

Looking After the Environment

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Strategic Objectives

- To protect and enhance Dacorum's distinctive landscape character, open spaces, biological and geological diversity and historic environment.
- To promote the use of renewable resources, protect natural resources and reduce waste.
- To protect people and property from flooding.
- To minimise the effects of pollution on people and the environment.

17. Enhancing the Natural Environment

How have we got to this point?

Your consultation responses have told us that you agree with the policy approach for looking after the environment. This focuses on protecting and enhancing the natural landscape and wildlife habitats, together with safeguarding biodiversity, which can be achieved through careful land management.

- 17.1. The borough's landscape, its appearance, its economy, its habitats and its heritage are a valued asset. The protection and enhancement of its natural environment through prudent investment and careful management is a key local priority.

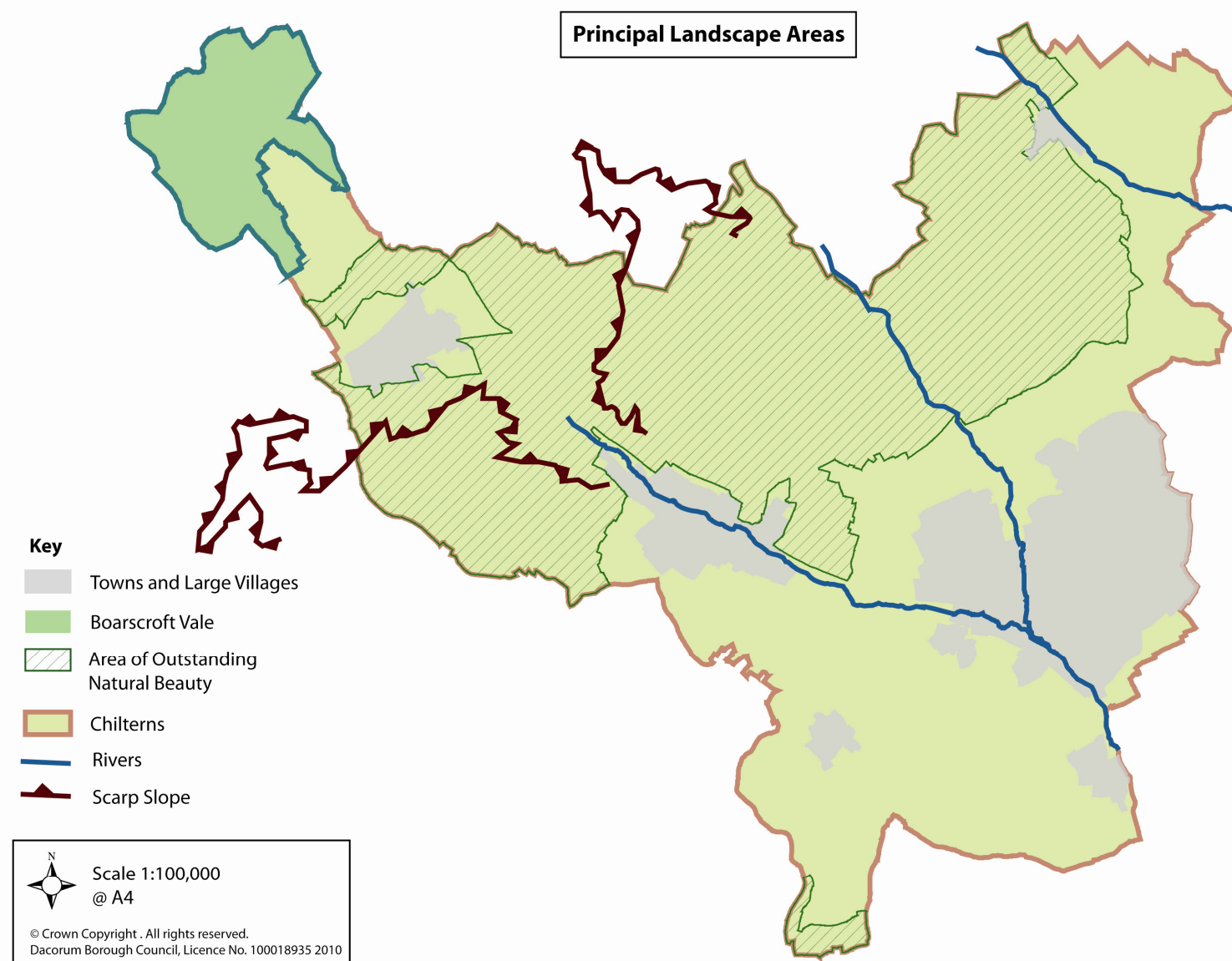
Protecting and Improving the Landscape

- 17.2. The majority of Dacorum is within the Chilterns National Landscape Area.¹ Whilst the character of south eastern section has been eroded through 20th century development, much of the remainder is protected by its designation as an Area of Outstanding Natural Beauty (AONB).
- 17.3. The Chilterns Area of Outstanding Natural Beauty (AONB) is one of the borough's most important landscape assets. It was designated for the natural beauty of its landscape and its natural and cultural heritage. Its special qualities include the steep chalk escarpment with areas of flower-rich downland, woodland, commons, tranquil

¹ The Character of England's Landscape, Wildlife and Cultural Features Map, 2005, Countryside Agency (now part of Natural England).

valleys, the network of ancient routes, villages with their brick and flint houses, chalk streams and a rich historic environment. Its conservation and enhancement is a national priority that will be reflected locally. The Chilterns Conservation Board has a statutory duty to produce a Management Plan, supported by a Delivery Plan. This identifies the management issues faced and provides policies and actions to guide the work of all those who care for the AONB.

- 17.4. The north western tip of the borough forms part of the Bedfordshire and Cambridgeshire Claylands – an area known locally as Boarscroft Vale. These key landscape types are illustrated on Map 2.



- 17.5. A more detailed landscape assessment for Dacorum divides the borough's countryside into 30 different landscape character areas. The assessment covers physical influences such as geology and topography, vegetation and wildlife, as well as historical and cultural influences such as the field pattern and settlement form. Community views on the landscape and its quality have also been taken into account. Development proposals will be expected to adhere to the guidelines, conserving or enhancing the landscape as appropriate. This will support the prudent management of land and water resources, and benefit ecology. For each character area, management guidelines have been drawn up, based on a condition and sensitivity analysis. Development proposals will be expected to have regard to these. When assessing the impact of proposals upon the landscape, consideration also needs to be given to the fact that the character of some areas includes its relative tranquillity and quietness.
- 17.6. In addition to the natural landscape, the borough also has extensive areas of surviving high quality historic landscapes. The county-wide Historic Landscape Character Assessment zones the land according to its historic character and the likelihood that a particular area will contain historic landscape features. The variety of historic landscape types within the borough is extremely high, with three of particular rarity:
1. coaxial field systems (particularly around Gaddesden Row);
 2. Iron age mining and settlements (beneath the woodlands at Ashridge); and
 3. deserted Medieval landscapes (Boarscroft Vale).

