

13. NATURAL HERITAGE & GREEN INFRASTRUCTURE



AIM

To contribute towards the protection, conservation and management of natural heritage including sites designated at national and EU level and protected species and habitats outside of designated sites and to develop a Green Infrastructure network in the interests of the proper planning and sustainable development of the county.

13.1 BACKGROUND

Heritage is recognised as an important environmental and economic resource that requires care and management through the planning process. Kildare has a wide range of habitat types and landscapes supporting diverse species both in natural and semi-natural state and managed locations. These include grassland, woodland, stream and canal habitats, bogland and riparian habitats. These habitats support a variety of species and ecosystems that contribute to the unique biodiversity of Kildare. Many of these areas are coming under pressure as development intensifies the demand for land. It is imperative that measures are put in place to respond to these pressures and that any development will not have a detrimental effect on the natural environment.

13.2 STRATEGY

The following strategy will guide the Council's heritage policies and objectives as set out in this Plan:

- To protect and conserve nationally important and EU designated sites including Special Protection Areas, candidate Special Areas of Conservation and proposed Natural Heritage Areas.
- To promote conservation and development measures while promoting the orderly and sustainable development of County Kildare.
- To avoid undue negative impacts upon the natural environment.
- To promote appropriate enhancement of the natural environment as an integral part of future development.
- To mitigate the effects of harm where it cannot be avoided.

13.3 POLICY CONTEXT

While legislative provisions exist governing protection of important habitats and species, there are also a number of policy documents which seek to protect and enhance national heritage and promote the enhancement of biodiversity.

13.3.1 National Heritage Plan (2002)

The conservation of our natural heritage is a key objective of Government which, through the *National Heritage Plan*, recognises that heritage is a communal

and mutually shared asset to be protected by the actions of all. It sets out a clear and coherent strategy and framework for the protection and enhancement of Ireland's national heritage with a core objective to protect national heritage as well as promoting it as a resource to be enjoyed by all.

13.3.2 National Biodiversity Plan (2010)

The *National Biodiversity Plan* recognises that conservation and enhancement of biological diversity is essential for sustainable development and for maintaining quality of life. The National Biodiversity Plan reflects that of the EU Convention on Biological Diversity. Ireland's economic development and the health and wellbeing of our society will be linked with the success of the actions taken to maintain and restore biodiversity.

13.3.3 County Kildare Heritage Plan

On foot of the National Heritage Plan Kildare County Council prepared a County Kildare Heritage Plan which comprises a five year action plan for the conservation, preservation and enhancement of Kildare's heritage including natural heritage. The County Kildare Heritage Plan will be reviewed during the lifetime of this plan.

13.3.4 County Biodiversity Plan

The County Biodiversity Plan provides a framework for conserving biodiversity and natural heritage at a local level. It complements the Kildare Heritage Plan by including detailed actions to deliver positive outcomes focused on species and habitats. A key focus of the plan is gathering information on and managing the biodiversity resource, education, awareness raising and the promotion of effective cooperation between stakeholders. The County Kildare Biodiversity Plan will be reviewed during the lifetime of this plan.

Key actions of the Biodiversity Plan that have been achieved include the publication of the following guidance documents:

- Good Practice Guidelines for Developers - Biodiversity and Development in Co. Kildare (2009).
- Good Practice for Householders - Biodiversity and Development in Co. Kildare (2009).

13.4 GENERAL NATURAL HERITAGE POLICIES AND OBJECTIVES

Policies: General Natural Heritage

It is the policy of the Council to:

- NH 1** Facilitate, maintain and enhance as far as is practicable the natural heritage and amenity of the county by seeking to encourage the preservation and retention of woodlands, hedgerows, stonewalls, rivers, streams and wetlands. Where the removal of such features is unavoidable, appropriate measures to replace like with like should be considered, subject to safety considerations.
- NH 2** Promote the carrying out of basic habitat assessments to inform the design of new developments in order to ensure that proposals for development integrate the protection and enhancement of biodiversity and landscape features wherever possible, by minimising adverse impacts on existing habitats (whether designated or not) and by including mitigation and/or compensation measures, as appropriate.
- NH 3** Require compliance with Article 10 of the Habitats Directive with regard to encouraging the management of features in the landscape which are of major importance for wild fauna and flora. Such features are those which, by virtue of their linear and continuous structure (such as rivers with their banks or the traditional systems for marking field boundaries) or their function as stepping stones (such as ponds or small woods), are essential for the migration, dispersal and genetic exchange of wild species.

Objectives: General Natural Heritage

It is an objective of the Council to:

- NHO 1** Identify and protect, in co-operation with the relevant statutory agencies and other relevant groups, sites of local biodiversity importance (Local Biodiversity Areas), not otherwise protected by legislation.

NHO 2 Implement the actions contained in the County Biodiversity Plan through the identification of priority actions subject to the availability of funding.

NHO 3 Integrate biodiversity considerations into Local Area Plans, programmes and activities.

NHO 4 Identify, conserve and provide guidance on development in important local biodiversity sites.

NHO 5 Carry out habitat mapping on a phased basis (including wetlands) within the plan area. This habitat mapping will identify Local Important Biodiversity areas in co-operation with NPWS, DAHG and Inland Fisheries Ireland.

