Comhairle Chontae Cill Mhantáin

Wicklow County Council

Draft
Sustainable Drainage Systems (SuDS) Policy and Development Guidance

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Document Control Sheet

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Rev WCC2301	February 2023	Draft – Circulated to Climate Action Group
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Rev 2401-A	May 2024	Draft Updated after Rain Water Management Study Guidelines and NB Management of Urban Rainwater and Urban Surface Water Discharges – A National Strategy 2024
Rev 2401	May 2024	Draft Issued, pending approval by CABA SPC

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1.0 Introduction & Background

1.1 Introduction:

Traditional drainage systems (collection, conveyance and discharge) have worked adequately for centuries, however in recent decades the recognition has occurred that this method is no longer sustainable in terms of environmental impact and in order to prevent flooding due to increased discharges of runoff due to extreme weather events.

An increasing population creates demand for an additional housing stock which places pressure to expand the urban areas within the County. This adds to the impact of Climate Change, where it is predicted that Ireland will have an increased amount of extreme weather events, additionally our summers are predicted to become drier creating droughts. Within the urban areas the natural water cycle will be disrupted most, where the extent of increased impermeable areas will lead to higher quantities of rainfall runoff of up to 400% in volume. Urban areas also have more elevated temperatures than rural areas which lead to "Urban Heat Islands". Sustainable Urban Development Systems, when implemented in line with this policy, will reduce flood risk and can mitigate against the pollution of water bodies, elevated temperatures and damage to the overall environment including biodiversity loss.

1.2 Complying with Legislation and National Policy:

Wicklow County Council is required to implement both National and European legislation in this area. The EU Water Framework Directive (WFD) (2000/60/EC) requires all member States to protect and improve water quality in all water bodies in order to achieve good ecological status by 2015 or, at the latest by 2027. The WFD was transposed into Irish Law by the European Communities Water Policy Regulations 2003. The Surface Water Regulations (SI No 272 of 2009) give legal status to the criteria and standards used for classifying surface water in accordance with the ecological objectives outlined within the WFD. The Surface Water Regulation introduce environmental quality standards that allow authorities authorising discharges to surface waters (e.g. EPA, local authorities) to determine the allowable concentrations in discharge without causing damage to aquatic communities.

The Groundwater Directive 2006/118/EC was developed as part of the requirements of Article 4(1)(b) of the WFD, which came into operation in January 2010.

The 2010 Regulations set clear environmental objectives with groundwater quality standards and threshold values for the classification of groundwater and protection against pollution.

The legislation is also backed by national policy documents such the National Planning Framework (Ireland 2040), Climate Action Plan 2024, National Biodiversity Action Plan 2023-2027 and the River Basin Management Plan (third edition in draft).

1.3 Purpose of this Policy and Guidance:

The purpose of this document is to provide a brief introduction to SuDS, guidance on the various standards; the Council's planning requirements and the various types of SuDS components. The document provides stormwater management design guidance and information on the standards required by development proposals in order to implement SuDS.

1.4 What is SuDS:

The traditional method of draining surface water from built up areas, through road gullies, underground sewers and tank storage systems was intended to protect public health and prevent local flooding by taking water away from its source as quickly as possible. Urban areas have historically been designed as largely impermeable areas which have led to a number of factors including increased quantities of rainwater runoff and a poorer water quality. The traditional design technique causes an increased level of flood risk and damages the receiving waters as it mobilises pollution such as sediment, litter, grit, and various other sources (such as animal wastes, pipe misconnections, industrial effluents, salts, oils, transport related pollutants etc..). The impact of urbanisation on a catchment is illustrated within figure 1.1 on the next page.

Sustainable Drainage Systems (SuDS) have been defined as 'A sequence of management practices and control structures designed to drain surface water in a more sustainable manner than conventional techniques'. SuDS manage rainfall water runoff taking into account water quantity (flood risk), quality (pollution), biodiversity (wildlife and plants), carbon reduction and amenity space. They are designed to manage rainfall as close to where it falls, encourage natural groundwater recharge and encourage evapotranspiration from vegetation and surface water. SuDS provide an opportunity to catch and treat runoff through intercepting, filtering and degrading pollutants, and by reducing the volume of potentially contaminated runoff. SuDS systems are generally designed using a Management Train philosophy.

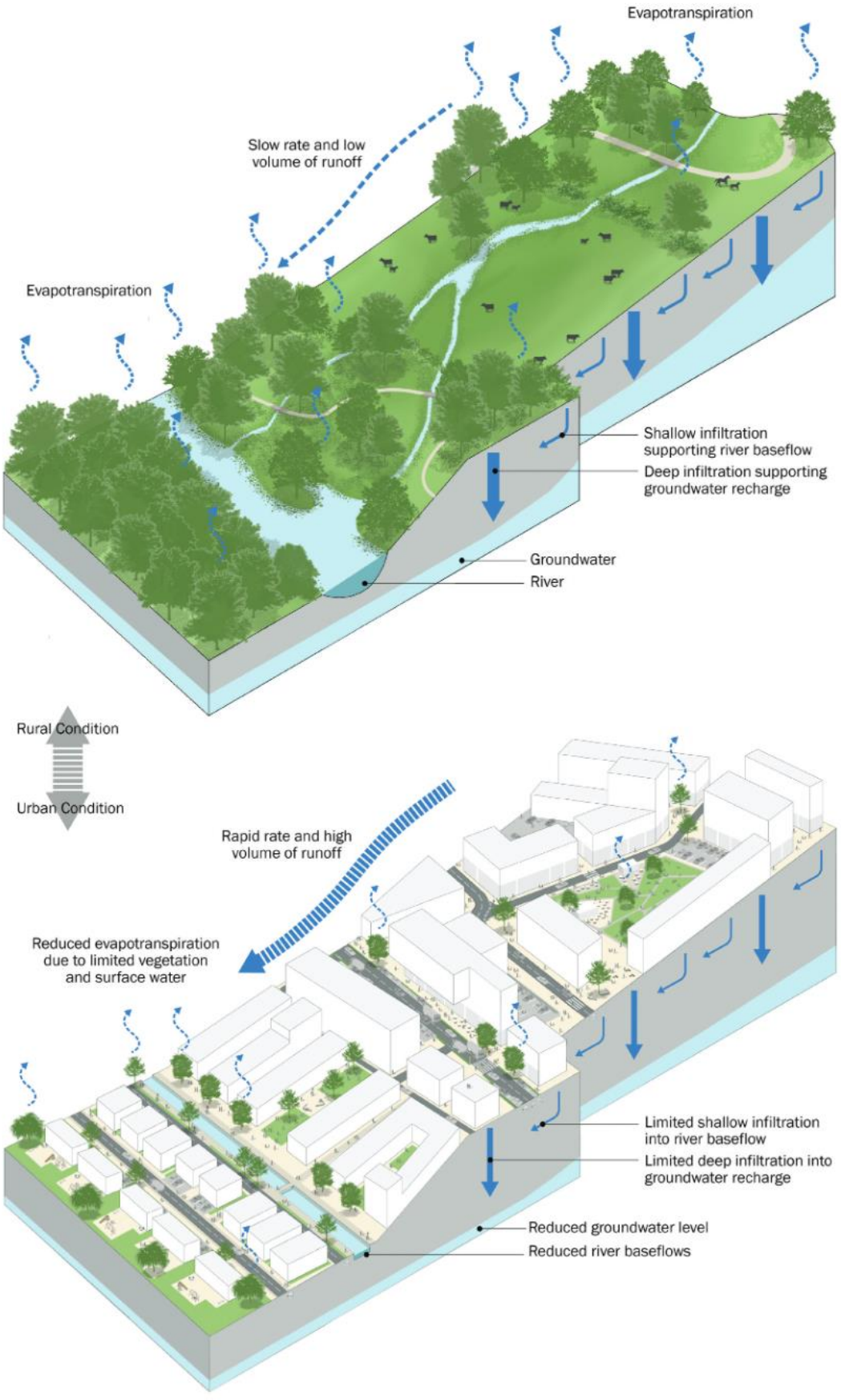


Figure 1.1: Impact of urbanisation on a catchment (The SuDS Manual CIRIA C753)

1.5 The SuDs Management Train:

SuDS utilises a multiple design philosophy where an interconnected component system is designed to manage the surface water from where it falls as rain to the receiving waters beyond the boundaries of the development site. The combined components are referred to as the treatment train or management train. The management train can be designed with online components where surface water runoff is routed directly through a component or can be off line components into which runoff is designed to be diverted into once flow reaches a specific threshold.

The management train philosophy employs four hierarchical techniques for the management of the surface water and the pollutants it carries. These are prevention, source control, site control and regional control. Prevention is where rainwater runoff is reduced. An example of prevention is through the reduction of permeable areas. The runoff is then managed as close to the source as possible. Source control can be conducted through a number of different types of components including green roofs, rainwater harvesting systems, filter strips, etc... The runoff is then controlled on site with further treatment and in being conveyed via a network across the site through systems such as swales and stored in detention basins. For larger schemes the runoff may then proceed to larger Regional Control SuDS features such as retention ponds or wetlands. Rainwater Management Plans provide a means for Regional Control features to be considered for the relevant study area where catchment studies can be conducted.

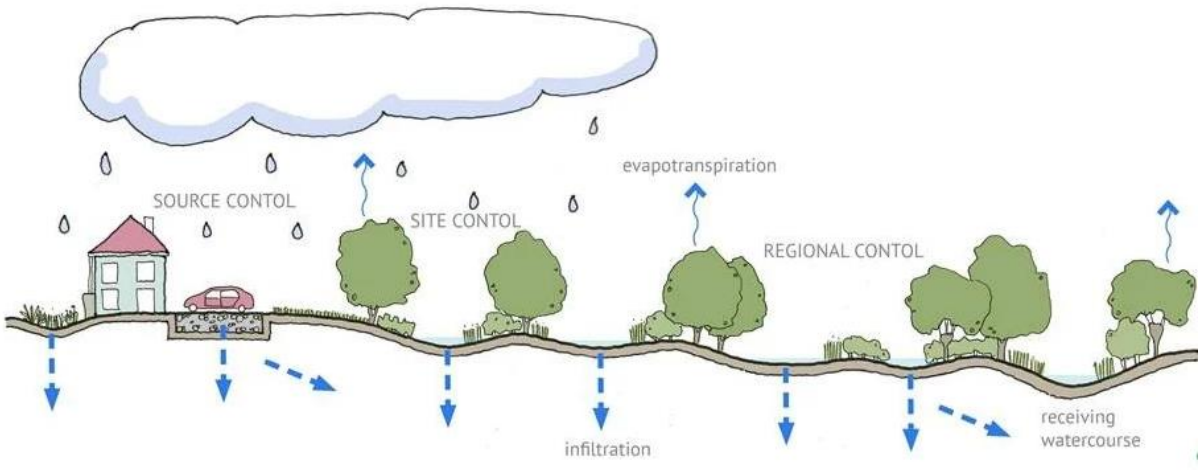


Figure 1.2: SuDS Management Train (Sus Drain https://www.susdrain.org/)

There are many types of SuDS components for a designer to consider that may provide a number of various functions. The designer will tailor the management train to suit the requirements of the site to ensure a maximum benefit. These benefits can be broadly divided into four categories including water quantity, water quality, amenity and biodiversity. These are referred to as the four pillars of SuDS design (as shown in figure 2.2).

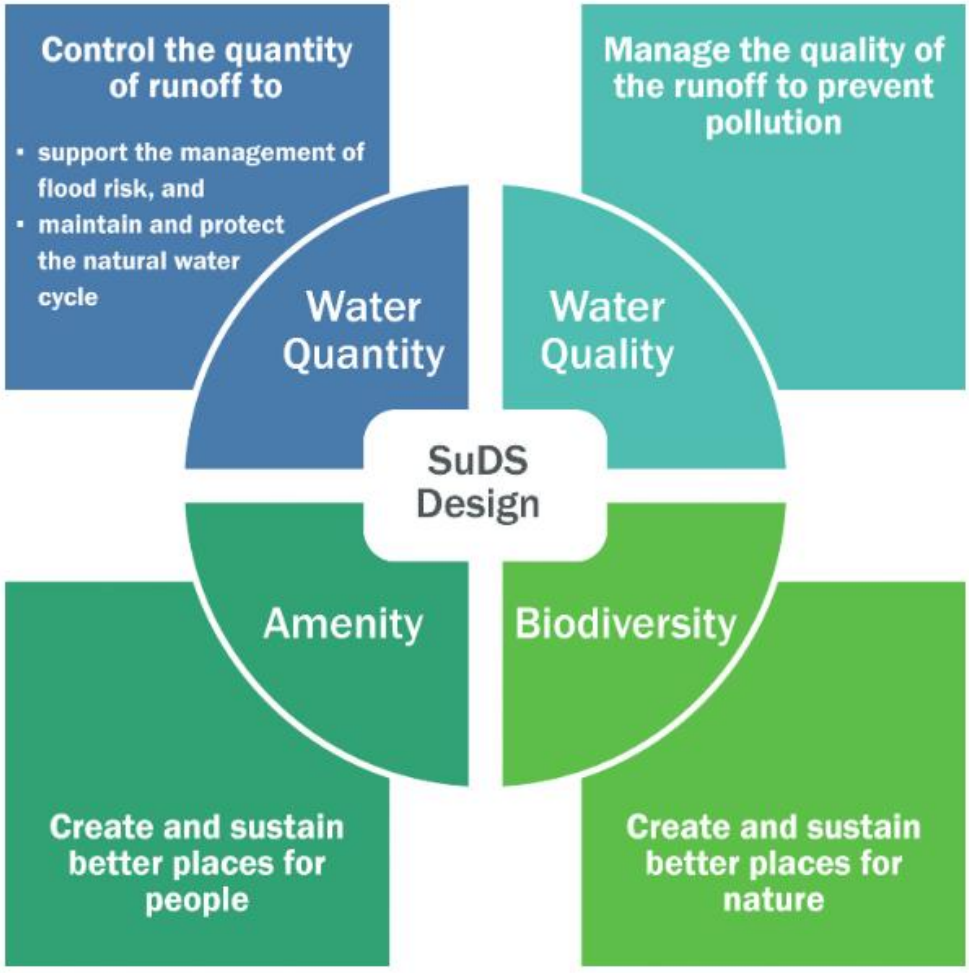


Figure 1.3: Four pillars of SuDS design (The SuDS Manual CIRIA C753)

2.0: Sustainable Drainage Systems Guidance

2.1 Introduction:

The standards required by the County Council for completion of new developments are those required by the grant of planning permission including the relevant conditions. A designer should pay particular attention to this SuDS policy document and the current County Development Plan in which Wicklow County Councils policies and objectives are identified to matters such as SuDS, Flood Risk Management, Pollution, Climate Change, etc. Local Area Plans additionally provide further guidance for development in the relevant areas.
The current versions of these documents are available on the County Council's website at:
https://www.wicklow.ie/Living/Services/Planning/Development-Plans-Strategies/National-Regional-County-Plans/Wicklow-County-Development-Plan-2022-2028/Stage-7.

