

# Cardiff Green Infrastructure SPG

## Supplementary Planning Guidance



**Consultation Draft**

June 2017



# **Green Infrastructure Supplementary Planning Guidance (SPG)**

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This document is available in Welsh / Mae'r ddogfen hon ar gael yn Gymraeg

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*Green infrastructure is a network of multi-functional, connected green spaces that make the best use of land and provide green open space for all, helping wildlife to flourish, and delivering a wide range of economic, health and community benefits.'*

## **1 Introduction**

### **1.1 Green infrastructure in new developments**

1.1.1 This draft Supplementary Planning Guidance (SPG) document sets out Cardiff Council's approach to the consideration of green infrastructure in relation to new developments. It provides further guidance to **Policy KP16: Green Infrastructure** set out in the Cardiff Local Development Plan 2006 – 2026 and will assist in securing the provision of sustainable development across the City as part of the Liveable Cities agenda.

1.1.2 Welsh Government supports the use of Supplementary Guidance (SPG) to set out detailed guidance on the way in which development plan policies will be applied in particular circumstances or areas. SPG must be consistent with development plan policies and national planning policy guidance. SPG helps to ensure certain policies and proposals are better understood and applied more effectively. They do not have the same status as the adopted development plan but are a material consideration in the determination of planning applications

1.1.3 This SPG is likely to be of particular benefit to those considering development proposals which may affect green infrastructure in Cardiff. It enables developers, landowners and potential objectors to understand how the Council considers development proposals and the standard of provision sought.

### **1.2 Cardiff Council's Green Infrastructure Strategy**

- 1.2.1 Cardiff Council's strategy for considering green infrastructure is set out in the Green Infrastructure Plan document. Our vision for green infrastructure is:-

*'Cardiff's distinctive natural heritage will provide a network of green infrastructure which will be protected, enhanced, developed and managed to ensure that its integrity and connectivity is sustained for the economic, social and environmental benefit of the City and the Region.'*

- 1.2.2 In relation to planning and development; all new developments will need to satisfy the requirements for green infrastructure as set out in Policy KP16 of the Cardiff Local Development Plan, i.e.,

*'Cardiff's distinctive natural heritage provides a network of green infrastructure which will be protected, enhanced and managed to ensure the integrity and connectivity of this multi-functional green resource is maintained.'*

*'Protection and conservation of natural heritage network needs to be reconciled with the benefits of development. Proposed development should therefore demonstrate how green infrastructure has been considered and integrated into the proposals. If development results in overall loss of green infrastructure, appropriate compensation will be required.'*

- 1.2.3 The policy and legislative context of Cardiff Council's green infrastructure strategy is explained in Section 2 of the Green Infrastructure Plan document, which sets out how international, national and regional strategies, extant legislation, and national and local planning policies relate to green infrastructure. The Welsh Government supports the use of SPG to set out detailed guidance on the way in which development plan policies will be applied in particular circumstances or areas. SPG must be consistent with development plan policies and national planning policy guidance and may be taken into account as a material planning consideration in planning decisions. The policy context is given below.

1.2.4 Aside from KP16, there are other policies within the Cardiff Council LDP which are relevant to green infrastructure. These are listed in the bullet points in the text of KP16.

1.2.5 In the light of these policies, planning submissions that are likely to significantly impact upon green infrastructure will be considered to ensure that:

- The existing green infrastructure resource on the development site, and the potential impacts upon it, have been adequately considered
- The benefits of green infrastructure are reconciled with benefits of development
- Green infrastructure is integrated into proposals
- Opportunities for enhancement of green infrastructure, for the benefit of the community, have been taken as far as is reasonably possible

1.2.6 In order to achieve this:

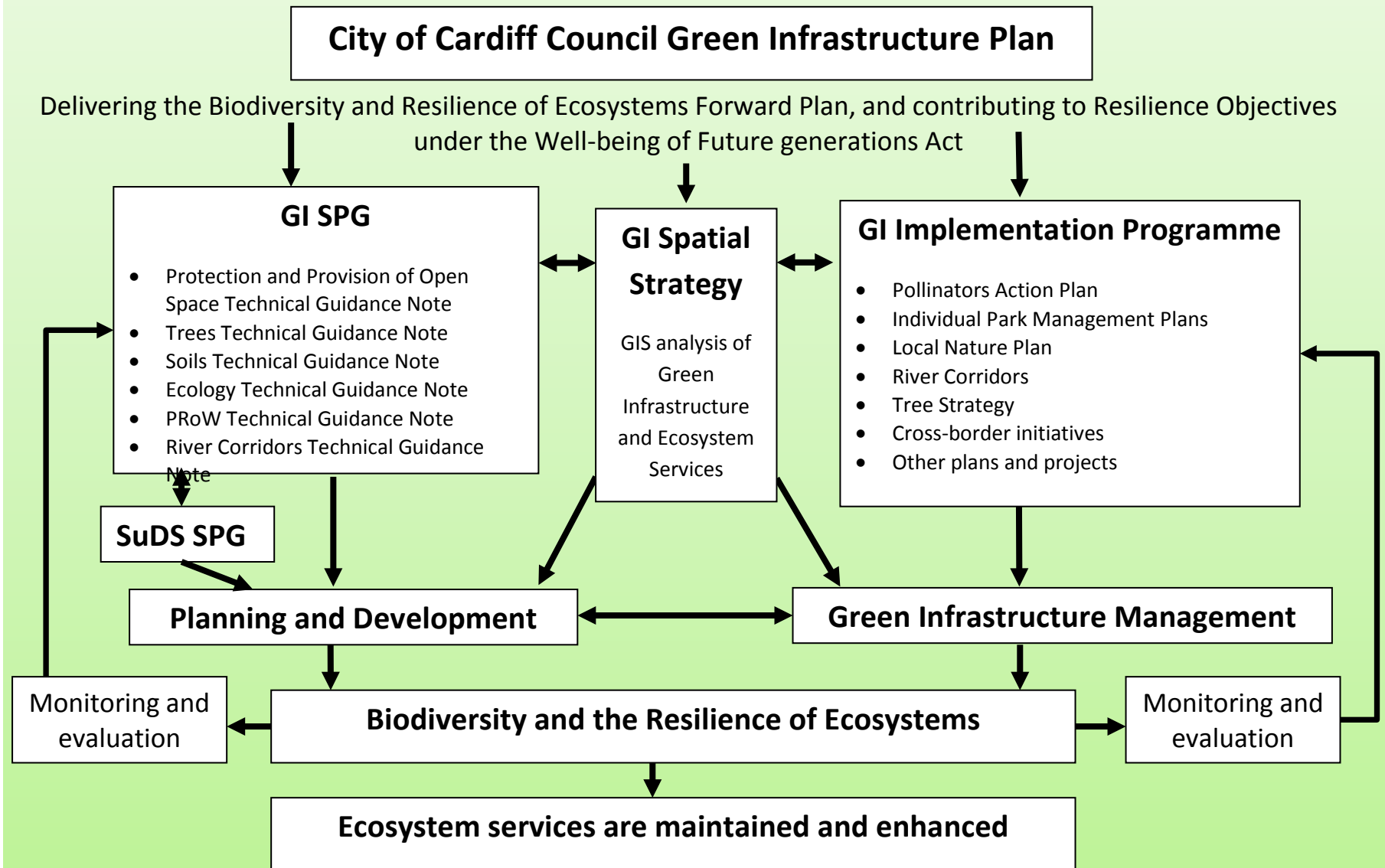
- Surveys may be required to establish the existing green infrastructure resource
- Assessments may be required to establish the impact of the proposed scheme upon that resource
- Conditions or planning obligations will be used to protect and enhance green infrastructure
- Compensation will be required for the loss of green infrastructure where the benefits of development outweigh the retention and / or enhancement of existing green infrastructure
- Management arrangements for green infrastructure must be in place before development commences

