

The Town and Country Planning  
(Local Development) (England) Regulations 2004  
Regulation 19

## **WEST BERKSHIRE DISTRICT COUNCIL**

### **ADOPTION OF QUALITY DESIGN – WEST BERKSHIRE SUPPLEMENTARY PLANNING DOCUMENT (SPD)**

**June 2006**

## **ADOPTION STATEMENT**

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The Quality Design – West Berkshire - Supplementary Planning Document was adopted by West Berkshire Council on 19<sup>th</sup> June 2006. Part 4 'Sustainable Design Techniques' expects specified developments to achieve EcoHomes / BREEAM 'excellent' rating and this requirement will come into effect on applications received from 2<sup>nd</sup> January 2007.

The SPD comprises several documents which form the design guide series 'Quality Design – West Berkshire'. The series has been produced to help developers to create places of high quality design which are sustainable, secure and accessible to all. The SPD series applies to all developments across the District, including residential and commercial.

The SPD is now a material consideration in the assessment and determination of all planning applications across the District, including residential and commercial.

A text version of the SPD is available to view and download from the Planning Policy pages on the Council's website at [www.westberks.gov.uk](http://www.westberks.gov.uk). A fully illustrated version will be available in the near future, and this will be available to view in all libraries across the District and the Council Offices at Market Street, Newbury.

Accompanying the SPD are the Statement of Consultation and the Sustainability Appraisal Final Report.

The SPD will be subject to the monitoring process required under the Planning and Compulsory Purchase Act 2004

The Consultation Statement summaries the main issues raised during the consultation processes which preceded the adoption of the SPD and how these were addressed in the adopted SPD. A list of consultees is also included.

Any person aggrieved by the SPD may apply to the High Court for permission to apply for judicial review of the decision to adopt the SPD. Any such application for leave must be made promptly and in any event not later than 3 months after the date on which the SPD was adopted.

For further information please contact Planning Policy at West Berkshire Council, Council Offices, Market Street, Newbury, Berkshire RG14 5LD; by telephone on 01635 519111; by email on [planningpolicy@westberks.gov.uk](mailto:planningpolicy@westberks.gov.uk); or by viewing the Council's website at [www.westberks.gov.uk](http://www.westberks.gov.uk).

# Quality Design - West Berkshire Supplementary Planning Document Series



## Part 1 Achieving Design Quality



## PART 1

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## 1 Background

### 1.1 Introduction

1.1.1 This document comprises the first of several publications which form the West Berkshire Council (WBC) design guide series “Quality Design - West Berkshire”. Together the series forms a Supplementary Planning Document (SPD) which supports the policies in the West Berkshire District Local Plan 1991-2006 and the Berkshire Structure Plan 2001–2016. **As such, it is a material consideration in determining planning applications and if not followed, may lead to the refusal of planning permission.** It is intended that in the future this SPD series will also support relevant policies in West Berkshire Council’s Development Plan Documents. It also complements other existing Supplementary Planning Guidance (SPGs) and SPDs, including any site specific development briefs which may be produced in the future.



The guidance seeks to promote and secure good design within new housing development...

1.1.2 This section “Achieving Design Quality” sets out the aims and objectives of the guide, how to use it, general urban design principles relevant to all new development and a design and sustainability checklist which should be used by developers when designing new developments. The Checklist and Route Map can be used to highlight the elements of this SPD series most relevant to a particular development proposal. **(TO FOLLOW)**



....and within new commercial development in West Berkshire

### 1.2 Aims and scope of the design guide series

1.2.1 The overall objectives of this design guide series are;

- To improve the design quality and sustainability of development schemes in West Berkshire;
- To set out a check list of design and sustainability matters which should be taken into account by developers in preparing their proposals.

1.2.2 The series has been produced to help developers to create places of high quality design which are sustainable, secure and accessible to all. The series places particular emphasis on understanding context, as a full appreciation of the overall site and surrounding area is essential as a starting point for creating a sense of place – i.e. creating a successful and enjoyable living, working or leisure environment.

**This SPD complements other design guides including;**  
**SPG 03/1 Shop Fronts and Signs**  
**SPG 04/2 House Extensions**  
**Town and Village Design Statements**



Guidance from CABE and DCLG seeks to promote high quality urban design and architecture



Guidance on sustainable building techniques is provided within Part 4 of this SPD

The Council requires a commitment to high standards of design for all new development, influenced by the best practice set out in this SPD

- 1.2.3 This SPD series applies to all developments, including both residential and commercial, across the whole District. However, there is a particular focus on how new residential development can be incorporated into existing areas - Part 2 Residential Development focuses on this issue.

## 1.3 The Value of Good Design

- 1.3.1 The quality of the built environment affects us all. Whether it's the residential neighbourhoods in which we live or the commercial and leisure areas in which we work and take our leisure, we are affected by urban design on a daily basis. The Council is committed to improving the quality of design within the District and this series has been prepared to protect and enhance its towns and villages by managing new development in a positive and proactive manner.
- 1.3.2 Good design adds value to development in terms of environmental performance, community and social well being and commercial viability. It also contributes to a sense of pride in an area and creates a more legible or understandable built environment with good accessibility and ease of movement. Good design should reinforce local patterns of development, respect the grain of urban and rural landscapes and complement the surrounding area in terms of scale, quality and materials. At the same time, unless conservation interests are overriding, innovative and contemporary design, complementary to context should be considered.

## 1.4 The Design Process

- 1.4.1 The most successful developments are those that have been designed through collaboration and consultation between all parties. The Council encourages developers, designers and householders to undertake early discussion of proposals and planning applications, to ensure that new development is consistent with the advice in this document, any planning and design briefs and other SPGs and SPDs. It also encourages engagement with the local community by developers, particularly on larger scale development proposals.
- 1.4.2 Further information on dealing with large proposals can be found within the Major Applications Developers Pack at [www.westberks.gov.uk](http://www.westberks.gov.uk)

## 1.5 Policy Background

1.5.1 The approaches set out in this SPD support local development plan policy and respond to the strong national policy framework which looks for high quality design and the creation of sustainable communities.

### **National Policy**

1.5.2 The Government has placed design quality at the forefront of its agenda for planning. Planning Policy Statement 1 (PPS1) – Delivering Sustainable Development, 2005 clearly demonstrates the importance with which good design is regarded;

*“Planning authorities should plan positively for the achievement of high quality and inclusive design for all development, including individual buildings, public and private spaces and wider area development schemes. Good design should contribute positively to making places better for people. Design which is inappropriate in its context, or which fails to take the opportunities available for improving the character and quality of an area and the way it functions, should not be accepted”.*

1.5.3 Responding to the need for locally distinctive development, the PPS states;

*“It is...proper to seek to promote or reinforce local distinctiveness particularly where this is supported by clear plan policies or supplementary planning documents on design”.*

1.5.4 Planning Policy Guidance Note 3 (PPG3) Housing, March 2000 seeks to ensure that developers make more efficient use of land by ensuring that most new housing is developed at a minimum average density of 30 dwellings per hectare. PPG3 also makes it clear that local authorities are advised to reject poor design where their decisions are supported by clear policies and adopted SPDs.

1.5.5 Consultation Draft Planning Policy Statement 3 (PPS3) Housing was published in December 2005. The consultation document seeks a minimum density of 30 dwellings per hectare and promotes the need for sustainable and environmentally friendly design.

1.5.6 Also of significance at national level, is design guidance produced by the Office of the Deputy Prime Minister (ODPM), which is now the Department for Communities and Local Government (DCLG), and the Commission for Architecture and the Built Environment (CABE).

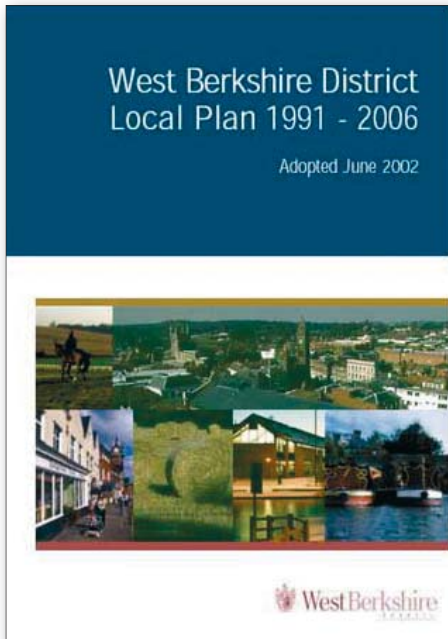


**Accessibility to public transport and promotion of walking and cycling should be a key part of development proposal**



**Guidance on residential parking provision and design layouts is included in Part 2 of this SPD**





The guidance takes its cue from the policies set out in the Adopted West Berkshire District Local Plan, June 2002 and the Berkshire Structure Plan 2001-2016

Of key importance are;

- By Design, 2000;
- Safer Places, 2004: The planning system and crime prevention;
- Better Places to Live: A companion guide to PPG3, 2001;
- Green Spaces, Better Place, 2001; The interim report of the Urban Green Spaces Taskforce;
- Creating Excellent Buildings: A Guide to Clients, 2003, CABE.

1.5.7 CABE is responsible for the publication of many design related documents throughout the last few years, providing good practice advice on many aspects of design and development. Useful texts include "Better Neighbourhoods: Making Higher Densities Work", 2005; "Design Review", 2005 and the "Design Reviewed series", also 2005.

1.5.8 The ODPM's Sustainable Communities Plan, 2003 is also a key reference text; setting out the Government's long-term programme of action for delivering sustainable communities in both urban and rural areas.

### **Regional and County Policy**

1.5.9 Regional policy contained within RPG9 for the South East, 2001 and County policy contained within the Berkshire Structure Plan, 2001 – 2016, deal mainly with general issues on sustainability, quality of life, the environment, housing, transport and environmental enhancement and provide a context for more specific local policies.

### **Local Policy**

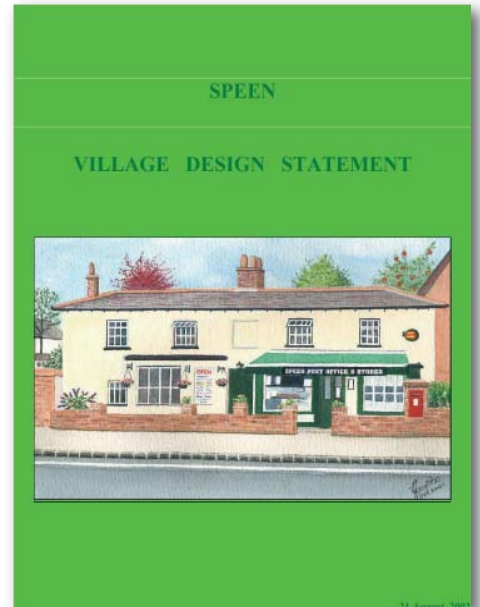
1.5.10 At a local level, the importance of good design is reflected within the WBC Local Plan, 2002, in Policy OVS2; stating that all development proposals should show a "high standard of design". This is complemented by Policy DP5 of the Structure Plan which also requires good design.

