Strategic Flood Risk Assessment

Wicklow County Development Plan

2021-2027

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Wicklow County Council

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Abbreviations

AEP	Annual Exceedance Probability
AFA	Area for Further Assessment
CFRAM	Catchment Flood Risk Assessment and Management
CIRIA	Company providing research and training in the construction industry
DoEHLG	Department of the Environment, Heritage and Local Government
DTM	Digital Terrain Model
FRA	Flood Risk Assessment
FRMP	Flood Risk Management Plan
GDSDS	Greater Dublin Strategic Drainage Strategy
HEFS	High End Future Scenario
ICPSS	Irish Coastal Protection Strategy Study
LAP	Local Area Plan
MRFS	Medium Range Future Scenario
NIFM	National Indicative Fluvial Map
OPW	Office of Public Works
PFRA	Preliminary Flood Risk Assessment
POR	Preliminary Options Report
SEA	Strategic Environmental Assessment
SFRA	Strategic Flood Risk Assessment
SUDS	Sustainable Urban Drainage Systems

1 Introduction and Policy Background

1.1 Introduction

This Strategic Flood Risk Assessment (SFRA) has been undertaken and prepared in accordance with 'The Planning System and Flood Risk Management - Guidelines for Planning Authorities' published in 2009 by the Department of the Environment, Heritage and Local Government and Office of Public Works (Flood Risk Guidelines). The Wicklow County Development Plan (CDP) 2021-2027 is required to undergo an appropriate scale of SFRA. A hierarchy of assessments is necessary to ensure a proportionate response to the needs of organisations by avoiding the need for detailed and costly assessments prior to making strategic decisions.

The Guidelines promote a hierarchical approach to the assessment of flood risk, with maximum focus placed on areas at greatest risk of flooding and where the development pressures are highest, as illustrated in the table below. The Flood Risk Guidelines recommend a "Strategic" scale Flood Risk Assessment (FRA) is undertaken for a County Development Plan.

This is a working strategic flood risk assessment and therefore as new flood risk information is published and new SFRAs are adopted as part of the review process for plans, the updated information and/or SFRA should be referred to, along with this document.

Table 1-1: Hierarchy of flood risk assessment

FRA	Code	Purpose
Regional Flood Risk Appraisal	RFRA	RFRAs provide a broad overview of the flood risk issues across a region to influence spatial allocations for growth in housing and employment as well as to identify where flood risk management measures may be required at a regional level to support the proposed growth. This should be based on readily derivable information (in particular the CFRAM studies) and undertaken to inform the RSES.
Strategic Flood Risk Assessment for development plans and Local Area Plans	SFRA	To provide a broad (area-wide) assessment of all types of flood risk to inform strategic land-use planning decisions. SFRAs enable the Local Authority to undertake the sequential approach, including the Justification Test; allocate appropriate sites for development and identify how flood risk can be reduced as part of the development plan process. The level of detail required will differ for county and city development plans.
Site-specific Flood Risk Assessment	Site FRA	To assess all types of flood risk for a new development. FRAs identify the sources of flood risk, the effects of climate change on this, the impact of the development, the effectiveness of flood mitigation and management measures and the residual risks that remain after those measures are put in place. Must be carried out in all areas where flood risks have been identified but level of detail will differ if SFRA at development plan level has been carried out.

1.2 Flood Risk Analysis Stages

The steps in the CDP process and its Strategic Environmental Assessment (SEA) need to be supported by appropriate analysis of flood risk. The Flood Risk Guidelines recommend that a staged approach should be adopted; carrying out only such assessment as is needed for the purposes of decision-making at each stage. All stages of flood risk assessment may not be needed. This will depend on the level of risk and the potential conflict with proposed development and the scale of mitigation measures being proposed. The Flood Risk Guidelines require that Stage One Flood Risk Identification is undertaken for a countywide SFRA and states that there is a probability that a Stage 2 Initial Flood Risk Assessment may be needed to meet the requirements of the justification test. A Stage 3 FRA is unlikely to be required for a countywide SFRA, unless risks are high and development pressures are significant.

Table 1-2: A Staged Approach to Flood Risk Assessment

Stage 1 Flood risk identification
To identify whether there may be any flooding or surface water management issues related to either the area of regional planning guidelines, Development Plans and Local Area Plans or a proposed development site that may warrant further investigation at the appropriate lower level plan or planning application level. To suggest measures to be integrated into the CDP that will contribute towards both flood risk management in the county and compliance with the Flood Risk Guidelines.
Stage 2 Initial flood risk assessment
To confirm sources of flooding that may affect a plan area or proposed development site, to appraise the adequacy of existing information and to scope the extent of the risk of flooding which may involve preparing indicative flood zone maps. Where hydraulic models exist the potential impact of a development on flooding elsewhere and of the scope of possible mitigation measures can be assessed. In addition, the requirements of the detailed assessment should be scoped.
Stage 3 Detailed flood risk assessment
To assess flood risk issues in sufficient detail and to provide a quantitative appraisal of potential flood risk to a proposed or existing development or land to be zoned, of its potential impact on flood risk elsewhere and of the effectiveness of any proposed mitigation measures.
Source: DoEHLG The Planning System and Flood Risk Management Guidelines

This document presents the findings of the Strategic Flood Risk Assessment for the County Development Plan, which has taken the form of an appropriate blend of Stage 1 and Stage 2 identification and assessment as appropriate to the flood risk and development pressures within the various settlements.