Further details of these requirements are set out in the Planning Obligations SPG, and in the Cardiff Liveable Design Guide.

1.2.7 Planning advice on Green Infrastructure will be provided by an integrated Green Infrastructure Group, comprising officers from across Cardiff Council. As in Figure 1 below, and as listed in the text of KP16, this Green Infrastructure SPG relates closely to other planning guidance relating to the other components of green infrastructure. Advice on these components is provided in a series of **Technical Guidance Notes (TGNs)**, which are part of this SPG, as follows:-

- Ecology and Biodiversity TGN
- Protection and Provision of Open Space TGN
- Public Rights of Way and Development TGN
- River Corridors TGN
- Soils and Development TGN
- Trees and Development TGN

Figure 1. Cardiff Council Green Infrastructure Process





### **1.3 Cardiff's strategic green infrastructure objectives**

1.3.1 The overall Green Infrastructure Plan sets out six objectives upon which that plan is based:-

1. To protect and enhance Cardiff's ecosystems to ensure that they continue to support diverse habitats and species, allowing them to adapt to change.
2. To ensure that Cardiff's green infrastructure is enhanced and managed in a way that increases resilience to the changing climate and provides protection for people and places.
3. To maximise the contribution that green infrastructure makes to Cardiff's economy by enhancing the city's attractiveness for business, tourism and living.
4. To increase the potential physical and mental health benefits from a good quality, natural environment by improving, promoting and creating connected, multi-functional green infrastructure in Cardiff.
5. To use Cardiff's green infrastructure to provide opportunities for people to access the outdoor environment and to participate in learning, training and volunteering to foster social inclusion and equality and improve life chances.
6. To build upon Cardiff's reputation as a vibrant, green and attractive city by continuing to enhance and sustain the green infrastructure that underpins the city's unique qualities and sense of place.

1.3.2 Any development which is likely to significantly affect green infrastructure should seek to maximise the contribution to these six objectives.

## 1.4 Definitions

1.4.1 For the purposes of this document, the definitions set out in Table 1 below apply.

Table 1. Definition of Terms

<b>Biodiversity</b>	The wide variety of ecosystems and living organisms; animals, plants, their habitats and their genes.
<b>Ecosystem</b>	An ecosystem may be considered as a unit within which an assemblage of living organisms interact with each other and with the chemical and physical environment. The resulting natural processes establish a series of complex ecological balances. Ecosystems may operate at a wide range of scales, from long-term global systems such as oceans, to very small, localised or ephemeral systems.
<b>Ecosystem services</b>	Human beings benefit from processes or structures within ecosystems that give rise to a range of goods and services called ‘ecosystem services’. These range from the relatively simple, such as crop pollination to the highly complex, such as maintenance of soil fertility, sinks for waste or regulation of the climate. Ultimately all human life depends on ecosystem services for fundamental necessities such as clean air, clean water and food production. Services can be grouped into four categories – supporting services, provisioning services, regulating services and cultural services.
<b>Ecosystems approach</b>	A strategy for the integrated management of land, water and living resources that promotes conservation and sustainable land use in an equitable way.
<b>Green infrastructure</b>	Green infrastructure is a network of multi-functional, connected green spaces that make the best use of land and provide green open space

