

# Limerick City and County Council Surface Water/SuDs Specification 2022



Comhairle Cathrach  
& Contae **Luimnigh**

**Limerick** City  
& County Council



## Surface Water/SuDS

It is an objective of the Limerick City and County Council to:

- a) Ensure the separation of foul and surface water discharges in new developments through the provision of separate networks within application site boundaries.
- b) Work in conjunction with other public bodies towards a sustainable programme of improvement for riverbanks, back drains, etc.
- c) Maintain, improve and enhance the environmental and ecological quality of surface waters and groundwater, including reducing the discharges of pollutants or contaminants to waters, in accordance with the National River Basin Management Plan for Ireland 2018-2021 (DHPLG) and the associated Programme of Measures and any subsequent River Basin Management Plan.
- d) Ensure adequate storm water infrastructure to accommodate the planned levels of growth within the Plan area and to ensure that appropriate flood management measures are implemented to protect property and infrastructure.
- e) Cater for the future developments through public and private driven initiatives where discharge capacity permits.
- f) Address the issue of disposal of surface water generated by proposed development in the area, through improvements to surface water infrastructure, including for example attenuation ponds, the application of sustainable urban drainage techniques, or by minimising the amount of hard surfaced areas, or providing porous surfaces as the opportunity arises.
- g) Protect the surface water resources of the Plan area and in individual planning applications request the provision of sediment and grease traps and pollution control measures, where deemed necessary.
- h) Require all planning applications to include surface-water design calculations to establish the suitability of drainage between the site and the outfall point and require all new developments to include SuDS, to control surface water outfall and protect water quality in accordance with the requirements of Chapter 11: Development Management Standards of the Draft Plan.
- i) Promote SuDS and grey water recycling in developments and responsible use of water by the wider community, to reduce the demand for water supply.
- j) Require SuDS schemes to be designed to incorporate the four pillars of water quality, water quantity, biodiversity and amenity to the greatest extent possible within the constraints of a given site.
- k) Allow sufficient land take for SuDS when planning the site and consider the region as a whole, in association with adjoining lands and their requirements in designing SuDS. Developers may be required to set aside lands to cater for not only their own SuDS but also regional SuDS.
- l) Promote the provision of suitable Blue/Green Infrastructure (BGI) and Nature Based Solutions to the surface water disposal in new development, as a means to provide urban flood resilience. This approach capitalises on the potential of urban green spaces and natural water flows, subject to the other planning considerations such as amenity, maintenance, traffic safety, proper planning and sustainable development and environmental requirements

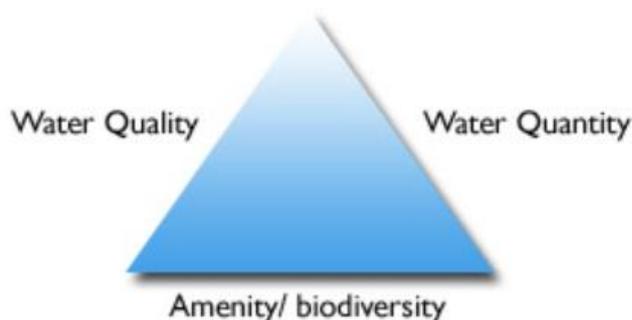
## COMPLIANCE WITH THE PRINCIPLES OF SUSTAINABLE URBAN DRAINAGE STRATEGY

Applicants must allow sufficient land take for SuDS when planning the site and consider the region as a whole, in association with adjoining lands and their requirements in designing SuDS. Developers may be required to set aside lands to cater for not only their own SuDS but also regional SuDS. The drainage system shall have sufficient pollutant removal efficiency in accordance with Ciria SuDs Manual C753. A treatment train approach shall be adopted which requires a number of SuDS systems in series in order to adequately treat runoff from development sites to discharging to the surface water network, watercourse or waterbody.

**Nature Based Solutions is an objective of the Limerick City and County Council to promote integration and delivery of nature based solutions and infrastructure in new developments, including surface water management, public realm and community projects as a means of managing flood risk and enhancing the natural environment.**

There are many approaches to management of surface water that take account of water quantity (flooding), water quality (pollution), biodiversity (wildlife and plants) and amenity and these are collectively referred to as Sustainable Urban Drainage Systems (SuDS). The use of SuDS to address surface water and its diversion from combined sewers is encouraged, in particular in infill/brownfield sites and higher density areas as appropriate. Green roofs are recognised as a mechanism to attenuate storm water run-off from sites. They are made up of layers of vegetation, which create areas for growth and water storage and reduces the amount of surface water running off a roof. Limerick City and County Council will require proposals in excess of 300sqm to incorporate green roofs into their surface water management systems.