Some areas, such as the National Trust's Ashridge Estate are exceptionally well-preserved. Others, such as the vale of Aylesbury and Chiltern dip-slope areas, although altered, still contain many elements of surviving past landscapes of prehistoric Roman, medieval and post-medieval date. Ashridge, Tring Park, Markyatecell Park and the Jellicoe water gardens in Hemel Hempstead town centre are all listed on the Register of Historic Parks and Gardens. There are also unregistered parks and gardens which are considered to be of significant local interest.

- 17.7. The Hertfordshire Historic Environment Record provides up-to-date information on all of the county's historic buildings, archaeological remains and historic sites, together with surveys, reports and aerial photographs to help identify both their physical scale and relative importance.
- 17.8. The approach to conserving the area's built historic heritage is set out in more detail in section 18.

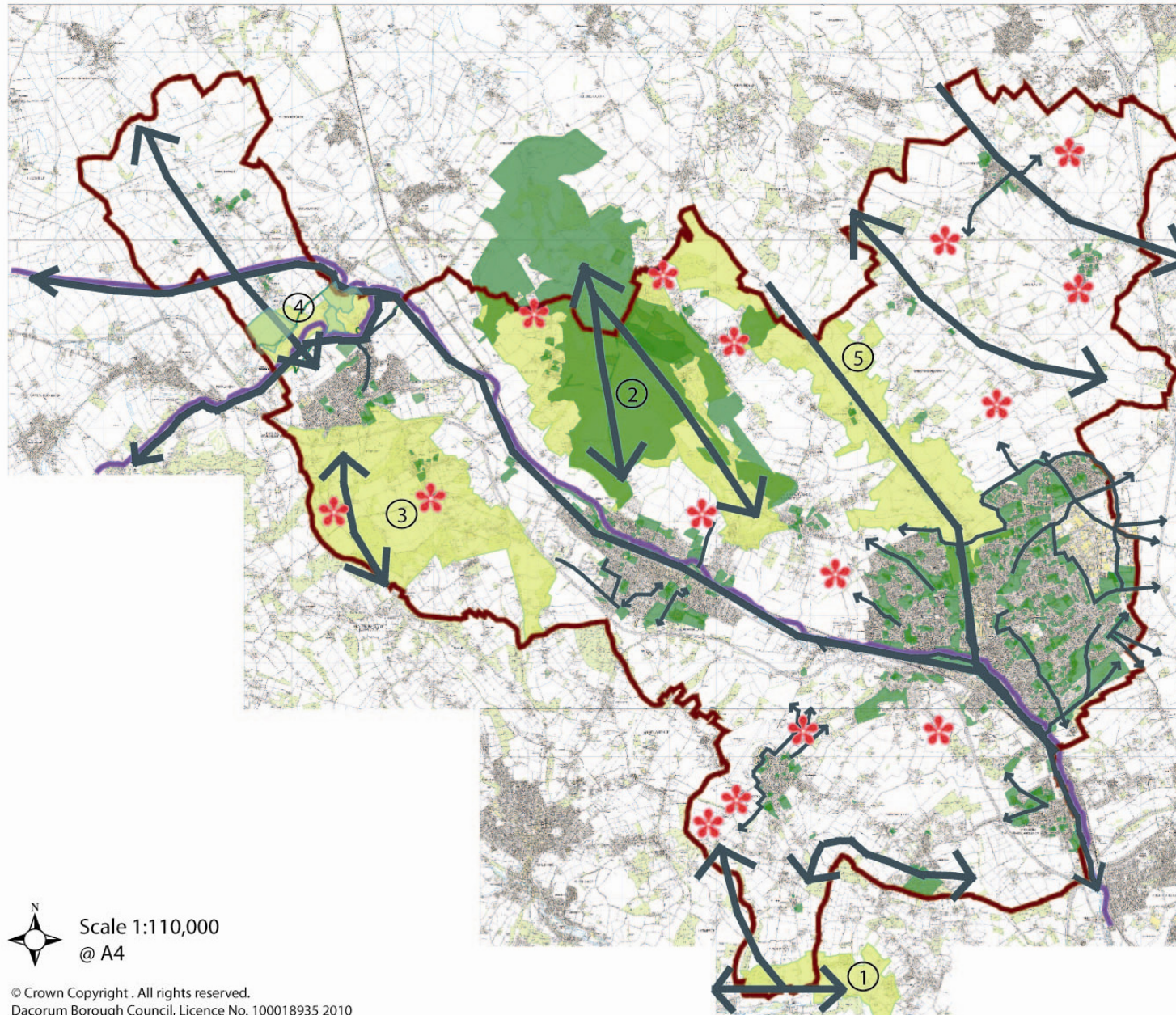
Green Infrastructure

- 17.9. 'Green Infrastructure' is the term used to describe a network of protected sites, nature reserves, green spaces, waterways and green linkages that surrounds and threads through the built environment. It provides a setting for the towns and villages, connecting them to the wider countryside, and contributes to the overall character of the area, helping give Dacorum its strong sense of place and high quality environment.
- 17.10. Green Infrastructure brings with it a range of environmental, social and economic benefits; acting as natural 'air conditioning,' assisting with pollution control and flood management, improving the health and well-being of residents by providing space for leisure activities, reinforcing the character and identity of places, helping support renewable energy production, as well as having a positive impact upon social interaction and property prices. It is particularly important on the urban fringe, where it helps to soften the transition between urban and rural landscapes.
- 17.11. As a 'life support system' for both people and the wider environment it is vital that the quality and integrity of the borough's Green Infrastructure network is maintained and improved at all spatial scales, from sustainably designed buildings and gardens and trees, to wildlife corridors, open land within settlements and to the wider pattern of habitats and open space that feature throughout the countryside.
- 17.12. Dacorum's Green Infrastructure Network (Map 3) brings together a number of separate studies and strategies² and provides a conceptual tool for identifying key landscape features, sites and areas of high biodiversity; to ensure these environmental assets are protected and enhanced; and create opportunities to extend and link them together. This is reinforced at the local level through the individual Place Strategies (sections 20-27), which identify wildlife corridors and areas of open space that are of particular local importance for each of the borough's towns and large villages.
- 17.13. This Green Infrastructure Network will be informed by a more detailed borough-level Green Infrastructure Strategy and associated Action Plan. This work will help ensure that green infrastructure issues are appropriately incorporated into site requirements and inform the accompanying infrastructure delivery plan.

² The Urban Nature Conservation Study, the Hertfordshire Biodiversity Action Plan, the Green Space Strategy, Appropriate Assessment and Open Space Study.

