorporate measures which aim to reduce travel by car and encourage alternatives modes such as walking, cycling and public transport. Where car travel is required, the Proposals will aim to consider various more efficient transport technologies which emit little or no emissions.
- 3.53 Measures integrated into the design of the development to ensure it's sustainability include the following:

- Good access and design of footpaths to ensure they are connected to the existing network and well lit, suitable for all users including wheelchair users and are safe ;
- The incorporation of a lobby area where information regarding bus, rail, cycle and pedestrian networks and details of car sharing schemes can be made available;
- Lighting and landscape of developments should ensure pedestrian, cycle links and waiting areas are user friendly;
- There should be provision for shower and changing room facilities at convenient locations for potential users; and
- Cycle storage areas should be provided in a convenient location.

3.54 Travel Plans for both the Business Park and the foodstore will be produced in order to encourage sustainability with regards to transport and will include aspects such as;

- Providing detailed information on public transport and car sharing opportunities;
- Providing cycling facilities and details of the existing and proposed route network ;
- Encouraging walking to the business park;
- Improving existing public transport services;
- Providing flexible working practices;
- Monitoring of travel habits through regular travel surveys;
- Setting targets for sustainable travel modes; and
- Working with West Sussex County Council and other local businesses to improve sustainable travel in the area

Construction Effects

3.55 A Code of Construction Practice will be prepared to set out the procedures to be adopted during the construction process, which will include the designation of a specific individual to be responsible for community liaison

3.56 Materials, where practical, would be chosen to ensure that an 'A' rating will be achieved (from the BRE Green Guide) for a number of the construction elements. In addition, timber would be sourced from sustainable sources, and wherever practicable certified by PEFC or equivalent.

3.57 During the construction process, management systems to reduce construction waste would be put in place, including the sorting and recycling of bulk materials including timber, metals, plasterboard and potential aggregates.

3.58 A Site Waste Management Plan will be put in place prior to the commencement of construction of the proposed development. This will enable the following benefits:

- Provide better control of risks relating to the materials and waste on the development site;
- Provide a tool to help deal with queries from various parties such as the environmental regulators regarding the waste arising from the site;
- Provide a mechanism to demonstrate that waste is managed and to minimise cost and risks to the developer; and

- Ensures better cost savings by better managing the materials supply, materials storage and better management of waste for recovery and disposal.

Summary

- 3.59 Sustainability is an essential consideration in the design and construction of the Proposed Development. The design strategy has been developed in order to identify the potential impacts of the development and the opportunity of implementing high quality and sustainable energy measures in order to reduce the adverse impacts of the development on the environment and existing community.