Development will only be permitted where the Council is satisfied that suitable measures have been proposed that mitigate the impact of drainage, through the achievement of control of run-off quantity and quality, while enhancing amenity and habitat. In particular, the requirements of the SuDS Manual by the UK's Construction Industry Research and Information Association (CIRIA) shall be followed unless specifically exempted by the Council (see also Section 11.3.11 SuDS). Any site-specific solutions to surface water drainage systems shall meet the requirements of the Water Framework Directive and the River Basin Management Plan 2018 – 2021 and Water Quality in Ireland 2013 - 2018 (2019), or any updated version of these documents.



By considering the three functions of the triangle, a SuDs system will allow for water quality treatment through natural processes by:

- Encouraging infiltration (where appropriate) and the attenuating peak flows
- Improving water quality by providing treatment to storm water prior to discharge
- Providing habitat and function where possible for those using the area

The SuDs treat train uses a logical sequence of SuDs facilities in series thus allowing runoff to pass through several different SuDs before reaching the receiving watercourse or water bodies.

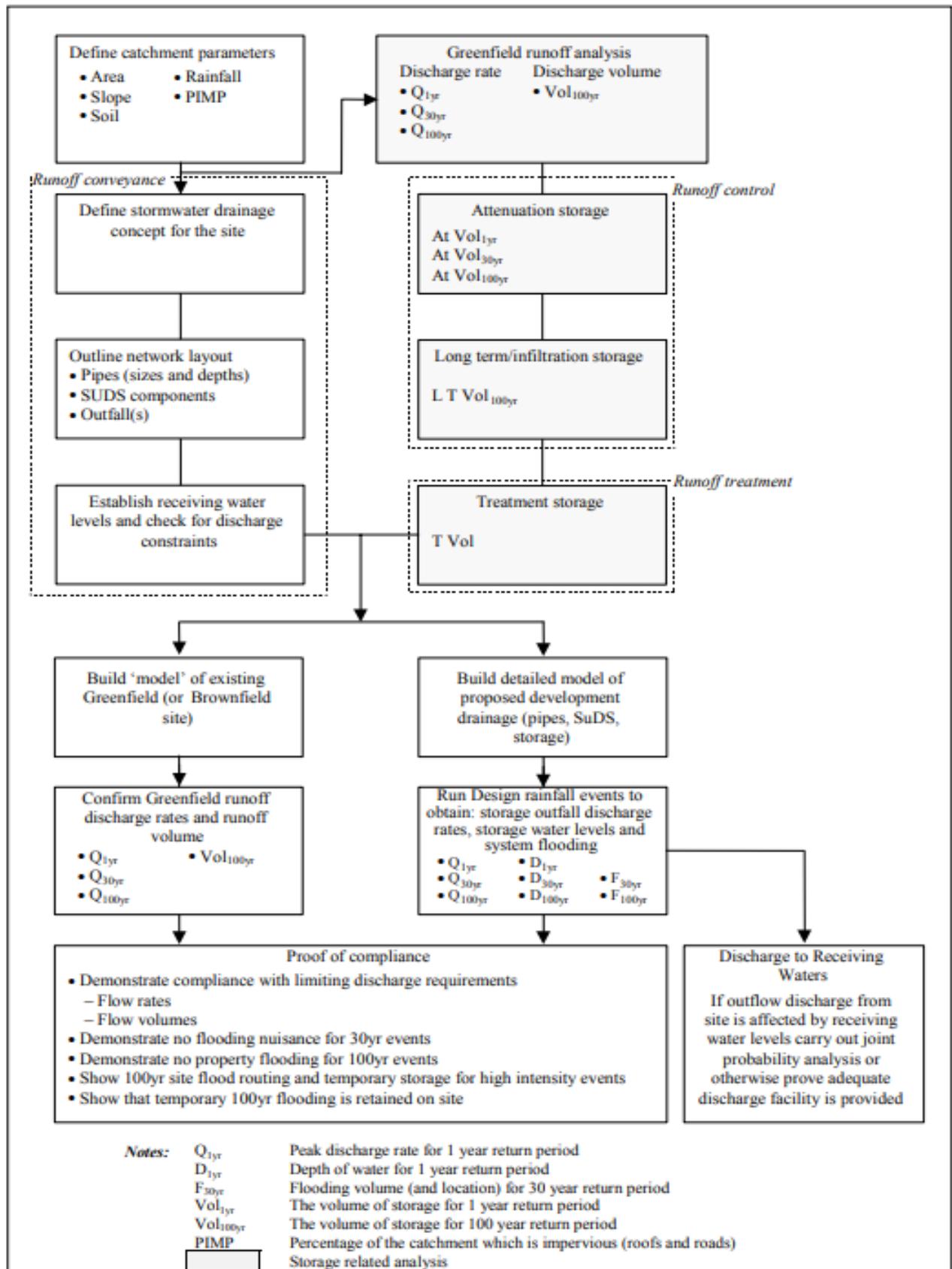
The Greater Dublin Strategic Drainage Study GDSDS addresses the issue of sustainability by requiring designs to comply with a set of drainage criteria, which aim to minimize the impact of urbanization by replicating the runoff characteristics of the greenfield site.