Dacorum's Green Infrastructure Network

Map 3



Key

- Borough Boundary
- Important Open Space
- } Key Corridors
- Grand Union Canal
- ✿ Areas of Biodiversity Opportunity
- Key Biodiversity Areas:
 - ① River Chess Valley (wetlands, grasslands)
 - ② Ashridge/Berkhamsted Common/ Aldbury Nowers (beech woodland, heath, chalk/grassland)
 - ③ Tring Park/ High Scrubs (beech woodland, chalk/ grassland)
 - ④ Tring Reservoirs (wetland)
 - ⑤ Upper Gade Valley (mosaic, wetlands, grassland and woodland)



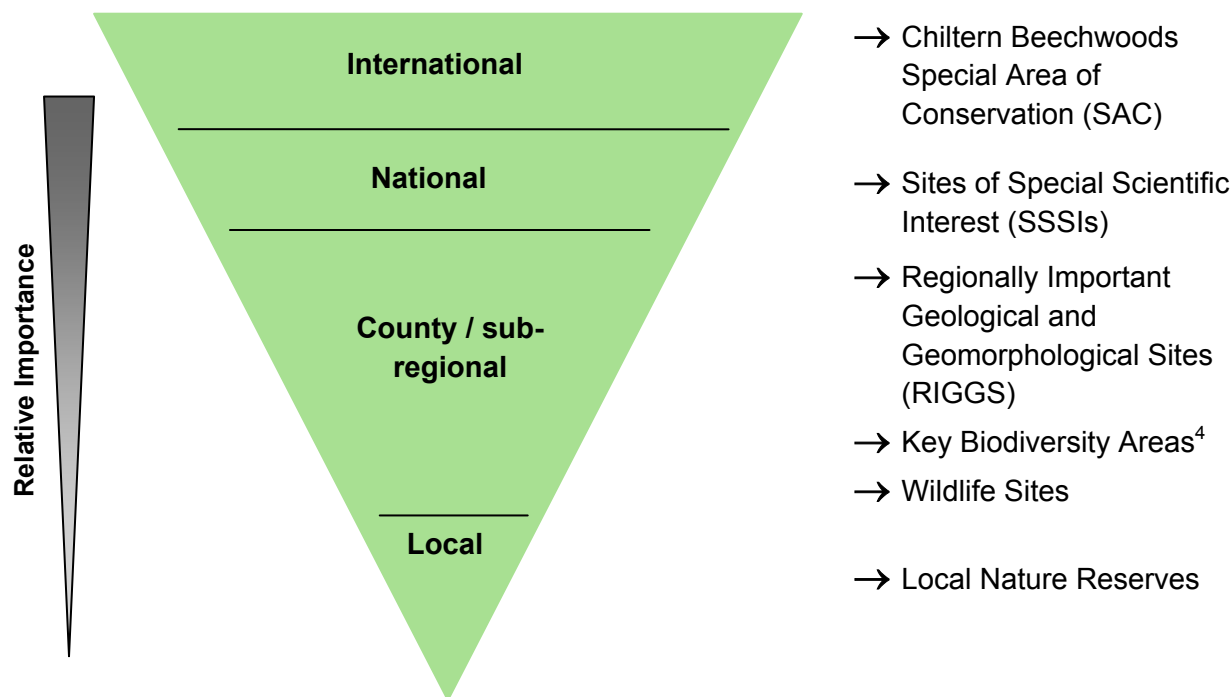
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Biodiversity and Geological Conservation

17.14. There are a number of different layers of designation designed to protect biodiversity and geology (see Figure 15).

Figure 15: Biodiversity and Geology Designations



17.15. The Habitat Survey for Dacorum³ identified over 200 Wildlife Sites, some of which overlap with other designations. This list is updated annually by the Hertfordshire Wildlife Sites Partnership, whenever new sites are identified or existing sites lose their nature conservation value. There are two Regionally Important Geological and Geomorphological (RIGGs) sites within the borough: pingos on Boxmoor and puddingstone boulders at Castle Hill, Berkhamsted.

17.16. Not all areas of importance to biodiversity are protected by formal designations. Features such as the Grand Union Canal, river valleys, chalk streams, areas of ancient semi-natural woodland, orchards, nature reserves, important trees and hedges and other local green spaces within towns and villages are collectively very significant and need protection. Opportunities will be taken to create new greenspace, designate new Local Nature Reserves (LNRs) to meet the local accessibility standards set by Natural England and support countryside management initiatives.

³ Hertfordshire habitats Survey and Reports, 1994-1998, Herts and Middlesex Wildlife Trust and the Hertfordshire Biological Records Centre.

- 17.17. The increasing fragmentation of habitats will be addressed. Many areas have become isolated 'islands,' increasingly vulnerable to extreme weather conditions, disease and climate change. Habitat fragmentation is greatest in the southern and eastern parts of the borough.
- 17.18. Key Biodiversity Areas⁴ are identified on Map 3. They contain particularly high concentrations of either woodland, wetland, grassland or a broader mosaic of habitats and have the greatest potential for joining fragments of habitats and creating, restoring and managing large areas of quality habitat.
- 17.19. The Carbon Offset Fund (Policy CS30) will help provide additional tree and woodland planting, to extend and supplement existing green corridors and to reinforce existing landscape belts. The biodiversity value of new landscaping and open space will be increased through careful design and the use of appropriate native species.
- 17.20. The Hertfordshire Biodiversity Action Plan sets targets for biodiversity within the County and the Chilterns Conservation Board's Management Plan includes biodiversity targets that specifically relate to land within the Chilterns Area of Outstanding Natural Beauty. The Council supports the monitoring of these targets and will promote the sharing of monitoring information.

Policy CS24: The Chilterns Area of Outstanding Natural Beauty

The special qualities of the Chilterns Area of Outstanding Natural Beauty will be conserved.

The scarp slope will be protected from development that would have a negative impact upon its skyline.

Development will have regard to the policies and actions set out in the Chilterns Conservation Board's Management Plan and support the principles set out within the Chilterns Buildings Design Guide and associated technical notes.

⁴ Defined by the Herts and Middlesex Wildlife Trust and included within the Hertfordshire Biodiversity Action Plan.

Policy CS25: Landscape Character

All development will help conserve and enhance Dacorum's natural and historic landscape.

Proposals will be assessed for their impact on landscape features to ensure that they conserve or improve the prevailing landscape quality, character and condition and take full account of the Dacorum Landscape Character Assessment, Historic Landscape Characterisation and advice contained within the Hertfordshire Historic Environment Record.

Policy CS26: Green Infrastructure

Development will be expected to:

- (a) protect, extend and enhance the Green Infrastructure Network both within and outside settlements and at all spatial scales;**
- (b) support the long-term management, enhancement and restoration of wildlife habitats and strengthen biodiversity corridors; and**
- (c) meet any specific requirements set out within the Green Infrastructure SPD and associated Action Plan;**

Open spaces will be managed in accordance with the Council's Green Space Strategy.

National and local Biodiversity Action Plans will be supported through the conservation and management of important species and habitats, by protecting designated sites and by maximising opportunities to link these to the wider Green Infrastructure Network.