13.5 LEGISLATIVE CONTEXT

Ireland has signed and ratified a number of international conventions and agreements including the Convention on Biological Diversity, the Convention on the Conservation of European Wildlife and Natural Habitats (Bern) and the Convention on Wetlands of International Importance (Ramsar). These various obligations are given legal effect through both European and National legislation and have resulted in the designation of natural heritage sites throughout the country.

13.5.1 EC Birds Directive (Directive 2009/147 EC)

The EU Birds Directive (Council Directive 79/409/EEC) and the EU Habitats Directive (European Directive 92/43/EEC) provides for the establishment of the Natura 2000 network of sites of highest biodiversity importance for rare and threatened habitats and species across the EU. The Natura 2000 network of European sites comprises Special Areas of Conservation (SAC), and Special Protection Areas (SPA).

Special Areas of Conservation (SACs) are selected for the conservation of Annex I habitats and Annex II species. The habitat types and species listed are considered to be most in need of conservation at a European level.

Special Protection Areas (SPAs) are protected sites classified in accordance with Article 4 of the EU Birds Directive and are selected for the conservation of

Annex I birds and other regularly occurring migratory birds and their habitats. Poulaphouca Reservoir is the only candidate SPA site located in the county (Map 13.1 Refers).

The Annex habitats and species for which each Natura 2000 site is selected corresponds to the qualifying interests of the sites; from these the conservation objectives of the site are derived.

There are 8 Natura 2000 sites within the county (Table 13.1 and Map 13.1 Refer).

Table 13.1:
Natura 2000 Sites in Co Kildare

Site Name	Site Code	European Designation
Pollardstown Fen	000396	SAC
Ballynafagh Bog	000391	SAC
Ballynafagh Lake	001387	SAC
Rye Water Valley at Carton	001398	SAC
Mouds Bog	002331	SAC
River Barrow and Nore	002162	SAC
Red Bog	000397	SAC
Poulaphouca Reservoir	004063	SPA

It is a requirement under the Planning and Development Act 2000 (as amended), for each County Development Plan to include objectives for the conservation and protection of Natura 2000 and other sites. Development within the county has the potential to impact on the integrity of European Sites located both within and outside of the county.

A planning authority must have regard to any European Site when making a decision in relation to a plan or project. All plans or projects, unless they are directly connected with or necessary to the management of a Natura 2000 site, are required to be subject to screening for Appropriate Assessment, to determine if they are likely to have a significant effect on a Natura 2000 site, either individually or in combination with other plans or projects.

The assessment is based on best scientific knowledge by a person with ecological expertise. It addresses the potential impacts of the plan or project on the conservation objectives of any Natura 2000 site. The impact assessed must include the indirect and cumulative impacts of approving the plan or project, together with any current or proposed activities, developments or policies impacting on the site.

The potential impacts of policies outside Natura 2000 sites but potentially impacting upon them (known as 'ex situ' impacts) must also be included in the assessment. Guidelines issued by the DEHLG in 2009 entitled Appropriate Assessment of Plans and Projects in Ireland, Guidance for Planning Authorities should be referenced in this regard.

A project or plan may only proceed if it can be concluded on the basis of Appropriate Assessment that there will be no adverse effects on the integrity of a Natura 2000 site. If adverse effects are likely, or in cases of doubt, then derogation under Article 6 (4) shall apply, but only in cases of imperative reasons of over-riding public interest.

Policies: Natura 2000

It is the policy of the Council to:

NH 4 Support the conservation and enhancement of Natura 2000 Sites including any additional sites that may be proposed for designation during the period of this Plan and to protect the Natura 2000 network from any plans and projects that are likely to have a significant effect on the coherence or integrity of a Natura 2000 Site.

NH 5 Prevent development that would adversely affect the integrity of any Natura 2000 site located within and immediately adjacent to the county and promote favourable conservation status of habitats and protected species including those listed under the Birds Directive, the Wildlife Acts and the Habitats Directive.

NH 6 Ensure an Appropriate Assessment, in accordance with Article 6(3) and Article 6(4) of the Habitats Directive and with DEHLG guidance (2009), is carried out in respect of any plan or project not directly connected with or necessary to the management of a Natura 2000 site to determine the likelihood of the plan or project having a significant effect on a Natura 2000 site, either individually or in combination with other

plans or projects and to ensure that projects which may give rise to significant cumulative, direct, indirect or secondary impacts on Natura 2000 sites will not be permitted (either individually or in combination with other plans or projects) unless for reasons of overriding public interest.

Objective: Natura 2000

It is an objective of the Council to:

NHO 6 Request the National Parks and Wildlife Service to prioritise the preparation of Management Plans for Natura 2000 Sites which are located within the county.

13.5.2 Natural Heritage Areas

The Wildlife Acts (1976-2012) provide for the statutory protection of species and habitats of national importance and sites of geological interest and the control of activities which may impact adversely on the conservation of wildlife. Under the Wildlife (Amendment) Act 2000, Natural Heritage Areas (NHAs) are designated to conserve species and habitats of national importance and sites of geological interest. The designation of these sites is the responsibility of the National Parks and Wildlife Division of the Department of the Arts, Heritage, Regional, Rural and Gaeltacht Affairs and is an ongoing process as boundaries are revised and adjusted and new sites added.

There are 23 designated or proposed Natural Heritage Areas (NHAs), within the county (Table 13.2 and Map 13.2 Refer).