Samples of SuDs solutions are listed below

<b>Small scale SuDs:</b>	<b>Large scale SuDs:</b>
<ul style="list-style-type: none"> <li>• Rainwater harvesting tanks</li> <li>• Blue/Green Roofs</li> <li>• Filter Strips</li> <li>• Filter Drains</li> <li>• Bioretention Planters/Rain Gardens</li> <li>• Tree Pits</li> </ul>	<ul style="list-style-type: none"> <li>• Permeable paving systems</li> <li>• Porous asphalt systems</li> <li>• Swales</li> <li>• Attenuation Tanks</li> <li>• Detention Basins – Landscaped green areas that are normally dry except during for flood events</li> <li>• Settle ponds – trapping silt and discharging over area or back to network</li> <li>• Soakaways, infiltration trenches, infiltration basins</li> </ul>

## STORMWATER

One of the most important factors in designing sustainable stormwater drainage systems is the physical storage volume that needs to be provided to achieve flood control and minimise the pollution impact of urban stormwater runoff. This section on stormwater drainage begins by examining the performance of current drainage systems and the conditions that lead to both flooding and poor water quality. Further information on the management of inflow and infiltration can be found in the Regional Drainage Policy on Inflow, Infiltration and Exfiltration. Design and assessment criteria for sewers, rivers and SuDS measures are proposed together with design principles and procedures for estimating volumes of individual SuDS facilities. Appendix E provides an illustration of the approach for assessing stormwater storage requirements. It is important to realise that all drainage systems are designed to a set of criteria that are subject to economic, social and environmental constraints. It is not feasible to design for all circumstances and there will always be instances when extreme events will exceed the design criteria. The design process therefore should be one of risk management, whereby the consequences of larger events than the design event are assessed for their cost and environmental impacts.



Referenced from: Greater Dublin Strategic Drainage Study Initial and Detailed Design of Stormwater Drainage for New Developments

## Design Perimeters

The following specifications and requirements should be followed in respect to surface water sewers design:

Return Period	Return period of 5 years to be used for hydraulic pipe design
Minimum depth	1.2m cover under highways 0.9m elsewhere 0.75m with use of Class Z Concrete surround
Maximum depth	Normally 5m
Minimum sewer size	225mm with the exception of road gully connections, which can be 150mm
Rainfall for initial pipe sizing	50mm/hr. rainfall intensity
Minimum velocity (pipe full)	1.0m/sec
Flooding	For adequate protection No surcharging in respect of flow for return period less than 30 years No flooding in respect of flow for return period less than 100 years
Roughness	ks 0.6mm

## Limerick City and County Council Surface Water Management Requirements

1. The Surface Water Management Layout Plan shall include the following:
  - Show all manholes clearly numbered, cover/invert level, direction of flow of pipes road gullies, flow control device, attenuation tank (or SuDs alternative), and Class 1 Petrol Interceptor;
  - Show location of vent pipes for attenuation tank and Class 1 By Pass interceptor. If this will be in a green that may be used for playing or walking on, the vent pipes will have to be extended out of the ground;
  - Show housing unit (kiosk) for the alarm/messaging system associated with the Class 1 By Pass interceptor;
  - Include SuDs train such as green roofs, permeable paving systems (***It is recognised that pervious paving represents a straightforward SuDS method, and present a solution to high-density development with little open area for swales, etc. They therefore should be encouraged, with suitable outfall. Paving must be properly constructed to suitable specification, but for the most part would be the responsibility of the householder or private property management company***), porous asphalt systems, bioretention

features/planters/rain gardens, tree pits, filter strip/drains, swales, detention basins, settle ponds, soakaways and rain water harvesting;