Monitoring:

Indicator(s)	Target(s)
Change in areas of recognised wildlife habitat importance	No net loss
Management of designated Wildlife Sites	Increase the proportion of local sites where positive conservation management has been, or is being, implemented
Loss of designated Open Land	0 hectares

Development within the Chilterns Area of Outstanding Natural Beauty.	-
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Delivery will be achieved through planning and land management, by:

- identification of development sites and their requirements within the Site Allocations DPD and East Hemel Hempstead AAP;
- detailed policies within the Development Management DPD and supplementary planning documents;
- the use of the Landscape Character Assessments (including historic characterisation);
- implementation of the Green Infrastructure and Green Space Strategies and Biodiversity Action Plan objectives;
- adherence to the Chilterns Building Design Guide;
- implementation of the Management Plan for the Chilterns Area of Outstanding Natural Beauty and associated guidance;
- partnership working with national and local conservation organisations such as the Chilterns Conservation Board, Herts and Middlesex Wildlife Trust, Hertfordshire Biological Records Centre and the Hertfordshire Countryside Management Service;
- encouraging the take up of agri-environment grants through partners; and
- implementation and monitoring of the Infrastructure Delivery Plan (IDP).

Question 12

Do you support the approach to 'Enhancing the Natural Environment' set out in Section 17?

Yes/No

If **not**, please state the policy(ies) and/or paragraph(s) you disagree with, giving your reasons:

Please also specify the changes you think should be made:

18. Conserving the Historic Environment

How have we got to this point?

Your consultation responses have told us that you support our approach to the historic environment. This focuses on protecting and enhancing listed buildings, conservation areas, parks and gardens and archaeological remains.

- 18.1. The borough's historic environment is diverse and includes 25 Conservation Areas that cover the Old Town of Hemel Hempstead, historic market towns, villages and hamlets. These are made up of local and national designations, undesignated heritage assets and areas of potential archaeological interest. Designations include Listed Buildings, Scheduled Ancient Monuments, Scheduled Archaeological Sites and Registered Parks and Gardens. Undesignated heritage assets include locally listed buildings, historic buildings and historic townscape. In addition, there are areas of potential unrecorded archaeological interest that are monitored by the Hertfordshire Historic Environment Record.
- 18.2. Historic features add tradition, continuity and character to a place, as well as being an asset for the economy, the environment and the wider community. Protection of the historic environment is expected as it is an important driver for economic development through the promotion of tourism and the higher land values associated with design excellence. The historic environment also provides an opportunity for community learning and enjoyment and to reuse buildings, such as the heritage of the paper making industry in Apsley.
- 18.3. The quality of the historic environment is sensitive to change from development and people and even the climate. Changes in economic and social conditions, as well as technological developments, can also mean that the original purpose for which the building was designed is outdated and adaptation may be needed. Increasing economic pressures have also resulted in higher numbers of buildings becoming 'redundant.' This is often the case with agricultural and industrial buildings, places of worship and public houses, with a trend towards seeking higher value alternative uses such as housing. Climate change has resulted in more incidents of high winds and heavy rainfall which can have a detrimental impact on the fabric of buildings. Renewable energy installations can also affect the appearance of a building and its setting.
- 18.4. There is an additional danger that once common building types may become quite rare, through the conversion of a building to an alternative use and the loss of original character. This applies to both nationally designated and undesignated historic assets. There is also a greater threat that the historic environment may suffer

harm through the demolition of undesignated historic buildings, which are then replaced with new characterless buildings and public realm.

- 18.5. The Council needs to re-evaluate its historic assets. This is a continual process and includes a programme of Conservation Area Appraisals. Appraisals will analyse the character and appearance of each Conservation Area and identify any negative features or issues that could be addressed through development. Boundaries of Conservation Areas will be reviewed.

Policy CS27: Quality of the Historic Environment

The integrity and setting of designated and undesignated heritage assets will be protected, conserved and enhanced.

All development will adhere to this principle and as appropriate will:

- (a) mitigate or rectify the negative features or issues identified in Conservation Area Appraisals; and**
- (b) ensure that potential, unrecorded archaeological sites or artefacts are surveyed and retained.**

A supplementary planning document will provide further guidance on conservation areas and design.

Monitoring:

Indicator(s)	Target(s)
Number of listed buildings	-
Number of buildings on the local list	-
Proportion of conservation areas with up-to-date appraisals	100%
Change in the number of buildings on the at risk register	0 buildings lost

Delivery will be achieved by:

- detailed policies in the Development Management DPD;
- having regard to Conservation Area Appraisals;
- developing the Historic Environment SPD;
- developing the Urban Design SPD;
- partnership working with the Archaeology team at the County Council; and
- reviewing and maintaining inventories of historic assets.

Question 13

Do you support the approach to 'Conserving the Historic Environment' set out in Section 18?

Yes/No

If **not**, please state the policy(ies) and/or paragraph(s) you disagree with, giving your reasons:

Please also specify the changes you think should be made:

19. Using Resources Efficiently

How have we got to this point?

Your consultation responses have told us that you support a strong approach to the use of natural resources. This should focus on the reduction of carbon emissions and energy consumption. It should also cover safeguarding agricultural land, mineral reserves and water supplies, and minimising pollutants. Recent studies on Low and Zero Carbon and the Water Cycle have helped inform this section.

- 19.1. In providing for new homes, jobs and infrastructure, local planning policies can help shape and design places with lower carbon emissions and renewable energy technologies, which are ‘future-proofed’⁵ from the effects of climate change. ‘Future proofing’ development includes: minimising the use of natural resources; reducing water run-off from hard surfaces and managing flood risk areas; generating less waste from development; and managing pollution. The benefits of reducing carbon emissions, and mitigating against and adapting the built environment for climate change include:
- reduced heating and electricity bills due to better insulation and efficient appliances;
 - less reliance on fossil fuels;
 - support for the local economy by increased use of locally sourced sustainable materials;
 - reduced water consumption;
 - ‘greening’ the built environment by biodiversity enhancements;
 - reduced ‘heat stress’⁶ in urban environments; and
 - an improved quality of life and feeling of well-being.
- 19.2. Key legislative and statutory directives aim to reduce CO₂ emissions globally by at least 50% by 2050. In the UK, this is being driven by the Climate Change Act (2008), which has committed the Government to reducing CO₂ emissions by 26% by 2020, and an 80% reduction in all greenhouse gas emissions by 2050 (both from a 1990 baseline).
- 19.3. Apart from the national mandatory standards being set through the Code for Sustainable Homes, there will also be similar mandatory standards for all other

⁵ ‘future-proofed’ – protecting for the future

⁶ ‘heat stress’ - an increase in air temperature from the absorption and retention of heat by hard and dark surfaces in urban environments

building types. Further changes are also expected to update the evolving national policy context including considerable changes to the 2006 Building Regulations.