2.2 Standards/ Guidance Documents

Prior to detailed design, the Developer should become familiar with relevant Policies and SuDS standards available from the Council and referenced bodies. Various government departments and agencies have provided guidance on SuDS for proposed developments, including the following documents:

These include, but are not restricted to;

- **Rainwater Management Plans – Guidance for Local Authorities – 2024**
- **Nature Based Management of Urban Rainwater and Urban Surface Water Discharges – A National Strategy - 2024**
- **Nature-Based Solutions to the Management of Rainwater and Surface Water Runoff in Urban Areas Interim Guidance Document – DHLG&H – 2021**
- **Guidelines for Road Drainage Second Edition – March 2022**
- **Planning For Watercourses In The Urban Environment – IFI 2020**
- **NTA Greening and Nature-based SuDS for Active Travel Schemes Sept 2023**
- **The Planning System and Flood Risk Management – OPW Nov 2009**
- **GDSDS - Regional Drainage Study – Volume 2 New Developments – March 2005**
- **Greater Dublin Regional Code of Practice for Drainage Works**

- **Sustainable Drainage Explanatory Design and Evaluation Guide, South Dublin County Council, 2022.**
- **Sustainable Drainage Explanatory Design and Evaluation Guide, Dublin City Council, 2021.**
- **Chapter 14 (Flood Risk Management) of the WCC Development Plan 2022-2028.**
- **Chapter 13 (Water Services) of the WCC Development Plan 2022-2028.**
- **Appendix 8 (Strategic Flood Risk Assessment) of the WCC Development Plan 2022-2028**
- **CIRIA SuDS manual C753 CIRIA, 2015.**
- **CIRIA C768 Guidance on the Construction of SuDS**
- **DMURS NBSuDS Advice Note 5 – Road and Street Drainage using Nature Based Solutions 2023 (Advice Note 6 "Priority Junction Tightening Measures" should also be considered).**
- **DOEHLG – Recommendations for Site Development Work For Housing Areas**
- **Local Area Plans (Bray, Wicklow, Arklow, Greystones…. etc)**
- **Water Sensitive Urban Design in the UK - Ideas for the built environment practitioners (C723F), CIRCA, 2013.**
- **Designing Rain Gardens – a Practical Guide, Urban Design London, 2018.**

This document provides guidance on the standards required for SuDS within the County on all proposed developments. Designers and developers should refer to this document at design stage, prior to construction works and during the construction process. This document will remain available as a live document to view on the County Council's website at:

https://www.wicklow.ie/Living/Services/Climate-Action-and-Biodiversity

When a commencement notice is submitted for a new development the current version of the **"SuDS Policy and Development Guidance"** in place at that date shall apply to the development. Additionally, it is also important that both the Designer and Developer engage with the relevant departments within the Council in relation to the development.

It is the policy of this Council that the same standards shall apply in the construction of SuDS irrespective of whether a development is to be taken in charge or managed and maintained by a private management company.

Applicants must submit a post-construction maintenance specification and schedule for the proposed drainage system, including SuDS measures and attenuation system, to the Council for approval. This maintenance specification and schedule must be included in the Safety File for the Taking in Charge process if relevant.

The Surface Water design shall be such that a minimum design life is achieved of 60 years for pipework and structures, 25 years for mechanical and electrical plant and 15 years for information, communication and telemetry (ICT) plant.

The suitability of products, components or fittings used in the construction of Surface Water systems can be demonstrated by appropriate use of a product bearing CE marking in accordance with the EU Construction Products Regulations (No. 305/2011 –CPR).
Surface Water services should not be located under any proposed building or structure. No building should be constructed over the line of a Surface Water Sewer or Surface Water Management System, in accordance with the Water Services Act, 2007.

Site Layout:

Drainage infrastructure must be located wholly within/under lands that will be put forward as part of any Taking in Charge process. Should layout changes be required post grant of permission where any part of the proposed drainage infrastructure will no longer be located within/under lands for Taking in Charge, the Developer must engage with the Local Authority, and provide written confirmation that the Local Authority wayleave requirements will be met in advance of undertaking any proposed changes.

2.3 Landscaping and Planting Guidance

The use of SuDS measures can add both amenity and biodiversity benefits to an area. This can be amplified by the designer, where carefully consideration when selecting the SuDS management train in order to ensure that they maximise nature based solutions. Additionally this would help achieve compliance with the following Development Plan 2022-2028 objective.

CPO 17.14: Ensure that development proposals support the protection and enhancement of biodiversity and ecological connectivity within the plan area in accordance with Article 10 of the Habitats Directive, including linear landscape features like watercourses (rivers, streams, canals, ponds, drainage channels, etc), woodlands, trees, hedgerows, road and railway margins, semi-natural grasslands, natural springs, wetlands, stonewalls, geological and geo-morphological systems, features which act as stepping stones, such as marshes and woodlands, other landscape features and associated wildlife where these form part of the ecological network and/or may be considered as ecological corridors or stepping stones that taken as a whole help to improve the coherence of the European network in Wicklow

The planting of trees and planted areas can be used to store and treat rainwater runoff. The design needs to allow runoff from an impermeable area to infiltrate into it. Additionally tree and planted areas such as rain gardens have to be designed to account for both wet and drought conditions. In extreme weather events underground drainage should be considered for excess flows where filtration can remove pollutants prior to the runoff entering the storm drainage system.

Tree planting can be provided within tree pits in order to restrain root damage to Urban Areas. Tree pits can be designed to protect underground services, allow for water movement and tree root growth with the selection of the correct materials and soils. Trees that are to be planted in the street scape shall be planted into constructed tree pits with the correct soil type, followed by the capping of a porous material. The species of street tree chosen should reflect the size of the grass verge, quality/depth of soil or even as a standalone tree in a hard landscape area into which the tree is to be planted.

The design of Urban Areas with Nature Based SuDS solutions with planted areas should be carried out in accordance with best practice by an experienced multi-disciplinary team. The use of native species and plants of native provenance (island of Ireland) where appropriate as per the *National Biodiversity Plan* is preferred. This will help achieve balance between amenity and wildlife. Plants and trees included within any planting scheme should be pollinator friendly as outlined within the All Ireland Pollinator Plan 2021-2025.

Appendix C provides a list of some Guidance, Best Practice Standards and Web resources for Green infrastructural projects, Urban Design, Open Spaces, Trees, Woodlands, Ecology and Landscape design or maintenance.

2.4 Construction and Adoption Stage

Before excavation of groundworks, the Developer should familiarize themselves with the SuDS component manufacturer's installation guidance and CIRIA C768 "Guidance on the Construction of SuDS" which has been specifically designed to assist in the construction, managing, inspecting or approving SuDS construction on site. Then the Developer should engage with the Taking in Charge and Environment section to arrange a site meeting. This will enable the Developer to familiarize themselves with the requirements of the Local Authority, in order to achieve surface water connection and the potential Taking in Charge of the development.

At this meeting, ***the Developer must provide a set of Construction drawings and should also submit these to the Building Control Management System (BCMS) system.***

Note that alterations to layout, attenuation measures or materials during the construction process may require Compliance, so the Developer is advised that written agreement with the Planning Authority is obtained prior to implementing any changes.

For all underground attenuation measures, it will be the responsibility of the Developer to furnish video or detailed photographic documentation of the installation process. For above ground measures, such as Ponds, Detention Basins and Swales, the Developer must provide certification from a Chartered, Civil Engineer or Surveyor to verify that the required storage volumes for these measures have been achieved for all storage systems.

For access and maintenance purposes, no ducts, pipelines and/or cables shall be laid within 1m of the outside of a Surface Water sewer, or within 1.5m of said pipes deeper than 2.0m. In no circumstances shall a utility provider install services through a manhole or sewer. Any utility crossing a SW sewer is to have a minimum clearance distance of 300mm from the outside of the sewer.

Testing of Sewers

The developer shall carry out testing of the Surface Water sewers during construction and certification of strength, pressure and air tests, on both gravity and pressure systems are required from a Consultant Engineer. The testing may be monitored by County Council staff, either from the Environment or Taking In Charge sections. The developer shall make good any defective section of sewer as directed by the County Council.

NOTE: Standards of Construction for Development Works in Private Areas

The standards of construction required for development works in private areas are the same as those for areas which are to be taken in charge. These standards should take into consideration potential future maintenance costs which will be the responsibility of the management company.

During the construction period, the County Council may carry out various inspections on developments. It is the duty of the developer to ensure that the development is built and maintained in accordance with its granted planning permission including any conditions to which the permission is subject.

2.5 Connection Stage

Note that under Section 61 (1) (a) of the Water Services Act 2007, it is illegal for any individual or company to make a direct connection to the Drainage system without prior approval in writing from the Local Authority.

Prior to Surface Water connection to the public system, the applicant or his agent, will certify that the attenuation system, including the flow control device, has been installed according to the agreed planning application layout and conditions, and set to the maximum permitted discharge limit. This shall include detailed photo or video documentation of the installation process, and certification from the installer. The penstock must also be installed in the flow control manhole at this stage. The Surface Water system should be cleaned and CCTV footage of the cleaned system together with an appropriate Surface Water layout drawing should be submitted to the Taking In Charge Section. This is to prevent construction material from entering the public system post connection.

The applicant shall then facilitate a site inspection from the relevant Municipal District and will proceed to connection stage if the inspection was deemed satisfactory.

It is the responsibility of the contractor to obtain all licences, permits, permissions etc, required for the commencement and completion of the works in accordance with the appropriate Planning and Roads Acts. Surplus and waste material shall be disposed of in accordance with waste legislation.

All developments carrying out works near a public road must have an approved road opening licence. The applicant is required to contact the Road Management Office (https://maproadroadworkslicensing.ie/MRL/) in order to obtain the necessary licencing for carrying out road works in a public area. These are facilitated through the Road Management Office (RMO) system and issued through the online Maproad Licensing System by Wicklow County Council as the Roads Authority for the area.

Road Opening Licences will be issued with a number of standard conditions, which must be adhered to. There may also be a number of specific conditions that can be attached to any licence if they are deemed relevant. The applicant must have all the relevant insurances to be in place prior to works. A breach of any of the conditions may result in the closure of the road opening site by the Council.

Trench reinstatement works must be in accordance with the 2017 DTTAS publication "Guidelines for Managing Openings in Public Road".

Surface Water connections are facilitated through the Municipal Districts. Upon receipt of invoice payment and satisfactory completion of above stipulations, a site visit from the local Drainage Inspector or Council employee will instigate the connection process. The Operation's crew will perform the connection. In some instances, the Operations section may allow the developer to make the connection under the supervision of the Inspector or Council staff member.

2.6 Maintenance Requirements

The designer should select a rainwater management SuDS train with planted areas taking into account its long term care and maintenance. Appropriate materials and native or resilient planting schemes should be utilised within the components. The CIRIA C753 SuDS Manual provides various operation and maintenance requirements for all the major types of SuDS components. The manual dedicates a section on the operation and maintenance requirements on the various types of SuDS components. A table is provided with a maintenance schedule, required actions and the typical frequency of each action.

The maintenance schedule is further subdivided into regular inspections, regular maintenance, occasional maintenance, remedial actions and monitoring. Table 2.1 is an example of the guidance provided for Swales within the CIRIA document. Guidance for various SuDS components is provided as follows:

- Rain Water Harvest Systems (Section 11.11 and Table 11.6)
- Green Roofs (Section 12.12 and Table 12.5)
- Trees (Section 11.11 and Table 11.6)
- Filter Strips (Section 15.12 and Table 15.1)
- Attenuation Storage Tanks (Section 21.13 and Table 21.3)
- Pervious Pavements (Section 20.14 and Table 20.15)
- Bioretention Systems (Section 18.12 and Table 18.3)
- Filter Drains (Section 16.12 and Table 16.1)
- Swales (Section 17.12 and Table 17.1)
- Detention Basins (Section 22.12 and Table 22.1)
- Infiltration Basins (Section 13.12.2 and Table 13.2)
- Ponds and Wetlands (Section 23.12 and Table 23.1)

Note: Maintenance Plans and schedules should be developed during the design phase, and will be specific to the type of SuDS management train that is adopted.

Operation and maintenance requirements for swales		
Maintenance schedule	**Required action**	**Typical frequency**
Regular maintenance	Remove litter and debris	Monthly, or as required
	Cut grass – to retain grass height within specified design range	Monthly (during growing season), or as required
	Manage other vegetation and remove nuisance plants	Monthly at start, then as required
	Inspect inlets, outlets and overflows for blockages, and clear if required	Monthly
	Inspect infiltration surfaces for ponding, compaction, silt accumulation, record areas where water is ponding for > 48 hours	Monthly, or when required
	Inspect vegetation coverage	Monthly for 6 months, quarterly for 2 years, then half yearly
	Inspect inlets and facility surface for silt accumulation, establish appropriate silt removal frequencies	Half yearly
Occasional maintenance	Reseed areas of poor vegetation growth, alter plant types to better suit conditions, if required	As required or if bare soil is exposed over 10% or more of the swale treatment area
Remedial actions	Repair erosion or other damage by re-turfing or reseeding	As required
	Relevel uneven surfaces and reinstate design levels	As required
	Scarify and spike topsoil layer to improve infiltration performance, break up silt deposits and prevent compaction of the soil surface	As required
	Remove build-up of sediment on upstream gravel trench, flow spreader or at top of filter strip	As required
	Remove and dispose of oils or petrol residues using safe standard practices	As required

Table 2.1: Operation and Maintenance requirements for swales (The SuDS Manual CIRIA C753)

2.7 Taking in Charge

Taking in charge involves the County Council taking control of certain roads, services and public areas associated with a residential development, and being responsible for their future maintenance. The standards required by the County Council for the completion of new residential developments are those required by the grant of planning permission including the relevant conditions. The standards of construction required for site development works within private areas shall be the same as those areas specified to be taken in charge. The conditions of the planning permission determine if a development is to taking in charge or remain private.

2.8 Wayleaves

Note: If at all possible, the need to locate or route the main public services such as drainage systems through private lands or areas not being put forward for Taking in Charge, should be avoided.

However, if agreed with the Council, then wayleaves are required and will be subsequently offered to the County Council prior to taking in charge a development. The developer or responsible party will complete (at no extra cost to the Council) all wayleaves required by the Council, including drainage systems and other areas required by the Council.

Drawings showing proposed Wayleaves in an agreed format, together with completed Wayleave Agreement Forms, should be submitted for approval to the Planning Authority prior to construction commencing on site. Appendix B contains a draft template of a Wayleave Agreement for information purposes only. This template will may need to be modified depending on the requirements of the particular wayleave required and legal advice should be obtained prior to entering into any such agreement. The final wording of all wayleaves is subject to the approval of Wicklow County Council. All wayleaves must be incorporated into the Title Deeds of the private properties concerned in favour of the Council. Written confirmation that this has been complied with shall be furnished by the developer to the Environment Section. **The development will not be Taken in Charge and the Bond monies will not be released until all Wayleaves have been agreed and submitted.**

In general, Wayleaves for pipelines shall have a minimum width of **6** metres, and the drawings should show the location, type and size of the services to be Taken in Charge within the private areas.

3.0: Planning Requirements

3.1 General Requirements:

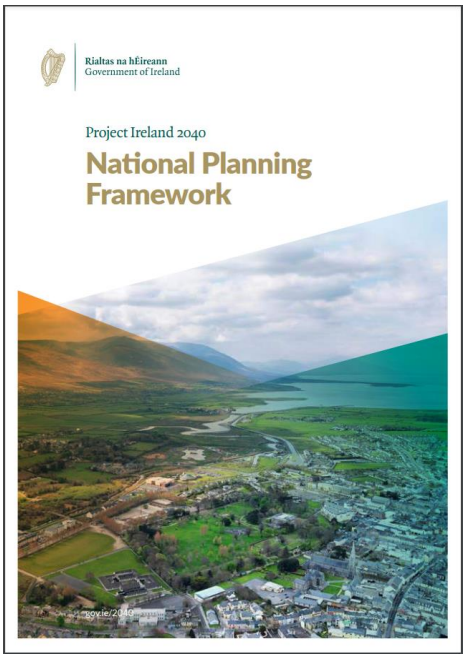
All developments must be completed in accordance with the granted planning permission and planning conditions. This document provides guidance on the SuDS standards required for all proposed developments within the administration boundary of the Council. Developments can be completed to a higher standard than any standards specified within this document.

It's the applicant's responsibility to ensure they have adhered to the site specific Planning Conditions in relation to drainage requirements to the satisfaction of the Planning Authority. For An Bord Pleanála permissions the requirements of the Planning Authority in relation to drainage systems are deemed to be the conditions/proposed conditions set out in the Chief Executive's report on the application.

Where a condition of a planning permission requires a developer to submit or agree details of the drainage systems with the Planning Authority, compliance should be discussed and agreed with the relevant section before a formal compliance submission is made to the Planning Authority.

In advance of commencement of works, any proposed changes to the approved drainage layout should be discussed with the relevant section before a formal compliance submission is made to the Planning Authority. These changes must be agreed with the Planning Authority prior to commencement of works.