- Lack of infiltration shall not be used as a reason not to include SuDs measures. As part of any planning application, the applicant shall incorporate a Storm Water Management Plan and introduce a of suite measures to treat and minimise surface water runoff from a development at source. These measures will slow the flow and store water in both hard and soft landscape areas, thereby reducing the impact of large volumes of polluted water flowing from the proposed developments.
  - Show SuDs how the permeable parking areas are all connected together with access chambers for maintenance and with over flow system with connection to main surface water system;
2. Increase the time of entry to main internal sewer. Interception storage shall be provided to ensure that, at a minimum, the first 5mm and preferably the first 10mm of rainfall is intercepted at source.
  3. If the applicant is proposing to infiltrate any section of the development to ground the infiltration test results by way of the BRE365 method including supporting photographs and a cross section showing construction build up must be submitted.
  4. The following shall be submitted to support the planning application:
    - A detailed cross section through the SuDs measures showing construction build up for each layer with clear specifications, which shall include for an overflow system.
    - A detailed cross section through the swale showing construction build up for each layer with clear specifications, which shall include for an overflow system. This shall also include the side slope gradients, take into account how it will be maintained.
    - A longitudinal section for the swale shall be submitted for approval.
    - Details on the over flow pipe systems.
  5. Submit risk indices to areas of the development dependent on their land use to represent the level of pollution that is typically generated and therefore must be 'treated' with SuDs components to meet water quality standards.  
Submit mitigation indices to demonstrate that it is greater than risk indices.
  6. As the applicant will be including SuDs components to the surface water design, this should have an effect on the overall design, therefore, the applicant shall submit surface water calculations by way of simulation modelling Micro Drainage or Causeway to include for the following:
    - Confirm that if the manhole that is to be constructed on the existing gets flooded or blocked or the outfall point gets blocked, that the calculations have allowed for capacity in the system should the surface water system become hydraulically locked and does not have a free flowing outfall;
    - The calculation for SuDs measures should be shown as part of the calculations;
    - Hydraulic modelling shall be submitted for the **design of the pipes at a 1/5** year return period;
    - Hydraulic modelling shall be submitted for the design of the network at a 1/30 year return period to include all pipelines, that requires that no flooding occurs;

- Hydraulic modelling shall be submitted for the design of the network at a 1/100 year return period to include all pipelines to show that properties are protected against flooding.
  - The modelling shall clearly demonstrate that there is sufficient freeboard on the finished floor levels;
  - Summary of Critical Results by Maximum Level (Rank 1) for Storm Design for both the 1/30 & 1/100, must include water level result so that we can establish sufficient freeboard;
  - The modelling shall confirm discharge levels, which shall not exceed 2 l/s/ha or Qbar whichever is the greater restriction. Qbar must be calculated using the Net area drained and not the gross area of the site (i.e. red line boundary). This discharge rate shall be marked on the manhole in which the flow restricting device is located;
  - The modelling shall demonstrate the pipe velocities, climate change of 30% plus 10% for urban creep;
  - All online controls & storage systems;
  - Minimum pipe diameter 225mm;
  - Minimum pipe velocities 1.0m/s.
  - The applicant shall submit longitudinal sections to the planning authority showing ground level, manhole with numbering to match Surface Water Disposal Plan, cover/ invert levels, pipe lengths, pipe diameter, pipe gradients, attenuation tank (or SuDs substitute), Class 1 By-Pass Interceptor & flow control manhole.
7. Details for the attenuation tank, flow control device and Class 1 By-Pass Interceptor shall be submitted to the Planning Authority as part of the planning application supporting documentation.
  8. The flow control device should meet designated flow requirements at the specified design head.
  9. Class 1 By-Pass Interceptors shall be fitted with an oil alarm, messaging system and a ventilation pipe. All installation, handling, excavation and maintenance procedures shall be carried out in line with manufacturer's guidelines.
  10. Retained pollutants in the Class 1 By-Pass Interceptor must be emptied from the separator once the level of oil is reached, or the oil alarm is activated and the contents disposed of via a licenced contractor. The alarm must have a messaging system so that once the level of oil is reached the alarm is activated and notification is sent to a competent maintenance Contractor.
  11. The attenuation tank system must have Agreement Certification. The applicant shall confirm that the Attenuation Tank has been designed for the site specific conditions. The tank shall be installed, tested and certified by the approved supplier. This certification shall be submitted to the Planning Authority for approval prior the final connection being made to the existing surface water system.
  12. The parameters for a Hydraulic Analysis of the proposed storm water sewer network for any development as indicated:
    - Rain Fall intensity: 60mm/hr
    - Contributing areas: hard surfaces inclusive of roofs, roads, footpaths and any other hard standing area – 100% impermeable