	<p>for all, helping wildlife to flourish, and delivering a wide range of economic, health and community benefits.</p>
<p><b>Major Development</b></p>	<p>Major development is defined in article 2 of the Town and Country Planning (Development Management Procedure) (Wales) Order 2012: ‘major development’ means development involving any one or more of the following—</p> <ul style="list-style-type: none"> <li>(a) the winning and working of minerals or the use of land for mineral-working deposits;</li> <li>(b) waste development;</li> <li>(c) the provision of dwelling houses where (i) the number of dwelling houses to be provided is 10 or more; or (ii) the development is to be carried out on a site having an area of 0.5 hectares or more and it is not known whether the development falls within sub-paragraph (c)(i);</li> <li>(d) the provision of a building or buildings where the floor space to be created by the development is 1,000 square metres or more;</li> <li>(e) development carried out on a site having an area of 1 hectare or more.</li> </ul>
<p><b>Open space</b></p>	<p>The following definition of open space is taken from TAN16:</p> <p>Open space is defined in the Town and Country Planning Act 1990 as land laid out as a public garden, or used for the purposes of public recreation, or land which is a disused burial ground.</p> <p>For the purposes of this guidance, open space should be regarded as all open space of public value, including not just land, but also areas of water such as rivers, canals, lakes and reservoirs which offer important opportunities for sport, recreation and tourism, and can also act as a visual amenity, and may have conservation and biodiversity importance.</p>

	<p>Areas which are privately owned may have amenity value, although access will not be possible without the agreement of the land owner. Areas like domestic gardens are relevant, since places without or with few gardens, are likely to be more reliant upon the provision of public spaces.</p>
<p><b>Public open space</b></p>	<p>The term public open space is often used interchangeably with the term open space and in legal terms, the definition is the same (see above).</p> <p>Public open space in the ownership of the local authority is held under either:</p> <ul style="list-style-type: none"> <li>(a) the purpose of section 164 of the Public Health Act 1875 (pleasure grounds); or</li> <li>(b) in accordance with section 10 of the Open Spaces Act 1906 (duty of local authority to maintain open spaces and burial grounds)</li> </ul> <p>Any disposal of public open space must conform to the requirements of the Local Government Act 1972 and any subsequent amendments.</p>
<p><b>Public right of way (PRoW)</b></p>	<p>A PRoW is a highway maintained at public expense which the public may use at any time. There are four types of PRoWs in Wales (footpaths, bridleways, byways open to all traffic and restricted byways) which the highway authority has a duty to protect and maintain under Section 130 of the Highways Act 1980.</p> <p>The Definitive Map and statements is held at the highway authority office and is a legal record of the rights of way network. Detailed information about how a path alignment can be changed (i.e. create,</p>

	<p>extinguish, or divert) is provided in the PRow Technical Guidance Note (TGN).</p>
<p><b>Sustainable drainage systems (SuDS)</b></p>	<p>When land is altered by development, the natural process is often impeded, with the increase in impermeable area exacerbating flooding, pollution and erosion problems.</p> <p>Sustainable Drainage seeks to manage rainwater at source with the aim of reducing damage from flooding whilst maximising opportunities and benefits in relation to water quality, quantity, amenity and biodiversity both now and in the future (climate change). The early concept design of SuDS within a development provides the best opportunity to allow development to accommodate more significant rainfall events and reduce flooding.</p> <p>Examples of SuDS techniques are attenuation basins and ponds, swales, rain gardens, green roofs, etc. SuDS that are designed to manage rainwater at source and on the surface with the incorporation of vegetation provide the greatest benefit. The design of SuDS in combination with the ecosystems approach can provide significant betterment to ecosystem connectivity within and between developments.</p> <p>Detailed information relating to the requirements for the incorporation of SuDS into development is provided in the City of Cardiff Council SuDS Technical Standards.</p>

## **2 Green infrastructure requirements for new developments**

### **2.1 General principles for provision of green infrastructure**

2.1.1 In considering a development proposal against the KP16: Green Infrastructure policy, the following guiding principles will be applied as appropriate:-

- The components of what makes up green infrastructure are set out in section 1.2 of the Green Infrastructure Plan. Depending upon the context of the site, a range of these features, and the interactions between them, may be relevant, and must be considered in relation to new developments
- New major developments must include a Green Infrastructure Statement which should be appropriate to the scale of the development
- Minor or householder proposed developments may have impacts upon green infrastructure, but this is more likely to affect individual elements, such as protected trees, local SuDS features, or habitats which support protected species
- All elements of green infrastructure referred to in the text of policy KP16 must be considered in a holistic, integrated way
- For all new major developments, identification of the blue-green corridor (hydrological impact assessment) to determine flood risk and hydrological restrictions must be undertaken first
- Any masterplan for new major development must take into account the six strategic objectives of the Green Infrastructure Plan (see Section 1.3 above)
- Potential trade-offs between different elements of green infrastructure must be addressed according to the criteria in Section 3 below
- Green infrastructure policies will apply to both brownfield and greenfield developments

- Green infrastructure must be considered in terms of the phasing of the development and in conjunction with adjacent developments to achieve connectivity

2.1.2 Developments will be considered to terms of major and minor developments. Minor developments include alterations to existing buildings and structures, and built developments of between 1 and 9 dwellings. Major developments are as defined in Table 1, above.

## **2.2 Assessment of existing green infrastructure prior to development**

2.2.1 For all major developments, the existing green infrastructure resource in and around the site, based on the list of features in section 1.2 of the Green Infrastructure Plan, must be described and assessed. A thorough contextual analysis of the role of existing green infrastructure in and around the site (e.g. hydrology, habitats, public rights of way and parks) should be provided, appropriate to the scale of the proposed development. This should include a large scale map identifying the role of existing green infrastructure in the connecting wider city and neighbourhood context.

2.2.2 Evidence used to describe this resource can include novel approaches such as mapping of ecosystems and ecosystem services, and GIS network and opportunity analysis, as these and other resources become available.

## **2.3 Assessment of impact upon existing green infrastructure**

2.3.1 The likely impact of the proposals upon green infrastructure features must be assessed. This should include a holistic assessment of all of the elements of green infrastructure, including the synergies and trade-offs between them. The assessment should also consider the impact not only upon the green infrastructure within the development site, but also upon the surrounding green infrastructure context. Subsequently the needs for development must be reconciled with the need to

maintain and enhance green infrastructure. This assessment of impact should be undertaken by a landscape architect, ecologist or similarly qualified professional.