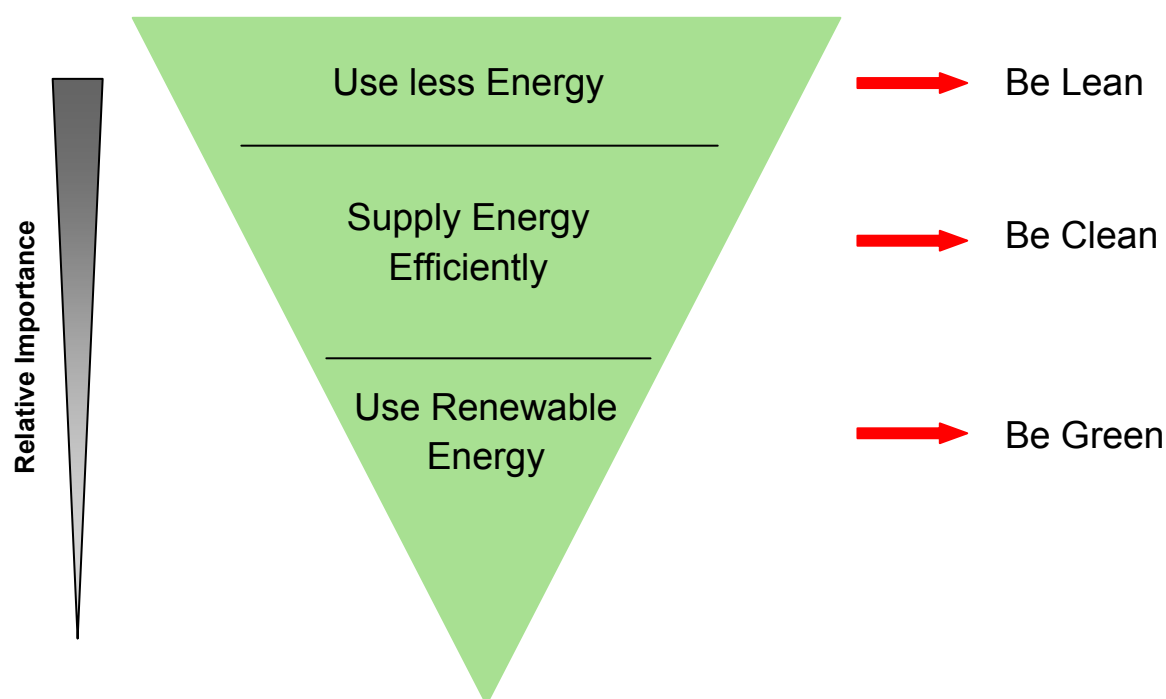
- 19.4. This strategy encourages new development to be located and designed to optimise its carbon performance and supports the supply of decentralised, renewable and low carbon energy sources. Based on evidence available at the time, the now revoked Regional Spatial Strategy set a target to generate 10% of the region's energy from renewable sources by 2010 and 17% by 2020 (excluding offshore wind). To help cut water consumption from 150 litres per person per day, it also set targets for a 25% reduction in new development and 8% in existing development on 2006 rates.
- 19.5. In support of national and regional guidance and targets, the Hertfordshire Climate Change Partnership (HCCP) was set up to bring together the County's key organisations. HCCP has also been made responsible for the delivery of the Hertfordshire Local Area Agreement which commits to a 9.1% cut in CO₂ emissions (from a 2005 baseline) by 2011.
- 19.6. The Council signed the Nottingham Declaration on Climate Change in 2007, and tackling climate change is a key priority of the Dacorum Sustainable Community Strategy. Improving the environmental performance of new development is a priority in the Council's Corporate Plan. The Council will also be preparing climate change adaptation strategies, in line with demonstrating performance in relation to a number of climate change National Indicators.
- 19.7. The current energy performance of the borough has demonstrated that there is a need to make improvements to domestic energy consumption, the existing housing stock, new development, and renewable and decentralised energy for the built environment.
- 19.8. The borough currently shows very good performance on the reduction of domestic energy consumption. Over the 10 years from 1996, consumption has fallen by more than 20%, in line with targets. This has been achieved mainly through relatively cheap insulation and efficiency measures but it is estimated that more expensive measures will be needed from around 2015 onwards in order to maintain momentum. The borough has below South East region average annual per head domestic energy consumption - gas consumption is 10% lower and electricity 13% lower (Low and Zero Carbon Study 2010). Consumption is also below most other regional averages in the country.
- 19.9. Even though nearly 30% of carbon emissions arise from energy use in our homes, there are very few examples of private development in the borough that have been built to reduce these emissions through higher energy efficient standards above

2006 Building Regulations Part L, such as the Code for Sustainable Homes or BREEAM⁷.

19.10. There are also no significant examples of renewable energy generation in the borough, apart from a few small-scale wind turbines generating only a small amount of electricity.

19.11. The approach to renewable energy will be guided by the Energy Hierarchy (Figure 16). This expects carbon emission reductions to be delivered primarily through cost effective methods in new development. This will include improving the air-tightness of the building, before resorting to renewable energy technologies in order to meet the requirements for carbon emission reductions set out in Policy CS28.

Figure 16: Energy Hierarchy



Renewable Energy

19.12. A 'Low and Zero Carbon Study'⁸ has been undertaken at a county-wide level and includes maps of existing CO₂ emissions, and higher levels of electricity and heat demands in the borough. The maps demonstrate that areas of high energy demand