1.5.11 This SPD supports several Local Plan and Structure Plan policies. In particular it supports those which aim to secure well designed and sustainable development;

## Local Plan policies:

OVS1	The Overall Strategy
OVS2	Core Policy
OVS11	Planning to reduce the opportunity for crime
ENV5	Setting of Settlements
ENV10	River Flood Plain Areas
ENV11	Surface Water Runoff
ENV11a	Waste Water Management
ENV11b	Surface Water Disposal
ENV12	Ground Water and Surface Water Protection
ENV21	Infilling and Ribbon Development in Existing areas of Dispersed Settlements
ENV30	Protecting and Improving the Urban Environment
ENV33	Development in Conservation Areas
ENV34	Burgage Plots in Hungerford
HSG 7	Planning Benefits relating to New Housing Developments
TRANS1	Meeting the Needs of New Development
TRANS2	Enhancement of Transport Facilities and Network
TRANS4	Cycling
TRANS5	Pedestrians

## Town and Village Design Statements



Town and Village Design Statements are available to view on the Council's web site [www.westberks.gov.uk](http://www.westberks.gov.uk)

Town and Village Design Statements should be referred to when proposing new development in each of these villages, alongside this SPD. They are important guides to local character, building types, materials, building design, landscape and features of local interest and complement this SPD series.

1.5.12 Important design guidance at the local level is also provided in the Town and Village Design Statements (TDS and VDS), produced by local communities and adopted as material planning considerations by WBC.



The relationship between built form and the surrounding landscape are essential elements of local character



The built environment surrounding the site can often be of historic importance



Knowing what traditional building materials are used within an area can help inform design proposals

To gain an initial understanding of the character of the area, refer to Part 3 of this series: Residential Character Framework. This provides the starting point for designers in these areas.

Town and Village Design Statements help to describe the character of many localities throughout West Berkshire.

## 2 Achieving Quality Design – Key Principles

### 2.1 Key Urban Design Principles

2.1.1 Good design comes from a thorough understanding of **local character, place and context**. One of the keys to a successful project is to achieve an understanding of the physical context. This can be achieved through an urban design analysis which should go beyond the view from the site boundary, to include the neighbourhood, town or village.

2.1.2 CABE's publication 'By Design' contains useful information on urban design issues in general, and on how to analyse and respond to local context. It suggests the following objectives for urban design; to be considered in relation to people and their activities as much as to built form.

- Character (including sense of place);
- Continuity and Enclosure;
- Quality of the Public Realm;
- Ease of Movement;
- Legibility;
- Adaptability;
- Diversity.

2.1.3 **Character** – New development should begin with an understanding of the area's existing character and context and its design should evolve from West Berkshire's rich landscape and built heritage. Development should seek to complement and enhance existing areas, using architectural distinctiveness (through construction materials and techniques) and high quality urban design, to reinforce local identity and to create a sense of place; one that is successful and enjoyed. A sense of place can be created through a full understanding of how new development contributes to the character of an area and adapting design techniques to create places that feel safe and secure; places that people enjoy using, can identify with and can take pride in or responsibility for their upkeep.

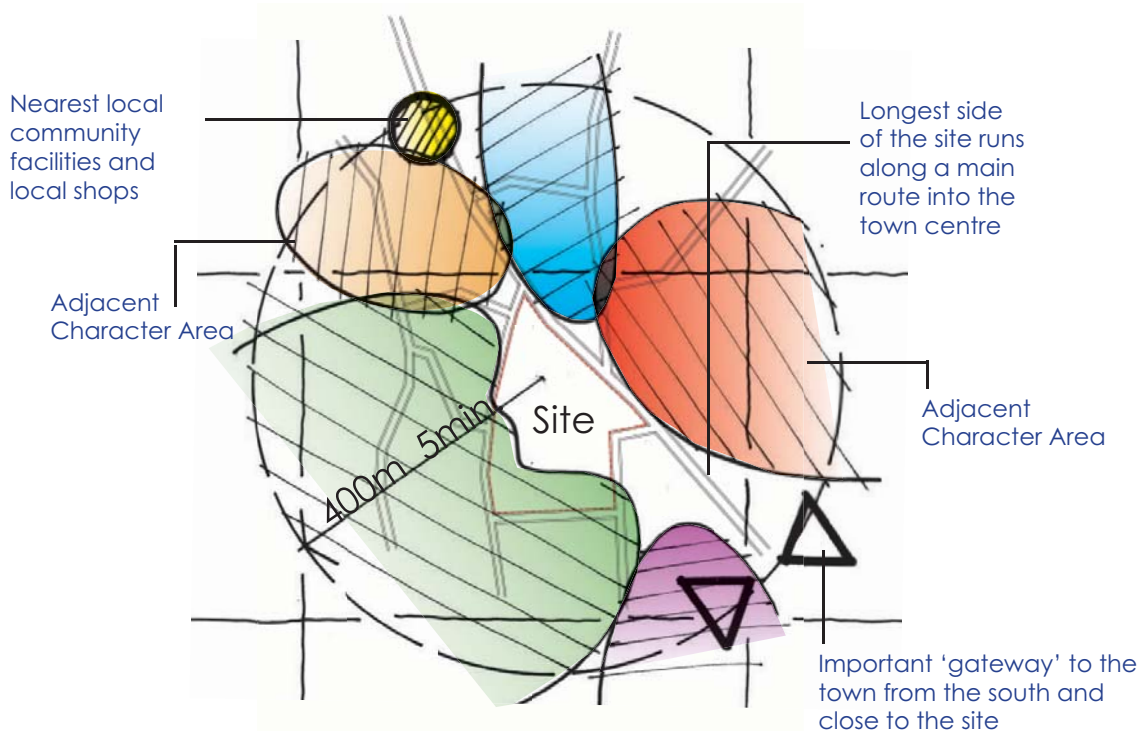
## The Bigger Picture

On the following pages, we consider a typical infill site situated within a residential area of a small market town. The example is of a residential development but the approach to understanding the context and working through to detailed site planning can equally be applied to commercial or mixed developments



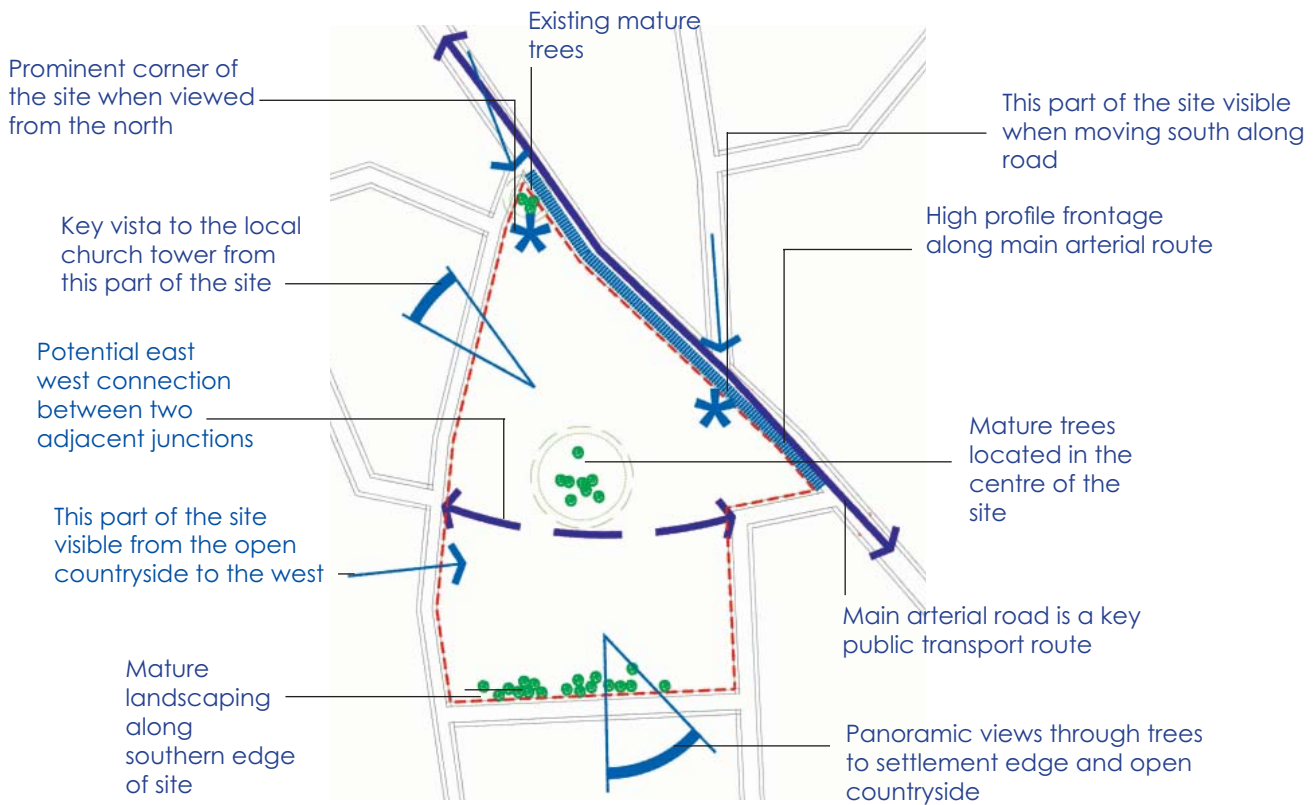
## Neighbouring Character Areas and Local Facilities

The site is surrounded by a number of different character areas and other key features. This simple urban design analysis shows that the site is within walking distance of local shops, is surrounded by a number of different character areas and is located close to a key gateway into the town along a main road.



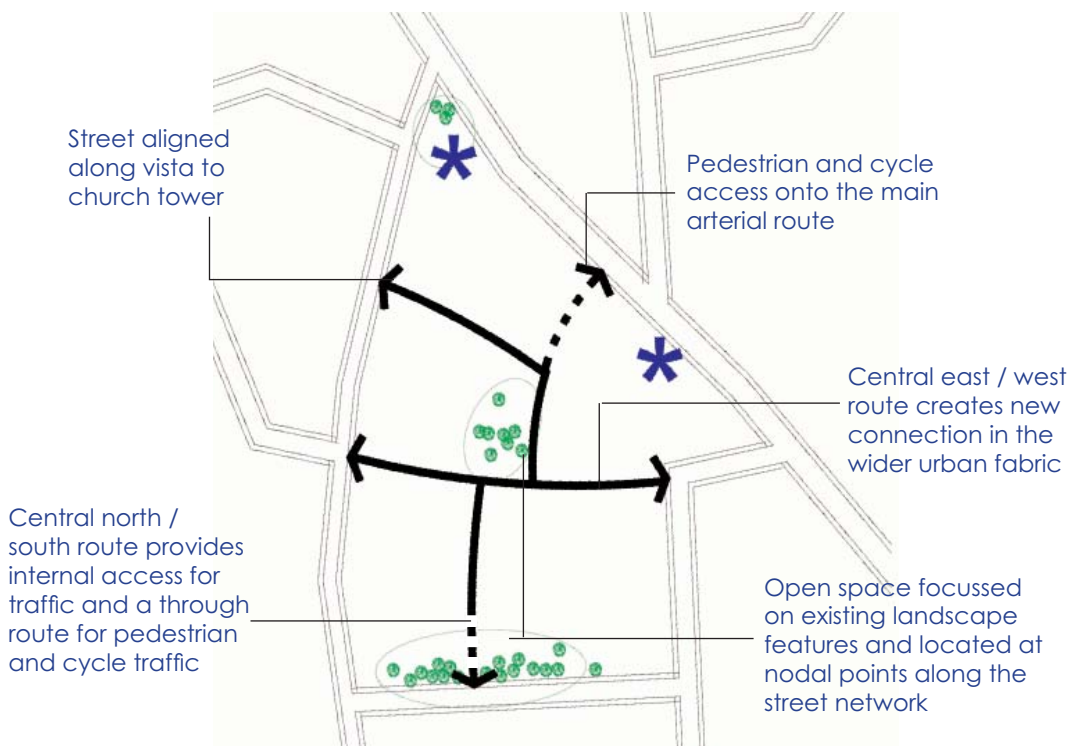
## Appraising the Site

At a more detailed scale, key features within the site can provide the starting point for a responsive design proposal



## Creating a Permeable Layout

The development of a street and block structure is a key stage in the design process



2.1.4 West Berkshire has locally distinctive towns and villages which have been shaped by their landscape setting within the Kennet Valley, the Thames Valley and the Berkshire Downs, with the settlements moulded to the topography of the countryside. The historic town and village cores were developed using local materials and even in larger settlements, such as Newbury, views to the surrounding open countryside from the urban area define the character of many parts of the town.