Table 13.2:
Natural Heritage Areas in Co. Kildare

Site Name	Site Number
Carbury Bog	001388
Hodgestown Bog	001393
Ballina Bog	000390
Corballis Hill	001389
Curragh	000392
Derryvullagh Island	001390
Donadea Wood	001391
Dunlavin Marshes	001772
Grand Canal	002104
Kilteel Wood	001394
Liffey at Osberstown	001395
Liffey Bank at Athgarvan	001396
Liffey Valley Meander Belt	000393
Mouds Bog	000395
Oakpark	000810
Pollardstown Fen	000396
Poulaphouca Reservoir	000731
Red Bog	000397
Royal Canal	002103
Ballynafagh Bog	000391
Ballynafagh Lake	001387
Barrow Valley at Tankardstown	000858
Rye Water Valley /Carton	001398

13.5.2.1 Nature Reserves and Ramsar Sites

A nature reserve is an area of importance to wildlife, which is protected under Ministerial Order.

Ramsar Sites are designated for the conservation of wetlands, particularly those of importance to waterfowl. These sites were designated under the Ramsar Convention on Wetlands of International Importance. Pollardstown Fen is designated as a nature reserve and as a Ramsar Site.

Pollardstown Fen has also been designated as a Council of Europe Biogenic Reserve.

Table 13.3:
Nature Reserve and Ramsar Sites

Site Name	Designation
Pollardstown Fen	Nature Reserve
Pollardstown Fen	Ramsar Site

Policies: Natural Heritage Areas

It is the policy of the Council to:

- NH 7** Contribute towards the protection of the ecological, visual, recreational, environmental and amenity value of the county's Natural Heritage Areas and associated habitats.
- NH 8** Ensure that any proposal for development within or adjacent to a Natural Heritage Area (NHA), Ramsar Sites and Nature Reserves is designed and sited to minimise its impact on the biodiversity, ecological, geological and landscape value of the site, particularly plant and animal species listed under the Wildlife Acts and the Habitats and Birds Directive including their habitats.
- NH 9** Ensure the impact of development within or adjacent to national designated sites Natural Heritage Areas, Ramsar Sites and Nature Reserves that is likely to result in significant adverse effects on the designated

site is assessed by requiring the submission of an Ecological Impact Assessment (EClA) prepared by a suitably qualified professional, which should accompany planning applications and council developments, as not all developments are likely to result in adverse effects.

- NH 10** Restrict development within a proposed Natural Heritage Area to development that is directly related to the area's amenity potential subject to the protection and enhancement of natural heritage and visual amenities including biodiversity and landscapes.

13.6 PROTECTED HABITATS AND SPECIES

Certain plant, animal and bird species are protected by law. This protection applies wherever the plants, animal or bird species are found and is not confined to sites designated by law and their habitats. This includes plant species listed in the Flora (Protection) Order of 2015 and animals and birds listed in the Wildlife Acts of 1976-2012 and any subsequent statutory instruments, those listed in Annex IV of the Habitats Directive and those listed in Annex I of the Birds Directive.

13.7 PROTECTED HABITATS AND SPECIES OUTSIDE DESIGNATED AREAS

The county supports a range of plant, animal and bird species that are deemed to be rare and threatened under European and Irish legislation and which are known to exist outside of designated sites such as Natura 2000 sites or Natural Heritage Areas. This includes nationally rare plants, plants listed in the Red Data Lists of Irish Plants, Flora (Protection) Order of 2015 (or other such Orders) and their habitats and animals and birds listed in the Wildlife Acts of 1976-2012 and subsequent statutory instruments.

It is the policy of the Council to protect and promote the conservation of biodiversity outside of designated areas and to ensure that species and habitats that are protected under the Wildlife Acts 1976 - 2012, the Birds Directive 1979 and the Habitats Directive 1992 are adequately protected.

Policies: Protected Habitats and Species

It is the policy of the Council to:

- NH 11** Ensure that development does not have a significant adverse impact on rare and threatened species, including those protected under the Wildlife Acts 1976 and 2012, the Birds Directive 1979 the Habitats Directive 1992 and the Flora Protection Order species.
- NH 12** Ensure that, where evidence of species that are protected under the Wildlife Acts 1976-2012, the Birds Directive 1979 and the Habitats Directive 1992 exists, appropriate avoidance and mitigation measures are incorporated into development proposals as part of any ecological impact assessment. In the event of a proposed development impacting on a site known to be a breeding or resting site of species listed in the Habitats Regulations or the Wildlife Acts 1976 -2012 a derogation licence, issued by DAHRRGA, may be required.



13.8 INVASIVE SPECIES

Invasive species, both invertebrate and plants, can represent a major threat to local, regional, and national biodiversity. Terrestrial and aquatic habitats can be negatively affected, resulting in significant damage to conservation and economic interests, such as agriculture, forestry and civil infrastructure. It is the policy of the Council to support measures for the prevention and / or eradication of invasive species within the county.