⁷ BREEAM - www.breeam.org/

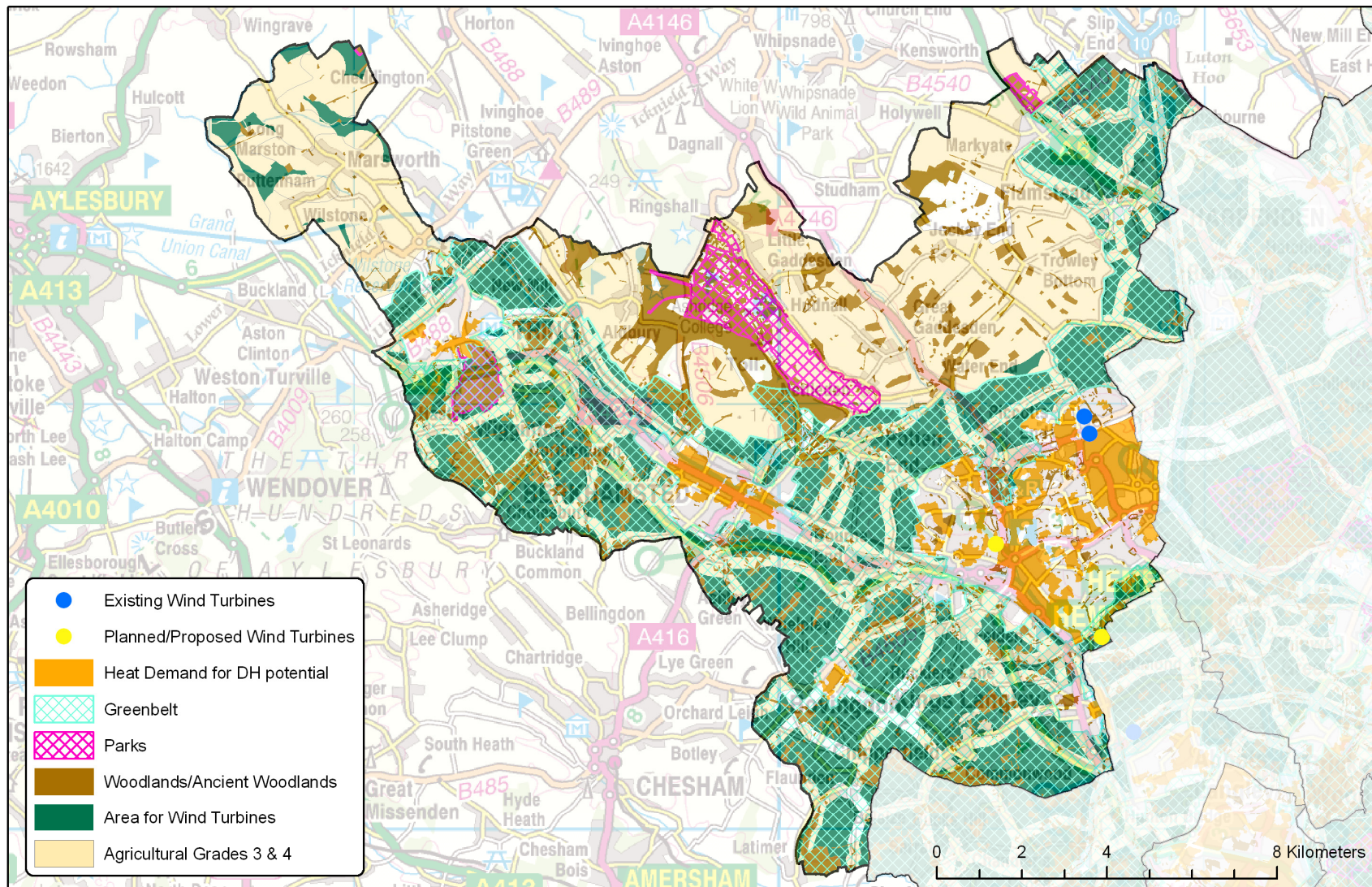
⁸ Low and Zero Carbon Study, 2010 – a technical document supporting the Core Strategy

and related CO₂ emissions from existing buildings are concentrated in the higher density areas of major settlements.

- 19.13. The Energy Opportunities Plan (Map 4) in the study demonstrates the opportunities and constraints for decentralised energy. The plan identifies District Heating Opportunity Areas in the borough's town centres, Maylands Business Park and through any large-scale greenfield development. There are also opportunities to harness wind power. However these opportunities have been identified in the Green Belt and clear justification is required to take these forward (Policy CS5).
- 19.14. Given the borough's rural and urban character, and prospects for urban regeneration in Hemel Hempstead, District Heating Opportunity Areas and Combined Heat and Power (CHP) will be pursued in high density areas targeted for regeneration. There are also opportunities for these systems to be powered by local biomass⁹ and appropriate waste that is not being recycled for other purposes. Micro-generation technologies, particularly solar water heating, photovoltaics and heat pumps will also help reduce carbon emissions.
- 19.15. Due to opportunities for high density development in some areas of the borough, combined with constraints elsewhere, there is justification for carbon reduction targets that exceed the mandatory stepped changes associated with Part L of Building Regulations. An appraisal of cost compliance is set out in the study.
- 19.16. The stepped change away from Part L of Building Regulations (the Code for Sustainable Homes/ non-residential equivalent) will be directed towards District Heating Opportunity Areas. New development outside the District Heating Opportunity Areas will be expected to comply with Building Regulations Part L as a minimum, with the exception of higher water efficiencies (Policy CS29), requirements to meet the Lifetime Homes Standard (Policy CS29) and delivering on-site carbon reductions (Policy CS28).
- 19.17. Within the identified District Heating Opportunity Areas, major new development (10 dwellings and above/1000sqm of non-residential and above) will be expected to deliver networks of district heating to help the borough meet renewable energy targets and to improve energy efficiency (see Table 11). The proposed Green Energy Centre in the Maylands Business Park will help fulfil these ambitions and help raise awareness of best practise. Smaller developments in, or close to, District Heating Opportunity Areas should consider delivering suitable technologies to enable connection to district heating networks in the future.

⁹ Biomass – waste timber, crops, plants and sustainably sourced trees used to fuel wood burners, district heating systems and CHP

19.18. More detailed guidance about District Heating Opportunity Areas and Wind Opportunity Areas will be delivered through a Supplementary Planning Document.



Client: Hertfordshire County & District Local Authorities

Project: Hertfordshire Climate Change & Planning Study

**Dacorum Energy
Opportunities Plan**

AECOM

Beaufort House,
94-96 Newhall Street,
BIRMINGHAM, B3 1PB
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Tel: +44 (0) 121 262 1900
Fax: +44 (0) 121 262 1999
www.fabermaunsell.com

Date: June 2010

Created: AGN

Table 11: Additional CO₂ Reductions

	10 dwellings or more in District Heating Opportunity Areas	Non-residential development of 1000sqm or more in District Heating Opportunity Areas
From 2010*	A minimum of Code Level 4	A minimum of 44% reduction** in the dwelling or Building emission rate compared to the target emission rate defined by Building Regulations
From 2013*	A minimum of Code Level 5	100% reduction
From 2016* for residential and from 2019* for non-residential	Code Level 6 / Zero Carbon***	Zero Carbon***

Notes:

- * This requirement will not come into effect until successive updates to Part L of the Building Regulations become mandatory.
- ** This is a reduction in the Building Emission Rate compared to the Target Emission Rate defined by the Building Regulations i.e. a 44% reduction is the equivalent to Code Level 4 energy efficiencies.
- *** Zero Carbon: reductions above 70% should be delivered using allowable solutions and the Carbon Offset Fund.

Sustainable design and construction

- 19.19. Sustainable building design and construction is an essential part of the Council's response to the challenges of climate change, natural resource depletion, habitat loss, and wider environmental and social issues.
- 19.20. The way in which buildings are designed, constructed, operated and decommissioned has significant impacts on the built and natural environment, and requires major resource inputs such as energy, water and materials. Designing and constructing buildings that help to minimise these key resources and construction waste from decommissioning buildings, can not only reduce the borough's carbon footprint, but also costs for developers and occupiers. Therefore developers should be considering the refurbishment of existing buildings before considering demolition. Developers should also provide adequate sewerage facilities for new development and ensure that there is sufficient capacity at the relevant wastewater treatment works (see section 29).
- 19.21. The layout of development will be required to make the most effective use of land depending on the site's slope, existing and desired pedestrian and highway accesses, and environmental and brownfield constraints, such as floodplains, rivers,

mature trees and contaminated land issues. The orientation and shading of buildings will need to maximise the energy efficiency of the buildings where possible. This will avoid the need for additional energy consumption for heating or cooling purposes. Decentralised energy technologies used to heat and provide electricity to the development will need to be suitable for the site layout, design principles and any observed constraints.