**New housing encloses a small open space with frontage development**

2.1.5 **Continuity and Enclosure** – New development needs to ensure that public and private spaces are clearly distinguished. Successful public spaces are usually well defined by buildings, structures and hard or soft landscaping. These tend to be spaces which are edged by active frontages (E.g. front doors, shop fronts, large windows); spaces which are overlooked or benefit from natural surveillance, enabling people to keep an eye on the public realm and therefore make it feel safer and free from crime and vandalism. Successful private spaces tend to be enclosed by buildings and only overlooked by the user's home or property. In general, it is best that access is only gained from the property itself. Where this cannot be achieved and in exceptional circumstances, secure gates, preferably not backing onto public realm, footpaths or alleyways may be an option, however the developer will be required to justify the need for gates and that all other options have been investigated.



**Quality public realm should have an identified use and be created through a combination of good planning, urban design and landscape design**

2.1.6 **Quality of the public realm** – Opportunities for interaction with public space should be maximised in new development and a high quality public realm can encourage a sense of community ownership and respect. To ensure its attractiveness and success, all public spaces should have an identified use and take full advantage of outward facing buildings, active edges and perimeter blocks which assist with natural surveillance. Hard and soft landscaping should also be incorporated and can provide a key opportunity for a sensitive and innovative design proposal. The structure of pedestrian and vehicle movement will help frame a landscape strategy; functional elements such as footpaths, car parks, cycleways and bin storage are all elements that need to be considered as well as the soft planting scheme itself. Early consideration of landscaping will also allow relationships to be developed between internal and external spaces and can influence the design of the buildings.



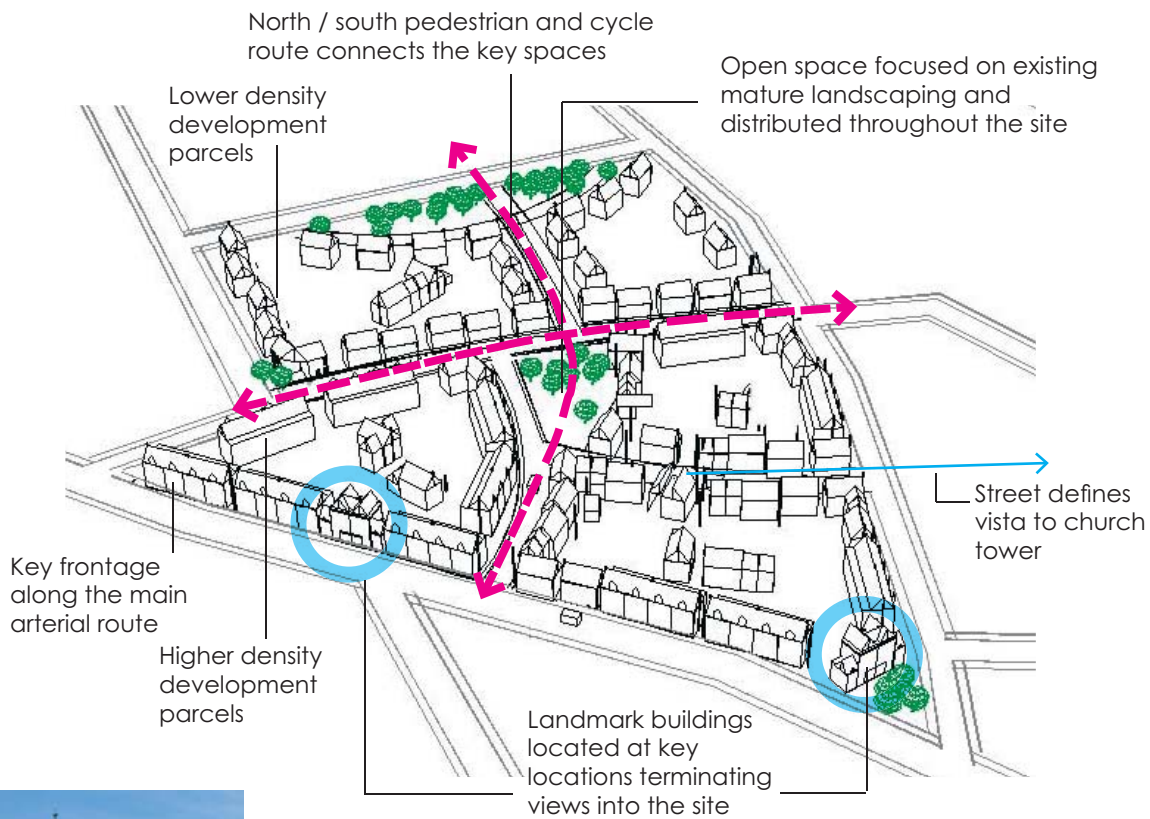
**Public open space should encourage activity and social interaction**



**New development should facilitate easy movement for pedestrians and enhance the walking experience**

## Creating a Legible Urban Form

Development proposals should create a clearly defined series of perimeter blocks connected by a series of streets and squares. Different parts of the site respond to the adjacent character areas



**Traditional urban form used landmark buildings and features to enhance legibility**



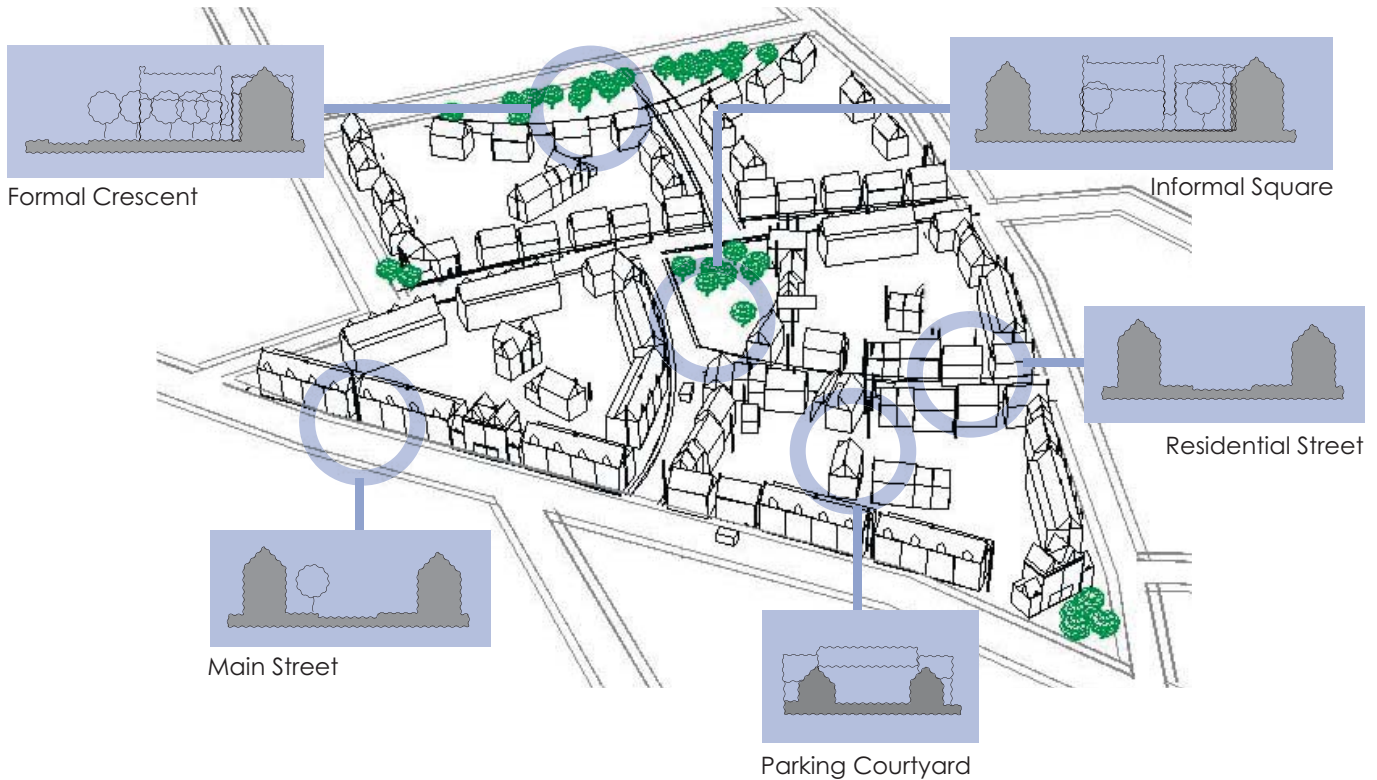
**Energy efficiency is an increasingly important consideration when designing buildings**

**2.1.7 Ease of movement** – New development should be readily permeable with connected layouts allowing safe, direct routes for pedestrians and cyclists. This will maximise opportunities for interaction and minimise personal risk and isolation. A movement strategy should be considered for any new development, prioritising the needs of pedestrians and cyclists, ensuring direct and convenient access to the main movement network and providing cycle storage appropriately located in a well used overlooked location. Parking provision should also be well planned and convenient to use for pedestrians as well as drivers. Servicing will also need to be considered, ensuring that movements by large vehicles such as refuse removals and emergency vehicles do not conflict with the normal movement flows.

**2.1.8 Legibility** – New development needs to be designed so that users can understand and identify key routes, access points, differences between public and private realm and feel safe and secure at all times. Landmark buildings, marker buildings, active frontages, a clear hierarchy of routes, defined and appropriately lit footpaths and cyclepaths and a mix of uses (providing active uses within a site at different times of the day) can all increase the legibility of development.

## Hierarchy of Spaces

The highways network within the development should seek to conform with West Berkshire's highways requirements. However the road hierarchy should also relate to a hierarchy of streets and spaces which will create variety, enhance legibility and contribute to creating a sense of place. The character of each street and space will be determined by the level of enclosure - this can be on a small or large scale, formal or informal.



2.1.9 **Adaptability** – New development needs to be flexible enough to respond to future changes in use, lifestyle and demography. This means designing for energy and resource efficiency; creating flexibility in the use of property, public spaces and service infrastructure and introducing new approaches to transportation, traffic management and parking.

2.1.10 **Diversity** – New development should provide opportunities for variety and choice within the local context. Proposals should incorporate the principles of mixed use development including the provision of conveniently located community infrastructure, active ground floor uses or frontages and activities that ensure that a place feels safe and secure at all times. Even in predominantly residential areas, it is important to provide for a mix of tenures, housing types and associated facilities, to ensure a mixed, sustainable community at all times of the week, day and evening.



**A mixed use development should be located at the heart of larger developments**



- 2.1.11 This series takes these objectives as a starting point and provides a thorough analysis of residential character throughout West Berkshire. The Residential Character Framework (Part 3) gives designers an advanced starting point for urban design analysis, detailing its coverage, role and guidance on its application.