The applicant is responsible for ensuring the constructability of their outlet proposal, especially in terms of legality/ownership and where conflict with other utilities may arise.



3.2 Project Ireland 2040 National Planning Framework National Policy Objectives:

Objective 57:

"Enhance water quality and resource management by:

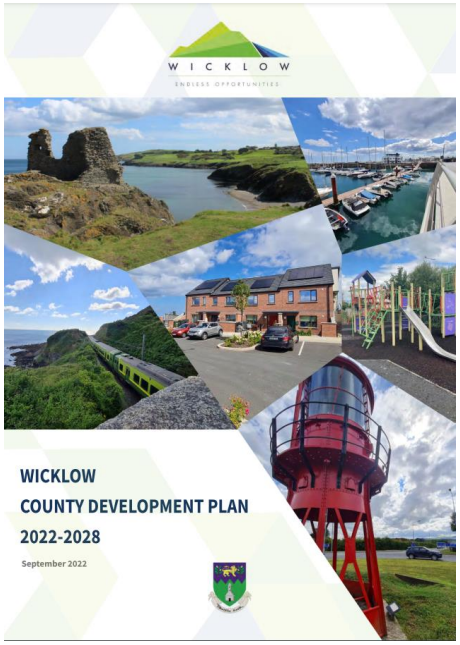
- Ensuring flood risk management informs place-making by avoiding inappropriate development in areas at risk of flooding in accordance with The Planning System and Flood Risk Management Guidelines for Planning Authorities
- Ensuring that River Basin Management Plan objectives are fully considered throughout the physical planning process
- Integrating sustainable water management solutions, such as Sustainable Urban Drainage (SuDS), porous surfacing and green roofs, to create safe places."

Objective 58:

"Integrated planning for Green Infrastructure and ecosystem services will be incorporated into the preparation of statutory land use plans."

Objective 63:

"Ensure the efficient and sustainable use and development of water resources and water services infrastructure in order to manage and conserve water resources in a manner that supports a healthy society, economic development requirements and a cleaner environment."



3.3 Wicklow County Council Development Plan Policies:

Of particular note within the Wicklow Development Plan 2022 – 2028 for SuDS or surface water management requirements refer to the following:

- Chapter 13 – Water Services
- Chapter 14 - Flood Risk Management
- Chapter 17 – Natural Heritage & Biodiversity
- Appendix 1 – Development & Design Standards
- Appendix 8 – Strategic Flood Risk Assessment

Chapter 13 – Water Services Objectives:

Water Quality:

CPO 13.3: To minimise alterations or interference with river / stream beds, banks and channels, except for reasons of overriding public health and safety (e.g. to reduce risk of flooding); a buffer of generally 25m along watercourses should be provided (or other width, as determined by the Planning Authority having particular regard to '*Planning for Watercourses in the Urban Environment'* by Inland Fisheries Ireland for urban locations) free from inappropriate development, with undeveloped riparian vegetation strips, wetlands and floodplains generally being retained in as natural a state as possible.

Water Demand Objectives:

CPO 13.14: To require all new developments to integrate water demand reduction designs and technologies in all aspects of the development including but not limited to:

- Installation of water efficient equipment;
- Provision of dual flush toilets, cistern bags or other similar technologies;
- Construction of grey water systems to allow for the re-use of wastewater from sinks, shower drains or washing machines;
- Provision of rainwater harvesting equipment;
- The use of low maintenance plants in the design of landscaping;
- In manufacturing, use of process or cooling loops, counter current rinsing and batch processing, or increasing the recycle rate of cooling towers

Storm & Surface Water Infrastructure Objectives:

CPO 13.20 Ensure the separation of foul and surface water discharges in new developments through the provision of separate networks.

CPO 13.21 Ensure the implementation of Sustainable Urban Drainage Systems (SUDS) in accordance with the Wicklow County Council SuDS Policy to ensure surface water runoff is managed for maximum benefit. In particular to require proposed developments to meet the design criteria of each of the four pillars of SuDS design; Water Quality, Water Quantity, Amenity and Biodiversity.

CPO 13.22 To promote the use of green infrastructure, such as swales and wetlands, where feasible as landscape features in new development to provide storm / surface runoff storage and reduce pollutants, as well as habitat, recreation and aesthetic functions.

Chapter 14 – Flood Risk Management:

Table 3-1: Policy Objectives for the County Development Plan

Policy Objective	
CPO 14.01	To support the implementation of recommendations in the OPW Flood Risk Management Plans (FRMPs), including planned investment measures for managing and reducing flood risk.
CPO 14.02	To support and facilitate flood management activities, projects or programmes as may arise, including but not limited to those relating to the management of upstream catchments and the use of 'natural water retention' measures, and ensure each flood risk management activity is examined to determine actions required to embed and provide for effective climate change adaptation as set out in the Climate Change Sectoral Adaptation Plan for Flood Risk Management applicable at the time.
CPO 14.03	To recognise the concept of coastal evolution and fluvial flooding as part of our dynamic physical environment, and adopt an adaptive approach to working with these natural processes. The focus of a flood management strategy should not solely be driven by conservation of existing lands; it should recognise that marshes, mud flats and other associated eco-systems evolve and degenerate, and appropriate consideration should be given to the realignment of defences and use of managed retreat and sacrificial flood protection lands to maintain such habitats as part of an overall strategy.
CPO 14.04	To ensure the County's natural coastal defences (beaches, sand dunes, salt, marshes and estuary lands) are protected and to ensure that their flood defence/management function is not put at risk by inappropriate works or development.
CPO 14.05	To continue to work with the OPW and other agencies to deliver Flood Defence Schemes in the County as identified in current and future FRMPs, and in particular: □ Avoca River (Arklow) Flood Defence Scheme; □ Avoca River (Avoca) Flood Defence Scheme; □ Low cost works in accordance with the OPW's Minor Works Scheme; □ Coastal Protection Projects, where funding allows.
CPO 14.06	To implement the 'Guidelines on the Planning System and Flood Risk Management' (DoEHLG/OPW, 2009).
CPO 14.07	To prepare new or update existing flood risk assessments and flood zone maps for all zoned lands within the County as part of the review process for Local Area Plans, zoning variations and Small Town Plans, where considered necessary.
CPO 14.08	The zoning of land that has been identified as being at a high or moderate probability of flooding (flood zones A or B) shall be in accordance with the requirements of the Flood Risk Management Guidelines and in particular the 'justification test for development plans' (as set out in Section 4.23 and Box 4.1 of the guidelines).

CPO 14.09	Applications for new developments or significant alterations/extension to existing developments **in an area at risk of flooding** shall comply with the following: • Follow the 'sequential approach' as set out in the Flood Risk Management Guidelines. • An appropriately detailed flood risk/drainage impact assessment will be required with all planning applications to ensure that the development itself is not at risk of flooding and the development does not increase the flood risk in the relevant catchment (both up and down stream of the application site), taking into account all sources of flooding. • Restrict the types of development permitted in Flood Zone A and Flood Zone B to that which are 'appropriate' to each flood zone, as set out in Tables 3.1 and 3.2 of the guidelines for Flood Risk Management Guidelines (DoEHLG/OPW, 2009, as amended), unless the 'plan making Justification Test' has been applied and passed; • Where a site has been subject to, and satisfied, the Plan Making Justification Test, development will only be permitted where a proposal also complies with the 'Justification Test for Development Management', as set out in Box 5.1 of the Guidelines. • Flood Risk Assessments shall be in accordance with the requirements set out in the Guidelines and the SFRA. Where flood zone mapping **does not indicate a risk of flooding** but the planning authority is of the opinion that flood risk may arise or new information has come to light that may alter the flood designation of the land, an appropriate flood risk assessment will be required to be submitted by an applicant for planning permission and the sequential approach shall be applied as the 'plan making justification test' will not be satisfied.
CPO 14.10	To prohibit development in river flood plains or other areas known to provide natural attenuation for floodwaters except where the development can clearly be justified with the Flood Risk Management Guidelines 'Plan Making Justification Test'.
CPO 14.11	To limit or break up large areas of hard surfacing in new developments and to require all surface car parks to integrate permeability measures such as permeable paving.
CPO 14.12	Excessive hard surfacing shall not be permitted for new, or extensions to, residential or commercial developments and all applications will be required to show that sustainable drainage techniques have been employed in the design of the development.
CPO 14.13	Ensure the implementation of Sustainable Urban Drainage Systems (SUDS) in accordance with the Wicklow County Council SuDS Policy to ensure surface water runoff is managed for maximum benefit. In particular to require proposed developments to meet the design criteria of each of the four pillars of SuDS design; Water Quality, Water Quantity, Amenity and Biodiversity.

CPO 14.14	Underground tanks and storage systems shall be permitted as a last resort only where it can be demonstrated the other more sustainable SuDS infrastructure measures are not feasible. In any case underground tanks and storage systems shall not be permitted under public open space, unless there is no other feasible alternative.
CPO 14.15	To promote the use of green infrastructure, such as swales and wetlands, where feasible as landscape features in new development to provide storm / surface runoff storage and reduce pollutants, as well as habitat, recreation and aesthetic functions.
CPO 14.16	For developments adjacent to all watercourses or where it is necessary to maintain the ecological or environmental quality of the watercourse, any structures (including hard landscaping) must be set back from the edge of the watercourse in accordance with the guidelines in 'Planning for Watercourses in the Urban Environment' by Inland Fisheries Ireland.

Chapter 17: Natural Heritage & Biodiversity:

CPO 17.14: Ensure that development proposals support the protection and enhancement of biodiversity and ecological connectivity within the plan area in accordance with Article 10 of the Habitats Directive, including linear landscape features like watercourses (rivers, streams, canals, ponds, drainage channels, etc), woodlands, trees, hedgerows, road and railway margins, semi-natural grasslands, natural springs, wetlands, stonewalls, geological and geo-morphological systems, features which act as stepping stones, such as marshes and woodlands, other landscape features and associated wildlife where these form part of the ecological network and/or may be considered as ecological corridors or stepping stones that taken as a whole help to improve the coherence of the European network in Wicklow.

CPO 17.16: Require pollinator friendly landscape management and planting within new developments and on Council owned land (Land utilised for such planting spaces may include the smaller spaces / strips of open space in new residential development that are not large or wide enough to be counted as part of the 15% amenity open space).

COP17.22: To require and ensure the preservation and enhancement of native and semi-natural woodlands, groups of trees and individual trees, as part of the development management process, and require the planting of native broad leaved species, and species of local provenance in all new developments.

CPO 17.23: To require the retention, wherever possible, of hedgerows and other distinctive boundary treatment in the County. Where removal of a hedgerow, stone wall or other distinctive boundary treatment is unavoidable, provision of the same type of boundary will be required of similar length and set back within the site in advance of the commencement of construction works on the site (unless otherwise agreed by the Planning Authority).

CPO 17.26: Protect rivers, streams and other water courses by avoiding interference with river / stream beds, banks and channels and maintaining a core riparian buffer zone of generally 25m along watercourses (or other width, as determined by the Planning Authority having particular regard to 'Planning for Watercourses in the Urban Environment' by Inland Fisheries Ireland for urban locations) free from inappropriate development, with undeveloped riparian vegetation strips, wetlands and floodplains generally being retained in as natural a state as possible. Structures such as bridges should be clear span, and designed and built in accordance with Inland Fisheries Ireland guidance.

Appendix 1 Development & Design Standards:

1.2 Climate Change:

- All new buildings will be required to incorporate **water saving measures**. This may include water harvesting for internal services use. All new dwellings with individual surface water collection systems will be required to be provided with water butts.

- Consideration should be given in the design of new buildings to the provision of **green roofs or walls** (i.e. roof gardens / planted balconies etc), to aid in both water absorption but also to contribute positively to the environment and visual amenity.

1.5 Flood Risk Assessment:

Applications for new developments or significant alterations/extension to existing developments in an area at risk of flooding shall comply with the following:

- Follow the 'sequential approach' as set out in the Flood Risk Management Guidelines.
- Flood risk assessments will be required with all planning applications proposed in areas identified as having a flood risk, to ensure that the development itself is not at risk of flooding and the development does not increase the flood risk in the relevant catchment (both up and down stream of the application site).
- Where a development is proposed in an area identified as being at low or no risk of flooding, where the planning authority is of the opinion that flood risk may arise or new information has come to light that may alter the flood designation of the land, an appropriate flood risk assessment may be required to be submitted by an applicant for planning permission.
- Restrict the types of development permitted in Flood Zone A and Flood Zone B to that which are 'appropriate' to each flood zone, as set out in Tables 3.1 and 3.2 of the guidelines for Flood Risk Management (DoEHLG/OPW, 2009, as amended).
- Developments that are an 'inappropriate' use for a flood zone area, as set out in Tables 3.1 and 3.2 of the guidelines, will not be permitted, except where a proposal complies with the 'Justification Test for Development Management', as set out in Box 5.1 of the Guidelines.
- Flood Risk Assessments shall be in accordance with the requirements set out in the Guidelines.
- Generally a Flood Impact Assessment will be required with all significant developments and a certificate (from a competent person stating that the development will not contribute to flooding within the relevant catchment) will be required with all small developments of areas of 1 hectare or less.

Section Two Infrastructure & Services:

Sub section 2.2.4 Surface & storm water systems:

With respect to the design of surface and storm water systems, the Planning Authority will have regard to the standards set out in the Greater Dublin Strategic Drainage Study (GDSDS).

In particular, all new developments shall be designed to:

- Ensure the separation of foul and surface water discharges through the provision of separate networks;
- Surface water is appropriately collected on site to prevent flow onto the public roadway, adjoining properties or into the public foul sewer / sewage treatment plant;
- Ensure the implementation of Sustainable Urban Drainage Systems (SUDS) in accordance with the Wicklow County Council SuDS Policy to ensure surface water runoff is managed for maximum benefit. In particular to require proposed developments to meet the design criteria of each of the four pillars of SuDS design; Water Quality, Water Quantity, Amenity and Biodiversity.
- Promote the use of green infrastructure, such as swales and wetlands, where feasible as landscape features in new development to provide storm / surface runoff storage and reduce pollutants, as well as habitat, recreation and aesthetic functions.

Appendix 8 Strategic Flood Risk Assessment:

Table 4-2: Climate change allowances by vulnerability and flood source:

Development vulnerability	Fluvial climate change allowance (increase in flows)	Tidal climate change allowance (increase in sea level)	Storm water / surface water
Less vulnerable	20%	0.5m Mid-Range Future Scenario(MRFS)	20% increase in rainfall
Highly vulnerable	20%	0.5m (MRFS)	
Critical or extremely vulnerable (e.g. hospitals, major substations, blue light services)	30%	1.0m (HEFS)	
Note: there will be no discounting of climate change allowances for shorter lifespan developments.			

3.4 Pre Planning Application / Enquiry:

It is of benefit to applicants, and the Council, for consultation regarding proposed developments prior to their lodgement as planning applications. Early engagement will allow the applicant to confirm local requirements and can be an essential step towards achieving a sustainable design that will help integrate SuDS into proposed developments in a cost efficient manner. Alternatively when applicants leave drainage design incorporating SuDS to a later stage within the design process, this will add time and redesign costs for the applicant. Sustainable Drainage Systems (SuDS) are a mandatory requirement for all new developments including domestic extensions and side garden developments.

Under the provisions of Section 247 of the Planning Act, 2000, as amended, a prospective applicant shall have consulted with the Planning Authority in respect of the development that comprises:

- Residential development of more than 10 housing units.
- Non-residential development of more than 1,000 square metres gross floor space.
- Other development as may be prescribed in legislation.

Details with regard to applying for a pre-application consultation can be found at https://www.wicklow.ie/Living/Services/Planning/Planning-Applications/Pre-planning.

Maps of the surface water drainage networks may be obtained from the Council by emailing waterservices@wicklowcoco.ie. Developments must comply with Part H of the Building Regulations.