Policies: Invasive Species

It is the policy of the Council to:

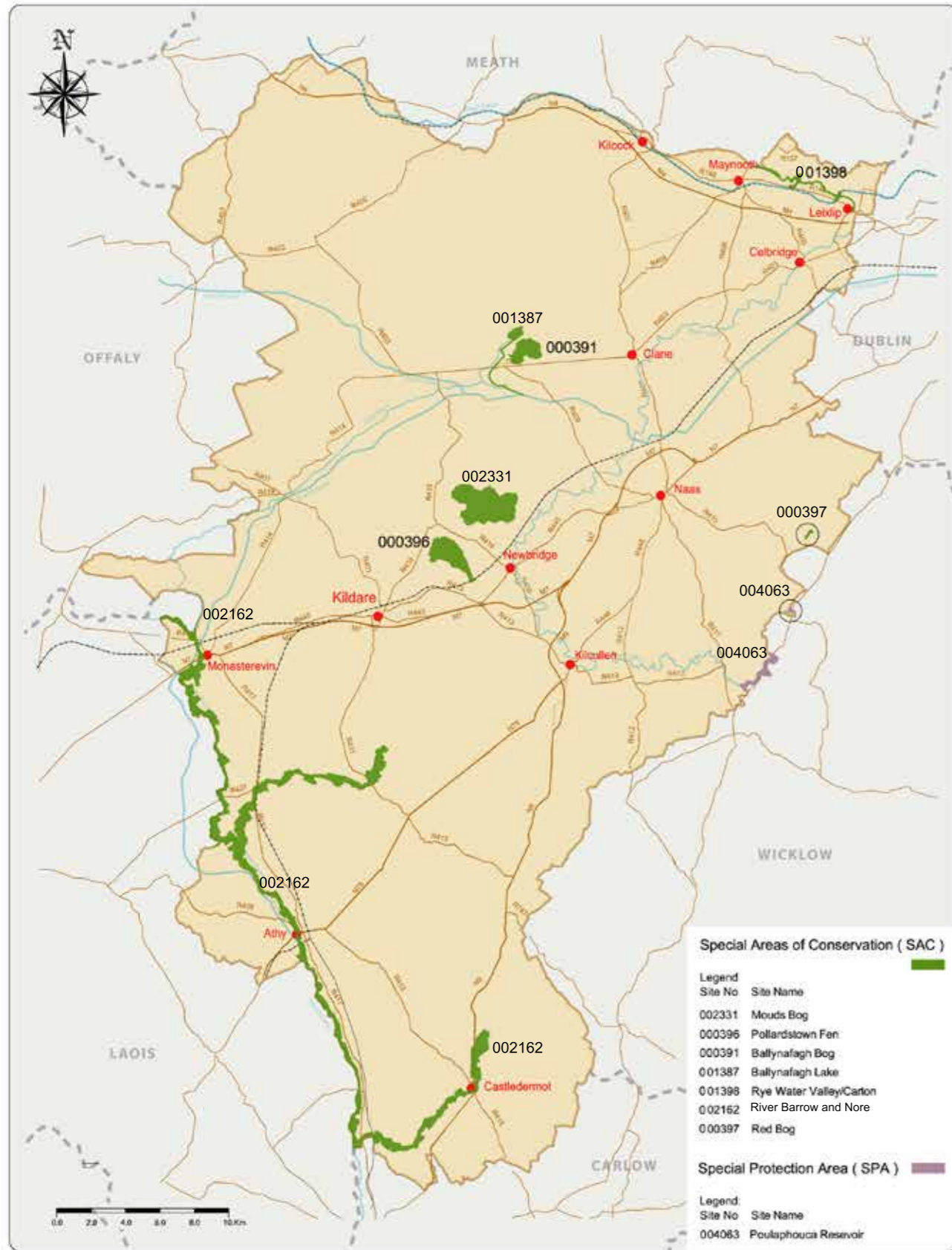
- NH 13** Support measures for the prevention and / or eradication of invasive species within the county
- NH 14** Promote best practice with respect to minimising the spread of invasive species in the carrying out of development and to support measures for the prevention and / or eradication of invasive species within the county.
- NH 15** Require, as part of the planning application process, the eradication/control of invasive introduced species including Japanese Knotweed, when identified on a site or in the vicinity of a site, in accordance with Regulation 49 of the European Communities (Birds and Natural Habitats) Regulations 2011 to 2015.

Objectives: Invasive Species

It is an objective of the Council to:

- NHO 7** Complete a programme of mapping of invasive species in the county.
- NHO 8** Raise awareness of potential threats caused by invasive species, their methods of dispersal and appropriate control measures in association with relevant authorities.