## 2.2 Planning the Site

- 2.2.1 Aside from the key urban design objectives, there are a number of other considerations when planning new residential and commercial development for a site. These are listed below. For more specific guidance on residential development, this section should be read alongside Part 2 of this series.



**New development should promote access to public transport**

## 2.3 Promoting Walking, Cycling and Public Transport and Proximity to Local Services

- 2.3.1 Providing easy walking access to local services and public transport from new development reduces the need to use the car and helps to ease congestion and pollution problems. Such proximity to public transport also helps to make new homes and facilities accessible to those who do not have a car. Positioning developments close to local amenities may reduce the number of short journeys by car.

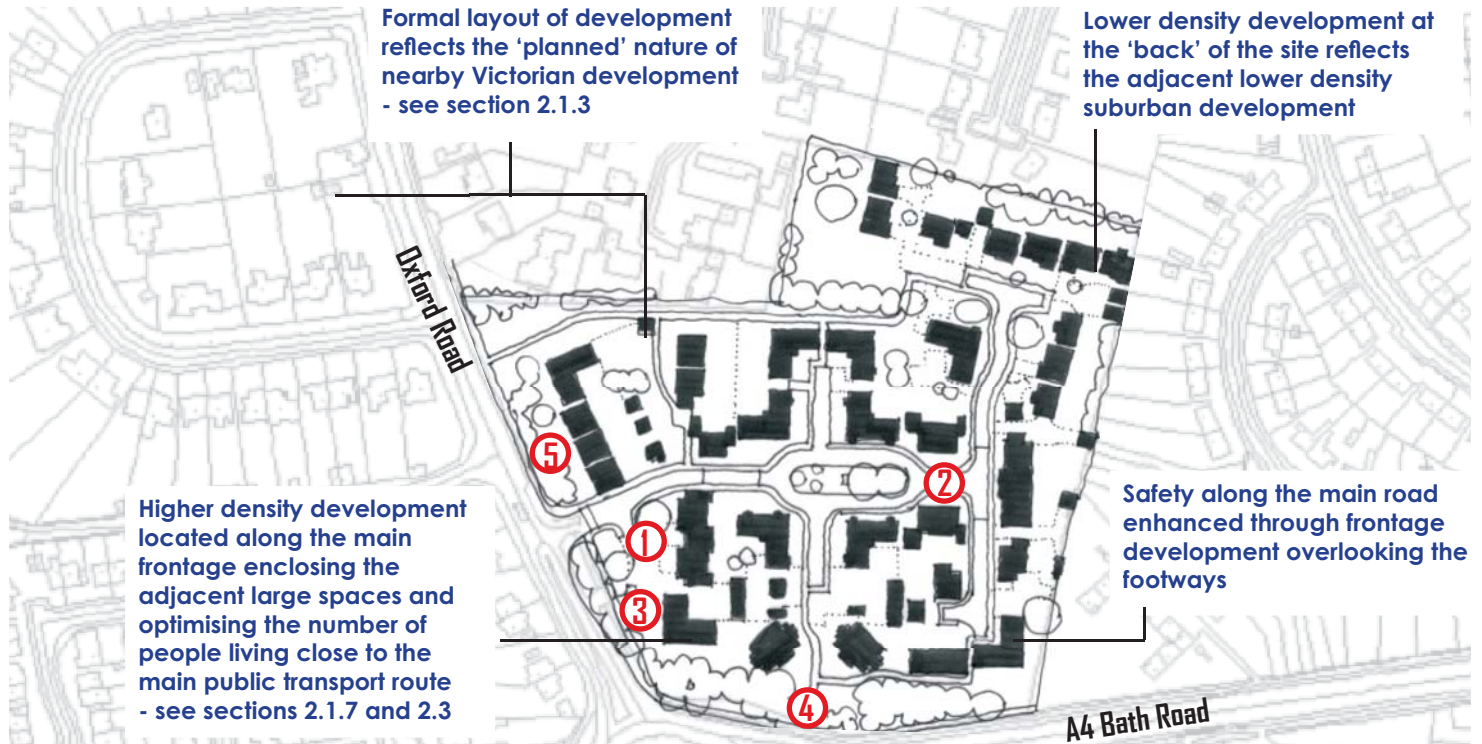


**Pedestrian connections between neighbourhoods should be created by new development proposals**

- 2.3.2 Cycling reduces air and noise pollution and congestion and also improves health and fitness. New development should attempt to link up to the existing cycle network and provide measures which make cycling an easy and safe option. For example, people need somewhere convenient and safe to store bicycles at home.

## Recent Residential Development - Design Appraisal

Sensitively designed scheme at College Mews, Newbury (David Wilson Homes), accommodating a variety of flats and house types on a site in the heart of Newbury



Retained mature tree with three storey town houses creates a strong gateway to the development and addresses the main road



Central 'formal square' creates a public open space at the heart of the development - see section 2.8



Boundary between informal open space surrounding the flats and the parking area is defined by iron work fencing - see section 2.9



Footpath and cycle network is clear and provides convenient routes into the scheme - see section 2.4



Main road fronted by town houses set back behind existing mature tree groups - see section 2.5



A permeable Victorian street and block layout at West Fields, Newbury



Less permeable 1980's distributor road and cul de sac layout at Calcot



Historic key frontages defining the edge of open space



## 2.4 Movement and Connections

2.4.1 The structure of a site and its relationship to surrounding areas are fundamental to the layout and design of all new development. This is particularly true for large and medium scale development sites, but also applies to infill development. The objective should be to ensure that the structure is well integrated with surrounding streets, in order to provide for the optimum variety of journeys, to promote more sustainable forms of movement and to ensure maximum safety and security of users.

2.4.2 The quality of a route will also often determine people's choice of transport mode and people are more likely to walk or cycle if the street is safe, visually interesting and lively. Increased pedestrian activity also leads to the 'self policing' of an area and neighbourhoods can be enhanced through increased opportunities for social engagement and face to face contact and recognition. This does not mean that all development must be fully permeable. A balance needs to be struck between the advantages of creating private or semi-private space and the benefits of connections and connectivity.

2.4.3 A permeable layout is one that has frequent points of access into and through it, provides convenient walking and cycling routes that connect up to major routes, provides opportunities for the provision of, or connection to bus routes and has clear views, aiding orientation and understanding. Differences can clearly be seen between the connected streets and squares of Victorian and Edwardian development and the distributor roads and cul de sac layouts of the 1970's and 1980's; the latter facilitating easy access for the car but forcing pedestrians and cyclists to follow circuitous routes for short 'as the crow flies' distances.

## 2.5 Key Frontages

2.5.1 Key frontages define prominent edges to important streets and spaces and enhance legibility within a neighbourhood. Particular attention will need to be paid to the treatment of the buildings lining open spaces and squares to ensure that these prominent areas have a building frontage which helps create distinctive quality, character and overall three dimensional form.

## 2.6 Landmark Buildings

- 2.6.1 A landmark building is an individual building or group which contributes substantially and positively to the street scene. A building does not have to be a Listed building to be considered important in this way. Landmark features and identifiable features are also important such as prominent trees and war memorials.
- 2.6.2 At prominent locations within development proposals, landmark buildings should be proposed to create local identity, contribute to townscape quality and provide points of reference. On major developments, developers need to consider the architectural quality of prominent landmark buildings.
- 2.6.3 Landmark buildings provide the opportunity to make an architectural statement e.g. providing a focus, articulation, legibility, vertical emphasis to the townscape. The treatment of these buildings should be in keeping with their townscape role in terms of scale, materials, style and detailing;
- Landmark buildings should be carefully positioned to ensure they are key elements of important views and vistas;
  - Within medium / high density development, landmark buildings should be of a height, scale and design appropriate to make distinguishable from adjacent buildings;
  - Within lower density development, landmark buildings should be clearly distinguishable from adjacent development.
- 2.6.4 Existing landmark buildings and features should be retained where redevelopment occurs and should be incorporated into the new development. Reference should be made to town and village design statements which may identify landmark buildings and features.



**Landmark buildings defining the gateway to a key street**



Public art can enhance local distinctiveness and help create memorable places

## 2.7 Public Art

2.7.1 To enhance legibility throughout new development and to enhance local distinctiveness, proposals should include works of public art where possible. Work should be sited in key locations such as main access roads, open spaces and squares and their design and siting could involve the local community; a tool which is often successful in enabling the community to incite pride and sometimes responsibility for management and upkeep of an area. Where possible public art should be incorporated into the detail of development such as railings, paving, signage and bus shelters as well as more traditional ways such as statues and water features.



## 2.8 Open Space

2.8.1 Designers and developers should create a positive relationship between formal parks, local open spaces and new development. Open space has the potential to perform a number of functions at various scales, including formal parks and gardens, green corridors (including river and canal banks), outdoor sports facilities, amenity green space, provision for children and teenagers and civic spaces.



2.8.2 All open space has the potential to benefit wildlife and biodiversity. Small areas of open space provide an important local amenity and for opportunities for recreation and play; larger areas also provide a community resource and can be used for formal and informal events. In addition to its recreation role, open space can act as focal points within the development and as green 'lungs' providing a break in the urban fabric. Some buildings within a development should front on to the spaces to provide security and surveillance. Boundary treatments along development edges will require careful consideration and will need to reflect the prominence of the edge, activities within the spaces and the design approach of the particular character area.



Examples of open space

## 2.9 Safety and Security

2.9.1 The West Berkshire District Local Plan requires that all development schemes within West Berkshire should be designed so as to reduce the potential for criminal activity and anti-social behaviour. Approaches to achieving this are set out in this section. Failure to reduce the potential for crime could result in a planning application being refused.

2.9.2 The ODPM's guidance on safety and security in the built environment; "Safer Places" April 2004, sets out attributes of sustainable community design that are particularly relevant to crime prevention and should be considered throughout all new development;

- **Access and Movement:** Well defined routes, spaces and entrances that provide for convenient movement without compromising security;
- **Structure:** Places structured so that different uses do not cause conflict;
- **Surveillance:** All publicly accessible spaces are overlooked; with informal security afforded by busy and public places, providing an inherently safer and more appealing environment. Mixing uses and providing a greater variety of activities can encourage natural surveillance;
- **Ownership:** Promoting a sense of ownership, respect, territorial responsibility and community feeling through the well managed safety and security of land and buildings. Where ownership of space is unclear anti-social behaviour tends to take hold and creates safety and security problems. By establishing a street and block structure a clear delineation is made between private and public space;
- **Physical Protection:** Necessary, well-designed security features; as promoted by Thames Valley Police through the Secured by Design Initiative, found at [www.securedbydesign.com](http://www.securedbydesign.com);



Activity along the edge of an open space enhances safety



A mix of dwelling types and sizes overlooking adjacent public realm



Pedestrian walkway with dwelling carefully sited to look onto the space



Inter-war housing layout in Newbury - there is a clear division between the private and public realm

The layout of buildings creates a clear distinction between private and public space. Private space in the form of gardens is located at the back of the block.

Building line set back to provide a simple parking square where frontage development overlooks the space

## Ways of ensuring a safe layout

Building located at the end of the street has a clear line of sight along the whole length of the street.



Often side elevations are left blank. Habitable rooms with bay windows on both sides of the street project into the space and provide natural surveillance on all sides

Street lighting fixed to the building illuminates a key part of the street

The Council seeks the advice of the Thames Valley Police when considering whether development has been designed to minimise opportunities for crime and maximise safety and the perception of security.