## **2.4 Green Infrastructure Statement**

- 2.4.1 The culmination of analysis and conclusions of an impact assessment should be used to inform a Green Infrastructure Statement, which shows how all elements of the proposed green infrastructure (retained and new) and any associated uses and movement have a clear role and purpose in the new development. Conclusions drawn from analysis of this resource should be expressed in an illustrative way, in the form of a Green Infrastructure Masterplan or Landscape Masterplan or similar. The resulting approach should explain how this is achieving good design. Examples include: why a hedgerow should remain in situ or where it is better relocated to create overlooked, connected streets and spaces; why a public right of way should remain in situ or if it is better diverted to maintain the rural function of rights of way in a green corridor and avoid isolated footpaths, lanes or alleyways through urban areas; whether or not a park is accessible by walking and cycling and how it might be integrated or modified to improve accessibility.
- 2.4.2 The Green Infrastructure Statement will include illustrations, plans and drawings that articulate how reports and technical data (e.g. tree and hedgerow assessments, landscape studies, environmental statements, hydrological reports) have been interpreted spatially. These need to communicate how conclusions have been drawn and how this has informed the design layout and landscape strategy. Additional sections and examples of existing areas (case studies/precedents) may be requested at key locations to illustrate what is proposed.
- 2.4.3 Where the masterplanning approach is invoked as set out in policy KP4 of the LDP, green infrastructure should inform, and be incorporated into, the masterplan of the site.



2.4.4 The Environment (Wales) Act 2016 places a duty upon public bodies such as Cardiff Council to promote the resilience of ecosystems. Similarly, the Guidelines for Ecological Impact Assessment 2016 2<sup>nd</sup> edition produced by CIEEM require that impacts upon ecosystems are considered as well as those upon habitats and species. Therefore all major planning applications should set out how impacts upon ecosystems have been assessed, and where necessary, mitigated. This assessment should be included in the Green Infrastructure Statement.

## 2.5 Green infrastructure impact mitigation

2.5.1 A Green Infrastructure Statement should apply the following mitigation hierarchy, i.e.

**Information** Sufficient information should be provided as to allow proper assessment of the impacts of a proposal, as set out in points 2.2 to 2.4 above

**Avoidance** Where possible, potential impacts upon green infrastructure should be avoided

**Mitigation** Where adverse impacts cannot be avoided, mitigation measures should be introduced to minimise or counteract them.

**Compensation** Where residual adverse impacts remain after mitigation measures have been implemented, it may be necessary to secure compensatory provision of new green infrastructure. Where offsetting mechanisms exist in the Cardiff area, consideration should be given to whether an offsetting scheme will result in a better outcome for green infrastructure interests than more traditional elements of the mitigation hierarchy.

**Enhancement** All development should seek to enhance green infrastructure

2.5.2 The application of the mitigation hierarchy should be appropriate to the scale of the development proposed and to the scale of the impact upon green infrastructure. Generally, the larger the proposed development, the more of the elements of green infrastructure listed in policy KP16 will need to be considered.

2.5.3 As a guide, it may be useful to consider the following framework for identifying elements of existing green infrastructure present on the site before development and how these are going to be dealt with:

- **Necessary to retain** – Green infrastructure that has been identified as having a critical strategic, ecological, functional or statutory role to fulfil, which cannot be replaced. These need to be integrated as appropriate into development with necessary buffer zones and limited public access if appropriate)
- **Preferable to retain** - features or landforms that have a quality or place-making value which can help shape built features, such as Parks, Green Corridors or SuDS areas
- **Can be removed or altered** – features which should be retained where possible, but for which there is evidence that it would be problematic to integrate into the layout in the interests of achieving overall good design. Likely features include landscaping which previously had a role in a countryside setting, but would be difficult to integrate and/or maintain in a built-up area, such as areas of scrubland or hedgerows which would cause movement barriers, overshadowing, creation of isolated footpaths/lanes, or difficult to maintain areas that would be better relocated in a strategic green corridor

2.5.4 Green infrastructure enhancements incorporated into new development should be multi-functional as far as possible, and aim to provide a range of green infrastructure benefits.

2.5.5 The Planning Obligations Supplementary Planning Guidance (SPG) sets out the Council's approach to planning obligations when considering applications for development in Cardiff. It also sets out the mechanisms for securing survey, assessment, mitigation, compensation and enhancement of the constituent components of green infrastructure.

2.5.6 In general, the main principles of a mitigation strategy should be set out in the Green Infrastructure Statement, but detailed mitigation will be set out in documents required by planning condition. Protection of green infrastructure during construction should be secured by a Green Infrastructure Construction Protection Plan, either as a standalone document or as part of a Construction Environmental Management Plan (CEMP). Ongoing management and maintenance of green infrastructure features following construction of the development should be secured by a Green Infrastructure Management Strategy (GIMS), either at a strategic level for larger outline applications, or at a detailed level for smaller and reserved matter applications.

### **3 Integration of green infrastructure**

#### **3.1 Introduction**

- 3.1.1 Where the green infrastructure resource at a site has been identified, and the impacts of a proposed development have been assessed, the subsequent mitigation approach should take into account all relevant elements of green infrastructure. In many cases, there will be opportunities for the mitigation approach to result in multiple benefits for several different elements. However, there may also be instances where the requirements of different elements are incompatible with each other, so trade-offs are required.
- 3.1.2 This section outlines some of the key components of green infrastructure to be considered in new developments. It provides some examples of the potential positive or negative interactions with other green infrastructure components, though this is by no means an exhaustive list of all such scenarios. Other components such as geology, landscape and historical features are not specifically considered in the current version of this SPG.
- 3.1.3 It is expected that development will seek to take advantage of any opportunity to exploit the synergy between different elements of green infrastructure, for example by ensuring that open space delivers multiple benefits.
- 3.1.4 Similarly, it is expected that development will seek to resolve potential conflict between different elements of green infrastructure, in accordance with the guidance set out below, in order to achieve a solution which maximises green infrastructure benefits.
- 3.1.5 Appendix 1 summarises these considerations and is intended to aid the developer in ensuring that a Green Infrastructure Statement is as comprehensive as necessary.