Where sites are located within the 1 in 1000 (0.1%) year flood extent of the OPW's CFRAM, Wicklow Development Plan 2022-2028 or relevant Local Area Plan flood risk maps the applicant shall submit details of the measures and design features to prevent/mitigate the risk of flooding to the proposed development and to adjoining lands. Compensation storage shall be provided where development is on the flood plain. Finished floor levels shall be at least 0.5m above the highest flood level occurrence at that location.

3.5 Design Standards to be used to support your application:

A Site Rainwater Management Plan or Surface Water Management Plan:

All planning applications should have a surface water drainage strategy proportionate to the size, type, and location of development. The Sustainable Residential Development and Compact Settlement Guidelines adopted in 2024 recommend that Surface Water Management Plans be prepared (including Nature Based Solutions to drainage) for 30 or more residential units, 3000m^2 of mixed use development and/or where public realm improvements are proposed. The plan should include a SuDS Management train showing compliance with the relevant legislation, National Planning Policy, Wicklow Development Plan 2022-2028 and relevant Local Area Plan.

A Flood Risk Assessment:

The assessment of flood risk requires an understanding of where the water comes from, how and where it flows and the people and assets affected by it. Flooding can occur from various locations including coastal flooding, fluvial flooding, pluvial flooding, groundwater flooding or other sources such as failure or exceedance of capacity of built infrastructure, blocked or under-sized drainage systems. All new development sites and significant extensions to existing dwellings require a flood risk assessment that's proportional to the proposed development and the likelihood of flooding taking place. Submissions must comply with the OPW Guidelines for Planning Authorities (Website link). Other useful resources include the following:

- The OPW have provided a National Historic Flood Event Database which is available on the OPW flood portal: www.floodinfo.ie.
- Real time access data is provided for hundreds of rivers, lakes and tidal surface water monitoring stations at www.waterlevel.ie.

Rainwater Management or Surface Water Drainage Design:

Applicants must use site specific hydrological parameters in their Qbar, attenuation volume and surface water system design such as:

- Overall Site Area
- Standard Average Annual Rainfall (SAAR)
- Soil Type
- Rainfall Return Period Table (From MET Eireann)
- Rainfall Intensity
- Other hydrological parameters

Discharge Rate:

Surface Water discharge from a development must be restricted to 2 l/s/ha or the calculated Q_{BAR}, whichever is greater. The Q_{BAR} should be calculated using the NET area drained and not the GROSS area of the site (i.e. red line boundary). This discharge rate should be marked on the drainage drawing on the manhole in which the flow restricting device is located. The flow restricting device should not have a bypass door and, a penstock and silt trap should be provided in the manhole. If the flow restricting device orifice is less than 50mm in diameter then the applicant must submit a maintenance regime to ensure blockages are avoided. Applicants are recommended to use the HR Wallingford UK SuDS Greenfield runoff rate estimation tool to estimate Q_{BAR} for their site, and use local SAAR figues:
https://www.uksuds.com/drainage-calculation-tools/greenfield-runoff-rate-estimation

Minimum Flow Control Diameter:

Flow control diameters are not to be less than 50mm unless specifically designed not to block.

Freeboard:

The Freeboard above the Design Flood Level should not be lower than 500mm for residential development, offices and commercial development.

Soakaway Standards:

Follow testing procedures and calculation methodology of the Building Research Establishment (BRE) Digest 365 February 2016 edition. Additional seasonal testing or borehole analysis is required for major applications. BRE Digest 365 design parameters of 1 in 10 year return periods should be extended to reflect planning policy and non-statutory SUDS Standards and demonstrate no flooding in 1 in 30 year return periods and the 1 in 100+ climate change critical storm to be safely retained on site.

Site Investigation Report with Infiltration tests:

A site investigation report including infiltration tests should be provided in order to help determine the sites ability to infiltrate rainwater. While infiltration is preferred instead of storage, the risks of groundwater pollution need to be considered by the designer. The SuDS Manual 2015, CIRIA 753 provides further guidance on the risks associated with infiltration within Chapter 25.

Water Quality Management:

Measures should be demonstrated to improve water quality in order to achieve the objectives of the EU Water Framework Directive through pollutant management and improved chemical and ecological status of water bodies.

4.0: Sustainable Drainage Measures

4.1 General Requirements:

Sustainable drainage systems (SuDS) present an opportunity for developers to add value to a scheme while at the same time meeting the requirements of the Planning Authority. Implementing a good SuDS design scheme helps to facilitate a quicker and more positive planning outcome. Additionally this will help ensure the development is taken in charge more expediently. This Chapter provides some minor guidance in relation to various types of SuDS components that can be considered within a development management train, including source control, site control and regional control measures.

When a site has an existing watercourse the Inland Fisheries Ireland publication 'Planning for Watercourses in the Urban Environment' should be considered within any proposed design to ensure the riparian zone is protected. SuDS components may be placed within the Outer Zone as per figure 4.1.

Figure 4.1: Riparian Zones for Urban Areas (IFI - Planning For Watercourses In The Urban Environment)

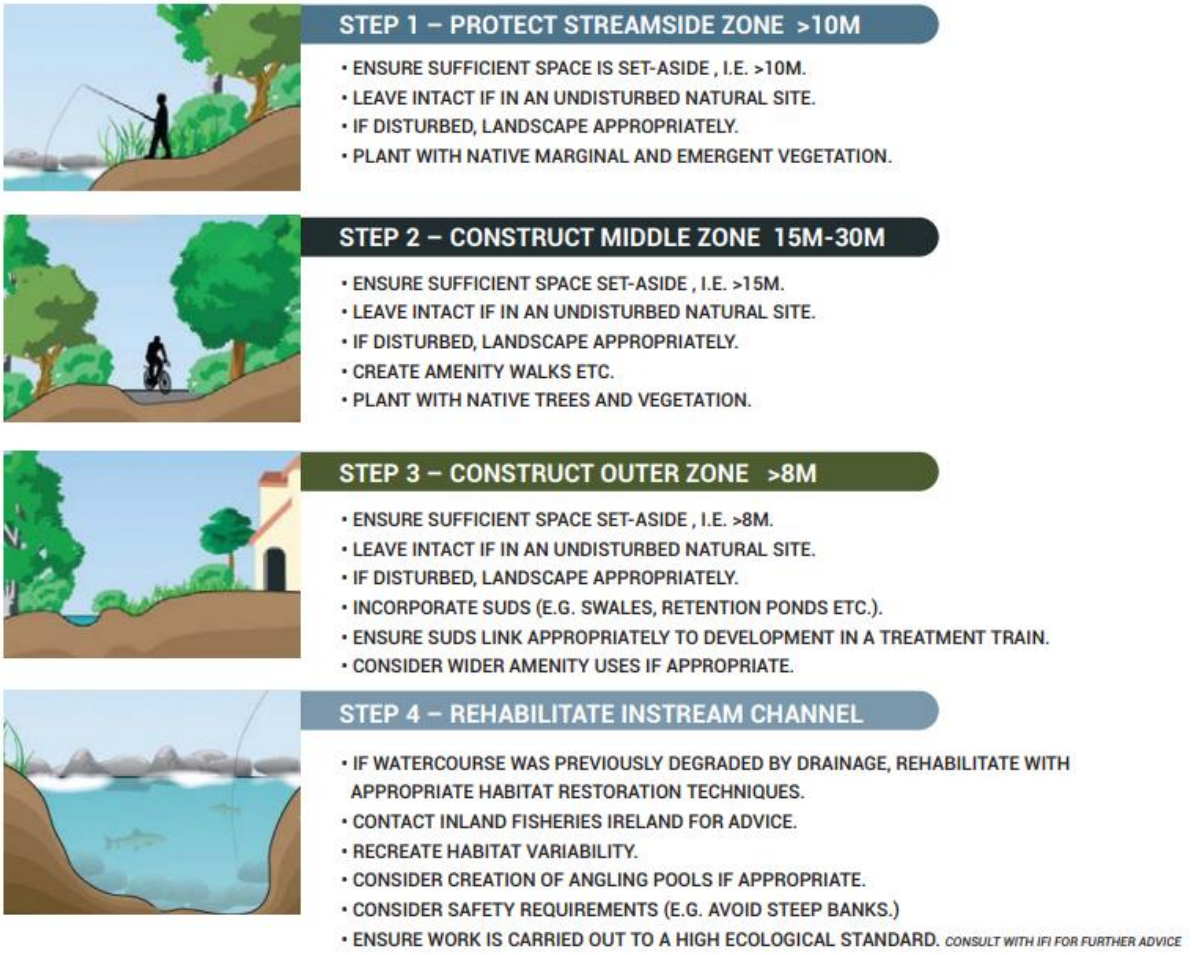


Figure 4.2: Riparian Zones break down (IFI - Planning For Watercourses In The Urban Environment)

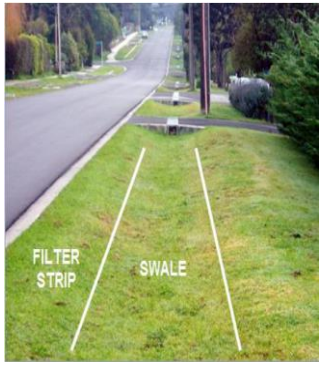
The CIRIA C753 SuDS Manual allows surface water drainage (including SuDS components) to be located within Flood Zone 2 (Flood Zone B in Ireland), however the combined probability of fluvial and site flooding events will need consideration when checking the impact of flooding on the drainage system. SuDS components can only be located within Flood Zone 3 (Flood Zone A in Ireland) when conveying water into a river or watercourse.

The Planning System and Flood Risk Management Guidelines for Planning Authorities specifies local transport infrastructure (which may include SuDS components) as appropriate within Flood Zone B.

The designer should consider the full extent of the SuDS management train at the initial stages of the development design taking into account the existing watercourses and topography of the site in order to achieve the most efficient and effective design.

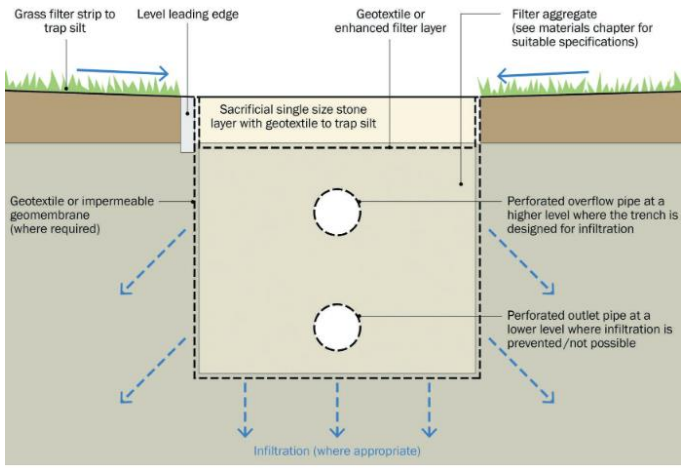
4.2 Source Control Systems:

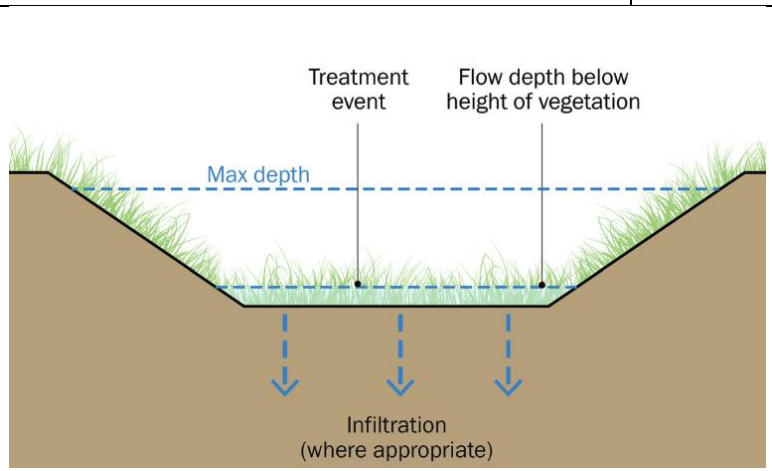
SuDS Measure	Description	Key Design Points	CIRIA C753 SuDs Manual
Water Butts / Rainwater Harvesting 	Rainwater harvesting (RWH) is the collection of rainwater runoff for use. Runoff can be collected from roofs and other impermeable areas, stored, treated (where required) and then used as a supply of water for domestic, commercial, industrial and/or institutional properties.	RWH can be either gravity, pumped or composite based systems. Refer to ISEN 16941-1:2018. Water Butts generally limited to domestic use.	Chapter 11 and NTA NB SuDS for Active Travel
Green and Blue Roofs 	Green roofs are areas of living vegetation, installed on the top of buildings, for a range of reasons including visual benefit, ecological value, enhanced building performance and the reduction of surface water runoff. A blue roof is essentially a roof designed to store water. Blue roofs may or may not be vegetated. They may store water within hard landscape features. Green / Blue roofs should be considered for large roof areas (greater than 300m^2).	Consider structural capacity of roof for increased loading. Extensive (Inaccessible) or Intensive (Accessible) green roof options. Need for rooftop equipment. Plant suitability and materials. Fire Resistance. Refer to BS8616:2019, BS6229, ISEN13252:2016 and ISEN12056.	Chapter 12

Filter Strips (Collection and connection) 	Filter strips are uniformly graded and gently sloping strips of grass or other dense vegetation that are designed to treat runoff from adjacent impermeable areas by promoting sedimentation, filtration and infiltration. Longer grasses and wildflower areas, if considered beneficial for other reasons, are not considered to pose a significant risk to performance. Planting may need to be salt tolerant for gritting. There should always be a drop of at least 50 mm from the pavement edge to the filter strip to prevent the formation of a sediment lip.	Impermeable area drains to grass filter strip slope typically 2-5%. Max flow 1.5m/s recommended to prevent erosion. Peak flow velocity should be lower than 0.3 m/s to promote particulate settlement	Chapter 15
Trees 	Trees can be planted within a range of infiltration SuDS components (eg bioretention systems, detention basins and swales) to improve their performance or they can be used as standalone features within soil-filled tree pits, tree planters or structural soils. The soils around trees can be used to filter out pollutants from runoff directly.	Used for small local areas only. Utility services locations. Refer to BS 8545:2014, TDAG (2014), BS 5837:2012 and BS 3882:2007	Chapter 19 NTA NB SuDS for Active Travel and DMURS Advice Note 5.

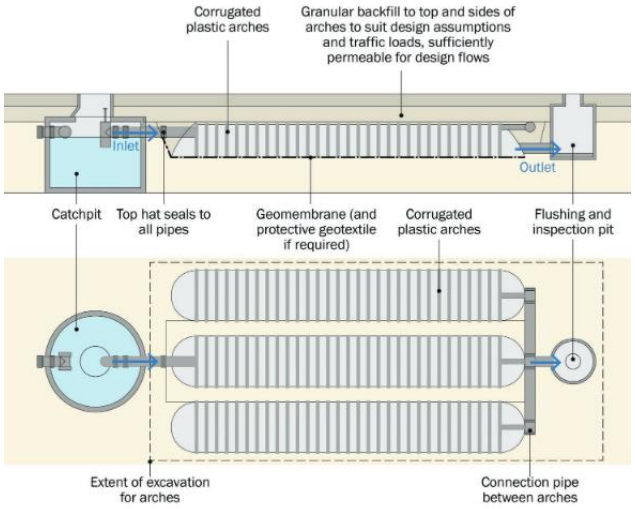
Bioretention systems (Include Rain Gardens, tree pits and raised planters) 	Bioretention systems are shallow landscaped depressions that can reduce runoff rates and volumes, and treat pollution through the use of engineered soils and vegetation. Additionally they can provide attractive landscape features that are self-irrigating and fertilising, improve habitat, add biodiversity and create cooling of the microclimate through evapotranspiration. Bioretention systems can be used in residential and non-residential areas to mitigate pollution within runoff from roads. They can be used in traffic islands, public areas, islands, roundabouts, footpaths and pedestrian zones. A liner system can be installed to protect groundwater if there is pollution risk.	Flexible in size or shape. Vegetation selection is site specific. Filter media depth varies with each type of system. Can facilitate areas up to 0.8 ha. Can be used in most ground conditions and sites. Inflow velocities should be <0.5m/s (or 1.5m/s for 1:100 year event). Must be constructed lower than the draining impermeable area. Kerb cuts should be at least 250mm wide to prevent blockages and erosion.	Chapter 18 NTA NB SuDS for Active Travel and DMURS Advice Note 5.
Pervious Paving 	Pervious pavements provide a pavement suitable for pedestrian and/or vehicular traffic, while allowing rainwater to infiltrate through the surface. Treatment includes infiltration, adsorption, biodegradation and sedimentation. There are two types: **Porous pavements** infiltrate water across their entire surface material, for example reinforced grass or gravel surfaces, resin bound gravel, porous concrete and porous asphalt. **Permeable pavements** where the materials are laid to provide void space.	Used in trafficked and pedestrian areas. CBR value important. Permeable paving normally used for car spaces. Porous asphalt used for roads, schools and car parks. Can have a storage tank under to cater for rain water harvesting. Ground Infiltration important.	Chapter 20 DMURS Advice Note 5.