Further information and advice can be obtained from the Thames Valley Police Crime Prevention Design Adviser.

See also the Secured by Design initiative and Safer Places guidance by the ODPM.

A Residents Co-operative or Management Trust could be established to manage parts of the public realm such as street furniture, surfacing and landscaping, over the life of the development

- Activity:** Human activity, particularly walking, reduces risk of crime and can promote a sense of safety. Criminals and those engaged in anti-social behaviour tend to avoid active public spaces or those that are overlooked. There are advantages in creating places that contain a mix of uses, that encourage activity at all times of the day (as outlined in section 2.1.10 – diversity), thereby avoiding concentrations of particular groups or creating opportunities for crime. Care should, however, be taken to ensure that mixed uses in a locality are compatible, for example, concentrations of bars and clubs should usually be sited away from residential areas;
- Management and Maintenance:** Design with management and maintenance in mind, to discourage crime. Developers and designers need to consider how the development will function over time and what the maintenance implications are likely to be, such as for landscaping, play areas and public spaces. Developers will be expected to demonstrate that proposals have a long term maintenance strategy.

## 2.10 Accessibility

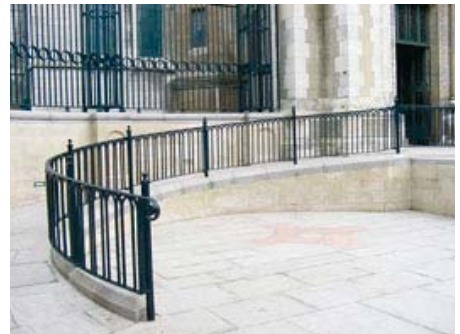
2.10.1 All new development, particularly public buildings and their immediate surrounding area should be designed to provide access to all, including the disabled. Advice about designs that can accommodate people with disabilities can be obtained from the design guidance "Designing for Accessibility in Berkshire, 2003" which is available on the Council's website. If the guidance in this document is followed, the requirements of planning policies which aim to secure accessible development should be satisfied.



**Disabled access to buildings should be considered at the design stage**

## 2.11 Servicing Requirements

2.11.1 The ideal way of delivery should be from the street directly to the building in the traditional way. Where a delivery / storage yard is required it should be placed within the rear of a development block. This will ensure that unattractive delivery yards are hidden from public view. In urban situations and where the density allows basements, servicing should be possible. Time management regimes can reduce the impact of servicing on neighbouring residential development and where satisfactory design solutions are not possible.



**Ramps into public buildings**

## 2.12 Utilities

2.12.1 All vent pipes and associated plumbing should be enclosed within or at the rear of the building, where this is not visible from the street. This is especially important on sensitive buildings such as barn conversions or in areas where the townscape is particularly sensitive or attractive. Meter boxes should be located in a way which does not disrupt the main façade and should be appropriately coloured. On homes, such boxes should be placed where they enable meter reading without the need to access the dwelling.



**Servicing should be considered at the design stage**





Well designed bin storage located at the back of the block



## 2.13 Bin Storage

- 2.13.1 Purpose built accommodation shall be provided for wheeled refuse bins and recycling points, to ensure these do not undermine the visual quality of the development. Within commercial development, these areas will generally be located at the side or rear of the building, to avoid visual intrusion but to allow for vehicle access for disposal.
- 2.13.2 In new residential development, the location of these areas will generally depend upon the layout of buildings, parking and frontages on the site. If located at the front of buildings, designated paved and / or open gated areas should be provided, which are easily accessible for disposal.
- 2.13.3 In West Berkshire, new residential development should include storage provision to accommodate current recycling requirements and waste needs. New initiatives and future recycling requirements may increase the amount of space required.
- 2.13.4 Commercial developments should also be designed with the needs of recycling in mind.



Ground floor mix of uses, with residential or office floorspace above add diversity to streets, enabling them to feel safe and secure

## 2.14 Mixed Use Development

- 2.14.1 The principles in this SPD are applicable to all forms of built development including commercial, leisure and community facilities. Where they are consistent with Development Plan objectives and policies, mixed use development may be particularly appropriate in achieving the overall design principles set out in **Part 4** - Sustainable Design Techniques - West Berkshire. Mixed use schemes can successfully integrate a range of complementary land uses and contribute to a vital and sustainable environment.

## 2.15 Application Details

2.15.1 To help speed up the planning decision making process and to ensure that the planning authority has sufficient information to determine planning applications at the beginning of the process, all applications should be supported by a statement, or series of statements for major developments, as detailed below where appropriate. It is in the applicants interest to supply this information for a speedier and smoother decision making process.

Reference should be made to the Checklist / Route Map which will follow as a separate document

2.15.2 Planning applications for major developments (Residential developments of 10 or more units, or within a site of 0.5 hectares or more; Commercial development of over 1000 sq.m, or a site of 1 hectare or more) will be expected to include the following assessments and statements where appropriate;

### **Transport Impact Assessment;**

#### **An ecological assessment as appropriate;**

A **design statement** setting out how the proposal will respond to its context and the guidance in this SPD;

An **energy and resource impact statement** showing how the development will contribute to renewable energy and resources

2.15.3 **It may also be necessary to include** a flood risk assessment, tree surveys, Secured by Design assessment, elevations showing the development in context with its surroundings and other appropriate material.

2.15.4 **For smaller proposals,** aspects of the above should be addressed in the statement submitted with the application.

2.15.5 Where it is necessary for the proper determination of a planning application, the Council may require any of the above, or other additional information, to be submitted with a planning application.

2.15.6 Further information on dealing with large proposals can be found within the Major Applications Developers Pack at **[www.westberks.gov.uk](http://www.westberks.gov.uk)**

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Local  
Development  
Framework



Prepared by Halcrow on behalf of West Berkshire Council

# Quality Design - West Berkshire Supplementary Planning Document



## Part 4 Sustainable Design Techniques



## PART 4

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## Sustainable Design Techniques

### 1.1 Introduction

1.1.1 This document comprises the fourth of several publications which form the West Berkshire Council (WBC) design guide series "Quality Design - West Berkshire". Together the series forms a Supplementary Planning Document (SPD) which supports policies in the Berkshire Structure Plan 2001 – 2016 and West Berkshire District Local Plan 1991 - 2006. **As such, it is a 'material consideration' in determining planning applications and if not followed, may lead to the refusal of planning permission.** It is intended that in the future this SPD series will also support relevant policies in WBC's Development Plan Documents. It also complements other existing Supplementary Planning Guidance (SPGs) and SPDs, including any site specific development briefs which may be produced in the future.

1.1.2 This section "Sustainable Design Techniques" provides a range of methods, techniques and technologies as examples of solutions to sustainable building design for all developments which should be incorporated into new build. Its purpose is to assist in maximising the opportunity for developments to be energy and resource efficient.

### 1.2 Renewable Energy and Energy Conservation Overview

1.2.1 The continual production of greenhouse gases, in particular carbon dioxide, is recognised to contribute to the increasing rate of climate change. Under the Kyoto Protocol, the UK has committed to a 12.5% reduction in greenhouse gas emissions below 1990 levels by 2012. At the national level the Energy White Paper sets a target of generating 20% of UK energy by renewable technologies by 2020.

1.2.2 PPS22: Renewable Energy, 2004 sets out the Government's national policies for the use of renewable energy within development proposals. Local planning authorities and developers should consider the opportunity for incorporating renewable energy into all new developments and the emerging South East Plan, the Structure Plan policy EN8 and Local Plan policies OVS.9 and 10 promote these principles.



The guidance seeks to promote sustainable design within new development



Energy efficiency is at the forefront of Government policy and many flagship developments incorporate sustainable design principles...



The challenge now, is to incorporate these principles into every day building design





**Courtyard development, incorporating landscaping can assist energy efficiency**



**Design features such as large windows contribute to solar gain**



**Holistic energy efficient construction, Primary School, Millennium Community**



- 1.2.3 PPS22 states that “Renewable energy covers those energy flows that occur naturally and repeatedly in the environment – from the wind, the fall of water, the movement of the oceans, from the sun and also from biomass”. To successfully introduce renewable technologies, PPS22 recognises that this will involve the “installation of different kinds of schemes in different contexts, from rural areas to densely populated areas, market towns and suburban streets”.
- 1.2.4 The Draft South East Plan encourages the use of SPD’s to promote development design for energy efficiency and renewable energy. Policy EN1 encourages the provision of at least 10% of the development’s energy demand from renewable sources, and for all new developments, where appropriate, to achieve high energy efficiency ratings through the use of best practice schemes such as BREEAM.
- 1.2.5 Structure Plan policy EN8 promotes energy efficiency and conservation in the design, layout and orientation of new development. Energy generation from renewable resources, such as electricity and heat, should be considered and implemented where feasible, providing that adverse impacts on landscape, biodiversity and local amenity are avoided.
- 1.2.6 Policy EN8 states that “1. All forms of development will maximise the opportunity to incorporate current best practice in energy efficiency and energy conservation into their design, layout and orientation. 2. Generation of energy from renewable resources should be considered, and implemented wherever feasible, in all development proposals, provided that adverse impacts on the landscape, biodiversity and local amenity are avoided. 3. Development proposals for the generation of electricity and heat from renewable sources will be encouraged, provided that adverse impacts on landscape, biodiversity and local amenity are avoided.”
- 1.2.7 All proposals should satisfy Structure Plan policy EN8, which this SPD and the West Berkshire Planning Strategy support, and failure to do so may lead to the refusal of planning permission.
- 1.2.8 Local Plan policy OVS9 permits proposals for renewable energy schemes, as long as landscaping, open countryside and sites of nature conservation interest are protected, there is no environmental nuisance or pollution, and that access, road safety, public footpaths / rights of way and residential amenity are respected.

**BREEAM’s EcoHomes Guidance 2005**

- 1.2.9 Local Plan policy OVS10 seeks for new development to maximise solar (or natural) heating, lighting and ventilation through siting, form, orientation and layout; use soft landscaping to increase shading and reduce heat loss in winter; and use energy efficient technology for heating, power and lighting.
- 1.2.10 In order to comply with the requirements of the above policies, developers will be expected to demonstrate how the development has regard for energy and resource efficiency with reference to the guidance set out below. Any new major development should be accompanied by an Energy and Resource Impact Statement, explaining these principles. For smaller proposals aspects of this statement should be addressed in the supporting statement submitted with the planning application.
- 1.2.11 The form, location and density of homes, businesses and communities play a major role in determining the energy demand of the development and their uses. It is important to consider these aspects of development at the design stage in relation to energy demand. Both large and small scale projects can provide valuable contribution to overall outputs of renewable energy and to meet energy needs both locally and nationally. Technology such as solar panels, biomass heating, small scale wind turbines, photovoltaic cells and combined heat and power should be incorporated into developments.



Sedum roof on house in Harlow



Green Roof on house at BedZed

BREEAM/EcoHomes rating (or equivalent) of at least “**Excellent**” should be achieved on all sites (1).