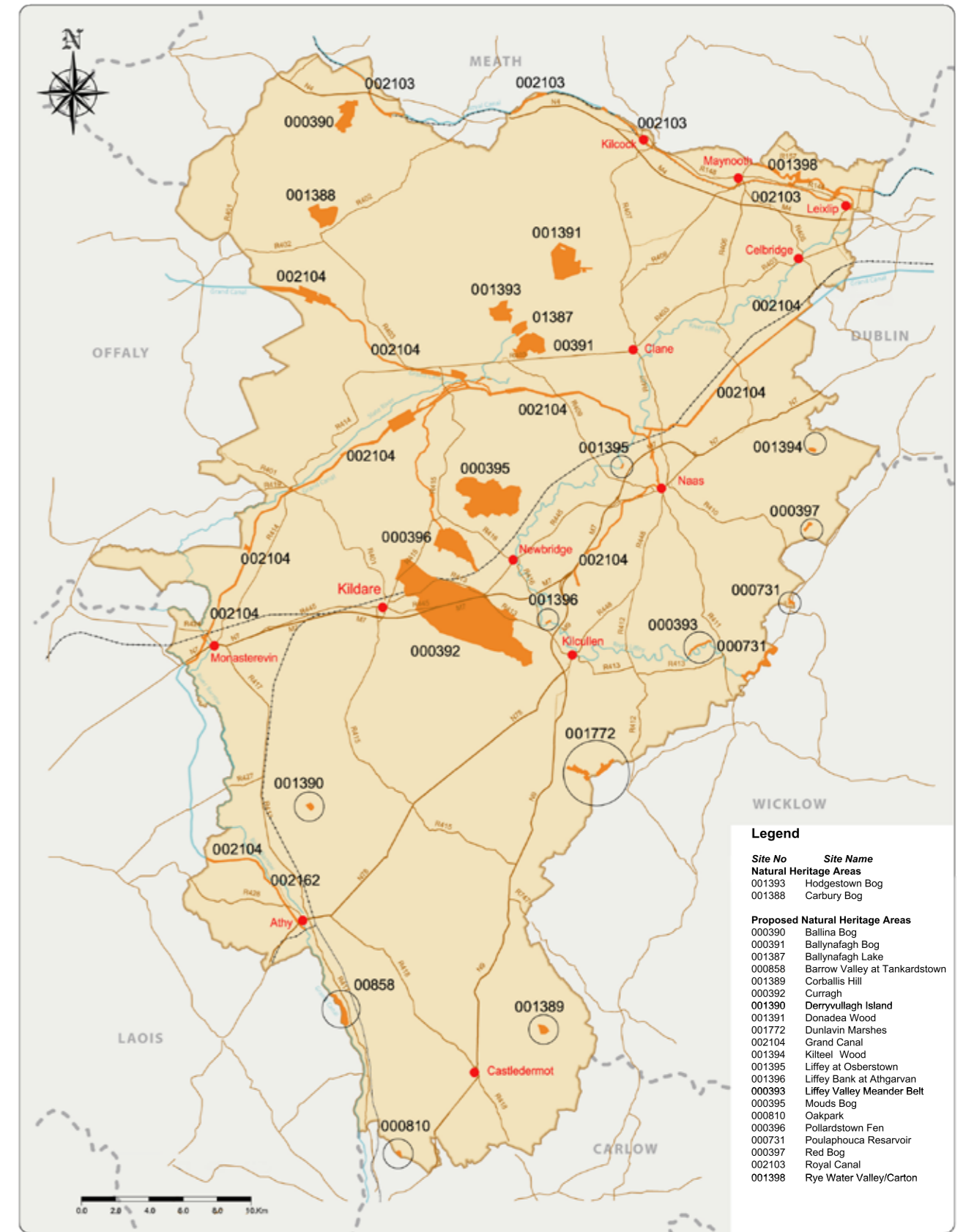




Kildare County Council
Planning Department
Áras Chill Dara,
Naas, Co Kildare.

**Special Areas of Conservation
and Special Protection Areas**
County Development Plan
2017 - 2023

Scale: N.T.S.	Map Ref.: V1.13.1
Date: February 2017	Drawing No.: 200/09/465
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Kildare County Council
Planning Department
Áras Chill Dara,
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Natural Heritage Areas
County Development Plan
2017 - 2023

Scale: N.T.S.	Map Ref.: V1.13.2
Date: February 2017	Drawing No.: 200/09/465
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This drawing is to be read in conjunction with the written statement.	

13.9 GEOLOGY

The Geological Survey of Ireland (GSI), in partnership with the National Parks and Wildlife Service, is seeking to identify geological and geomorphological sites of national significance for statutory designations as Natural Heritage Areas. Other geological sites of national or local importance are being identified as Sites of Geological Importance and by virtue of their recognition in Development Plans will be protected from potentially damaging development. An audit of the Geological Heritage of County Kildare was carried out in 2005, which identified 20 geological sites of interest in the county. The list of Sites of Geological Importance of Importance is set out in Table 13.4. The Sites of Geological Importance that are protected under this Plan are mapped on the County Development Plan maps that accompany this written statement.

Policy: Geology

It is the policy of the Council to:

NH 16 Maintain the conservation value and seek the sustainable management of the county's geological heritage resource.

Objectives: Geology

It is an objective of the Council to:

NHO 9 Contribute towards the protection of Geological Natural Heritage Areas that become designated during the life time of the plan from inappropriate development.

NHO 10 The Council will publish the findings of the audit of Geological Heritage of County Kildare.

Table 13.4:
Sites of Geological Importance

Site Name	Geological Interest	Location
Chair of Kildare	Precambrian - Devonian Palaeontology	Carrickanearla, Conlanstown, Cannonstown.
Dunmurry Hill	Precambrian - Devonian Palaeontology	Dunmurry
Hill of Allen	Cambrian-Silurian	Barnacrow
Slate Quarries	Cambrian-Silurian	Slate Quarries
Ballysax	Quaternary	Curragh
Glen Ding	Quaternary	Blessington, Athgarrett, Newtown Great, Newtown Park
Pollardstown Fen and Springs	Quaternary	Scarlettstown, Roseberry, Rathbride, Cornelscourt
Moorhill	Quaternary	Kilcullen
The Curragh	Quaternary	St. Ledgers Bottoms
Ballykane Hill	Lower Carboniferous	Kilrainy
Carbury Castle	Lower Carboniferous	Carbury
Carrick Hill, Edenderry	Lower Carboniferous	Carrick
Liffey Oxbow	Fluvial/Lacustrine Geomorphology	Celbridge
Liffey Valley	Fluvial/Lacustrine Geomorphology	Ballymore Eustace-Kilcullen
Kilbrook Spring	Hydrogeology	Kilbrook
Louisa Bridge Springs (Cold and Warm)	Hydrogeology	Leixlip
St Brigid's Well - Japanese Gardens	Hydrogeology	Kildare
St. Patrick's Well (1)	Hydrogeology	Barrettstown, Naas
St. Patrick's Well	Hydrogeology	Ardrass Lower
St. Peter's Well	Hydrogeology	Dunmurraghill



