## Appendix 1 - Glossary of Terms

**Biodiversity**
The diversity of plant and animal life in a particular habitat.

**Bio fuel**
Fuels used from biological materials including crops and animal wastes.

**BREAAM**
Building Research Establishment Environmental Assessment Method – independent appraisal method to certify environmental performance of a building.

**Combined Heat and Power (CHP)**
CHP uses a generator to produce electricity and heat, providing power, heating and hot water. A CHP plant using bio-fuels such as wood would be considered to be a renewable energy source.

**Filter Strip**
Strip or area of vegetation used for removing sediment, organic matter, and other pollutants from runoff and wastewater.

**Fuel Poverty**
Fuel poverty describes a situation where energy costs comprise more than 10% of an individual's income.

**Green Infrastructure**
Green infrastructure is the multi-functional network of green spaces which are important for recreation and well-being.

**Green Roofs**
A Green Roof is a roof with vegetation growing on it; this can vary from moss or grass to a fully-fledged roof garden.

**Greywater**
Water that has been used once in a house or building for bathing or dishwashing and can therefore be used again, e.g toilet flushing.

**Ground Source Heat Pumps (GSHPs)**
GSHPs provide heating in the winter and in some cases cooling in the summer, using an underground loop of pipework. Water is pumped through the pipes absorbing the ground heat.

**Major Development**
A development that is over 1000$m^{2,}$ or 10 units, or over 0.5ha in size.

**Rainwater Harvesting**
Collection and re-use of rainwater through the use of water butts or other similar storage facilities.

**Passive Solar Design**
The principle of passive solar design is to optimise the amount of energy that can be derived from the sun. This can be achieved through the careful design and orientation of a building or a whole development.

**Solar Water Heating**
Requires the installation of a solar water collector, usually on the roof. Water is pumped through the collector absorbing heat from solar radiation.

**Solar Photovoltaics (PV)**
PV cells convert solar radiation into electricity.

**Sustainable Drainage Systems (SUDS)**
SUDS are made up of one or more structures built to manage surface water runoff. There are four general methods of control: filter strips and swales, filter drains and permeable surfaces, infiltration devices and basis and ponds.

**Wind Turbine**
Machine for generating electricity from the wind.

## Appendix 2 - Policy Context

| International Context | Key references |
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| Kyoto Protocol (UN Framework Convention on Climate Change, 1997) | |
| The Aarhus Convention (UNECE, 1998) | |
| The Johannesburg Declaration of Sustainable Development (UNDESA, 2002) | |
| **European Context** | |
| EC Council Directive 2000/60/EC Water Framework Directive | |
| EC Council Directive 92/43/EEC Conservation of Natural Habitats, Flora and Fauna | |
| EC Council Directive 91/156/EEC EU Framework Directive on Waste | |
| **National Context** | |
| Climate Change The UK Programme 2006 (DEFRA, 2006) | |
| PPS1 – Delivering Sustainable Development (ODPM, 2005) | |
| PPS1 Supplement – Planning and Climate Change (DCLG, 2007) | |
| PPS7 – Sustainable Development in Rural Areas (ODPM, 2004) | |
| PPS9 – Biodiversity and Geological Conservation (ODPM, 2005) | |
| PPS10 – Planning for Sustainable Waste Management (ODPM, 2005) | |
| PPS22 – Renewable Energy (ODPM, 2004) | |
| PPS25 – Development and Flood Risk (DCLG, 2006) | |
| Building a Greener Future: Towards Zero Carbon Development (Consultation) (DCLG, 2006) | |
| Building A Greener Future: Policy Statement (DCLG, 2007) | |
| Code for Sustainable Homes (DCLG, 2006) | |
| Code for Sustainable Homes – Technical Guide (DCLG, 2007) | |
| The Future of the Code for Sustainable Homes (Consultation) (DCLG, 2007) | |
| Homes for the Future: more affordable, more sustainable (DCLG, 2007) | |
| Meeting the Energy Challenge: A White Paper on Energy (HM Govt, 2007) | |
| Securing the Future: delivering UK sustainable development strategy (DEFRA, 2005) | |
| Sustainable Communities: Building for the Future (ODPM, 2003) | |
| **Regional Context** | |
| A Sustainable Future for the South West (South West Regional Assembly, 2002) | |
| Creating Sustainable Communities in the South West (ODPM, 2005) | |
| Regional Renewable Energy Strategy for the South-West 2003-2010 (REGENSW, 2003) | |
| Draft Regional Spatial Strategy for the South West 2006-2026 (SWRA, 2006) | Policy SD1: The Ecological Footprint<br>Policy SD2: Climate Change<br>Policy SD3: The Environment and Natural Resources<br>Policy SD4: Sustainable Communities<br>Development Policy E: High Quality Design<br>Development Policy G: Sustainable Construction<br>Policy RE5: Renewable Energy and |