19.22. Sustainable design and construction also provides an opportunity to retain and enhance biodiversity. Apart from improving quality of life and property value, enhanced biodiversity also delivers ecological benefits. While all living plant matter absorbs CO₂, trees process more due to their large size and extensive root structure¹⁰. One hectare of woodland can absorb emissions equivalent of 100 family cars (with high emissions). Trees can also remove sulphur dioxide from the atmosphere, attenuate noise pollution, provide natural air conditioning and shade, and moderate the rate of water run-off through rainfall attenuation, which reduces the risk of flooding. Therefore, new development will be expected to retain and replace existing trees, and help to plant more trees to expand the tree canopy in the borough.

19.23. Developers will be expected to complete a Sustainability Statement and carbon compliance check online for their proposal. Payments will also be required into a Carbon Offset Fund when the appropriate carbon reductions have not been delivered on-site. The fund will be used to support initiatives that help reduce carbon emissions in the existing building stock, fix or absorb carbon (for example by planting trees) and support on and off-site renewable energy supply. Tree planting and other 'greening' initiatives will help to enhance biodiversity, improve quality of life and wellbeing and reduce 'heat stress' in the urban environment.

19.24. Payments may also be made to the Carbon Offset Fund as part of the allowable solutions to deliver zero carbon development (in-line with Building Regulation changes to Part L), although the following allowable solutions must be considered first:

- carbon reductions on-site, through energy efficiency, low carbon and zero carbon technologies or on-site generation;
- connection to a district heating network;
- reduction of unregulated emissions through energy efficient appliances etc.;
- exporting low carbon or renewable heat from the development site to other developments; and
- investing in low and zero carbon community heat infrastructure.

¹⁰ Forestry Commission – www.forestry.gov.uk

- 19.25. A Supplementary Planning Document will be required to support the implementation of the Carbon Offset Fund and give further consideration to the allowable solutions required.
- 19.26. Further advice and practical sustainable development solutions are proposed in Hertfordshire's Building Futures Design Guide¹¹ for use by developers, planners and the general public. The guide is an evolving website with practical case studies and guidance for new development.

Policy CS28: Carbon Emission Reductions

Carbon emission reductions will be in line with Building Regulations Part L, apart from additional reductions sought in District Heating Opportunity Areas (set out in Table 11).

All new development will follow the energy hierarchy approach in Figure 16, whereby a minimum of 75% of carbon emission reductions will be expected to be delivered through improvements to the fabric of the building.

Where new development cannot meet these requirements the applicant will be expected to make an appropriate contribution to the Carbon Offset Fund.

Targets and opportunities for generating renewable electricity and heat will be set out in a Local Development Document (LDD).

¹¹ Building Futures Design Guide - www.hertslink.org/buildingfutures

Policy CS29: Sustainable Design and Construction

New development will comply with the following principles:

- (a) Use building materials and timber from verified sustainable sources;**
- (b) Minimise water consumption during construction; and**
- (c) Recycle and reduce construction waste which may otherwise go to landfill.**
- (d) Provide an adequate means of water supply, surface water and foul drainage;**
- (e) Plan to limit residential indoor water consumption to 105 litres per person per day until national statutory guidance supersedes this advice;**
- (f) Comply with CO₂ reductions as per Table 11;**
- (g) Incorporate at least one new tree per dwelling/per 100sqm (for non residential developments) on-site and replace any trees lost through development;**
- (h) Minimise impermeable surfaces around the curtilage of buildings and in new street design;**
- (i) Incorporate permeable and lighter coloured surfaces within urban areas; and**
- (j) Provide on-site recycling facilities for waste.**

Buildings will also be designed to have a long life and adaptable internal layout.

Applicants will need to explain how:

- (a) they have considered the whole life cycle of the building and how the materials could be recycled at the end of the building's life;**
- (b) their design meets 'Lifetime Homes' standards; and**
- (c) their design has been 'future proofed' to enable retrofitting to meet tighter energy efficiency standards and connection to decentralised community heating systems.**

The principles in this policy may be relaxed if the scheme would be unviable or there is not a technically feasible approach. Where new development cannot meet on-site energy or tree canopy requirements, the applicant will be expected to make an appropriate financial contribution towards the Carbon Offset Fund.

Policy CS30: Carbon Offset Fund

The Carbon Offset Fund will be used to fund and help deliver:

- (a) energy efficiency improvements in the borough's existing housing stock;**
- (b) on-site and appropriate off-site renewable energy supply systems; and**
- (c) new tree planting.**

Monitoring:

Indicator(s)	Target(s)
Number of new homes in district heating opportunity areas reaching set levels in the Code for Sustainable Homes (see Table 11)	-
Proportion of carbon savings from new development (measured in tonnes of carbon dioxide)	-
Number of homes designed to Lifetime Homes standards	-
Proportion of new homes designed to reduce water consumption to 105 litres per person per day	-
Proportion of household waste that is recycled	-
Number of new homes built with on-site generation of renewable energy (for heat and electricity)	-
Capacity of renewable energy generation (for heat and electricity)	-
Money received for the Carbon Offset Fund and spent	-

Delivery will be achieved by:

- identification of key sites for decentralised renewable energy in the Site Allocations DPD;
- detailed policies in the Development Management DPD, which will include a framework for the management of payments into the Carbon Offset Fund;
- using a carbon compliance tool or similar and requiring a Sustainability Statement at the planning application stage;
- adherence to the Herts Municipal Waste Spatial Strategy;
- compliance with Building Regulations;
- developing a sound collection, spending and monitoring system for monies from the Carbon Offset Fund;
- public and private partnership to deliver community-scale infrastructure; and
- joint working with Council's Energy Conservation team and the Home Energy Conservation Association (HECA).

Sustainable resource management

19.27. Development must be carried out in a sustainable way to protect natural resources for use by future generations, and to adapt against and mitigate impacts of climate change. Natural resources including high quality agricultural land, mineral reserves¹² and water supplies will be safeguarded and all new development will be expected to:

- minimise waste on-site;
- maximise recycling measures;
- consider opportunities for biomass production for renewable energy generation;
- avoid pollutants into the wider environment;
- remediate contaminated land;
- protect and enhance natural features of importance, including wildlife and landscapes; and
- consider the overall carbon footprint of materials used and use locally produced materials and sustainably sourced materials, wherever possible.

19.26 The land is generally stable. Past evidence of chalk mining is very localised, though that will affect construction.