13.10 GREEN INFRASTRUCTURE

The environmental and heritage resources of the county are a vital resource for our county and can be described as the county's 'Green Infrastructure'. Green Infrastructure is broadly defined as "a strategically planned and managed network featuring areas with high quality biodiversity (uplands, wetlands, peatlands, rivers and coast), farmed and wooded lands and other green spaces that conserve ecosystem values which provide essential services to society" (Comhar 2010).

The Green Infrastructure network supports native plant and animal species and provides corridors for their movement, maintains natural ecological processes and biodiversity, sustains air and water quality and provides vital amenity and recreational spaces for communities, thereby contributing to the health and quality of life of residents and visitors to the county.

The European Union's Biodiversity Strategy (2011) seeks to halt biodiversity loss in Europe by 2020. The strategy is built around six mutually supportive targets which address the main drivers of biodiversity loss. Target 2 aims to ensure that 'by 2020, ecosystems and their services are maintained and enhanced by establishing Green Infrastructure and restoring

at least 15% of degraded ecosystems'. Responding to the Biodiversity Strategy, the EU published 'Building a Green Infrastructure for Europe' and 'Green Infrastructure: Enhancing Europe's Natural Capital' Strategy (2013), which sets out 'to promote the deployment of Green Infrastructure in the EU in urban and rural areas'. The strategy aims to create a robust enabling framework in order to promote and facilitate Green Infrastructure (GI) projects. The EU GI strategy is made up of the following four main elements:

- Promoting GI in the main EU policy areas;
- Supporting EU-level GI projects;
- Improving access to finance for GI projects,
- Improving information and promoting innovation.

Individually, each Green Infrastructure site has an important role and benefit in both urban and rural areas which can be strengthened and enhanced when the sites are linked together into a network of Green Infrastructure. Many social, economic and environmental benefits can be achieved especially when the Green Infrastructure is proximate to where people live and work. The benefits of Green Infrastructure include the following:

- Supports unique habitats for wildlife, biodiversity, and fragile ecosystems;
- Has important recreational, tourism and cultural roles;
- Provides corridors for walking and cycling;
- Assists in climate change adaptation - including flood alleviation;
- Provides or supports forestry, crop production, agriculture and energy development;
- Provides places for local food production - in allotments, gardens and through agriculture;
- Provides green buffers /green wedges between built up areas;
- Improves air quality;
- Provides ready access to nature for the populace;
- Increases environmental education and awareness;
- Improves health and well-being;
- Assists in 'place-making' by positively recognising and maintaining the character of particular locations.

Green Infrastructure planning is a proactive approach to the sustainable development of natural resources and biodiversity, and in particular, uses the multi-functionality of nature to maximise its benefits. Strategic Green Infrastructure planning will assist in meeting statutory obligations under EU directives and national legislation, such as the Water Frameworks Directive, Strategic Environmental Assessment (SEA), Floods Directive and Birds and Habitats Directives.

Sites of national and international biodiversity value are designated as Special Areas of Conservation (SAC), Special Protection Areas (SPA) and Natural Heritage Areas (NHA). These are protected under law and through the planning system. However, they account for only a small proportion of the county's Green Infrastructure. Substantial areas of land occur outside of protected areas which have a high biodiversity value, such as rivers, streams, hedgerows and woodlands, parks and open spaces and other less obvious areas such as rear gardens. These areas form an important part of the county's Green Infrastructure and support connectivity within the network.

Policies: General Green Infrastructure

It is the policy of the Council to:

- GI 1** Ensure the protection, enhancement and maintenance of Green Infrastructure and recognise the health benefits as well as the economic, social, environmental and physical

value of green spaces through the integration of Green Infrastructure (GI) planning and development in the planning process.

- GI 2** Develop and support the implementation of a Green Infrastructure Strategy for County Kildare taking full account of the Actions for Green Infrastructure in the GDA identified in the Regional Planning Guidelines 2010-2022.

- GI 3** Identify Green Infrastructure resources within and on the edge of the settlement boundaries by expanding the existing programme of Green Infrastructure mapping and to include, during the review process of Local Area Plans, Green Infrastructure policies and objectives.

- GI 4** Require that all Local Area Plans protect and manage the Green Infrastructure network in an integrated and coherent manner and add additional Green Infrastructure where possible.

- GI 5** Encourage, pursuant to Article 10 of the Habitats Directive, the management of features of the landscape, such as traditional field boundaries and laneways, important for the ecological coherence of the Natura 2000 network and essential for the migration, dispersal and genetic exchange of wild species.

- GI 6** Provide for the incorporation of underpasses and/or Green Bridges at ecologically sensitive locations on the county's road and rail corridors that will facilitate the free movement of people and species through the urban and rural environment.