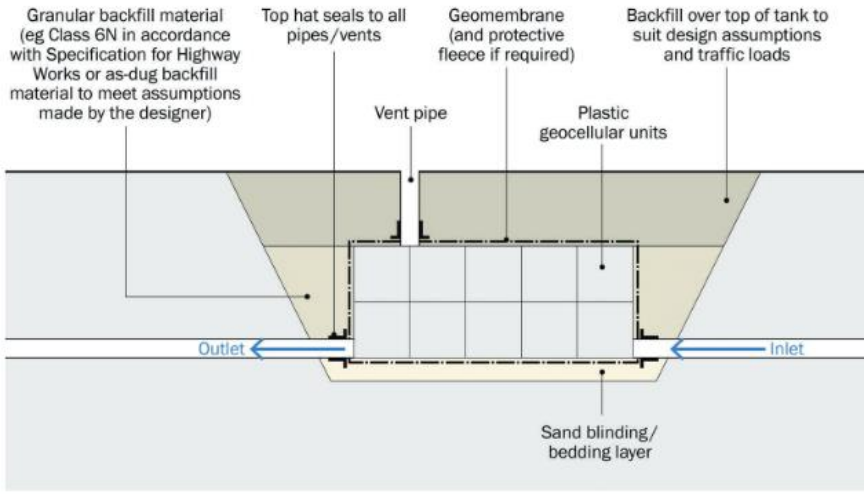
4.3 Site Control Systems

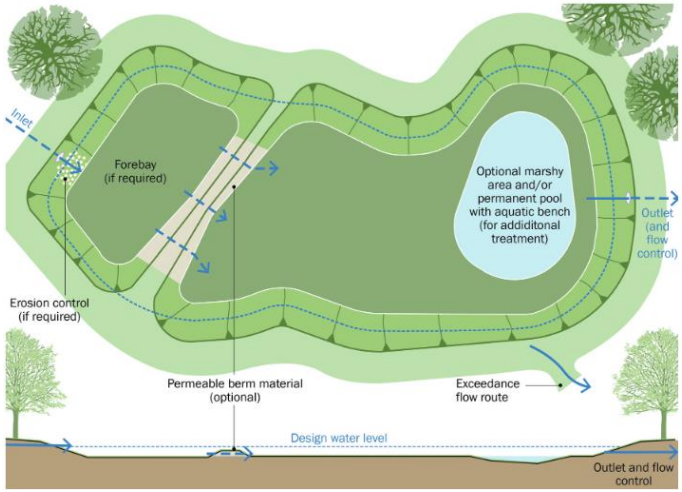
SuDS Measure	Description	Key Design Points	CIRIA C753 SuDs Manual
Filter drains (Conveyance and collection) 	Filter drains are shallow trenches filled with stone/gravel that create temporary subsurface storage for the attenuation, conveyance and infiltration of surface water runoff. A low level perforated pipe should be installed to collect and convey water to other components when infiltration is not possible. A high level perforated pipe can be installed to prevent overflow when using infiltration. Filter drains can replace traditional pipework as a conveyance system. Works best when combined with an initial filter strip for silt removal. Long lengths should have access sumps ie every 90m.	May be lined (filtration) or unlined (infiltration). Geotextile layer at shallow level can be provided that can be regularly removed to prevent clogging. Clogging of sediment material can be a problem. Depths 0.5m min and generally 1-2m. Normally 0.5m width minimum. 	Chapter 16

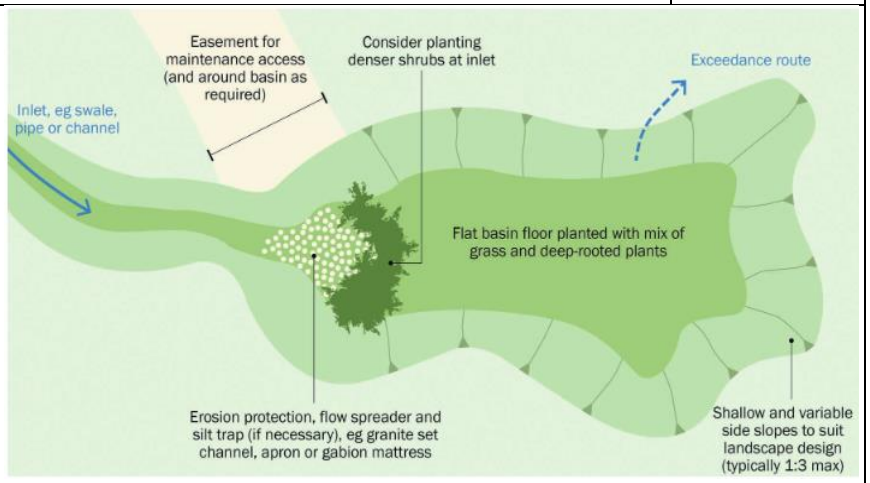
Swales (Including under-drained swales. Used for conveyance and collection)	Swales are shallow, flat bottomed, vegetated open channels designed to convey, treat and often attenuate surface water runoff. Provide aesthetic and biodiversity benefits. Swales are very susceptible to erosion and low flow pathways developing. To avoid this and ponding, gradients need to be considered carefully. Swales can replace conventional pipework as a means of conveying runoff. Three types including: 1. Conveyance and attenuation swale. 2. Dry Swale (has underlying filter bed under swale) or 3. Wet Swale (when underling soil is impermeable).	Recommended bottom width is 1-3m with grass height between 75-150mm. Longitudinal slopes between 0.5-6%. <1.5% Should have underdrains or be wet swales. If >3% then should have weirs spaced 10-20m apart with weep holes. Weirs increase pollution retention, infiltration and decrease runoff velocity. Side slopes should be as flat as possible with a max slope of 1 in 3 and recommended slope of 1:4 (25%). Swale depth ideally 400 – 600mm.	Chapter 17, NTA NB SuDS for Active Travel and DMURS Advice Note 5.
			

Attenuation Storage Tanks	Large below ground void spaces that are utilised to temporary store runoff before infiltration, controlled release or use. The structure is often constructed using geocellular (modular plastic units with a high porosity) or other modular storage systems (ie Plastic corrugated arch structures comprise plastic arches), concrete tanks or oversized pipes (oversized concrete pipes or twin wall plastic pipes can be designed to support traffic loadings). It is common practice to oversize the design volume of any tank that is considered to be at risk of sedimentation. Should be designed at maximum 10% extra to allow for loss of storage due to sediment build-up. *Tanks do not have any inherent biodiversity value and should be avoided within the design if at all possible. If they are utilised then an Infiltration basin should be used above the tank at the location.*	Maintenance requires careful consideration. Structural design is key ie traffic loadings, soil weight, construction traffic etc... To limit sediment, the accumulation area draining to a tank should be small. Use of several small tanks, a better design than one large tank. Take account of water table and the CBR of base. Take account of tree planting which can damage the tanks with roots, consider a root barrier. Careful during construction to ensure minimum sediment enters tank. May need to be flushed out after construction. Tanks that allow infiltration better for the reduction of runoff, however pollutants must be removed from road runoff prior to discharge into tank.	Chapter 21


Corrugated plastic arches
Granular backfill to top and sides of arches to suit design assumptions and traffic loads, sufficiently permeable for design flows
Inlet
Outlet
Catchpit
Top hat seals to all pipes
Geomembrane (and protective geotextile if required)
Corrugated plastic arches
Flushing and inspection pit
Extent of excavation for arches
Connection pipe between arches

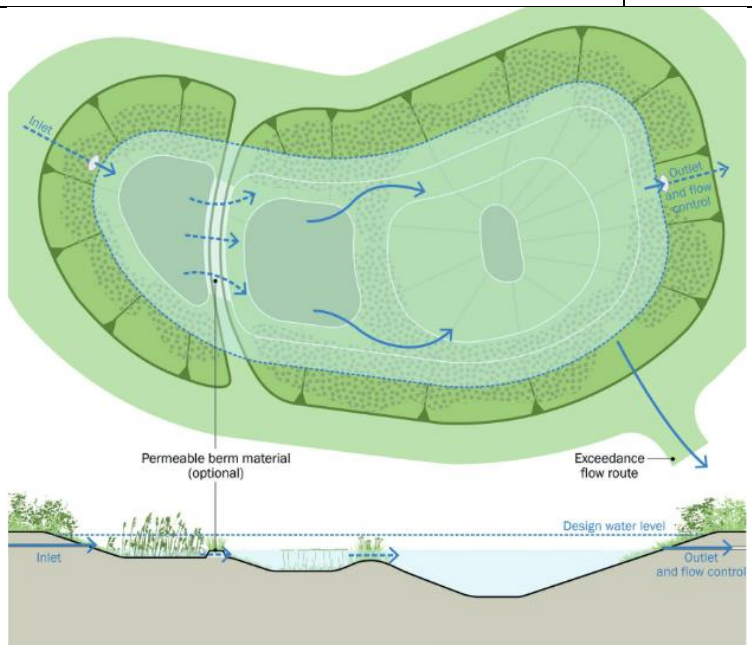

Granular backfill material (eg Class 6N in accordance with Specification for Highway Works or as-dug backfill material to meet assumptions made by the designer)
Top hat seals to all pipes/vents
Vent pipe
Geomembrane (and protective fleece if required)
Plastic geocellular units
Backfill over top of tank to suit design assumptions and traffic loads
Outlet
Inlet
Sand blinding/ bedding layer

Detention Basins	Detention basins are landscaped depressions that are normally dry except during and immediately following storm events. The principal water quality benefits of vegetated detention basins are associated with the removal of sediment and buoyant materials, but levels of nutrients, heavy metals, toxic materials and oxygen-demanding materials may also be significantly reduced. Vegetated detention basins can be designed with a small permanent pool at the outlet to help prevent resuspension of sediment particles by high intensity storms and to provide enhanced water quality treatment for frequent events.	Can be on-line or off line component. The bottom of any vegetated basin should be fairly flat with a gentle slope (no more than 1 in 100) towards the outlet. Slopes should be no steeper than 1 in 3 wherever mowing is required. The existing ground water level and conditions including infiltration should be taken into account within the design. Flow control normally required at outlet. Silt removal and oil separators should be utilised before these components.	Chapter 22
			

Infiltration Basins	These systems are designed specifically to promote infiltration of surface water runoff into the ground. They are flat with shallow landscape depressions that store runoff prior to infiltration to the ground. Their performance of infiltration systems is dependent on the infiltration capacity of the surrounding soils and the depth to groundwater. Planting trees and shrubs rather than just grass, and mulching the surface layers will help maintain the infiltration rates. Planting should be designed to suit the specific anticipated site conditions which will vary from wet to dry conditions.	A minimum distance of 1 m between the base of the infiltration system and the maximum likely groundwater level should always be adopted. The bottom should be flat with a base tolerance of 10mm in 3m. Side slopes no steeper than 1:3, flatter are better for aesthetics. In-line basins can lead to erosion fail in Ireland due to high rainfall frequency. Silt removal and oil separators should be utilised before these components.	Chapter 13
			

4.4 Site / Regional Control

SuDS Measure	Description	Key Design Points	CIRIA C753 SuDs Manual
Ponds or Wetlands	Ponds or Wetlands are components that have a permanent feature of water that can provide both attenuation and treatment to surface runoff. They have amenity and biodiversity benefits to the local environment and encourage evapotranspiration. A "Wetland" is an area with water where large surface areas provide different aquatic conditions for various plant species which contribute significantly to the removal of pollutants from the runoff. Wetlands are the most effective SuDS component in treating runoff. A pond or wetland provides attenuation storage above their normal water level with the use of outflow controls that allow the area to fill during storm events. These types of systems should have an upstream component or separate sediment forebay in place so that silt / grit will be removed. This allows the pond/wetland to perform a high level of treatment to the runoff and prevents the component from becoming unsightly. Well managed ponds and wetlands can	Ponds and wetlands can be created by using an existing natural depression, by excavating a new depression, or by constructing embankments. Design features to include an overflow or exceedance route, maintenance access and a flat safety bench around the pond. The design should include a number of zones including: 1. **Sediment forebay**: removes sediments and course oils. 2. **Permanent pool**: The main treatment zone and helps to protect fine deposited sediments from resuspension. The top water level is at invert level of outlet. 3. **Attenuation storage volume**: designed level of temporary storage during storm events. 4. **Aquatic bench**: Shallow water at edge for safety and where wetland planting acts as a biological filter and provides ecology, amenity	Chapter 23

	add economic value to a development as well as a greater amenity and wildlife benefit to the surrounding area.	and safety benefits. The design criteria for wetlands are retention time (as opposed to volumetric storage). A minimum of 24 hours residence time is recommended for the design storm. For large storm events overflow systems may be incorporated into the drainage network. Silt removal and oil separators should be utilised before these types of components.	
			

5.0: Stormwater Management Design Criteria

5.1 General requirements:

This section outlines the storm water requirements required by the Council for all developments. It is the policy of the Council to ensure that the level of stormwater management is appropriate to the scale of development. Therefore guidance is provided for one off dwellings and other development types. Developments can be completed to a higher standard than the requirements specified within this document. The requirements set out within this chapter is based on documents including the Greater Dublin Strategic Study, Wicklow County Development Plan 2022-2028, The CIRIA SuDS Manual and various other publications.

5.2 Climate Change:

There is a wide range of projections of future climate changes effecting stormwater design. For example Met Éireann has predicted that in Ireland the autumns and winters may become wetter, with a possible increase in heavy precipitation events of approximately 20%. The OPW have adopted two indicative potential futures for flood risk assessment. These are the Mid-Range Future Scenario (MRFS) and the High-End Future Scenario (HEFS).

Parameter	MRFS	HEFS
Extreme Rainfall Depths	+ 20%	+ 30%
Peak Flood Flows	+ 20%	+ 30%
Mean Sea Level Rise	+ 500 mm	+ 1000 mm
Land Movement	- 0.5 mm / year[1]	- 0.5 mm / year[1]
Urbanisation	*No General Allowance – Review on Case-by-Case Basis*	*No General Allowance – Review on Case-by-Case Basis*
Forestation	- 1/6 Tp[2]	- 1/3 Tp[2] + 10% SPR[3]

Note 1: Applicable to the southern part of the country only (Dublin – Galway and south of this)

Note 2: Reduction in the time to peak (Tp) to allow for potential accelerated runoff that may arise as a result of drainage of afforested land

Note 3: Add 10% to the Standard Percentage Runoff (SPR) rate: This allows for temporary increased runoff rates that may arise following felling of forestry.

Figure 5.1: Allowances in Flood Parameters for various scenarios (OPW Flood Risk Management 2019)

Additionally the following criteria is defined with Table 4-2 of the Strategic Flood Risk Assessment (Appendix 8) within the Wicklow County Development Plan 2022-2028:

Development vulnerability	Fluvial climate change allowance (increase in flows)	Tidal climate change allowance (increase in sea level)	Storm water / surface water
Less vulnerable	20%	0.5m Mid Range Future Scenario(MRFS)	20% increase in rainfall
Highly vulnerable	20%	0.5m (MRFS)	
Critical or extremely vulnerable (e.g. hospitals, major substations, blue light services)	30%	1.0m (HEFS)	
Note: there will be no discounting of climate change allowances for shorter lifespan developments.			