## 1.3 Sustainable Urban Drainage Systems (SUDS)

- 1.3.1 New development should consider SUDS as an element of drainage infrastructure as well as for leisure, visual amenity and wildlife benefits, to manage surface water runoff. There are numerous benefits to the development and environment from the inclusion of SUDS and proposals will be expected to incorporate these. SUDS should be used to mimic the natural pattern of drainage and can be designed into most urban and rural settings, ranging from hard-surfaced areas to soft landscaped features. They are used in conjunction with good management of the site, to prevent flooding and pollution. The management of drainage water incorporates a hierarchy of techniques which should be used in SUDS selection, these are:



Landscaped verges incorporating SUDS

(1) In some locations an “excellent” rating may not be achievable due to remoteness from services. Developments involving extensions and conversions will not, at this time, be required to adhere to this standard



SUDS incorporated into new housing development

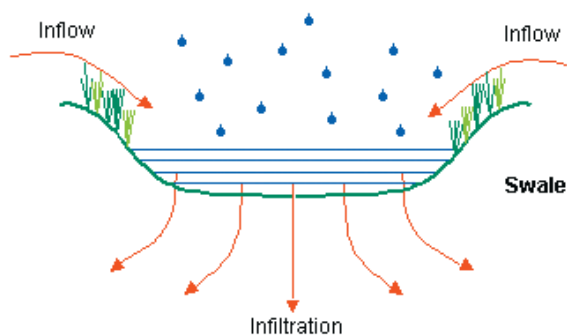


- **Source control** – to attenuate and remove pollutants from runoff close to the source. Simple measures which can be used in high density sites include directing roof, driveway and footpath runoff over grassed areas, or promoting sheet flow through grassed areas. Gravelled or porous car parking areas, roadside swales, filter strips, bio-retention devices and filter drains.
- **Site controls** – these are runoff and treatment controls that serve areas of approximately 2 to 5 hectares. The most common forms are swales, extended detention basins (some can take the form of sports pitches) which all have relatively low land take.
- **Regional control** – these serve multi-hectare drainage areas greater than 5 hectares and can be incorporated into public open space. These include extended basins, retention ponds and storm water wetlands. When source and site controls are used upstream, the size of the regional controls can be reduced, freeing additional land for other purposes.

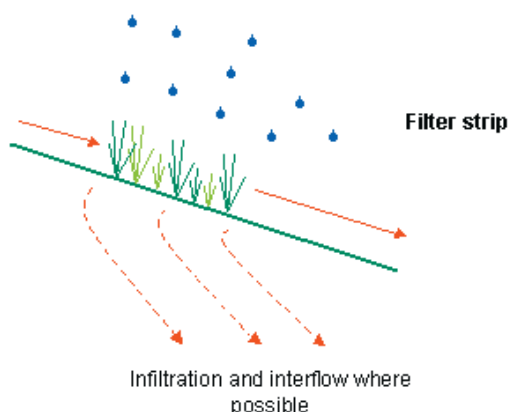
### 1.3.2 A range of SUDS techniques is available:

- **Filter strips and swales** – these are landscape features that are vegetated with smooth surfaces and a gentle slope downhill so that water can drain off impermeable surfaces
- **Permeable surfaces and filter drains** – these are permeable surfaces which allow run-off and rainwater to infiltrate down into permeable material below ground which stores the water prior to discharge.
- **Infiltration devices** – these are surface structures of below-ground structures which drain water directly into the ground.
- **Basins and ponds** – these are structures which are designed to hold water when it rains. Ponds always contain water and have added capacity for rainwater. Basins are water free during dry weather. The design of basins and ponds should maximise the potential habitat creation for wildlife and to create an attractive landscape feature.

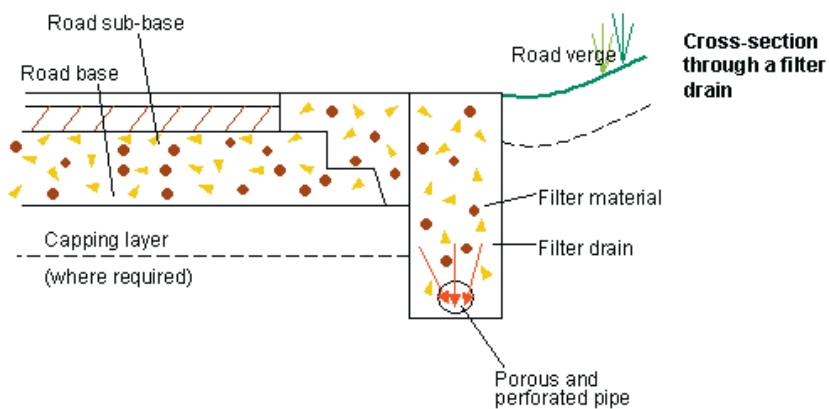
- 1.3.3 For housing developments examples of SUDS include specifying porous paving for all hard surfaces or the adoption of soakaways or other systems (including green roofs – which broadly speaking is a roof with plants growing on its surface) that reduce peak run-off loads. Porous paving should be installed as this will allow water to soak through the paving into natural water tables rather than direct collected rainwater into public sewers and watercourses. Care needs to be taken to ensure that the local conditions will permit these measures.
- 1.3.4 Run-off from roofs should be collected as part of a rainwater harvesting system into a local soakaway or other holding facility such as tanks, ponds, swales etc. Green roofs can also assist in this process. Rainwater run-off should also be stored for re-use as irrigation water or grey-water recycling (such as toilet flushing) – see section 1.5 for further information.  
(Ref: [www.ciria.org.uk/suds](http://www.ciria.org.uk/suds)) (Ref: BRE EcoHomes – The environmental rating for homes, 2005; Pol 3 Reduction of Surface Runoff. Available to view at [www.ecohomes.org](http://www.ecohomes.org))
- 1.3.5 The Council recommends that the advice of the Environment Agency is sought on SUDS. Further information is available from their website: [www.environment-agency.gov.uk](http://www.environment-agency.gov.uk). Information on the current Indicative Floodplain Map for West Berkshire can also be viewed [here](#).



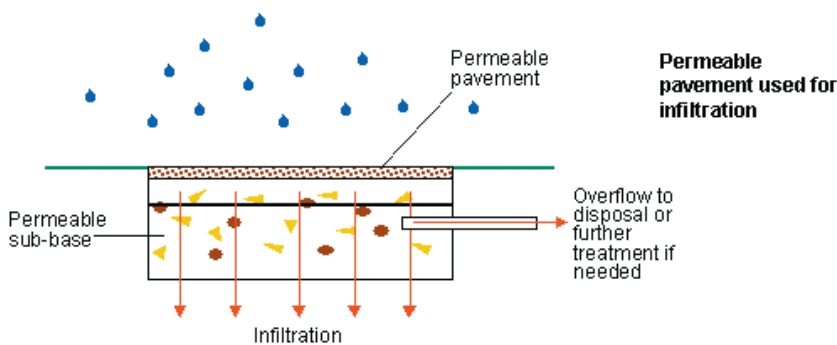
Filter strips and swales are vegetated surface features that drain water evenly off impermeable areas. Swales are long shallow channels whilst filter strips are gently sloping areas of ground



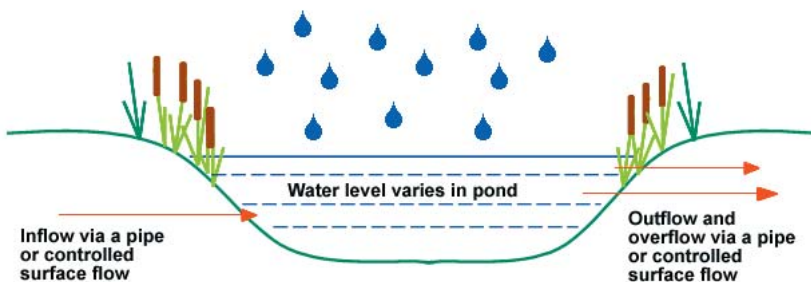
**Source:**  
[www.ciria.org.uk/suds/suds\\_techniques.htm](http://www.ciria.org.uk/suds/suds_techniques.htm)



**Cross-section through a filter drain**



**Permeable pavement used for infiltration**



Filter drains and permeable surfaces are devices that have a volume of permeable material below ground to store surface water. Runoff flows to this storage area via a permeable surface. This can include:

- Grass (if the area will not be trafficked)
- Reinforced grass
- Gravelled areas
- Solid paving blocks with large vertical holes filled with soil or gravel
- Solid paving blocks with gaps between the individual units
- Porous paving blocks with a system of voids within the unit
- Continuous surfaces with an inherent system of voids

Basins are areas for storage of surface runoff that are free from water under dry weather flow conditions. These structures include:

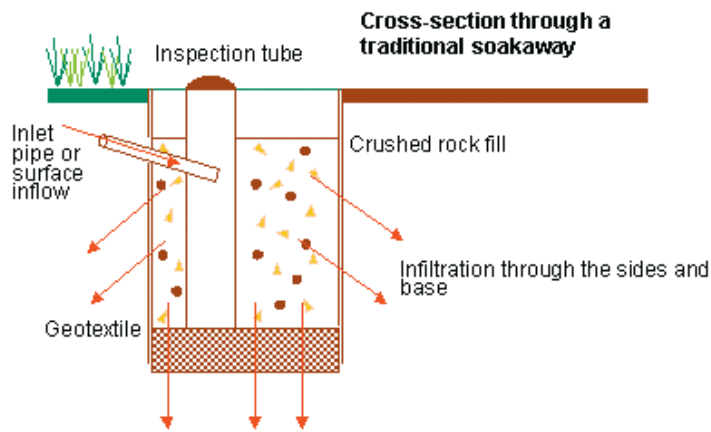
- Flood plains
- Detention basins
- Extended detention basins

Ponds contain water in dry weather, and are designed to hold more when it rains. They include:

- Balancing and attenuation ponds
- Flood storage reservoirs
- Lagoons
- Retention ponds
- Wetlands

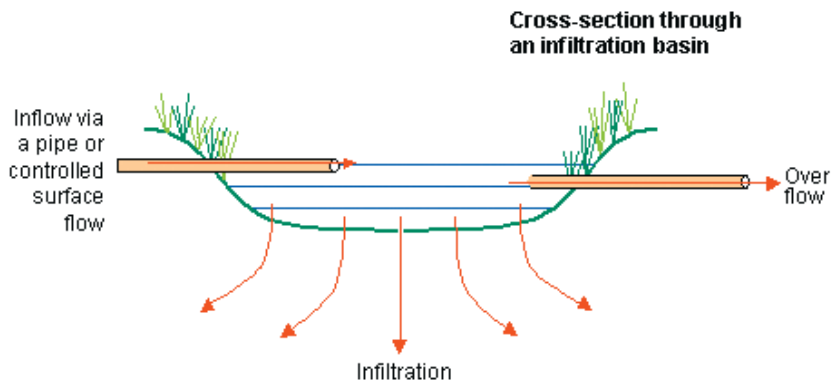
The structures can even be mixed, including both a permanently wet area for wildlife or treatment of the runoff and an area that is usually dry to cater for flood attenuation. Basins and ponds tend to be found towards the end of the surface water management train, so are used if source control cannot be fully implemented, if extended treatment of the runoff is required or if they are required for wildlife or landscape reasons.

**Source:**  
[www.ciria.org.uk/suds/suds\\_techniques.htm](http://www.ciria.org.uk/suds/suds_techniques.htm)



Infiltration devices drain water directly into the ground. They may be used at source or the runoff can be conveyed in a pipe or swale to the infiltration area. They include soakaways, infiltration trenches and infiltration basins as well as swales, filter drains and ponds. Infiltration devices can be integrated into and form part of the landscaped areas.

Soakaways and infiltration trenches are completely below ground, and water should not appear on the surface. Infiltration basins and swales for infiltration store water on the ground surface, but are dry except in periods of heavy rainfall.