- GI 7** Promote a network of paths and cycle tracks to enhance accessibility to the Green Infrastructure network, while ensuring that the design and operation of the routes respect and where possible enhances the ecological potential of each site.

Objectives: General Green Infrastructure

It is an objective of the Council to:

- GIO 1** Prepare a Green Infrastructure Strategy for County Kildare in accordance with international best practice.

GIO 2 Complete the mapping of Green Infrastructure for each town, village and settlement in County Kildare and to develop specific policies and objectives for each area.

GIO 3 Prepare an inventory of locally important Biodiversity sites in the county to support the nationally designated sites and seek to ensure that they are protected through local authority planning processes.

13.10.1 Trees, Woodlands and Hedgerows

Trees, woodlands and hedgerows make a valuable contribution to the landscape and visual amenity of County Kildare and provide wider environmental benefits that include carbon storage. Trees, either individually, as specimen trees, or in groups also make an important contribution to the landscape of many of the country house demesnes throughout the county. They perform many functions such as shelter from wind, act as a natural barrier, absorb pollutants and provide a biodiversity function in terms of provision of habitat and food sources. They are important producers of oxygen and act as carbon sinks. Hedgerows, in many instances double hedgerows, often form townland boundaries and as such are an important historic resource. These hedgerows also act as wildlife corridors.

In urban settings trees or groups of trees can contribute significantly to the local landscape or townscape and to the successful integration of new buildings into the landscape. The planting or retention of mature trees can contribute to amenity and more attractive developments as well as providing important wildlife habitats. The retention of trees should be considered at the design stage of any development.

When planting hedgerows, species indigenous to the area should be used. The County Kildare Hedgerow Survey (2006) identified the predominant hedgerow species in Kildare. These species are listed in Chapter 17, Development Management Standards. There are a number of existing Tree Preservation Orders in the county as follows;

Table 13.5
Tree Preservation Orders in Co. Kildare

Clane	1987/1	OS 6"14
Ballymore Eustace	1991/1	OS 6"29
Clogheen (Moore Abbey)	1988/1	OS 6"28
Clongowes	1987/1	OS 6" 14

Policies: Trees, Woodlands and Hedgerow

It is the policy of the Council to:

- GI 8** Contribute towards the protection of and manage existing networks of woodlands, trees and hedgerows which are of amenity or biodiversity value and/or contribute to landscape character, and to strengthen local networks.
- GI 9** Ensure that proper provision is made for the consideration, protection and management of existing networks of woodlands, trees and hedgerows when undertaking, approving or authorising development.
- GI 10** Ensure a Tree Management Plan is provided to ensure that trees are adequately protected during development and incorporated into the design of new developments.
- GI 11** Ensure that hedgerow removal to facilitate development is kept to an absolute minimum and, where unavoidable, a requirement for mitigation planting will be required comprising a hedge of similar length and species composition to the original, established as close as is practicable to the original and where possible linking in to existing adjacent hedges. Native plants of a local provenance should be used for any such planting.
- GI 12** Restrict the cutting of hedges during the bird-nesting season (1st March until 31st August), except in certain legally defined circumstances, in accordance with the provisions of the Wildlife (Amendment) Act 2000.
- GI 13** Recognise the biodiversity and archaeological importance of townland boundaries, including hedgerows, and promote their protection and retention.

GI 14 Contribute towards the protection where possible of the trees which are considered an important component of demesne landscapes.

GI 15 Encourage the protection of historic hedgerows or significant hedgerows which serve to link habitat areas to each other and the surrounding countryside.

GI 16 Encourage the planting of woodlands, trees and hedgerows as part of new developments using native plants of local provenance.

GI 17 Carry out a survey of trees within the main urban settlements as part of the preparation of local area plans and to include policies for the protection of trees within local area plans where appropriate.

Objectives: Trees, Woodlands and Hedgerow

It is an objective of the Council to:

- GIO 4** Encourage the development of proposals for new woodlands utilising funding available through schemes such as the NeighbourWood and Native Woodland Schemes.
- GIO 5** Seek to retain and supplement existing tree, woodland and hedgerow planting on Council-owned lands.

13.10.2 Inland Waterways Network

The maintenance of rivers and streams in an open, semi-natural condition can provide effective measures to protect and maintain biodiversity, and to help manage fluvial and pluvial flooding whilst supporting a quality, multi-functional green network generating multiple benefits for the environment, tourism and society. Aquifers, rivers, streams, canals, lakes and groundwater provide a network of waterways and form a major and unique element of the Green Infrastructure Network.

Kildare is traversed by some of the more productive and important salmonid systems in the region, i.e. Rivers Liffey, River Barrow and River Boyne. The maintenance of rivers and streams in an open, semi-natural condition can provide effective measures to protect and maintain biodiversity and to help manage fluvial and pluvial flooding whilst supporting a

quality, multi-functional green network generating multiple benefits for the environment, tourism and society.