The SuDS Manual CIRIA C753 states the following: “It should be noted that storage volumes will approximately increase by the square of any rainfall uplift factor. This means that a 10% increase in rainfall (an uplift factor of 1.1) will result in a 20% increase in storage (uplift factor of 1.21)”.

Taking into account the current requirements of a 20% increase in rainfall all underground storage tanks should cater for a 40% increase in the required storage.

5.3 Urban Creep:

Urban Creep is the increased permeability of an urban area such as property owners replacing permeable areas within their properties such as gardens with car park bays, patios or extensions. CIRIA C753 recommends an increase of 10%. Therefore all developments within Urban Areas should apply a factor of 10% to their drainage design and attenuate volumes to accommodate urban creep.

5.4 Assessment of Flood Risk:

All new developments or significant alterations / extensions to existing developments in an area at risk of flooding shall require an assessment of Flood Risk. The level of appropriate detailed assessment shall be dependent on the site or level of flood risk (including if the development may cause a level of flood risk elsewhere within the catchment). This can vary from a desktop exercise or more extensive Site Specific Flood Risk Assessment requiring detailed hydraulic modelling. Additionally the following is required:

- Follow the 'sequential approach' as set out in the Flood Risk Management Guidelines
- A Flood Risk Assessment in accordance with the requirements of the Flood Risk Management Guidelines will be required
- A Flood Impact Assessment will be required with all significant developments and a certificate is required for all small developments of areas of 1 hectare or less.

5.5 Surface Water Pumps:

Only in exceptional circumstances will the planning authority consider the pumping of Surface Water. All other gravity discharge arrangements must be technically unfeasible. Any proposed pumps must have satisfactory standby pumps. A flood risk assessment must be completed in the event that the pumping system fails.

5.6 Storm Water Management for Single Residential Houses:

Appendix D of this guidance provides guidance in relation new single residential dwellings or extensions to a dwelling.

5.7 Storm Water Management for Developments:

5.7.1: Surface & Storm Water Systems:

The Wicklow County Development Plan 2022 – 2028 specifies within section 2.2.4 with respect to the design of surface and storm water systems, the Planning Authority will have regard to the standards set out in the Greater Dublin Strategic Drainage Study (GDSDS).

5.7.2: Sustainable Urban Drainage Systems:

It is a policy objective under CPO 13.21 and CPO 14.13: To ensure the implementation of Sustainable Urban Drainage Systems (SUDS) in accordance with the Wicklow County Council SuDS Policy to ensure surface water runoff is managed for maximum benefit. In particular to require proposed developments to meet the design criteria of each of the four pillars of SuDS design; Water Quality, Water Quantity, Amenity and Biodiversity.

Within policy objectives CPO 13.22 and CPO 14.15: Wicklow County Council will seek to promote the use of green infrastructure, such as swales and wetlands, where feasible as landscape features in new development to provide storm / surface runoff storage and reduce pollutants, as well as habitat, recreation and aesthetic functions.

Within **Appendix 1 section 1.2 Climate Change**: Consideration should be given in the design of new buildings to the provision of **green roofs or walls** (i.e. roof gardens / planted balconies etc), to aid in both water absorption but also to contribute positively to the environment and visual amenity.

5.7.3 Ground Infiltration:

Many SuDS components utilise ground infiltration in order to reduce surface runoff. Therefore applicants should include Site Investigation Reports which should include a site plan and trial pits or soakaway test locations across the site. The depth to ground water should be recorded as part of the process. The level of site investigation required will be appropriate to the scale and footprint of the proposed development.

5.7.4 Hard Surfacing / Car Parking Requirements:

Hardstanding areas are generally to the front of properties, these areas must be constructed of a specifically designed proprietary porous pavement or permeable paving system (refer to Chapter 20 CIRIA 753 for design detail), or drained directly to a suitably sized and designed landscaped areas. When utilising gravel surfaces it should be reinforced with plastic or concrete grasscrete type material.

The Wicklow County Council development Plan 2022-2028 requires under policy objective CPO 14.11: "To limit or break up large areas of hard surfacing in new developments and to require all surface car parks to integrate permeability measures such as permeable paving."

Additionally under policy objective CPO 14.12: "Excessive hard surfacing shall not be permitted for new, or extensions to, residential or commercial developments and all applications will be required to show that sustainable drainage techniques have been employed in the design of the development."

The applicant should note within section two of the County Development Plan that all new developments are to be designed so that "surface water is appropriately collected on site to prevent flow onto the public roadway, adjoining properties or into the public foul sewer / sewage treatment plant". Where the slope of the driveway is down towards the public footpath an interception drain shall be placed at the property boundary to intercept overland flow and direct it back to the permeable paving, gravel or landscaped areas.

5.7.5 Rainfall Data and Runoff Estimation Information:

- The Greenfield runoff rate is the assumed previous runoff rate for a given catchment prior to the development taking place. Note there are various methods to calculate but the most common in Ireland is the IH Report 124 Flood estimation for small catchments (Used by TII) where it is assumed the Catchment is 50Ha or less. When the catchment is less than 50 Ha the Q_{BAR} is calculated using the following formula and then linearly interpolating flow rates for smaller areas.

$$\mathbf{Q_{BAR} = 0.00108\ (0.01*AREA)^{0.89}\ SAAR^{1.17}\ SOIL^{2.17}}$$

Where;

- Q_{BAR} is the mean annual peak flood (m^3/s)
- AREA is the Catchment Area (km^2)
- The Standard Average Annual Rainfall (SAAR) (mm) data can be ascertained from the Flood Studies Update Webportal or from the Met Eireann website: Rainfall - Met Éireann - The Irish Meteorological Service. The designer should select the SAAR value which is closest to the site utilising Irish Grid Eastings and Northings.
- SOIL is an index of how the soil may accept infiltration and is a measure of the Winter Rainfall Acceptance Potential (WRAP). The SOIL index is based on only five classifications (very high, high, moderate, low and very low WRAP).

  Soil Type 1 is most permeable and soil type 5 is least permeable. Note Soil types 1 and 2 are generally ignored in Ireland.

The greenfield runoff volume for a site is used to define the allowable runoff volume that can be discharged (at greenfield flow rates) from a development site. This is usually defined as the 100 year 6 hour duration rainfall event. To calculate a 100 year return period the factored Q_{BAR} is multiplied by 1.96 as a Growth Curve Factor and by 1.65 as the standard factorial error.

Note: 1. Where QBAR is less than 2 l/s/ha it is recommended by the Greater Dublin Strategic Drainage Study that 2l/s/ha be used. Additionally this will help to prevent excessive cost.

2. Wicklow County Council reserve the right to require Runoff Calculations by alternative methods.

3. It is the responsibility of the applicant to provide evidence to Wicklow County Council that successfully demonstrates the pre-development characteristics of the site.

5.7.6 The use of Attenuation Storage:

The Total Equivalent Area is calculated for the site, then using the SAAR value the Surface Water Runoff Area is calculated for the site. The rainfall intensity and total rainfall is calculated per period for the area. The Total Equivalent Area is used to calculate the Total Runoff in m^3 for the various storm durations. Then the IH124 is utilised to calculate the Qbar for the site which assumes a 50 hectare site. This is then factored down to the total equivalent area.

The Design Runoff for the entire site is increased by a factor of 1.96 for a 100 year growth factor. A standard factorial error is required for the IH 124 method of 1.65.

And finally 20% uplift for climate change is also applied in accordance with NRA HD33. The required storage volume is then estimated.

Note it is preferable to utilise Nature Based SuDS features to reduce runoff and for storage purposes. Nature Based SuDS features treat surface water runoff allowing primary, secondary and tertiary treatment which can greatly improve water quality and reduce the pollution risk. The various component benefits are shown in table 5.3 below, this also helps to highlight why underground attenuation storage tanks should be selected as a last resort.

Note the following objective of the Wicklow County Council Development Plan 2022 – 2028 under policy CPO 14.14 "*underground tanks and storage systems shall be permitted as a last resort only where it can be demonstrated the other more sustainable SuDS infrastructure measures are not feasible.*" If an attenuation tank is utilised, then an Infiltration basin should be considered to be utilised above the tank space.

SuDS Component	Interception1	Close to Source / Primary Treatment	Secondary Treatment	Tertiary Treatment
Rainwater Harvesting	**Y**			
Filter Strip	**Y**	**Y**		
Swale	**Y**	**Y**	**Y**	
Filter drain	**Y**		**Y**	
Pervious pavements	**Y**	**Y**		
Bioretention	**Y**	**Y**	**Y**	
Green Roof	**Y**	**Y**		
Detention Basin	**Y**	**Y**	**Y**	
Pond	[3]	**Y**[2]	**Y**	**Y**
Wetland	[3]	**Y**[2]	**Y**	**Y**
Infiltration System (soakaways/trenches/ blankets/basins)	**Y**	**Y**	**Y**	**Y**
Attenuation Storage Tanks	**Y**[4]			
Proprietary Treatment Systems		**Y**[5]	**Y**[5]	**Y**[5]

Table 5.3: Indicative suitability of SuDS components within the Management Train (The SuDS Manual CIRIA C753)

Notes:

1 Interception components are normally also a treatment component (excluding rainwater harvesting which only removes runoff from the system)

2 for roof runoff only

3 Interception design may be possible in certain scenarios, but would require detailed justification.

4 if unlined and design performance can be demonstrated (noting the need to protect groundwater)

5 where design performance can be demonstrated.

If attenuation storage systems are justified and utilised within a design, the attenuation system should be an online systems with a 60 year design life. The attenuation storage system should not be located under internal development roads. It is a preference for these tanks to be located under open spaces with infiltration basins above their location. Attenuation systems should be selected that allow infiltration into ground waters providing there is no risk of pollution. Runoff should have both pollution and silt removed prior to entering the SuDS component. The location of trees over attenuation systems should be considered carefully by the designers due to their root systems.

When a storage system is been considered by a designer, a site investigation should be conducted at the location of attenuation storage tanks in order to confirm the water table level, ground infiltration and the CBR strength of the subgrade material. The applicant should submit dimensioned plans and sections showing cover levels, inlet and outlet levels, inlet and outlet manholes, and maintenance procedure's (refer to Chapter 21 CIRIA 753 and the relevant suppliers design certificates or specifications for further design detail). All Warranties / Guarantees, Commissioning certs and Certification should be kept by the developer. The relevant Irish or EU Agreement Certs (or equivalent) should be fully considered within the design and maintenance of the proposed SuDS components.

Wicklow County Council will accept the use of the Wallingford method or using MET Rainfall data to estimate rainfall intensities for storage purposes.

The method use MT-D notation, Meteorological Time – Duration. (M5-60min refers to 5year return period for a 60minute duration rainfall event).

- Wallingford – converts M5-60 to M5-D Rainfall events using r-curve factors.
- 'r'- curve indicates general intensity of rainfall and is the ratio M5-60min/M5-2Day for the Wallingford procedure.
- Rainfall Return Period Table (available from MET Eireann)
- Typical 'r' values in Ireland are $0.18<r<0.3$.

Applicants can utilise the HR Wallingford UKSuDS Surface Water Storage Volume Estimation tool for this process at Homepage | UK SuDS. The rainfall return period table can be obtained from the following link: https://www.met.ie/climate/services/rainfall-return-periods will provide a Ratinfall return Period Table.

5.7.7 Surface Water Pipe Design:

Design of pipe systems up to 450mm diameter are carried out using the Modified Rational Method as specified by the publication "Recommendations for Site Development Works for Housing Areas". The Site Development Handbook also specifies that a self-cleansing velocity between 0.8 - 3.0m/s be maintained when flowing half full. Sewers serving individual properties can be a minimum of 100mm diameter.

Qp = Cr * Cv * Ap * r * 2.78 *(Site development Works Handbook)*

Qp is the Rate of run-off (l/s)
Cr is the Routing Coefficient (taken as 1.3 in Ireland).
Cv values: The Volumetric Coefficient (It should be noted that standard surface water simulation software uses default Cv values of 0.84 for Winter and 0.75 for Summer). If the applicant proposes to use their own reduced run-off rates, then the default Cv values should be amended to a value of 1.0. Maintaining the default Cv values in conjunction with the applicants proposed rates reduces the run-off in simulations of rainfall events, giving inaccurate simulation results which may lead to under sizing of the drainage system and attenuation storage required.
Ap is the Equivalent Impermeable Area to be drained (Hectares)
r is the Design Intensity of Rainfall (Utilise MET data or 50mm/hr for paved areas (*Site Development Works)* – Whichever is the higher value.)

The Greater Dublin Strategic Drainage Study provides design guidance and table 5.4 on the next page summarises the criteria outlined.

Parameter	Surface Water Sewers
Minimum depth	1.2m cover under highways 0.9m elsewhere
Maximum depth	Normally 5m
Minimum sewer size	225mm
Runoff factors for pipe sizing	100% paved and roof surfaces 0% off pervious surfaces
Rainfall for initial pipe sizing	50mm/hr rainfall intensity
Minimum velocity (pipe full)	1.0m/s
Flooding	Checks made for adequate protection * No flooding for return period less than 30 years except where explicitly planned Simulation modelling is required for sites greater than 24ha**
Roughness – ks	0.6mm

Table 5.4: Surface Water Sewer Design (Greater Dublin Strategic Drainage Study - New Development)

5.7.8 Other Relevant Flood Design Design Criteria:

As specified within the Greater Dublin Strategic Drainage Study the following design criteria applies to surface water design calculations within Wicklow County Council.

Criteria	Return Period (years)	Design Objective
River water quality protection	< 1	Interception storage of at least 5mm, and preferably 10mm, of rainfall where runoff to the receiving water can be prevented.
River regime protection	1	Discharge rate equal to 1 year greenfield site peak runoff rate or 2l/s/ha, whichever is the greater. Site critical duration storm to be used to assess attenuation storage volume. (As per Q_{BAR} Calculation above)
	100	Discharge rate equal to 1 in 100 year greenfield site peak runoff rate. Site critical duration storm to be used to assess attenuation storage volume. (As per Q_{BAR} growth Curve Factor 1.96 above)
Level of service (flooding) for the site	30	**No flooding on site** except where specifically planned flooding is approved. Summer design storm of 15 or 30 minutes are normally critical.
	100	• No internal **property flooding**. • Planned flood routing and temporary flood storage accommodated on site for short high intensity storms. Site critical duration events. • Floor levels at least 500mm above maximum river level and adjacent onsite storage retention. • No flooding of **adjacent urban areas**. • Overland flooding managed within the development. •

River flood protection	100	➢ (a) "Long-term" floodwater accommodated on site for development runoff volume which is in excess of the greenfield runoff volume. (b) Temporary flood storage drained by infiltration on a designated flooding area brought into operation by extreme events only. (c) 100 year, 6 hour duration storm to be used for assessment of the additional volume of runoff. ➢ (a) Infiltration storage provided equal in volume to "long term" storage. Usually designed to operate for all events. (b) 100 year, 6 hour duration storm to be used for assessment of the additional volume of runoff. 3. Maximum discharge rate of QBAR or 2 l/s/ha, whichever is the greater, for all attenuation storage where separate "long term" storage cannot be provided.

The Wicklow Development Plan 2022-2028 (Appendix 8 table 4-2) allows the following Climate Change Allowances depending on the development vulnerability and flood source.

Development vulnerability	Fluvial climate change allowance (increase in flows)	Tidal climate change allowance (increase in sea level)	Storm water / surface water
Less vulnerable	20%	0.5m Mid Range Future Scenario(MRFS)	20% increase in rainfall
Highly vulnerable	20%	0.5m (MRFS)	
Critical or extremely vulnerable (e.g. hospitals, major substations, blue light services)	30%	1.0m (HEFS)	
Note: there will be no discounting of climate change allowances for shorter lifespan developments.			