**Source:**  
[www.ciria.org.uk/suds/suds\\_techniques.htm](http://www.ciria.org.uk/suds/suds_techniques.htm)



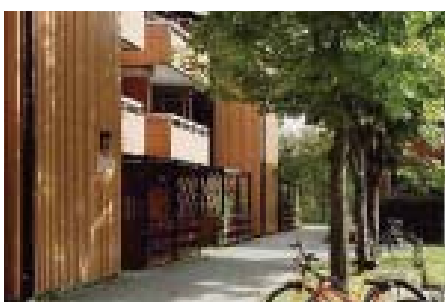
**Gardens can be designed to include opportunities for water recycling, rain water collection etc**



**Water can be a valuable resource for biodiversity, as well as recreation**



**Opportunities for biodiversity planned into urban development**



**Dual footpath / cycleway can assist in the movement of wildlife and act as green corridors**

## 1.4 Biodiversity, Landscaping and Planting

1.4.1 The reuse of existing sites will help to slow down or stop the destruction of natural habitats and the wildlife they support, as well as preventing loss of greenfield land. However brownfield land can also have an important ecological value to the environment. New developments will be expected to demonstrate minimal damage to existing local ecology and where possible, to enhance it. Measures include;

- Ensuring that water courses are retained and enhanced;
- Minimise the loss of trees, hedgerows and landscaping. If removal is necessary then ensure that these features are replaced elsewhere. The use of native species encourages wildlife and can lead to cost savings through reduced maintenance;
- Ensuring that green corridors are retained, and where possible enhanced, or created;
- Ensuring that wildlife is encouraged (e.g. provision of trees or places for bird and bat boxes);
- Retention and creation of "wild" areas;
- Creating green roofs;
- The incorporation of Sustainable Urban Drainage Systems (see section 1.3) can create a good opportunity to increase biodiversity with habitat creation.  
(Ref: BRE EcoHomes – The environmental rating for homes, 2005; Eco 1 Ecological Value of Site and Eco 3 Protection of Ecological Features)

1.4.2 West Berkshire Council aims to encourage developers to make decisions on their developments which can be positive towards improving the local environment. A useful information booklet titled "Development Control – Biodiversity Planning Advice" has been produced to assist planning applicants on how the issues of biodiversity can be addressed in their planning application. (Available from the Council offices and on [www.westberks.gov.uk](http://www.westberks.gov.uk))

1.4.3 Planting is a good way of increasing the year round usability of outdoor spaces such as gardens and terraces by providing wind breaks. However, care should be taken to ensure that planting does not obscure sunlight and shade potential solar collection areas.

1.4.4 The use of dual footpaths and cycleways passing through green spaces should be considered, linking wildlife corridors to hedgerows and waterways.

1.4.5 An ecological assessment will be expected for all major development proposals. Smaller proposals should address ecology in the statement submitted with the application. See part 1 for further information.

## 1.5 Greywater Re-use, Water Collection and Storage

1.5.1 Approximately 20% of domestic water is used for drinking and the preparation of food, with a third of water used for toilet flushing. Water use in the garden has been on the increase and this is likely to continue. Water is becoming an increasingly scarce resource as demand continues to increase dramatically and it is essential that groundwater quality and levels are protected when proposing new development. Developments should therefore demonstrate the inclusion of water conservation within the proposal. By integrating water conservation measures, rainwater harvesting and greywater re-use, a significant reduction in mains water consumption can be made.

1.5.2 **Water conservation measures** - There are many actions that can be taken to minimise water consumption and all should be considered when installing WCs, showers, taps, baths and white goods within new developments;

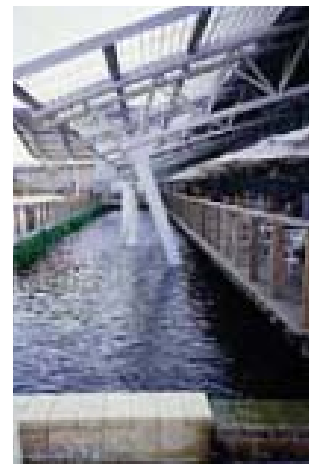
- Dual-flush and low-water-use WCs, water-saver showers, spray taps, low volume baths and low-water-use appliances;
- Wastewater recycling and rainwater harvesting for toilet flushing, washing machines, garden watering etc. (e.g. the installation of water butts is a simple and cheap rainwater harvesting measure);
- Avoidance of large water-using features (e.g. pools, hot tubs, etc), fed by mains water;
- Rainwater collector systems for watering gardens and landscaped areas. Rainwater downpipes should be located to enable the installation and use of water butts.

(Ref: BRE EcoHomes – The environmental rating for homes, 2005; Wat 1 Internal Water Use and Wat 2 – External Water Use)

1.5.3 **Rainwater harvesting** – the simplest form of rainwater harvesting is the collection of rainwater in a water butt to be re-used for outdoor use. More advanced systems can provide water for several uses within the building such as toilet flushing and for the washing machine. Rainwater re-used for personal washing would require purification. The facilities for collection and re-use of rainwater can be incorporated into a new building relatively easily. Space for a storage tank would be required in the roof space or underground with appropriately located downpipes. Back-up from the mains supply should be provided.



Low flush toilets are one measure that can easily be incorporated into new housing development



Water recycling within commercial development

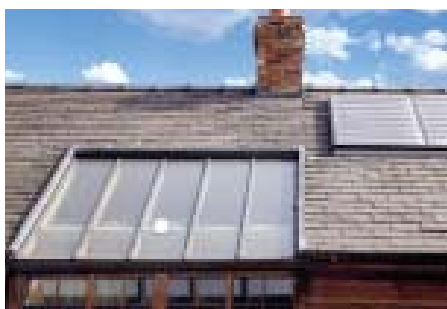


Water conservation should be made easy around homes - integral water butt





Gardens can be designed to include opportunities for water recycling, rain water collection etc



Use of glass, courtyards and atria can assist PSD



Southerly facing windows and balconies promote solar gain

1.5.4 **Greywater re-use** – Greywater is the waste water from baths, showers and hand basins. Systems collect, clean and re-use greywater and can be incorporated within a single dwelling up to the scale of a whole development. The water is filtered, and with simple cleaning is usually clean enough for toilet flushing.

## 1.6 Passive Solar Design (PSD)

1.6.1 Natural climatic and environmental conditions should be considered holistically when planning new development. The main climatic influences on comfort are solar heat and air flow, which can influence the ability to maximise natural ventilation, lighting and heating. PPS22 includes “passive solar” as a renewable energy technology. Passive solar design uses the sun's heat to reduce the need for heating and sunlight to reduce the need for artificial lighting within a building. Large energy savings can therefore be made through the orientation, location of entrances, windows (and opening designs), use of open spaces, landscaping, height, depth, size and aspect of rooms. PSD is an opportunity to save energy for the whole lifetime of a building and can only really be considered at the design stage, generally at no extra cost. The primary objective for housing is to encapsulate the light and heat from the sun, whilst for commercial buildings where light is similarly important, the main purpose for PSD is to remove excess heat from periods of high solar gain to avoid the use of air conditioning.

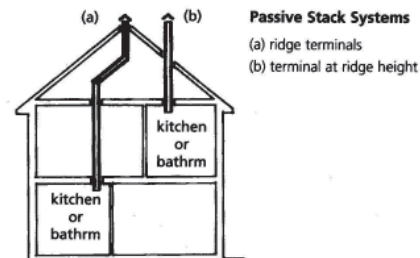
1.6.2 There are many advantages for maximising natural daylight and sunlight into a building. Both make interiors look more attractive and interesting, provide light and are beneficial to health. Access to them also helps to make a building energy efficient through solar gain, reduces the need for electricity and can assist with heating systems. Passive solar gain is the maximising of heat generated by the sun into a building. The incorporation of passive solar design can result in an innovative building design. New development will be expected to consider the following;

- Living and working areas with larger windows facing south (or within 30 degrees of south), where the solar gain is greatest and rooms with increased width rather than depth to maximise solar gain. Locating rooms such as bathrooms, storage and stairs to the north side of a building;
- Locating taller buildings to the north of a site to maximise solar access and minimise overshadowing;
- Living areas with unobstructed lines of sunlight and daylight (e.g. ensuring that garages / fencing / trees / other buildings do not obstruct windows);
- Deciduous trees to block the high summer sun and reduce the chance of overheating, whilst in the winter the low sun will be able to provide solar gain through the branches;
- Maximising the use of double glazed glass as a building material (e.g. conservatories, atriums, glass porches, skylights, light wells, glass brick walls);
- Construction of a suitably pitched roof facing south for incorporation of solar panels or sky lights;
- Designing with nature such as shelter belts, shaded outdoor areas, high reflectivity external surfaces and maximising absorptive surfaces.  
(Ref: BRE EcoHomes – The environmental rating for homes, 2005; Hea 1 Daylighting)



**Energy saving through building orientation**

- 1.6.3 Outdoor space should also be considered in the orientation of buildings. Private outdoor space can be attractive, with benefits for health and well being, allowing occupants to sit outside, dry clothes and store garden equipment and should be located where an element of privacy is achieved. For houses and flats, outdoor space should be accessible only by occupants of designated units. Balconies and roof gardens / terraces should be considered where garden space is limited, although they should provide privacy and not restrict daylight into the building.  
(Ref: BRE EcoHomes – The environmental rating for homes, 2005; Hea 3 Private Space)



Source: Environment Agency



Private gardens or secure, communal areas within apartment blocks allow for drying



Solar panelling on house roofs in Berkshire

## 1.7 Natural Ventilation

1.7.1 Ensuring that maximum use is made of natural ventilation can complement PSD and can be preferable to mechanical ventilation and air conditioning systems. Natural ventilation allows cool air to be drawn in at low levels, encouraging air to move upwards through the building and be ejected at a high level. Techniques include the installation of solar siphons, opening windows, roof or wall vents. Shaded balconies can also complement natural ventilation and provide access to the outside. The features can be used as positive architectural features.

(Ref: Sustainable Design and Construction: The London Plan (Spatial Development Strategy for Greater London) Supplementary Planning Guidance May 2006 – [www.london.gov.uk](http://www.london.gov.uk))

1.7.2 Adequate space for drying should also be provided, either in a garden, balcony, or in an adequately ventilated room (such as a utility room), which can either be communal or private, within the development. If within the building, it should not be supplied with additional heating solely for the purposes of drying clothes.

(Ref: BRE EcoHomes – The environmental rating for homes, 2005; ENE 3 Drying Space)

## 1.8 Solar Electric (photovoltaics)

1.8.1 Photovoltaics (PV's) convert the sun's heat directly into electricity using a semi-conductor device. They are silent and can be mounted on the roof or in a free-standing modular form, or integrated into the roof or facades of buildings. Large buildings and public buildings are well suited to PV arrays as the buildings are occupied to capacity during sunlight hours where the energy output is greatest, and similarly with buildings that require air conditioning.

1.8.2 Whilst PV cells (and solar water heating cells) do not require direct sunlight for energy output, care must be taken to avoid overshadowing of the cells as this will reduce the amount of energy produced. The orientation and angle of the array affects the energy output, with the optimum output being achieved when the angle of the array matches the angle of the sun. For a fixed position array this would be south orientation with an angle of 20-40 degrees (depending on the altitude). Care needs to be given to visual impact and in built up areas the potential for nearby buildings to overshadow for large parts of the day. Consideration must be given to the potential impact of proposals on the character or appearance of the area, particularly those involving a listed building, conservation area or in the AONB. Consideration will also need to be given to the load capacity of the roof or structure of the building that the array is proposed to be mounted upon.