- Green areas or park land – 20% impermeable
  - Storm water drainage sewers shall be designed to cater for storm return period of 1:30 year storm without surcharging and to cater for a 1:100 year storm without flooding.
13. Prior to the commencement of construction of the Works, the Developer's Construction Engineer shall arrange and attend a 'Start-Up Meeting' with Limerick City and County Council's Roads Area Engineer. The Developer is required to submit a Commencement Notice for the Surface Water Disposal System for any phase of the development. The Developer's Construction Engineer shall ensure that a record of the meeting is made. No works in relation to the Surface Water Disposal System shall take place prior to this meeting.
  14. The Developer's Construction Engineer shall make provision for access by Limerick City and County Council's Engineering staff.
  15. The Developer's Construction Engineer and bonded Chartered Engineer shall arrange and undertake inspection and testing of the Works to ensure that the requirements of the Codes of Practice and the Standard Details are satisfied.
  16. A bonded Chartered Engineer shall be responsible for certifying that all works in relation to the Surface Water Disposal System. This certification must be submitted to the Planning Authority prior to the making final connection to the existing surface water system.
  17. A bonded Chartered Engineer shall be responsible for certifying the final connection to the existing surface water system prior to the completion of any phase of the development or the occupation of any phase of the development.
  18. As-constructed information of the Works must be accurately recorded during the construction phase and must be submitted to the Planning Authority upon completion of any phase of the development.
  19. Provision of Operation and Maintenance Manuals must be submitted to the Planning Authority prior to the completion of any phase of the development or prior to any occupation.
  20. Each house shall have its own 100mm connection with inspection manhole to the public storm sewer on the public road.
  21. Non-Rock sealed manholes covers to be installed on all service chambers and appropriate ironwork cover and frames shall be used throughout the development with the appropriate certification and markings. If any manholes or any other iron work are to be located on the footpath, suitable non-slip covers must be used.
  22. All surface water drainage to be contained within the curtilage of the site and air trapped surface water road gullies to be utilized at all times.
  23. All surface water run-off from the development shall be disposed of appropriately. No such surface water shall be allowed discharge onto adjoining properties or onto the public road.
  24. All surface water run-off from the public road which flows into the site shall continue to be accommodated within the site unless alternative arrangements acceptable to Limerick City & County Council are carried out. Full details of any such alternative arrangements shall be submitted to the Planning Authority and agreed prior to commencement of development.

25. The Developer **must** give Limerick City and County Council a minimum of **two weeks'** notice to allow for the inspection/supervision of the following:

- Prior to the surface water pipes being covered over.
- Air test on surface water pipelines and infiltration test on surface water manholes.
- When the base of the attenuation tank is prepared and prior tank being installed. Upon installation of Attenuation Tank. Prior to the attenuation tank being wrapped in membrane and construction of the tank.
- Manhole construction.
- The installation flow control device.
- **Construction of all the SuDs components.**
- The Developer **must** submit photographic evidence to the Planning Authority prior to final connection to existing surface water system from a bonded Chartered Engineer of each stage of the Surface Water Disposal System which shall include the following: Pipe and manhole testing.
- Pipe bedding. Pipes before and after they are covered over.
- Base for the Attenuation Tank, before the tank is constructed on it. Attenuation Tank before & after it is covered with membrane and construction of the tank.
- Each construction layer for the permeable driveways & porous car parking in the public realm.
- Connections from and to the Attenuation Tank.
- Manhole Construction.
- Construction of the SuDs components.