5.7.9 Flow Control Manhole:

Limiting the post-development flow to that of the pre-development greenfield run-off is achieved by the installation of a throttle device on the pipes. The throttle is designed to limit the flow to an allowable discharge. When the run-off from the development exceeds the allowable peak the flow backs up in the storm sewers into the SuDS storage areas. When the storm passes and the run-off reduces below the allowable peak, water from the SuDS storage areas flow back into the discharge chamber and flows off the site.

The manhole in which the flow restricting device is located should not have a bypass pipe and, a penstock and silt trap should be provided.

Flow restricting devices with an orifice of less than 50mm in diameter should be avoided. Where this is not possible then the applicant must submit a robust maintenance regime to ensure blockages are avoided, to the satisfaction of Wicklow County Council.

5.7.10 Silt Traps and Oil Separators

Gullies and Silt traps are used to trap sediment and silt. Catchpits can be used where there is a change in the direction of flow or at pipe junctions.

Oil separators are a must in pre-treatment for fuel garages and other developments which incorporate fuel use. Separators should provide for the adequate storage of three separate storage volumes.

- A volume for separated oil storage at the top of the chamber
- A volume for settleable solids at the bottom of the chamber.
- An adequate volume such that on-line detention time for the separation of oil and sediment from stormwater occurs.

Developments should provide adequate silt removal upstream of oil separators. Oil separators should be inspected, maintained and emptied as required.

5.7.11 Health and Safety:

Applicants must comply with the requirements of the Safety, Health and Welfare at Work Act 2005 legislation requirements concerning the appointment of a Project Supervisor Design Process. In addition CIRIA RP992 provides guidance for Health and Safety principals for SuDS including a framework and checklist at paper_rp992_17_health_and_safety_principles.pdf (susdrain.org).

The CIRIA SuDS Manual provides further guidance within Chapter 36 with a Health and Safety Risk Assessment Checklist within Appendix B.

5.8 Stormwater Audit:

Wicklow County Council reserve the right to request a Storm Water Audit at Pre- Planning or through the grant of planning permission as a planning condition. It is an automatic requirement for all Large Scale Residential Developments within the administrative boundary.

- A Stage 1 Stormwater Audit may be requested to be submitted as part of the pre-application stage.
- A Stage 2 audit is required prior to commencement of works as part of the detailed construction design stage.
- A Stage 3 audit is required when the development is completed.

The Stormwater Audit must be carried out to the satisfaction of Wicklow County Council by a suitably qualified Consultant Engineer. The process is to ensure that a proposed development is assessed for compliance with the following documents:

- The Wicklow County Council Development Plan 2022-2028
- The Wicklow County Council SuDS Policy and Development Guidance 2023
- Greater Dublin Strategic Drainage Study Volume Two 2005
- The SuDS Manual CIRIA C753 (2015)
- Bre Digest 365 Soakaway Design, (2016)

The Audit will focus on the SuDS management train and whether the applicant has carefully considered all suitable SuDS components and applied the most appropriate type for the site to ensure water quality, biodiversity, a reduction of run off rates, volume storage and volume control. The Audit is site specific and must consider the proposed development.

An Audit should contain:

- Audit appropriate to the Stage of proposed scheme.
- A review of local data used in the assessment including Soil Type, SAAR, Rainfall data, run-off factors, and climate change factors.
- Verification that interception and/or treatment has been provided across the entire site.
- Verification of the appropriateness of the SuDS measures proposed.
- Recommendation of potential measures that should be considered.
- Identification of issues.
- Recommendations to be taken to the next audit Stage (if applicable)
- Sign off from both the Auditor and Designer

Stage 1 Audit – Pre Planning Stage:

This shall be conducted on the proposed Surface Water Drainage System including the SuDS management train design stage. The stage 1 Audit is ideally assessed and approved by the design Team. The Audit should be submitted and satisfy the requirements of the Environment Section prior to the lodging of the initial planning application. This will help to ensure a more economical, more positive and quicker planning decision in the long term.

Stage 2 Audit - Detailed Construction Design Stage:

Stage two is conducted at the detailed construction stage. The SuDS management train and components are reviewed against all current design standards and should be in line with the requirements of the current Wicklow County Council Development Plan and SuDS policy. The stage 2 audit must be submitted for the approval of the Environment Section prior to commencement of works. Any changes from the original Surface water drainage system design or SuDS management train shall be submitted to the Planning Authority as compliance. Note if there are substantial revisions these may or may not require a revised planning application.

Stage 3 Audit – Completed when development is substantially occupied:

Shall be carried out within 6 months of substantial occupation of the development to ensure the SuDS measures are installed and working as designed, no misconnections should have taken place and to confirm that damage has not occurred to any of the surface water drainage systems or SuDS management train during the construction process.

A site visit must be accommodated by the developer to the Stormwater Audit team. This Stage may require the installation of flow monitors and/or dye testing. The extent of monitoring will depend on the findings of the Audit. A CCTV survey shall be carried out on all surface water sewers and a condition survey report completed.

The Stage 3 Audit report must be submitted to the Environment section for approval. All recommendations shall be carried out by the developer, unless otherwise agreed in writing with Wicklow County Council. It should be noted that any proposed changes to the approved schemes must be submitted to the Planning Authority for formal compliance.

5.9 Developments discharging to the Sea / Tidal Waters:

Where developments are in close proximity to the sea and can discharge directly to the sea/tidal waters. The Municipal District Office or Environment Section may agree to omit the requirements of attenuation and flow control devices. This agreement should be obtained by the applicant in writing through planning compliances. The designer should also consider when sea/tidal water levels are high, the capacity of the proposed developments surface water network. Any requirements for stormwater storage should be met through nature based systems. This will help developments meet their biodiversity and/or green infrastructure requirements, including any requirement for a green roof. Green / Blue roofs should be considered for large roof areas (greater than 300m^2) for all apartment developments, Employment, Leisure, Education developments and/or Retail and Ancillary Shopping centre type developments. The designer should include the removal of silt and pollutants for all surface water discharges into any receiving waters.

6.0: Safety File Requirements

6.1 General Information:

Under the Safety, Health and Welfare at Work Construction Regulations 2013 a Safety File prepared and completed in accordance with regulations 13 and 21 of SI No 291 of 2013 must be submitted to the Planning Authority, on completion of a development with any request for the development to be taken in charge.

The Safety File is prepared and certified by the competent Project Supervisor Design Process and is handed over to the developer on completion. The PSDP must hold professional indemnity insurance. The fully completed safety file shall be submitted to Wicklow County Council as part of the taken in charge process in a pdf digital format only.

Regulation 13 of SI no. 291 of 2013 places an obligation on the PSDP to prepare a Safety File. The Safety File must contain "relevant health and safety information to be taken into account during any subsequent construction work following completion of the project". The Safety File is intended to have an almost indefinite lifespan.

The safety file need not include areas that will not be taken in charge and these areas will remain under the control of a management company. A layout plan shall be submitted clearly indicating the locations which will be taken in charge.

The contents of Safety File shall include (but not be limited to):

- As construction drawings, specifications and bills of quantities, used and produced throughout the construction process.
- Details of the Drainage System makeup including types and depths of systems.
- Maintenance procedures, schedules and requirements for all structures located within the drainage system such as Hydrobreaks, Penstocks, Pumps, Attenuation systems or SuDs components.
- The Key Risk Assessment and Method statements for maintenance of all features (in particular SUDS features.)
- An operational and maintenance/management (short term and long-term maintenance/management) plan for attenuation areas and other SUDS systems in the development including those in private spaces serving the development which discharge into the public / council network

- Maintenance manuals and, where required, certificates produced by specialist contractors.
- Details of the equipment and maintenance facilities within any structure such as pumping stations.
- Details of the location, depths and nature of utilities and services such as Gas Networks, ESB Networks, telephone services, cable television, broadband services etc.
- Details of all particular risks and any hazards which may be present or hazards which may not be obvious.
- All Warranties / Guarantees, Commissioning certs, Certification for structures such as SuDs Systems, Hydrobrakes, Attenuation systems, pump systems, etc...
- Structural certification for SuDS tanks or components where required.
- Appropriate records, manuals, specifications warranties and maintenance agreements to enable the drainage systems and SuDS Management train to be maintained to an appropriate standard in the future. Copies of relevant Irish, UK or EU Agreement Certs (or equivalent) for all SuDS systems/devices should be included.
- Under Part D of the Second Schedule to the Building Regulations, building work to which the Regulations apply must be carried out with proper materials and in a workmanlike manner. The materials used in the development and the methods of construction used should be fit for the end purpose intended.
- The suitability of products, components, fittings or products used in the construction of a development can be demonstrated by appropriate use of a product bearing CE marking in accordance with the EU Construction Products Regulations (No. 305/2011 –CPR). It is in the developer's interest to carry out all background/site investigations and ensure that all products used are certified by the competent authority

7.0: Sustainable Development Goals

The SuDS Policy and Development Guidance highlight Wicklow County Councils commitment to delivering on the UN Sustainable Development Goals. The goals promoted and delivered through this policy are listed as follows:

- SDG 6 Clean Water and Sanitation where SuDS components directly improve the quality of rainwater runoff through the reduction of pollution to receiving waters.
- SDG 13 Climate Action with Nature Based SuDS components delivering both mitigation and adaption benefits.
- SDG 14 Life Below Water is protected through the removal of pollutants through Nature Based SuDS improving the quality of water entering our rivers and seas.
- SDG 11 Delivers Sustainable Cities and Communities with the delivery of Nature Based solutions such as green roofs or bio retention areas within Urbans Areas delivering amenity areas that improve environmental conditions and reduce urban heating.
- SDG 15 Life on Land is delivered through the use of Nature Based SuDS through the promotion of biodiversity which encourages a healthy ecosystem including the cleaning of air and water.
- SDG 17 Wicklow County Council will work in partnership with the community through the promotion and regeneration of Urban Areas with the use of Nature Based solutions. Development control and the use of good planning policies are key in promoting the use of Nature Based solutions for all proposed developments.
- SDG 4 The Wicklow County Council SuDS policy and guidance document utilises education providing knowledge in the use of Nature Based SuDS solutions.
- SDG 3 Good Health and Well-Being through the greening of urban areas utilising Nature Based Solutions creating more amenity spaces which subsequently promotes well-being and healthy living. Nature based SuDS solutions ensure the Council deliver sustainable living.

Appendix A: SuDS and Surface Water Useful References

SuDS Guidance and Design:

- The CIRIA SuDS Manual (C753) provides a wealth of information about the benefits of SuDS, SuDS methodologies and general design guidance.
  http://www.ciria.org/Resources/Free_publications/the_suds_manual.aspX

- Guidance on the Construction of SuDS (C768F) provides information in the construction planning and management of a site. The guide also provides guidance on the construction of the various SuDS components.
  https://www.ciria.org/CIRIA/CIRIA/Item_Detail.aspx?iProductcode=C768&Category=BOOK

- The SusDrain website provides a list of useful design references, as well a lot of other useful information about the design, implementation and maintenance of SuDS.
  http://www.susdrain.org/delivering-suds/using-suds/design-guidance/guidance-overview.html

- The SusDrain website provides a number of the SuDS manual checklists in word documents within the following link:
  https://www.susdrain.org/resources/SuDS_Manual.html

- Designing Rain Gardens. A Practical Guide. Urban Design London has provided a practical guide to designing and installing rain gardens in an urban environment.
  UDL_Rain_Gardens_for_web_0vwx1Ls.pdf (urbandesignlondon.com)

- Sustainable Drainage Systems – Maximising the potential for people and wildlife (A guide for local authorities and developers)
  https://www.rspb.org.uk/globalassets/downloads/documents/positions/planning/sustainable-drainage-systems.pdf

Useful Websites references for obtaining information about your site:

- The OPW flood risk maps help to identify whether a site is likely to be at risk from flooding from rivers and the sea, surface water or reservoirs. Note the flood risk maps may highlight areas at risk of flooding that have no past experience of flooding. This should not be interpreted to mean that areas will flood, just that there is a chance that may flood in the future.

https://www.floodinfo.ie/map/floodmaps/

- OPW Flooding information and water level data :

https://flooding.ie/ **https://waterlevel.ie/**

- Ireland Geological Survey mapping showing the underlying and superficial rock types.

https://www.gsi.ie/en-ie/data-and-maps/Pages/Bedrock.aspx

- Mapping from EPA showing soil types, bedrock data, River and Lake data.

https://gis.epa.ie/EPAMaps/

- EPA HydroNet Surface Water Levels & Flows and Ground water levels.

https://www.epa.ie/our-services/monitoring--assessment/freshwater--marine/rivers/water-level-and-flow-data/

Flood Studies Update (FSU)

The FSU Web Portal is a free to use suite of online design rainfall and flood estimation tool. The system was commissioned and funded by the OPW and is a substantial update of the Flood Studies Report (FSR). It is intended for the use of the OPW, Local Authorities, Third level Institutions and the Private sector working within the area of flood risk assessment and management in Ireland.

https://opw.hydronet.com/

Appendix B: Wayleave Instruction Sheet and Template

INSTRUCTION SHEET FOR PREPARING WAYLEAVE AGREEMENTS FOR RESIDENTIAL ESTATES/ DEVELOPMENTS

1. Developer's Name: _____
2. Developer' Address: _____
3. if Developer a Company the Registration number of the Company: _____
4. Development Name:_____
5. Development Location:_____
6. Developers Solicitor Name:_____
7. Developers Solicitor Address:_____
8. Developers solicitor phone number:_____
9. Developers solicitors email address:_____
10. Is there a connection agreement with Irish Water?_____
11. Is this part of a Taking in Charge application?_____
12. has the Developer complied with the Council's requirements for Taking in Charge Policy Guidance?_____
13.have all conditions of the planning permission been complied with?_____

Documents required

14. OSI Map No for entire plot
15. OSI Map for wayleave area with relevant shading
16. Copy Planning Permission:

Services to be included in the Wayleave (please tick relevant services):

a). Public Lighting
b). Foul Sewers
c). Surface Water Sewers
d). Water mains

Information for the Agreement:

a). Is there any consideration in the Agreement?
b). any other particular conditions to be inserted as part of the wayleave?

WAYLEAVE AGREEMENT

This **DEED OF GRANT** made the day of 2024

BETWEEN

A. (Company Number) having its registered office at (hereinafter called "the Grantor" which expression shall when the context so admits or requires includes its successors and Assigns) of the one part

And

WICKLOW COUNTY COUNCIL, County Buildings, Whitegates, Wicklow town, A67 FW96 in the County of Wicklow (hereinafter called "the Council" which expression shall when the context so admits or requires includes its successors and assigns) of the other part

WHEREAS

A. The Grantor is the owner of the lands (hereinafter referred to as "the Land") more particularly described in the Schedule hereto in fee simple;

B. The Council is a Sanitary Authority for the purposes of the Public Health (Ireland) Act 1878 as amended and extended and is a Water Authority under the Water Services Act 2007 to 2014.

C. Subject to the exceptions and reservations hereinafter contained the Grantor agrees to grant to the Council the easements, rights and privileges hereinafter mentioned and the Council and the Grantor respectively agree to enter into the covenants hereinafter contained.

NOW THIS DEED WITNESSETH AND IT IS HEREBY AGREED AND DECLARED AS FOLLOWS:-

1. Pursuant to the said Agreement and in consideration of compensation in the sum of €1 (One Euro) now paid by the Council to the Grantor (the receipt of which monies the Grantor hereby acknowledges) the Grantor as beneficial owner (and to the intent that the easements, rights and privileges hereby granted shall be appurtenant to all such lands and hereditaments owned and occupied and used by the Council for the purposes of carrying out

any of its duties imposed on the Council by the Public Health (Ireland) Act 1878 as amended and extended and as a Water Authority under the provisions of the Water Services Act 2007 to 2014 and for the time being enforced as are accommodated by the said easements, rights and privileges and every part of such land and hereditament) **HEREBY GRANTS** unto the Council all such wayleave, easements, rights and privileges as shall be necessary or proper or convenient to enable the Council to erect, place, maintain and inspect or to enlarge, renew, cleanse, repair, replace, remove or render unusable a _____ together with all necessary apparatuses ancillary thereto (hereinafter referred to as "the Sewer") on that part of the Land of the Grantor more particularly described in the Schedule hereto and which is hereby reserved for the Wayleave more particularly marked with a broken line on Drawing No. annexed hereto called the "Drawing" which portion of the Grantor's lands for the carrying of Sewage effluent only. It is hereby agreed between the Grantor and the Council that there shall be a general right of access by the Council from the public area across the Grantor's land to the entirety of the Wayleave area.