Photovoltaics



## 1.9 Solar Water Heating (solar thermal)

- 1.9.1 Solar water heating technology works in a similar way to photovoltaics, the difference being that PV produces electricity whereas solar water heating produces hot water. Solar water heating uses the sun's heat to heat water that can be used for either space heating or more commonly for hot water heating. Such systems are most commonly employed for domestic use, light industrial and agricultural use and for the heating of swimming pools. A good system should provide 50-60% of annual domestic hot water requirements, with most energy generated between May and September.
- 1.9.2 There are two main types of solar collectors. These are flat plate collectors and evacuated tube collectors. Both technologies work by an absorber collecting the radiation from the sun, which is then transferred as heat to a fluid. This fluid would either be water or a special liquid that boils when heated and condenses to transfer heat energy to water.
- 1.9.3 For guidance on siting, orientation and considerations please refer to section 1.8.



**Biomass production**

## 1.10 Biomass and Combined Heat and Power (CHP)

- 1.10.1 **Biomass** is the use of organic matter to produce energy. The fuels can be categorised as either wet or dry, in the form of crop residue, coppiced wood or animal waste and are virtually carbon-neutral. Such fuels are currently being produced from a range of plant types such as short rotation coppice willow, clean wood waste from industry (e.g. pallets), produce from forestry operations (e.g. branches, lop and top), as well as from used cooking oil.
- 1.10.2 Biomass fuels can be used for space heating, for hot water and in Combined Heat and Power (CHP) units. Consideration needs to be given to the space required for storage and delivery of the fuel. Improved insulation to the building can reduce the amount of energy needed for heating and therefore the amount of space needed for storage of the fuel.
- 1.10.3 **Combined Heat and Power (CHP)** is the production of electricity and useful heat from a single plant. A CHP system generates electricity in the same way as conventional electricity but the by-product of heat which is generated by this process is retained and used for heating, hot water and cooling.
- 1.10.4 CHP units can be used on a variety of scales, from plants for large settlements (community heating) to schools, to individual buildings (micro-CHP). CHP can typically reduce carbon dioxide emissions by 60%. This increases when combined with thermal storage and absorption cooling.

## 1.11 Wind

- 1.11.1 Wind turbines use the wind to generate mechanical power for electricity generation. There are essentially two types of turbine – vertical axis machines with rotors that rotate about a vertical axis, and horizontal axis (the most common) with the rotating shaft aligned horizontally. Turbines can range in size from small domestic turbines to large offshore turbines. The wind is not a constant source of power, therefore a back up system would be needed which would usually be the National electricity grid.

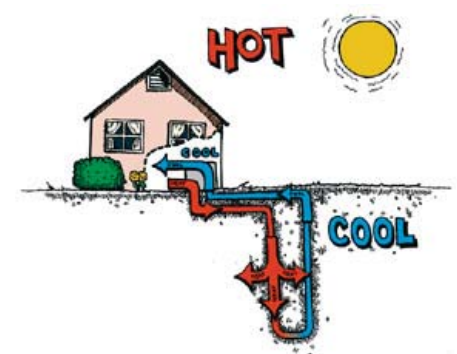
- 1.11.2 Wind velocity is a major factor in the location of wind turbines. Consideration will need to be given to wind speed and turbulence, and especially for larger turbines constraints such as radar stations, landscape designations and proximity to special wildlife areas or bird migration corridors. Proposals for wind turbines within the North Wessex Downs Area of Outstanding Natural Beauty should be informed by the study of 'Landscape Sensitivities and Constraints to Wind Turbine Development' (2005) (available from [www.northwessexdowns.org.uk](http://www.northwessexdowns.org.uk)).
- 1.11.3 Opportunities should be investigated to incorporate micro-turbines which can be integrated within both urban and rural areas and are suited for dwellings, commercial premises, community facilities and schools. A range of micro-wind turbines exist; one example being the 'Wind Save' domestic, three bladed micro-wind turbine, which can generate 700 watts from a rooftop location ([www.windsave.com](http://www.windsave.com)). Other suppliers include Proven Energy ([www.provenenergy.com](http://www.provenenergy.com)), Renewable Devices ([www.renewabledevices.com](http://www.renewabledevices.com)) and Eclectic Energy ([www.eclectic-energy.co.uk](http://www.eclectic-energy.co.uk)).
- 1.11.4 For all proposed turbine development care should be taken to selecting the turbine type and location to take advantage of available wind, but also to avoid or minimise visual impact, particularly if the proposed turbine is to be located near a listed building or conservation area or other sensitive location. The views of the local community and planning authority should be sought at an early stage in the design process.



Wind energy turbines

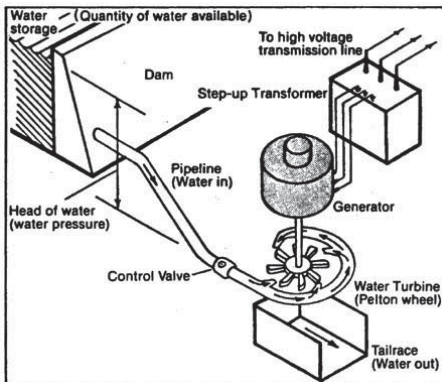
## 1.12 Ground Source Heat Pumps (GSHP)

- 1.12.1 Ground source heat pumps harness the energy from the ground. Whilst air temperatures vary throughout the year, the temperature of the ground remains relatively stable. The technology can therefore be used for heating during the winter (the most efficient use being under floor heating) and cooling during the summer.
- 1.12.2 The system works in a similar way to a fridge. A heat exchanger (also known as 'ground loop' or 'ground coil') is laid in the ground, water passes around this system and 'absorbs' the heat from the ground, a heat pump then relays this heat into the building. The heat exchanger can either be a series of pipes driven deep into the ground, or pipes laid in a series of trenches at shallower depths. The heat pump converts the heat generated from the ground into a usable higher temperature for the building. Trench systems require a large area of ground, whilst borehole systems require access for drilling along with a geological survey and contact should be made with the Environment Agency to see whether a permit is required.



Ground source heat pump  
Source: [www.igshpa.okstate.edu](http://www.igshpa.okstate.edu)

## 1.13 Micro/Small-scale Hydro



Micro hydro scheme  
Source: Environment Agency

- 1.13.1 Hydroelectric technology captures the energy from flowing water. It works by using the flow of the water to turn a turbine which generates electricity. Small-scale hydro schemes commonly involve the construction of a dam and a reservoir, the controlled flow of the released water from the reservoir then turns the turbine. Micro-hydro harnesses the power from flowing water such as streams. Efficiencies are greatly reduced at head heights of less than three metres.
- 1.13.2 Consideration must be given to any adverse impact on wildlife, visual impacts and any land that could be flooded. Early discussions with the planning authority, the Environment Agency and other statutory consultees such as English Nature are essential.

## 1.14 Noise

- 1.14.1 The mitigation of noise, particularly in residential development needs to be carefully designed into new development. Soft landscaping has limited effect. However the appropriate use of measures such as noise insulation techniques, bunds and noise barriers can mitigate disturbance from noise. This will be particularly relevant where new development is located near to busy roads, railway lines or other noise generating infrastructure.

## 1.15 Materials Selection and Sustainable Construction Methods

- 1.15.1 Opportunities to construct new development using renewable and low impact resources should be taken. This should include the use of locally sourced materials and labour where possible. The reuse of excavated soils and construction waste within new development (e.g. for landscaped areas) should be considered and developers may be required to submit a Site Waste Management Plan alongside planning applications for larger proposals.
- 1.15.2 There are several sustainable building methods that can be used in new development, for instance;

- High levels of insulation to reduce winter heat loss and therefore energy demand and to help keep buildings cool in the summer;
- Specifying insulating materials, that avoid the use of ozone depleting substances and have a global warming potential (GWP) of less than 5, for roofs,



Sustainably sourced materials  
Copyright Forestry Stewardship Council ([www.fsc.org](http://www.fsc.org))



Locally resourced timber

walls, floors, hot water cylinders, pipe insulation and other thermal storage. (Ref: BRE EcoHomes – The environmental rating for homes, 2005; Pol 1 Insulant ODP and GWP);

- Renewable energy technologies such as solar photovoltaics, active solar thermals, wind turbines, micro-hydro, biomass heating, ground source heat pumps (provided they run on electricity generated from a renewable source), thermal moderation by ground or water sources, heat and /or electricity from a local community heating / CHP network (Ref: BRE EcoHomes – The environmental rating for homes, 2005; Pol 4 Zero Emission Energy Source);
- Encouraging timber products coming from responsibly managed forests, for timber frames, floor joists, roofs, walls, windows, doors etc (Ref: BRE EcoHomes – The environmental rating for homes, 2005; Mat 1 Timber: Basic Building Elements and Mat 2 Timber: Finishing Elements);
- The use of recycled building materials such as the crushing and re-use of concrete, use of clay or slate roof tiles, bricks and wooden structural beams. Materials from demolished buildings on the site that cannot be re-used should as far as possible be disposed of to a second hand building materials supplier for use elsewhere.



**Sustainable construction**



**Use of natural materials**

## 1.16 Working from Home

1.16.1 The number of self-employed people is increasing, as is the number of people who work from home. The benefits of working from home include reductions in transport movements, increased time available for the home worker and greater opportunity to participate within community activities. Working from home for most people requires either an office or a flexible space within living areas that can be used as an office. Usually a telephone line and connection to the internet is necessary. In order to encourage working at home, spaces for home offices should include;

- Windows or adequate ventilation;
- Space to allow for desk, filing cabinet, bookshelf, with space to move around and open the door

1.16.2 For dwellings with two or more bedrooms, the space should be in a room other than the kitchen, living room, master bedroom or bathroom. (Ref: BRE EcoHomes – The environmental rating for homes, 2005; TRA4 Home Office)





Recycling collection basket

## 1.17 Recycling

- 1.17.1 Developments should provide dedicated space for internal and / or external storage bins (external storage areas to be accessible by Local Authority collection lorries if necessary). Gardens should also provide accessible spaces for home composting.  
(Ref: BRE EcoHomes – The environmental rating for homes, 2005; Mat 3 Recycling Facilities and Mat 4 Environmental Impact of Materials)



Safe and secure bicycle storage

## 1.18 Promoting Cycling

- 1.18.1 To promote and increase cycling and to ensure that it is an easy and safe option for travel, developments will be expected to:
- Provide a secure place within the development, where appropriate, (whether residential or commercial) for residents, workers and visitors bicycles (communal storage will require individual locks);
  - Provide garages with enough space to store both bicycles and cars;  
(Ref: BRE EcoHomes – The environmental rating for homes, 2005; TRA2 Cycle Storage)

As stated in section 1.2, this SPD requires all new development to achieve BREEAM/EcoHomes rating (or equivalent) of at least “**Excellent**” (1).

References to BRE advice appear throughout this document.

This document, Part 4, provides a range of methods that can be used to help achieve this standard and is a real resource for improving the environmental footprint of developments.

For further information and guidance on the BRE requirement, please see the Development Control guidance note which is available to view on the Planning Advice page under the Development Control section of the Council’s web site at [www.westberks.gov.uk](http://www.westberks.gov.uk)

(1) In some locations an “excellent” rating may not be achievable due to remoteness from services. Developments involving extensions and conversions will not, at this time, be required to adhere to this standard



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Local  
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***Halcrow***

Prepared by Halcrow on behalf of West Berkshire Council