¹² Mineral reserves – refers to clay reserves at Bovingdon Brickworks, and sand and gravel belt around Kings Langley and any other areas that may be defined in Hertfordshire County Council's Minerals and Waste Development Framework.

Water management

- 19.28. The east of England is the driest area in the country receiving only two thirds of the average UK annual rainfall. The effects of climate change and housing growth in the region will result in water becoming a more precious commodity, and therefore water will need to be used more sparingly.
- 19.29. Protection of water resources also assists in the retention of often fragile ecosystems, susceptible to the availability and flow of water. Frequent, extreme weather events are also a consequence of climate change. Heavy, frequent rainfall and long dry spells impacts on river levels and flows, creating pressure on underground drainage systems and affecting the level of rainfall left to recharge groundwater sources.
- 19.30. The Strategic Flood Risk Assessment, agreed with the Environment Agency, has informed the selection of the strategic development sites and broad locations for development. The sequential approach relating to flood risk set out in national policy has also informed the selection of sites. The majority of the proposed development will be accommodated outside flood zone areas and any new development within flood zones will be expected to develop appropriate mitigation measures to reduce the cause and risk of flooding. This is to avoid an adverse impact on the quality of the groundwater source or a risk to its ability to maintain a public water supply.
- 19.31. A 'Water Cycle Study Scoping Report'¹³, has been jointly completed with Three Rivers District Council, St. Albans City & District Council, Welwyn Hatfield Borough Council and Watford Borough Council. The stakeholders involved in the process included the Environment Agency, Thames Water Utilities and Veolia Water Central amongst others. The study examined the condition of the existing distribution network and waste water treatment works and whether it would be able to cope with additional development growth.
- 19.32. The workshop associated with this work examined the need to:
- restore river flows;
 - support the Grand Union Canal system (and its reservoirs);
 - restore natural habitats along the chalk streams and in Boarscroft Vale;
 - support biodiversity;
 - retain water in the catchment area;
 - recharge the aquifer;
 - limit the effect of variable rainfall and reduce the risk of flooding;
 - provide sufficient capacity for foul water drainage;

¹³ Water Cycle Study Scoping Report, 2010 - a technical document supporting the Core Strategy

- increase the efficiency of water use, in part through sustainable design and construction; and
- provide sufficient water for people and to support agriculture.

19.33. The study concluded that work would need to be progressed to the next stage (the Water Cycle Study Outline Report) to establish:

- 1) if Maple Lodge or Blackbirds Waste Water Treatment Works would need to increase the Dry Weather Flow consent and introduce new physio-chemical standards; and
- 2) how extensive the upgrades need to be to the sewerage networks throughout Hemel Hempstead and Kings Langley.

19.34. The cost and disruption for both of these upgrades is expected to be significant and they will both take a considerable length of time to plan and deliver (see section 29).

Pollution and waste management

19.35. The planning system plays a key role in the location and standard of development. Together with other consent regimes and processes, it can limit the impact of (and prevent) polluting emissions – i.e. noise, light, fumes, chemicals, noxious and hazardous substances and waste in general. Standards set nationally should continue to be achieved. When standards become more stringent, efforts must be made to enhance the quality of the air, water and/or soils.

19.36. In Dacorum special consideration also needs to be given to:

- the quality of the groundwater supplying the chalk aquifer;
- the habitat and biodiversity of chalk streams;
- the maintenance of higher quality agricultural areas;
- limiting the effects of noise and air pollution along major routes (i.e. road, rail and aircraft from Luton Airport);
- retaining tranquil parts of the Chilterns Area of Outstanding Natural Beauty and Boarscroft Vale; and
- the risks associated with Buncefield Oil Terminal.

19.37. The planning system has a role to play in the disposal of household, commercial and construction waste. To help reduce potentially polluting environments and avoid unnecessary waste going to landfill sites developers will be expected to avoid potentially polluting developments, the creation of additional waste, and the location of new development near existing sources of pollution. This will prevent negative impacts on health and the quality of life of people, as well as impacts on natural habitats and wildlife.

19.38. Hertfordshire County Council's Waste Core Strategy, Waste Site Allocations and Waste Development Policies documents form part of the Minerals and Waste Development Framework for Hertfordshire. The Development Plan Documents on waste set out the County Council's overall vision and strategic objectives for waste planning and establishes the broad locations for strategic waste facilities and minerals and waste safeguarding areas. The Framework will be used as a basis for future waste planning, and will be used in the determination of planning applications across Hertfordshire.

Policy CS31: Water Management

Water will be retained in the natural environment as far as possible. Measures to restore natural flows in the river systems and the water environment will be supported. Supply to the Grand Union Canal will be maintained.

Development will be required to:

- (a) avoid Flood Zones 2 and 3: Flood Risk Assessments, must accompany planning applications for development in these areas, explaining how the sequential approach to development has been taken into account and outlining appropriate mitigation measures;**
- (b) minimise water runoff through provision of Sustainable Urban Drainage Systems, and measures such as minimising impermeable surfaces, rain water storage and recycling;**
- (c) secure opportunities to reduce the cause and impact of flooding, such as using green infrastructure for flood storage;**
- (d) secure opportunities to conserve and enhance biodiversity, such as through the provision of green roofs; and**
- (e) avoid damage to Groundwater Source Protection Zones.**

Policy CS32: Air, Soil and Water

Development will be required to help:

- (a) support improvements in identified Air Quality Management Areas and maintain air quality standards throughout the area;**
- (b) maintain soil quality standards and remediate contaminated land in line with Environment Agency, Defra and Natural England guidance; and**
- (c) improve water quality standards in line with the Water Framework Directive, Environment Agency and Natural England guidance.**

Any development proposals which would cause harm from a significant increase in pollution (into the air, soil or any water body) by virtue of the emissions of fumes, particles, effluent, radiation, smell, heat, light, noise or noxious substances will not be permitted.

Advice on the storage and handling of hazardous substances will be taken from the Health and Safety Executive.

Monitoring:

Indicator(s)	Target(s)
Percentage of new dwellings built on floodplains and/or contrary to Environment Agency advice	0
Change in extent and air quality of Air Quality Management Areas	-

Delivery will be achieved by:

- the restriction of development around the Buncefield Oil Depot through the East Hemel Hempstead AAP;
- detailed policies in the Development Management DPD;
- application of the Planning Obligations SPD;
- use of sustainability statements;
- partnership working with the Council's Environmental Health department, the Countryside Management Service and with external agencies and water authorities, such as the Environment Agency, Thames Water and Veolia Water UK;
- air quality monitoring undertaken across the borough; and
- monitoring and standards set by external agencies.

Question 14

Do you support the approach to 'Using Resources Efficiently' set out in Section 19?

Yes/No

If **not**, please state the policy(ies) and/or paragraph(s) you disagree with, giving your reasons:

Please also specify the changes you think should be made: