

Chapter 32. Flood risk

Managing flood risk is becoming increasingly important as the impacts of climate change are being felt throughout the country and by everyone. Through the various policies and objectives set out in this chapter, Sligo County Council aims to properly manage both surface water, coastal waters and in general the risk of flooding in our towns and villages and to prevent or mitigate the expected negative impacts of climate change.

32.1 Flood risk management

Flooding from rivers and coastal waters is a natural phenomenon that cannot be entirely prevented. It occurs when the capacity of a watercourse to convey water through an area is exceeded. Flooding also occurs in coastal areas, when sea water encroaches on land due to failure of coastal defences, exceptional climatic phenomena or other factors.

It is likely that climate change will have a significant impact on flood risk in Ireland, through sea level rise, increased number of heavy rainfall days per year and wetter winters leading to higher groundwater flood risk associated with aquifers and turloughs.

These potential impacts could have serious consequences on settlements located on the coast, beside rivers and in karst limestone areas. The man-made environment can exacerbate the consequences of flooding. Development in a flood plain, or building in areas where drainage infrastructure is inadequate, places property and people at risk. Flooding may impact on the economy, social well-being, public health and the environment. The impact on individuals and communities can be significant in terms of personal suffering and financial loss.

32.1.1 Flood Risk Management Guidelines

Following from the EU Directive 2007/60/EC on the assessment and management of flood risks, the DoEHLG and the Office of Public Works (OPW) published *Planning Guidelines: The Planning System and Flood Risk Management* in November 2009. An accompanying document entitled *Technical Appendices* outlines the scale at which it is appropriate to carry out flood risk assessment. The Guidelines recommend a clear and transparent assessment of flood risk at all stages in the planning process, and indicate that Strategic Flood Risk Assessment is required at County Development Plan level in order to provide a broad assessment of all types of flood risk, to inform strategic land-use planning decisions.

The precautionary approach should be adopted in carrying out flood risk assessments and the following key guiding principles should be followed in all instances:

- avoidance of development in areas at risk of flooding by not permitting development in such areas unless fully justified and where capability exists to manage risk without impacting elsewhere;
- application of a sequential approach to flood risk management based on:
 - avoidance of development in areas of high/moderate flood risk;
 - reduction of flood risk through incorporation of less vulnerable uses;
 - mitigation of flood risk in assessing suitability of locations for new development;
- the incorporation of flood risk assessment into the process of making decisions on planning applications and planning appeals.

32.1.2 Strategic Flood Risk Assessment (SFRA)

In compliance with the DoEHLG Guidelines, a Strategic Flood Risk Assessment (SFRA) has been prepared as part of the CDP (it is published as a separate document accompanying this Plan). The SFRA provides a description of the spatial distribution of flood risk at appropriate scales for the Plan.

The SFRA focused on land use zoning as well as flood risk management policy. It has considered available and emerging information on flood risk indicators, including the OPW's Flood Hazard and Risk Mapping and any flood defences. National CFRAM potential future scenario mapping has also been included in the SFRA and considered in the preparation of the Plan.

The flood risk management provisions of this Development Plan explicitly integrate climate change considerations and have been informed by future scenario datasets (mapped in the accompanying SFRA). [PA-163]

This includes Policy P-FRM-6 outlined below and the associated development management standards set out in **Chapter 33, Section 33.2.6 (Flood risk assessment)**.

The town and village plans contained in Volumes 2 and 4 have each been dealt with at a detailed local scale.

In line with the requirements of the Flood Risk Guidelines, Flood Zones A and B have been identified for all settlements with proposed land-use zoning. Lands located in flood risk areas are generally not proposed to be zoned for uses that are vulnerable to flooding. In cases where a site is proposed to be zoned for a potentially inappropriate use in an area at flood risk, a 'Justification Test' has been carried out as part of the SFRA. The findings of the Justification Test and the sites that have passed the Justification Test are outlined in the accompanying SFRA Report.

The impact of flood risk assessment on decisions regarding location of future development is recognised as being of significant importance to the growth of the county. The recommendations arising from the SFRA have been incorporated into town and village plans, and are complemented by the policies and objectives outlined below.

Flood risk management policies

It is the policy of Sligo County Council to:

- P-FRM-1** Protect and enhance the County's floodplains, wetlands and coastal areas subject to flooding and associated sand dunes, beach sand or gravel. These areas represent a vital green infrastructure, which provides space for storage and conveyance of floodwater, enabling flood risk to be more effectively managed and reducing the need to provide flood defences in the future.
- P-FRM-2** Zone land for development in areas with a high or moderate risk of flooding only where it can be clearly demonstrated, on a solid evidence base, that the zoning satisfies the **Justification Test** set out in chapter 4 of the *Planning System and Flood Risk Management Guidelines*.
- P-FRM-3** Contribute towards the general maintenance of a 20-metre-wide flood protection zone around lakes and along both sides of all rivers, and a 100-metre-wide flood protection zone from soft shorelines. Development proposals will be required to maintain these flood protection zones generally free from development.

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Exceptions may be considered for strategic road projects, water services infrastructure, riverbank enhancement works, bridge and road repair works, in the case of brownfield sites, development on lands zoned subject to policy P-FRM-2 and in cases where the maintenance of the flood protection zone is not practically achievable. Such cases will be assessed on an individual basis and subject to compliance with the Habitats and Birds Directives. [PA-162]

P-FRM-4 Ensure that new developments proposed in Arterial Drainage Schemes and Drainage Districts preserve access for maintenance and do not result in a significant negative impact on the integrity, function and management of these areas.

Where developments are proposed in the vicinity of Flood Relief Schemes, drainage channels and rivers for which the OPW is responsible, the Planning Authority will consult with the OPW and, where appropriate, will require the retention of a strip on either side of such channels, to facilitate maintenance access thereto.

P-FRM-5 Restrict development in areas at elevated risk of flooding unless:

- it is demonstrated that there are wider sustainability grounds for appropriate development;
- the flood risk can be managed to an acceptable level without increasing flood risk elsewhere;
- the overall flood risk is reduced, where possible.

Developments considered necessary in order to meet the objectives of this Plan, or required on wider sustainability grounds, will be subject to the development management justification test outlined in chapter 5 of the *Planning System and Flood Risk Management Guidelines*.

Measures such as flood compensation storage works or new hard-engineered flood defences alone will not be acceptable as justification for development in flood risk areas. Such measures will be subject to compliance with the Habitats Directive and will only be considered as part of a proposal if the development is warranted by the development management justification test set out in the *Flood Risk Management Guidelines*.

P-FRM-6 Require development proposals, where appropriate, to be accompanied by a **detailed flood risk assessment** in accordance with the provisions of the DoEHLG and OPW's *Planning System and Flood Risk Management Guidelines for Planning Authorities* and to address flood risk management in the detailed design of development, as set out in Appendix B of the *Guidelines*.

The following provisions shall apply:

- A.** Extensions of existing uses or minor development within flood risk areas may be permitted, provided that they:
- do not obstruct important flow paths;
 - do not introduce a number of people into flood risk areas;
 - do not entail the storage of hazardous substances;

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- do not have adverse impacts or impede access to a watercourse, floodplain or flood protection and management facilities;
- do not increase the risk of flooding elsewhere.

B. Applications for development within Flood Zones A or B and on lands subject to the mid-range future scenario floods extents, as published by the Office of Public Works, shall be subject to **site-specific flood risk assessment** and shall provide details of structural and non-structural flood risk management measures, such as those relating to floor levels, internal layout, flood-resistant construction, flood-resilient construction, emergency response planning and access and egress during flood events (for more detail refer to **Chapter 33 “Development Management Standards” subsection 33.2.6 “Flood risk assessment”**).

Site-specific flood risk assessments shall consider climate change impacts and adaptation measures, shall apply the precautionary approach recommended in the Guidelines, and shall be informed by the advice on the expected impacts of climate change and the allowances to be provided for future flood risk management (refer to the OPW’s 2019 Flood Risk Management Climate Change Sectoral Adaptation Plan and the guidance on potential future scenarios contained therein).

- C.** Where a ‘Justification Test’ applies, it must be demonstrated to the satisfaction of the Planning Authority that the flood risk can be adequately managed, and that the use and the development of the lands will not cause unacceptable impacts elsewhere.
- D.** In Flood Zone C, where the probability of flooding is low (less than 0.1%), site-specific flood risk assessment may be required, and the developers should satisfy themselves that the probability of flooding is appropriate to the development being proposed.

Prospective applicants shall consult the SFRA datasets accompanying this Development Plan and the most up-to-date Catchment Flood Risk Assessment and Management (CFRAM) Programme climate scenario mapping.

Applications for development on sites identified as ‘benefitting lands’ may be prone to flooding, and site-specific flood risk assessments may be required in these areas.

E. Groundwater and pluvial flood risks shall be considered by any site-specific flood risk assessment undertaken at project level, in compliance with the Planning Systems and Flood Risk Management Guidelines (DEHLG, 2009).

Note: For the avoidance of doubt, the OPW’s Preliminary Flood Risk Assessment indicative pluvial maps (2012) are NOT considered to be reliable for assessing pluvial risk.

P-FRM-7 Support and facilitate the implementation of CFRAM Flood Risk Management Plans, and support the OPW in the development and implementation of sustainable flood risk management actions, including the delivery of Flood Relief Schemes.

Flood risk management policies

- P-FRM-8** Protect the integrity of any formal flood risk management infrastructure, thereby ensuring that any new development does not negatively impact any existing defence infrastructure or compromise any proposed new defence infrastructure.
- P-FRM-9** Consider, as appropriate any new and/or emerging data, including, when available, any relevant information contained in the CFRAM Flood Risk Management Plans.