2. **The Council hereby covenants with the Grantor as follows:-**

2.1 That the Council at its own expense keeps the Sewer in proper repair and condition;

2.2 The Council shall pay and discharge all taxes, rates, duties, charges, assessments and outgoings whatsoever (whether parliamentary, local or of any other description) which are now or may at any time hereafter be assessed, charged or imposed upon or payable in respect of this Wayleave.

2.3 That the Council will take all reasonable precautions not to use or exercise any of the easements, rights or privileges hereby granted in such manner as either to cause any unnecessary damage or injury to the Grantor's property or so as unnecessarily to impede the free and uninterrupted access thereto and use thereof by the Grantors;

2.4 If, in the course of using or exercising any of the easements, rights or privileges hereby granted the Council or its servants or agents or

workmen do any damage or injury to the Grantor's property the Council will make good such damage or injury in the manner hereinafter set forth and to the reasonable satisfaction of the Grantor or (if in the opinion of the Grantor it is not practical to make good such damage or injury) the Council will in lieu of making good the same, pay such adequate and proper compensation to the Grantor as may be mutually agreed between the respective parties and in default agreement to be fixed by Arbitration pursuant to Clause 6 hereof;

2.5 The Council hereby covenants with the Grantor that the Council shall at all times indemnify and keep indemnified the Grantor against all actions, proceedings, claims, demands, costs, damages and expenses claimed against, incurred by or payable by the Grantor arising out of any accident, damage or injury to any person including persons in the employment of the Grantor or property including property belonging to the Grantor arising out of, in respect of or resulting from the user, maintenance, repair, non-repair, extension, diversion, alteration, renewal, removal of the Sewer where such injury or damage is directly attributable to default or negligence on the part of the Council other than in consequence of the breach by the Grantor of any of the Grantor's covenants or in consequence of any malicious act or omission of the Grantor or any person for whom the Grantor is responsible in law.

2.6 The Council shall, before commencing any work
on the Sewer obtain from competent authorities all necessary licences, permissions, approval of plans and specifications and other things required by Law for the laying and maintaining of the Sewer and shall pay all fees and every other expense payable in respect thereof and shall keep the Grantor indemnified against all such fees, charges and expenses and against all liability arising by reason of such licences, permissions or approvals not being obtained or by reason of such fees, charges and expenses not being paid;

2.7 So far as is reasonably practicable the construction work shall be carried out in a manner so as to minimise the disruption to the Grantor.

3. **THE GRANTOR HEREBY COVENANTS WITH THE COUNCIL AS FOLLOWS:**

3.1 Not to do or cause deliberately or recklessly permit or suffer to be done on the Land anything calculated or likely to cause damage or injury to the Sewer or interfere with the exercise by the Council of the rights hereby granted, including impeding the full free and uninterrupted passage and running of the Sewer.

3.2 Not to do or cause deliberately or recklessly permit or suffer to be done on the Land anything calculated or likely to impede the reconstruction of the Sewer or in any way to impede access to the said Sewer.

3.3 Not to erect or install or cause or recklessly permit or suffer to be erected or installed any building, structure or other erection or any plant or permanent apparatus of any kind whatsoever or the carrying out of any works on, over or beneath the surface of the area outlined in the map attached hereto or the making of any material change in the use of said area which would be likely to cause damage or injury to the Sewer.

4.

4.1 If at any time the Council shall desire to remove the said Sewer from the Grantor's property the Council shall before removing the same give six calendar months' notice in writing to the Grantor;

4.2 On the expiry of such notice the Council shall either remove the said Sewer and apparatus from the Grantor's land or (if in the opinion of the Council such removal is not practical) shall render same unusable;

4.3 If the Sewer has been removed from the Grantor's land or rendered unusable the Council shall make good to the reasonable satisfaction of the Grantor any damage or injury to the Grantor's property caused by the removal or rendering unusable of the said Sewer and after such damage or injury has been made good as aforesaid, all liabilities imposed on the Council by any covenant or provision herein contained shall cease and be determinable without prejudice to any subsisting liability of the Council in respect of any antecedent breach of any of the covenants on the part of the Council hereinbefore contained.

5. It is mutually agreed between the parties hereto that the within Deed of Grant of Wayleave shall be deemed to be subject to the statutory powers, functions and duties vested in the Council as Sanitary Authority under and by virtue of the provisions of the Public Health (Ireland) Act 1878 as amended or extended and shall be read subject to such powers, functions and duties.

6. In case any dispute or difference shall arise at any time between the parties hereto such dispute or difference shall be referred to Arbitration and the final decision of such person as the parties hereto may agree to appoint as Arbitrator or failing agreement as appointed on the request of either party by the President of the Law Society of Ireland and the decision of such Arbitrator shall be final and binding on the parties. Every reference to Arbitration under this Deed of Grant shall be deemed to be in Arbitration within the meaning of the Arbitration Act 1954 as amended and extended.

7. The Grantor hereby **ASSENTS** to the registration of this Agreement as a burden against the Grantors lands.

IT IS HEREBY CERTIFIED that this instrument is a conveyance or transfer on any occasion not being a sale or mortgage.

IN WITNESS WHEREOF the Grantor has hereto set his hand and the Council has affixed its Common Seal the day and year first herein written:

SCHEDULE

All THAT AND THOSE

PRESENT when the Common Seal of

_____

Was affixed hereto:

PRESENT when the Common Seal of
WICKLOW COUNTY COUNCIL
was affixed hereto:

_____
Cathaoirleach na Comhairle
Comhairle Chontae Cill Mhantáin.

_____
Approved Officer

_____
County Council Official,
County Buildings, Wicklow.

Dated day of 2024

Between/

("the Grantor") of the one part

-and-

WICKLOW COUNTY COUNCIL

("the Council") of the other part

DEED OF GRANT OF WAYLEAVE

Lands at:-

Law Agent,
Law Department,
Wicklow County Council,
County Buildings,
Whitegates,
Wicklow Town, A67 FW96,
Co. Wicklow.

Appendix C: Tree and Planting Guidance Documents

Guidance and Best Practice Standards:

- Wicklow County Council Tree Management Policy
- NJUG Guidelines for the Planning, Installation and Maintenance of Utility Apparatus in Proximity to Trees (Volume 4) - http://streetworks.org.uk/resources/publications/
- 'Tree Species Selection for Green Infrastructure A Guide for Specifiers written by Dr Andrew Hirons and Dr Henrick Sjoman.'
  https://www.tdag.org.uk/tree-species-selection-for-green-infrastructure.html
- Urban Design Manual (Department of Environment, 2009).
- Residential Development in Urban Areas. Department of Environment (2009)
- Guidance for Preliminary Ecological Appraisal. April 2013. Chartered Institute of Ecology and Environmental Management, www.cieem.net)
- All Ireland Pollinator Plan 2021-2025
- Trees in Hard Landscapes: A Guide for Delivery
- A how-to-guide for Rainwater Planters
- BS 8545. Young Trees: From the Nursery to Independence in the Landscape recommendations
- BS 5837: 2012 Trees in relation to design, demolition and construction – recommendations
- BS 3998:2010 Recommendations for Tree Work
- BS 3936 - 1:1992 Nursery Stock. Trees & Shrubs
- BS 3936 - 9:1987 Nursery Stock. Bulbs, Corms & Tubers
- BS 3882:2015 Specification for topsoil
- BS 4428:1989 Code of Practice for general landscape operations (excluding hard surfaces)
- BS 4043:1989 – Recommendations for Transplanting Root-Balled Trees.
- BS 7370-4:1993 – Grounds maintenance. Recommendations for maintenance of soft landscape (other than amenity turf
- Guidance Notes 4 – Visual Amenity Valuation of Trees and Woodlands (The Helliwell System 2008) Arboricultural Association
- CIRIA C768 Guidance on the Construction of SuDS 2017
- CIRIA C753 The SuDS Manual 2015

Web Resources:

- http://www.pps.org: Project for Public Spaces – Placemaking NGO, New York USA
- http://greenspacescotland.org.uk/:Glasgow-based NGO
- http://universaldesign.ie/ : Centre for Universal Design, National Disability Authority, Dublin
- http://www.universaldesign.com: USA-based private philanthropic effort by
- http://www.udconsultants.com
- http://www.asla.org/sites/: American Society of Landscape Architects.
- http://www.asla.org/sustainablelandscapes/index.html:
- http://iflaonline.org/International Federation of Landscape Architects (IFLA).
- http://www.irishlandscapeinstitute.com: representative body for Landscape Architecture in Ireland.
- http://www.glda.ie: representative body for qualified garden and landscape designers in Ireland
- http://www.wildflowers.ie. Wildflower seeding should be conducted at the appropriate time and weather conditions. The developer should have a long-term maintenance plan ensuring longevity for wildflower meadow.

Appendix D: Sustainable Drainage System Guidance for Single Dwellings or Extensions to Existing Dwellings:

General:

This document Storm Water Management and Sustainable Drainage System Guidance requirements for single domestic properties including extensions of an existing dwelling. The preferred storm water management option is to drain storm water to an adequate soakaway or other infiltration system. Storm Water will not be permitted to discharge to a foul water sewer.

The Wicklow Development Plan 2022-2028 sets out the following Sustainable Drainage System (SuDS) requirements, as a minimum, which apply for a new single house or extensions to an existing property (additional site-specific requirements may also be required):

2.2.4 Surface & storm water systems:

With respect to the design of surface and storm water systems, the Planning Authority will have regard to the standards set out in the Greater Dublin Strategic Drainage Study (GDSDS).

1.2 Climate Change:

All new buildings will be required to incorporate **water saving measures**. This may include water harvesting for internal services use. All new dwellings with individual surface water collection systems will be required to be provided with water butts.

Consideration should be given in the design of new buildings to the provision of **green roofs or walls** (i.e. roof gardens / planted balconies etc), to aid in both water absorption but also to contribute positively to the environment and visual amenity.

CPO13.14: To require all new developments to integrate water demand reduction designs and technologies in all aspects of the development including but not limited to

- the Installation of water efficient equipment,
- Provision of dual flush toilets,
- cistern bags or other similar technologies,
- construction of grey water systems to allow for the re-use of wastewater from sinks, shower drains or washing machines,
- Provision of rainwater harvesting equipment and the use of low maintenance plants in the design of landscaping.

Compliance with Building Regulations:

- The Building Owner is ultimately responsible for ensuring that buildings or works are carried out in accordance with the requirements of the Building Regulations. In relation to the Design and Construction of buildings, the Building Owner should ensure that they appoint a competent Builder and competent registered professionals to act as Designer and as Assigned Certifier.
- The Builder (company or sole trader) should ensure that the materials and workmanship complies with the requirements of the Building Regulations. A builder also signs the Certificate of Compliance on Completion.
- The Assigned Certifier undertakes to inspect, and to co-ordinate the inspection activities of others during construction, and to certify the building or works on completion.

Note the following within the Building Regulations:

Part H of the Second Schedule to the Building Regulations "A Building shall be provided with such a drainage system as may be necessary for the adequate disposal of surface water from the building".

Part D of the Second Schedule to the Building Regulations, specifies that "All works to which these Regulations apply shall be carried out with proper materials and in a workmanlike manner". The materials used in the development and the methods of construction used should be fit for the end purpose intended.

All SuDS designs must be designed, constructed and installed by suitably competent professionals. Note the Assigned Certifier and Builder certifies the works within the Certificate of Compliance on Completion for the drainage system in relation to a Building.

Hard surface areas including Access Road:

Excessive hard surfacing shall not be permitted for new, or extensions to, residential or commercial developments and all applications will be required to show that sustainable drainage techniques have been employed in the design of the development. All car parking spaces and single development access roads shall be constructed of a pervious paving system such as:

- **Porous pavements** infiltrate water across their entire surface material, for example reinforced grass or gravel surfaces, resin bound gravel, porous concrete and porous asphalt.
- **Permeable pavements** where the materials are laid to provide void space.

One of the main objectives of SuDS, from a drainage perspective, is to minimise flow of rainwater to the public drainage system. The existing road drainage to grass verges shall be incorporated into any new storm water design. Options may include a rain garden, soak pit (in accordance with Bre Digest 365 Soakaway design, 2016 version) or infiltration trench. For larger sites, where space permits, applicants may alternatively propose suitably designed detention areas, swales or oversized tree pits.

Use of water butts are not acceptable as a SuDS measure in isolation, they are now a requirement for all new dwellings.

Hardstanding/Parking Areas

To limit or break up large areas of hard surfacing in new developments and to require all surface car parks to integrate permeability measures such as permeable paving, in accordance with the requirements of CPO 14.11 of the County Development Plan 2022-2028.

Excessive hard surfacing shall not be permitted for new, or extensions to, residential or commercial developments and all applications will be required to show that sustainable drainage techniques have been employed in the design of the development, in accordance with the requirements of CPO 14.12 of the County Development Plan 2022-2028

Hardstanding areas are generally to the front of properties, must be constructed of a specifically designed proprietary permeable paving system or gravel (refer to Chapter 20 CIRIA 753 for design detail ie permeable paving blocks: 80mm block, 50mm bedding and 300mm Sub-base for light trafficked area), or drained directly to suitably sized and designed landscaped areas. The gravel can be reinforced with plastic or concrete grasscrete type material.

Within section two of the County Development Plan all new developments are designed that "surface water is appropriately collected on site to prevent flow onto the public roadway, adjoining properties or into the public foul sewer / sewage treatment plant". Where the slope of the driveway is down towards the public footpath an interception drain shall be placed at the property boundary to intercept overland flow and direct it back to the permeable paving, gravel or landscaped areas.

New Surface Water Connections
Prior to submission of the planning application, the applicant must obtain the services information from the Council by emailing waterservices@wicklowcoco.ie and then assess if a new connection to the public sewer is technically feasible.
Site surveys and slit trenches may be required to determine the exact location of existing services and invert levels.
The applicant may wish to consult with the relevant Municipal District if a new connection is not self-evident. Municipal District Office's also can provide Surface Water Application forms.

Notwithstanding the nearby location of a public surface water sewer the applicant shall assume, in their designs, that no connection may be made to the sewer system as most public sewers have limited capacity for even moderate rain events

Natural Heritage & Biodiversity:

Applicants should note that is a policy objective of the current Development Plan to:

1. Require the retention, wherever possible, of hedgerows and other distinctive boundary treatment in the County. Where removal of a hedgerow, stone wall or other distinctive boundary treatment is unavoidable, provision of the same type of boundary will be required of similar length and set back within the site in advance of the commencement of construction works on the site.

2. Require and ensure the preservation and enhancement of native and semi-natural woodlands, groups of trees and individual trees, as part of the development management process, and require the planting of native broad leaved species, and species of local provenance in all new developments

The following list indicates some of the required information to support an application for discharge of storm water to a watercourse or storm sewer:

- A site location map;
- A layout plan drawing showing proposed sewer types, sizes, gradients, ground levels and invert levels of the relevant pipe network;
- If a water course is effected details of the watercourse, including the invert level of the bed of the watercourse in relation to the invert level of the discharge pipe, shown as a sketch;
- Wayleaves for route of pipe to the discharge point;
- In respect of field drains, statements from owners of adjacent lands through which the watercourse crosses downstream of the outlet pipe, confirming that they have no objection to the applicant discharging to the watercourse;
- Engineering sketch of outfall structures, including details of reinforced concrete elements and hydraulic controls if relevant.
- If connecting to a storm water sewer; detail showing the method of connection to the existing public sewer, and if a manhole is required.
- Typical detail of the new connection (ie manhole showing invert levels, ground levels, rocker pipes, manhole access, benching and lid);
- A cross section showing the pipe bedding and cover indicating the type of backfill material to be used.