3.1.6 Further detail on specific requirements for each component, including quantity, quality and requirements for aftercare is provided in a series of Technical Guidance Notes.

3.1.7 Further guidance on the design of green infrastructure and the integration of the different elements of green infrastructure into the design of development is given in section 8 of the Cardiff Liveable Design Guide.

### **3.2 Holistic Integrated Surface Water Management Systems**

3.2.1 Holistic Integrated Surface Water Management Systems are more commonly known as ‘Sustainable Drainage Systems’ or ‘SuDS’. Detailed guidance in respect of SuDS and development is provided in the SuDS SPG which informs LDP Policies EN10 and EN14.

*The SuDS Manual (CIRIA C753)* approach to managing surface water runoff incorporates the latest technical advice and adaptable processes to assist in the planning, design, construction, management and maintenance of SuDS. This document advocates:-

- Using surface water runoff as a resource;
- Managing rainwater close to where it falls (at source);
- Managing runoff on the surface (above ground);
- Allowing rainwater to soak into the ground (infiltration);
- Promoting evapotranspiration;
- Slowing and storing runoff to mimic natural runoff rates and volumes;
- Reducing contamination of runoff through pollution prevention and by controlling the runoff at source;
- Treating runoff to reduce the risk of urban contaminants causing environmental pollution.

3.2.2 In general terms, the hydrological characteristics of a proposed development site will be determined by factors such as rainfall, topography, vegetation cover, soils and geology, which are already established prior to development. The design of any drainage scheme, including SuDS, would clearly be strongly influenced by these

factors. Therefore it is natural that other elements of green infrastructure will subsequently align with the best solution for water sensitive design, in compliance with Policy EN10.

- 3.2.3 This should not detract from other statutory duties and compliance with planning policies incumbent upon Cardiff Council, for example in relation to protected species, protected trees, public rights of way, open space etc.
- 3.2.4 Wetland features such as ponds and streams provide valuable habitat for wildlife, and SuDS features such as attenuation basins, swales, rain gardens and reedbeds etc. should be designed to provide multiple benefits, including for wildlife, where appropriate.
- 3.2.5 For example, species such as Great Crested Newt (GCN) fare better in the long term if they have access to a cluster of ponds rather than a single pond, so wherever possible, ponds which form part of a SuDS system should comprise a cluster of ponds rather than a single pond.
- 3.2.6 Early consideration must also be given to the role that existing and new planted trees will play in any SuDS scheme planned for any development site.
- 3.2.7 However, in some cases statutory requirement for provision of SuDS may conflict with requirement to provide mitigation or habitat compensation for protected habitats and species. This would particularly be the case on constrained sites where the area of non-developed area is limited. In such instances, off-site provision of habitat compensation may be required, but where this is not available, it may be necessary to refuse an application.

### **3.3 Parks, Open Space, and Accessible Natural Greenspace**

- 3.3.1 Detailed guidance in respect of Parks, Open Space, Accessible Natural Greenspace and development is provided in the Technical Guidance Note which informs LDP Policies C3, C4 and C5.
- 3.3.2 Public parks and open spaces were originally developed from the mid-nineteenth century to address the declining health of urban populations. Today, as well as providing places for healthy activity and escape, parks and open spaces make a huge contribution to the character and quality of the modern city, helping to raise its national and international profile and encouraging inward investment and tourism. Parks play an important role in helping to mitigate the effects of the changing climate, ensuring that the quality of urban life remains high and that affordable opportunities for formal and informal open-air physical activity are available to all.
- 3.3.3 Green space for adoption as open space for recreational purposes will be land that is capable of supporting a range of formal and informal recreational uses. The layout of open space areas should take into account the need to protect and enhance *in situ* habitats, trees and access which, if incorporated into the open space layout will provide a diverse and attractive local environment for the new development.
- 3.3.4 Within new development sites, green spaces should be fully integrated into the development, thereby enhancing the urban environment rather than, for example, located at the rear of properties with little or no natural surveillance. Soft landscape features that are to be retained within development sites need to be robustly protected from the outset of the development.
- 3.3.5 Wherever possible, open space should be of sufficient size to accommodate multiple activities and provide multiple benefits. It should also be located so as to maximise green linkages both within developments and to surrounding areas to form a joined up network of green spaces, river corridors, wildlife areas and sports pitches.
- 3.3.6 However, there may be disturbance to habitats and species caused by multi-functional use of greenspace, for example erosion of ground flora, disturbance of nocturnal

species by amenity lighting, or disturbance of sensitive species caused by human presence. Similarly, heavily-mown or over-tidied grassland areas can be of little value to biodiversity.

- 3.3.7 In this way, a statutory requirement for a certain provision of open space may conflict with the requirement to provide mitigation or habitat compensation for protected habitats and species. This would particularly be the case on constrained sites where the area of non-developed land is limited. Therefore in such instances green infrastructure should be sufficiently robust so as to allow habitats and species to flourish whilst providing other opportunities and benefits.
- 3.3.8 Heavily-mown areas should only be present for sports/kickabout areas, for reasons of safety (immediately next to roads), where formal gardens are required (e.g. adjacent to civic buildings) and for walking/dogwalking areas. Off-site provision may be required, but where this is not available, it may be necessary to refuse an application.
- 3.3.9 Where open space is located within a floodplain or SuDS area, the overall green space layout should facilitate both the function of green spaces and ease of maintenance.
- 3.3.10 Isolated small areas of single function green space will not be considered for adoption as open space and will not form part of the green infrastructure of the development.