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|---|---|
| | New Development<br>Policy W4: Controlling, Re-using and Recycling Waste in Development |
| RPG 10: Regional Planning Guidance for the South West (GOSW, 2001) | Policy VIS1: Expressing the Vision<br>Policy VIS2: Principles for Future Development<br>Policy EN1: Landscape and Biodiversity<br>Policy EN4: Quality in the Built Environment<br>Policy RE5: Renewable Energy and New Development<br>Policy RE6: Water Resources |
| The Way Ahead – Delivering Sustainable Communities in the South West (SWRDA/GOSW/SWRA, 2004) | |
| **Local Context** | |
| The Swindon Borough Local Area Agreement 2006 – 2009 (Swindon Borough Council) | Indicator 2: Energy Efficiency<br>Indicator 4: Renewable energy installation |
| A Climate Change Action Plan for Swindon Borough 2006-2010 (Swindon Strategic Partnership, 2006) | Key targets:<br>Reduce Swindon Borough's CO2 emissions by 20% from 1990 levels by 2010.<br>Reduce Swindon Borough's CO2 emissions by 60% from 1990 levels by 2050. |
| Our Swindon, Our Community, Our Future - A Community Strategy for Swindon 2004-2010 (Swindon Strategic Partnership) | Making Swindon a place which values it environment |
| Swindon Borough Council Corporate Plan 2004-2007 (Swindon Borough Council) | |
| Swindon Borough Local Plan 2011 (Swindon Borough Council, 2006) | Policy DS6: Standards of Design and Amenity<br>Policy DS7: Urban Design<br>Policy ENV22: Ground and Surface Water Protection<br>Policy CF11: Renewable Energy Development<br>Policy CF12: Wind Turbine Development<br>Policy ENV8: Access for all |
| Swindon Local Biodiversity Action Plan (Swindon BAP Steering Group, 2005) | |
| Wiltshire & Swindon Renewable Energy Action Plan 2005 (Wiltshire Wildlife Trust and Severn Wye Energy Agency, in partnership with the WREF) | Establishes a target of 15% renewable energy for all new development. |
| Wiltshire and Swindon Structure Plan 2016 (Wilts CC, Swindon BC) | Policy DP1: Priorities for Sustainable Development<br>Policy C5: The Water Environment<br>Policy RE1: Renewable Energy<br>Policy MSP1: Meeting the need for minerals<br>Policy W1: Reducing, Re-using and Recovering Waste |
| Wiltshire and Swindon Waste Local Plan 2011 (Wilts CC, Swindon BC) | Policy 10: Waste Audits<br>Policy 11: Materials Recovery and Recycling Facilities<br>Policy 14: Provision for Recycling in New and Refurbished Development |
| Waste Audits and Provision for Recycling in New and Refurbished Developments Supplementary Planning Guidance, March 2005 (Wilts CC, Swindon BC) | |

## Appendix 3 - SUDS

- **Soakaways**
- **Permeable Surfacing**
- **Swales and Basins**
- **Infiltration Trenches and Filter Drains**
- **Ponds and Wetlands**
- **On site Stormwater Detention (OSD)**
- **Reed Bed Filtration**

**Soakaways**
Soakaways are vegetated areas of gently sloping ground designed to drain water evenly off impermeable areas and filter out silt and other particulates. Although these have been traditionally used in more remote locations away from public sewers or where sewers have reached capacity, soakaways may be used as an alternative connection to the piped system.