Policies: Inland Waterways Network

It is the policy of the Council to:

- GI 18** Contribute towards the protection of and manage the natural, historical and amenity value of, the county's waterways and to strengthen a network of waterways at a regional level.
- GI 19** Require the submission of an Ecological Impact Assessment where deemed necessary by the planning authority (and where necessary an Appropriate Assessment in relation to Natura 2000 sites) including bat and otter surveys for developments along river, stream and canal corridors.
- GI 20** Maintain a biodiversity zone of not less than 10 metres from the top of the bank of all watercourses in the county, with the full extent of the protection zone to be determined on a case by case basis by the Council, based on site specific characteristics and sensitivities. Strategic Green Routes / Blueways / Trails will be open for consideration within the biodiversity protection zone, subject to appropriate safeguards and assessments, as these routes increase the accessibility of the Green Infrastructure Network.
- GI 21** Ensure that expert advice is sought in developing lighting proposals along river, stream and canal corridors, in order to mitigate impacts of lighting on bats and other species.
- GI 22** Require that runoff from a developed area will not result in deterioration of downstream watercourses or habitats, and that pollution generated by a development is treated within the development area prior to discharge to local watercourses.
- GI 23** Contribute towards the protection of rivers, streams and other water courses and, wherever possible, maintain them in an open state capable of providing suitable habitats for fauna and flora while discouraging culverting or realignment.

GI 24 Consult, as appropriate, with Inland Fisheries Ireland in relation to any development that could potentially impact on the aquatic ecosystems and associated riparian habitats.

GI 25 Ensure the protection, improvement or restoration of riverine floodplains and to promote strategic measures to accommodate flooding at appropriate locations, to protect ground and surface water quality and build resilience to climate change.

13.10.3 Urban Green Infrastructure

Green Infrastructure within urban areas provides valuable connections from the urban centres to the wider countryside and thereby strengthening the Green Infrastructure Network. Urban Green Infrastructure includes residential gardens, the parkland settings of enterprise and employment areas, street verges, open spaces and parks, woodlands, hedgerows, cemeteries and allotments. They all collectively contribute to a strengthened Green Infrastructure network and to the benefits afforded to urban areas such as the greening of our urban areas, the creation of attractive open spaces, better health and human well-being and local distinctiveness.

Existing Green Infrastructure should be identified at the initial stages of the planning process for development and should guide the design of an appropriate site layout which is reflected in the landscape plan. The landscaping plan submitted with an application should clearly illustrate how existing Green Infrastructure, and opportunities to create more linkages, have informed and been incorporated into the development, layout and, if appropriate, management proposals.

A high standard of design, finish, layout and landscaping will be required for industrial, office, warehousing and business park developments. Comprehensive landscaping plans must be prepared by a fully qualified landscape architect.

Policies: Urban Green Infrastructure

It is the policy of the Council to:

GI 26 Ensure that the Green Infrastructure Strategy and Network is used to inform the development management process to ensure that new residential areas, business/ industrial development and other relevant projects contribute towards the protection,

management and enhancement of the existing Green Infrastructure of the local area in terms of the design, layout and landscaping.

GI 27 Require all new developments to identify, protect and enhance ecological features by making provision for local biodiversity (e.g. through provision of swift boxes or towers, bat roost sites, green roofs, etc.) and provide links to the wider Green Infrastructure network as an essential part of the design process.

GI 28 Restrict development that would fragment or prejudice the Green Infrastructure network.

GI 29 Strengthen ecological links between urban areas, Natura 2000 sites, proposed Natural Heritage Areas, parks and open spaces and the wider regional Green Infrastructure network.

GI 30 Require multifunctional open space provision within all new developments; this includes provision for ecology and sustainable water management.

13.10.4 Green Infrastructure within Public Open Spaces and Parks

Local networks of high quality, well managed and maintained open spaces, sports and recreational facilities help to enhance the urban environment, contribute to a high quality living environment and strengthen the Green Infrastructure network in the county. They provide habitats for ecological processes, a focal point for active and passive recreation, promote community interaction and help mitigate the impacts of climate change. The Kildare Open Space Strategy was prepared in 2008. It identified a hierarchy of open space within the county.

13.10.5 Green Infrastructure and Sustainable Urban Drainage Systems

Sustainable Urban Drainage Systems (SuDS) drain surface water in an environmentally friendly way by replicating natural systems in managed environments. SuDS systems seek to collect, store and release surface water back to the environment using natural systems in a slow and controlled way, thereby reducing the risk of fluvial and pluvial flooding. SuDS represents

a move away from the conventional practice of piping all surface water directly to the nearest watercourse or river towards an approach where water is either infiltrated or conveyed more slowly to water courses via constructed wetlands, permeable surfaces, filter strips, ponds, swales and basins, all of which contribute to more environmentally friendly and aesthetically pleasing methods of controlling surface water. Many SuDS features have the potential to contribute significantly to the Urban Green Infrastructure Network. To be effective, SuDS should operate on a district and/or countywide scale and form part of the wider Green Infrastructure network.

Policies: Green Infrastructure and SuDS

It is the policy of the Council to:

GI 31 Promote and support the development of Sustainable Urban Drainage Systems (SuDS).

GI 32 Promote and support the development of Sustainable Urban Drainage Systems (SuDS) such as integrated constructed wetlands, permeable surfaces, filter strips, ponds, swales and basins at a site, district and county level and to maximise the amenity and bio-diversity value of these systems.

GI 33 Promote the provision of Green Roofs and/or Living Walls in developments where expansive roofs are proposed, such as industrial, retail and civic developments.

Objective: Green Infrastructure and SuDS

It is an objective of the Council to:

GIO 6: Showcase good examples of Sustainable Urban Drainage Systems (SuDS) which maximise amenity and biodiversity.