### **3.4 Ecology and biodiversity**

- 3.4.1 Detailed guidance in respect of ecology and biodiversity and development is provided in the Technical Guidance Note which informs LDP Policies EN5, EN6 and EN7.
- 3.4.2 In terms of biodiversity, certain habitats and species benefit from legal protection, and these will be prioritised in the biodiversity element of green infrastructure. However, in addition to observing this legal protection, an assessment of the impact of development upon green infrastructure must also include consideration of impacts upon ecosystems and ecosystem services.



- 3.4.3 In this way, a green infrastructure approach should maintain and enhance the resilience of ecosystems, whereby resilience is characterised by the diversity, extent, connectivity and condition of ecosystems.
- 3.4.4 Areas of bramble and scrub may be of great value for wildlife, but in open spaces these areas may be perceived as untidy by the public, particularly if they collect litter. Interpretation should be used to emphasise the nature conservation benefit of this habitat, together with provision for litter-picking in any habitat management regime.
- 3.4.5 Lighting may be required for certain footpaths and cycleways, but when placed close to semi-natural habitats it may cause disturbance to nocturnal species such as bats and dormice. Also, such lighting can attract insects at night, causing depletion of insects in adjacent habitat, resulting in reduction in prey resource for light-sensitive species, such as certain bat species, in that habitat. In both cases it is preferable to avoid lighting these areas in the first place, but if this is not possible then consideration should be given to the use of techniques to avoid these effects, such as directing light spillage away from vegetation, using wavelengths which do not attract insects or disturb mammals, using timers or motion sensors such that lights are switched off when not needed, etc.
- 3.4.6 SuDS waterbodies can be of value for priority species such as Great Crested Newts (GCN), but this value can be lost if they are likely to be flooded by nearby rivers and streams, thereby introducing fish which predate GCN larvae. Ideally, where permanent waterbodies feature as part of a SuDS system, these should be designed to dry out in drought years in order to favour GCN.
- 3.4.7 Also, water storage through SuDS should not cause flooding to areas which otherwise wouldn't normally flood, as this may compromise areas where species such as dormice and reptiles hibernate underground.

### **3.5 Public rights of way**

3.5.1 Detailed guidance in respect of public rights of way and development is provided in the Technical Guidance Note which informs LDP Policies T1 and T8.

3.5.2 The following basic principles should be adopted to ensure the character, equally commodious and rural feel of rights of way affected by the development of rural green spaces is retained.

3.5.3 Existing rights of way should be retained on their alignment and:

- The character of the way should not be incorporated into the estate road network or enclosed in narrow corridors between garden fences and hedgerows
- Consideration should be given to upgrading the path surface where development is likely to increase potential usage
- A logical and coherent route to local facilities should be provided
- Used for recreational reasons and for access to areas of green space and the wider countryside

3.5.4 Diverting an existing right of way may be acceptable if the landowner is able to demonstrate the new alignment will:

- Divert onto the areas of green space set aside for public use such as wildlife corridors
- Form a logical and coherent route to local facilities and surrounding communities
- Form a logical and coherent link to the wider countryside bordering the development
- Be in open wide corridors to provide an enjoyable, safe and attractive route for recreation and other purposes

- 3.5.5 Local residents may have used a route through the development site for a considerable time and may wish to claim a right of way to record the route on the Definitive Map. During pre-application stage, the developer should identify any paths/rights of way crossing the development site which may need to be considered and liaise with the PRow Officers for specific advice on the status and significance of any such paths.
- 3.5.6 Creating paths may be necessary to supplement the existing network, especially within new housing developments where links for commuting and leisure is needed particularly for those living on the site. Standards and processes for creating new paths are in the PRow TGN.
- 3.5.7 Footpath verges and bounding features such as hedgerows can contribute to wildlife habitat, particularly in terms of linear connectivity. Encouraging walking/horse riding/cycling through semi-natural areas promotes public appreciation of and empathy with habitats and species, which has wider benefits for biodiversity. The creation of paths or rides through woodlands must be designed to ensure maximum ecological benefit and structural integrity of retained trees.
- 3.5.8 However there are some considerations which should be taken into account when planning footpaths, bridleways and cycle tracks as part of new development. For example the need for lighting of these features should take into account the impact upon nocturnal species such as dormice and bats.
- 3.5.9 Also, where riverside walks are planned adjacent to rivers, this could cause disturbance to otters, especially by dog walkers. In these situations it is better that the footpath meanders away from and towards the riverbank thereby giving areas of dense cover for otter lying-up areas, whilst also allowing views of the river.
- 3.5.10 Where habitats such as woodland are supported by an ecotone at their edge, pressure to increase a site's developed area may result in footpaths/bridleways being placed

within this ecotone. This may be acceptable provided that the path is informal, unlit, and is not widened and/or tarmacked.

- 3.5.11 Hedgerows are important features for wildlife, both in terms of the habitat and of the habitat connectivity that they provide. Retention of such features will normally be favoured, but in certain circumstances, as set out in section 3.7.3 below, replanting and/or translocation of hedgerows may result in better outcomes in ecological terms than retention of hedgerows within development.