Disclaimer

It is important to note that compliance with the requirements of the *Guidelines on Flood Risk Management* and of the Floods Directive 2007/60/EC is based on emerging and best available data at the time of preparing the accompanying Strategic Flood Risk Assessment (the SFRA), including Flood Risk Management Plans, which will be updated on a cyclical basis as part of Catchment-based Flood Risk Assessment and Management Plans (CFRAM) activities.

Information in relation to flood risk may be altered in light of future data and analysis, by, for example, the Office of Public Works, or future flood events. Any future SFRAs for the Plan area or for the County will integrate other new and emerging data.

All landowners and developers are advised that Sligo County Council and its agents cannot accept any responsibility for losses or damages arising due to assessments of the vulnerability to flooding of lands, uses and developments.

Prior to making planning or development decisions, owners, users and developers are advised to take all reasonable measures to assess the risk of flooding on lands in which they have an interest.

32.2 Coastal flooding and erosion

The impacts arising from climate variability, including changing weather patterns and predicted rising sea levels, will be most readily discernible at the coast. It is estimated that about 20% of Ireland's coast is at risk of coastline erosion.

The impacts of sea level rise on coastal erosion are not easy to estimate. Some coastlines are sinking, whilst others are uplifting. Irrespective of this, a sea level rise of at least 0.5 m is specified as a design requirement in many Irish coastal projects.

Storms not only bring high waves to the shoreline, but also elevated water levels through storm surges, which allow waves to directly attack the dunes and cliffs.

Flooding of low-lying coastal areas could become more frequent as a result of predicted increased intensity and frequency of oceanic storms. The likely outcome may exacerbate coastal erosion, which would have a devastating effect on existing development and infrastructure. All new proposed developments in all low-lying coastal areas should include a detailed flood risk assessment.

32.2.1 Coastal protection

The OPW's National Coastal Flood Hazard Mapping, completed in 2021, provides updated coastal flood extent and depth maps. Maps were produced for the 50% (equivalent to a one-in-two-year event), 20%, 10%, 5%, 2%, 1%, 0.5% and 0.1% (equivalent to a one-in-1000-year event) *Annual Exceedance Probabilities* for the present-day scenario and for future climate change scenarios, which represent increases in sea level.

The **Irish Coastal Protection Strategy Study (ICPSS)**, completed in 2013, provides maps for flood events with a probability of 0.1% (extreme flood risk – one in 1000 years) and 0.5% (indicative flood risk – one in 200 years). It also provides predictive erosion maps prepared for the years 2030 and 2050.

Sligo has a varied coastline, over 197-km long. The identified areas of potentially significant coastal erosion in County Sligo are:

- Marley's Point to Strandhill
- Raghly
- Streedagh Point to Cliffony

Coastal protection works aim to reduce loss of land, infrastructure, and the impacts of coastal flooding. This may require hard-engineered defences in order to withstand the storms and retain and defend a location. Such defences may be necessary, but can cause alterations to nearby coastal behaviour. Softer-engineered solution may be appropriate in many areas and where loss of lives is unlikely. Other options include sacrificial areas and allowing nature to take its course.

The Council will contribute towards adherence to the following general guidelines in the coastal zone:

- no building or development within 100 metres of 'soft' shorelines;
- no further reclamation of estuary land;
- no removal of sand dunes, beach sand or gravel;
- all proposed coastal defence measures should be assessed for environmental impact and habitats directive assessment;
- careful consideration should be given to the implications of using 'hard engineering' solutions, which should only be reserved for densely-populated coastal villages or for the protection of significant public infrastructure (e.g. harbours, piers, outfalls, public roads).

The planning and design of coastal protection works must have regard to the coastal dynamics. In light of the high cost of such defences, there is a case for restricting development near the coast, so as to minimise future demands for costly protection measures.

Policies for coastal protection

It is the policy of Sligo County Council to:

- P-CP-1** Ensure that visual and environmental considerations are considered in the design of coastal defence works including compliance with the Habitats and Birds Directives.
- P-CP-2** Require that any development within the coastal zone is appropriately sited and designed, having regard to coastal flooding, future shoreline erosion, predicted sea-level rise and OPW flood mapping.
- P-CP-3** Require that detailed flood risk assessment is carried out in relation to development proposals within the coastal zone and particularly on all low-lying areas, where appropriate.

Objectives for coastal protection

It is an objective of Sligo County Council to:

- O-CP-1** Identify, prioritise and implement coastal protection works within the coastal zone where considered necessary, subject to the availability of resources and subject to compliance with the Habitats and Birds Directives.
- O-CP-2** Monitor existing dune management schemes on an ongoing basis and carry out appropriate repairs, improvements and extensions, subject to the availability of resources and compliance with the Habitats and Birds Directives. Where appropriate, continue to employ soft engineering techniques (i.e. dune stabilisation and planting).
- O-CP-3** Examine existing beach bye-laws and make appropriate amendments, in the interest of protecting sand dunes from encroachment and damage.