**Permeable Surfacing**
Materials such as porous concrete blocks, crushed stone/gravel or porous asphalt can be used to encourage surface water to permeate into the ground. Depending on the ground conditions, the water may infiltrate directly into the subsoil, or be stored in an underground reservoir (e.g. a crushed stone layer) before slowly soaking into the ground. If necessary, an overflow can keep the pavement free of water in all conditions. Pollutant removal occurs either within the surfacing material itself, or by the filtering action of the reservoir or subsoil.

**Swales and Basins**
Swales are dry channels or ditches, whereas basins are dry "ponds" which provide temporary storage for storm water, reduce peak flows to receiving waters, and facilitate the filtration of pollutants and microbial decomposition as well as facilitating water infiltration directly into the ground. Both can vary in size and therefore can be created as features within the landscaped areas of the site, or they can be incorporated into ornamental, amenity and screen planted areas where they would be maintained as part of a normal maintenance contract. Swales and basins are often installed as part of a drainage network connecting to a pond or wetland prior to discharge to a natural watercourse. They may be installed alongside roads to replace conventional kerbs, therefore saving construction and maintenance costs.

**Infiltration Trenches and Filter Drains**
Infiltration trenches are stone filled reservoirs to which stormwater runoff is diverted and from which the water gradually infiltrates into the ground. Filter strips, gullies or sump pits can be incorporated at inflow points to remove excess solids. Filter drains are similar to infiltration trenches but have a perforated pipe running through them. They are widely used by highway authorities for draining roads and help to slow down runoff water en route towards the receiving watercourse. They allow storage and filtration of water before the discharge point. Pollutant removal is by absorption, filtering and microbial decomposition in the surrounding soil.

**Ponds and Wetlands**
These can be particularly beneficial during heavy rain due to their capacity to hold large amounts of water and therefore reduce flood risk and are best suited to larger sites where they can be incorporated into landscaping schemes. Ponds and wetlands also help with grit removal. Algae and plants in wetlands can significantly assist with filtering and nutrient removal. The ponds and wetlands can be fed by swales, filter drains or piped systems. Use of inlet/outlet sumps assist in reducing sedimentation and reeds planted at these points will cleanse water as it enters and leaves the pond.

**On site Stormwater Detention (OSD)**
Onsite Stormwater Detention (OSD) is an option where SuDS are not practical due to soil and ground conditions. This is normally achieved by installing large diameter pipes, culverts or tanks. The basic principal of on-site storage is that during heavy rain, surface water run-off from roofs, car parks and large paved areas is directed to a storage tank. Water is stored and normally discharged to a main sewer using a suitable flow control device. At the end of heavy rain, the storage tank is typically emptied either as a gravitational or pumped system and is then ready for the next storm. Another sustainable approach is to reuse stored storm water volumes for garden irrigation and/or exposing the system by incorporating visible water features such as fountains and mechanical misters for evaporative cooling.

**Reed Bed Filtration**
A reed bed filtration system is a sewage treatment system, which is constructed after a septic tank to improve the cleanliness of septic tank discharges. Some industrial effluents can also be treated by reed bed systems. The reeds planted in gravel supply, via their roots, oxygen to bacteria that live in the gravel. The bacteria clean the sewage allowing treated, clean water to be discharged to a watercourse without harm to the environment and wildlife.

A septic tank and reed bed system is the simplest and cheapest form of sewage treatment available to rural populations. Reed beds allow developments to be sited where conventional soakaway systems are not suitable. Reed beds require very little maintenance after their first year of operation and have almost no running costs. In rural areas, the use of reed beds in domestic developments, which generate small volumes of effluent, can mean that they are often more cost effective than conventional systems. In addition, reed beds provide the additional benefits of a landscaped feature and add ecological value by creating a habitat for insects and amphibians.