### **3.6 Trees, landscaping and soils**

- 3.6.1 Detailed guidance on trees and soils in relation to development is provided by the Trees and Development and Soils and Development Technical Guidance Notes that inform LDP Policies EN8 and KP15 and KP16.
- 3.6.2 Aside from their inherent beauty, trees can improve the aesthetic and environmental quality of development by screening eyesores, buffering sound pollution, improving air quality, shading, cooling the air, providing shelter from the elements, retaining soil, intercepting and storing rainfall and providing a home and feeding place for a wide variety of wildlife. Trees and woodland can also provide areas for informal play, and allow for more commodious footpath links.
- 3.6.3 Trees within and adjoining development sites should be assessed in accordance with the Trees and Development Technical Guidance Note. The retention of existing high quality trees within development will usually be preferred, but where this conflicts with the retention or planting of trees that form a linear habitat corridor or woodland, then their removal is likely to be supported, but will be considered on a case by case basis.
- 3.6.4 All woodlands should incorporate ecotones to their boundaries, the size of which shall be determined in accordance with the Trees and Development Technical Guidance Note and with regard to any overriding ecological constraints. The design of ecotones

should not be compromised by the introduction of development infrastructure that conflicts with their primary function, but informal footpaths and sympathetically designed SuDS features, are likely to be acceptable.

- 3.6.5 Where new tree planting is proposed as part of development, its design should accord with the principles set out in the tree planting sections of the Trees and Development Technical Guidance Note. Site specific sectional and plan tree pit drawings should be drawn up at the earliest opportunity by the project Landscape Architect, in conjunction with product suppliers. Tree pits should be as large and continuous as practicable and wherever possible, located within or linking with existing soft landscape.
- 3.6.6 The planting of native tree species of local provenance, should be undertaken where this will provide clear, demonstrable ecological benefits, but otherwise mixed planting schemes incorporating native and non-native species well adapted to the predicted effects of climate change, are preferred. Planting schemes should also seek to provide a sufficiently diverse range of species to minimise the risks of catastrophic pest and disease outbreaks.
- 3.6.7 Soils are a fragile and essentially non-renewable resource that can perform many beneficial services, including the storage of carbon, supporting the growth of plants including economic crops, providing a home to a vast range of wildlife, storing, filtering and controlling the flow of water, and supporting buildings. Development can destroy, in seconds, soils that have taken thousands of years to develop. The destruction or loss of functionality of soils is not only important in terms of the loss of beneficial services, but also because it may result in substantial costs to ameliorate, import or manufacture soils. Existing soils on development sites should be assessed in accordance with the Soils and Development TGN. This may include the production of a Soil Resource Survey and Soil Resource Plan that in turn inform tree protection, landscaping, SuDS, landscape maintenance, ecology, waste management and materials management strategies.

### **3.7 Hedgerows**

- 3.7.1 Hedgerows within and bounding a development site should be assessed in accordance with the Hedgerows Regulations 1997. The assessment may form part of an Archaeological or Ecological Impact Assessment, but in all cases it should be clear where the assessment has been placed within the submissions that form part of a planning application.
- 3.7.2 Hedgerows found to be important in accordance with the Hedgerows Regulations 1997 should normally be retained and incorporated into the design of development, so that the characteristics that render them important are maintained or enhanced. Where overriding design considerations necessitate the removal or translocation of important hedgerows, it must be clear within the submitted Green Infrastructure Statement, how the loss will be mitigated through new planting and/or a translocation methodology.
- 3.7.3 In certain circumstances, retention of hedgerows within development may be less effective at providing habitat and habitat connectivity, than re-planting or translocating hedgerows to form a more robust, strategic wildlife corridor. In such circumstances, re-planting hedgerows should take place at a ratio of 3 metres of new hedgerow for every metre of hedgerow lost, in order to compensate for the time it takes for the new hedgerow to achieve maturity and therefore provide the quality of habitat required by species, such as dormice.

### **3.8 River Corridors**

- 3.8.1 The River Corridors Technical Guidance Note informs LDP Policy EN4 and sets out guidance on how planning applications located within the River Corridors will be assessed. The guidance note sets out a description and the key attributes of the four River Corridors and identifies a range of factors which will need to be taken into account when submitting a planning application within these areas. These factors include:

- Access and recreational routes
- Recreation
- Public Realm
- Biodiversity
- Historic and Cultural Environment
- Landscape
- Surface Water
- Floodplain
- Water Quality and Pollution Prevention
- Safety
- Litter
- Education
- Management and Maintenance
- Planning Obligations.

3.8.2 The factors have significant overlap with detailed guidance included in other parts of the SPG including Biodiversity, Public Rights of Way, Trees and Open Space and appropriate links to these and other SPG's including SuDS, Waste Collection Facilities and Planning Obligations are included in the guidance note.

## **4 Sustainable Long-term Management of Green Infrastructure**

- 4.1 Where the mitigation hierarchy has been applied to green infrastructure on a development site, the resulting green infrastructure resource will need to be managed in the long term in order to maintain its function, such that it continues to provide multiple benefits to society. The mechanism for delivering this management will depend upon the individual development, but will accord in all cases with the Technical Guidance Note for Protection and Provision of Open Space in New Developments, and in particular the section in that document which deals with practical management. Three options exist for aftercare of open space, green infrastructure and SuDS – Adoption and Maintenance by the Council, Maintenance/Management by a Private Management Company, and Maintenance/Management by a Community Land Trust established for that purpose. Further details of these are given in the Technical Guidance Note for Protection and Provision of Open Space in New Developments.
- 4.2 In many cases, aspects of green infrastructure such as SuDS, open space and semi-natural habitats will be closely linked and will form part of a coherent green infrastructure network. In such cases, ongoing management of these features is best considered holistically, and proposals which treat these elements as a coherent network rather than as individual features, will be favoured.



## Appendix 1. List of considerations for Green Infrastructure Statement

The following table sets out a list of considerations that planning applicants are advised to consider when providing green infrastructure information in support of their application. It is not a checklist as such, but rather a guide to aid a structured approach to considering green infrastructure and to producing a Green Infrastructure Statement.

<b>Details in support of planning application</b>	<b>Signpost to Technical Guidance Note (TGN) or Supplementary Planning Guidance (SPG)</b>
<b>Are any of the following required:</b>	
Environmental Statement	Ecology TGN
Green Infrastructure Statement	
Landscape character assessment	Parks / POS TGN
Hydrological Impact Assessment	SuDS SPG
Preliminary Ecological Appraisal	Ecology TGN
Ecological Impact Assessment	Ecology TGN
Large scale map of existing GI showing context at neighbourhood and citywide levels.	Parks / POS TGN
Conclusions of contextual analysis – with illustrations	Parks / POS TGN
Tree assessment in accordance with BS5837:2012	Trees TGN
Soil Resource Survey	Soils TGN
<b>Multifunctional green space</b>	
<b>Does the Green Infrastructure Statement adequately reflect:</b>	
A joined-up network of multifunctional green space	Parks / POS TGN
Avoidance of greenspace at rear of properties	Parks / POS TGN
Avoidance of isolated green space	Parks / POS TGN
SuDS integrated into greenspace layout	SuDS SPG
Floodplain integrated into greenspace layout	SuDS SPG
Retention of soft landscape features identified and protection proposed	Parks / POS TGN
Space provided for new tree growth	Trees TGN
Service runs in pathways where possible and not impacting on trees	Trees TGN
Adequate open space provision	Parks / POS TGN
Adequate children’s play provision	Parks / POS TGN
Adequate teen facilities provision	Parks / POS TGN

Adequate allotments / growing provision	Parks / POS TGN
<b>Ecology and Biodiversity</b>	
<b>Does the Green Infrastructure Statement adequately reflect:</b>	
Statutory protection afforded to certain designated sites	Ecology TGN
Statutory protection afforded to certain species	Ecology TGN
Maintenance and enhancement of ecosystem resilience	Ecology TGN
Mitigation hierarchy applied where potential impacts upon nature conservation interests have been identified	Ecology TGN
Robust habitat corridors provided, where habitat is to be lost	Ecology TGN
Appropriate consideration of SINC sites in accordance with section 5.5.3 of TAN5	Ecology TGN
Ponds incorporated into SuDS, where appropriate	SuDS SPG
Habitat features incorporated into built environment where appropriate	Parks / POS TGN
Receptor sites for translocated species secured in advance of development	Ecology TGN
Management regimes of verges considered	Parks / POS TGN
Dark corridors for wildlife such as bats	Ecology TGN
Provision of ecotones of 15m width adjacent to woodland	Trees TGN
<b>Public Rights of Way</b>	
<b>If being retained on their original alignment:</b>	
Is the character retained?	PRoW TGN
Is the route still logical and coherent?	PRoW TGN
Does the route link areas of green space/wider countryside?	PRoW TGN
<b>If the route is being diverted:</b>	
Does the route divert into open space or a wildlife corridor?	PRoW TGN
Does the route link to local facilities and community?	PRoW TGN
Does the route link to the wider countryside?	PRoW TGN
Is the corridor wide enough to be safe and attractive?	PRoW TGN
<b>If there are new routes to be considered:</b>	
Are there routes through the development site the public are using but not yet recorded as PROWs?	PRoW TGN
Does the route link to local facilities and community?	PRoW TGN
<b>Trees, Landscaping and Soils</b>	
<b>Does the Green Infrastructure Statement adequately reflect:</b>	
Assessments of trees and hedgerows used to inform design	Trees TGN

Consideration of impact of services upon new and retained trees	Trees TGN
Early involvement of landscape architect and arboriculturist at design inception	Trees TGN
Supply, planting and aftercare programme for newly planted trees in accordance with BS 8545:2014	Trees TGN
Highway and other transport infrastructure accommodates, where feasible, sufficient growing space to allow establishment and long-term growth of new trees	Trees TGN
Provision of ecotones of 15m width adjacent to woodland	Trees TGN
Native trees of local provenance used where there is a clear ecological benefit	Trees TGN
New tree planting must follow a clear design aesthetic rather than comprising randomly selected trees	Trees TGN
New tree planting has considered the predicted impacts of climate change	Trees TGN
Early consideration given to the adequate provision of useable soil, water and oxygen for newly planted trees	Trees TGN / Soils TGN
Location of tree planting reflects future growth potential of the tree	Trees TGN
Soils must be subject to assessment in conjunction with the 'Construction Code of Practice for the Sustainable Use of Soils on Construction Sites' (DEFRA, 2009)	Soils TGN
<b>River Corridors</b>	
Is the proposed development within one of the River Corridors as defined in the River Corridors TGN?	River Corridors TGN
Do the proposals affect visual and/or physical access to the river?	PRoW/River Corridors TGN
Is the provision of open space within the river corridor taken into account?	POS/River Corridors TGN
Is the biodiversity within the river corridor maintained or enhanced by the proposal?	Ecology & Biodiversity / River Corridors TGN
Has the impact upon landscape, and the historical and cultural environment, been considered?	River Corridors TGN
Does the proposal adequately consider surface water drainage, flood prevention, water quality and pollution prevention, safety, litter and management and maintenance?	SuDS SPG / Waste Collection and Storage Facilities / River Corridors TGN
<b>Aftercare</b>	
Has aftercare been considered / agreed such that all elements of Green Infrastructure are managed in an integrated way?	All

Are monitoring and remediation measures in place to ensure that green infrastructure mitigation measures are effective in the long term?	AI
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## **Appendix 2. References**

Biodiversity Positive: Eco-towns Biodiversity Worksheet. TCPA. December 2009

Biodiversity for Low and Zero Carbon Buildings: A Technical Guide for New Build Bat. Conservation Trust. March 2010.

Cardiff Liveable Design Guide – Placemaking, Urban Design, Architecture. Cardiff Council. May 2015.

[Guidance for Local Authorities on Public Rights of Way, WG28059. August 2016](#)

POST Note No 281: Ecosystem Services. Parliamentary Office of Science and Technology. March 2007.

Planning Obligations Supplementary Planning Guidance draft November 2016

The SuDS Manual CIRIA C753. 2015.