Section 2 of this report provides the Flood Risk Identification, including a review of available data. The Policy Response to flood management is provided in Section 4, including guidance for applicants seeking to develop in any of Flood Zones A, B or C. The settlement based Flood Risk Assessment is detailed in Section 5, which includes details of the application of the Justification Test as appropriate. In Section 6 the FRA for Economic Development and Tourism Zoned lands is provided. Finally, Section 7 outlines triggers for review and update of this SFRA.

1.3 Legislative and Policy Framework

1.3.1 European Level

European Floods Directive 2007/60/EC on the assessment and management of flood risk aims to reduce and manage the risks that floods pose to human health, the environment, cultural heritage and economic activity. The Directive applies to inland waters as well as all coastal waters across the whole territory of the EU.

It requires Member States to undertake a national preliminary flood risk assessment to identify areas where significant flood risk exists or might be considered likely to occur and to prepare flood hazard and risk maps for the identified areas by December 2013. The Directive requires the preparation of catchment-based Flood Risk Management Plans (FRMPs) by 2015, which will set out flood risk management objectives, actions and measures. These plans are to include measures to reduce the probability of flooding and its potential consequences. Implementation of the EU Floods Directive is required to be coordinated with the requirements of the EU Water Framework Directive and the current River Basin Management Plans.

1.3.2 National Level

The Office of Public Works (OPW) is the public body responsible for the overall implementation of the Floods Directive and it is the lead State body for the coordination and implementation of Government policy on the management of flood risk in the country. The National Catchment Flood Risk Assessment and Management Programme (CFRAM) commenced in Ireland in 2011. The CFRAM Programme is intended to deliver on core components of the National Flood Policy, adopted in 2004, and on the requirements of the EU Floods Directive. The Programme is implemented through the completion of CFRAM studies and the development thereafter of Flood Risk Management Plans for each of the six river basin districts in Ireland. County Wicklow is located in

the Eastern River Basin District with 11 river sub catchments and in the South Eastern River Basin District with the River Slaney and smaller river basin sub catchments.

The 'Planning System and Flood Risk Management – Guidelines for Planning Authorities' were issued in 2009 by the Minister for the Environment, Heritage and Local Government and the OPW under Section 28 of the Planning and Development Act 2000 (as amended). The purpose of the Flood Risk Guidelines is to ensure that, where relevant, flood risk is a key consideration for Planning Authorities in preparing development plans and local area plans and in the assessment of planning applications. The Flood Risk Guidelines introduce mechanisms for the incorporation of flood risk identification, assessment and management into the planning process. Implementation of the Flood Risk Guidelines is intended to be achieved through actions at the national, regional, local authority and site-specific levels. Planning Authorities and An Bord Pleanála are required to have regard to the Flood Risk Guidelines in carrying out their functions under the Planning Acts.

The key planning principles of the Flood Risk Guidelines are to:

- Avoid inappropriate development in areas at risk of flooding;
- Avoid new developments increasing flood risk elsewhere, including that which may arise from surface water run-off;
- Ensure effective management of residual risks for development permitted in floodplains;
- Avoid unnecessary restriction of national, regional or local economic and social growth;
- Improve the understanding of flood risk among relevant stakeholders; and
- Ensure that the requirements of EU and national law in relation to the natural environment and nature conservation are complied with at all stages of flood risk management.

Clarification of advice contained in the Flood Risk Guidelines was issued in August 2014 (Circular PL2/2014) referring to two matters. The first was to ensure planning authorities are prudent in the use the draft PFRA or CFRAM flood maps as the sole basis for deciding on planning applications, to make use of site inspections and/or knowledge of local areas, to request a site-specific flood risk assessment by an appropriately qualified engineer where appropriate and to also generally use their professional judgement in this regard. The second matter amends the text of the guidelines to indicate that during the preparation of the development plan (or a variation of a development plan) in areas located in flood zone A and B, where the existing use zoning is classified as a "vulnerable use", the planning authority should consider if the existing use zoning of the 'vulnerable use' is still the appropriate zoning for the area. Where the planning authority considers that the existing use zoning is still appropriate, the planning authority must specify the nature and design of structural or non-structural flood risk management measures required prior to future development in such areas, in order to ensure that flood hazard and risk to the area and to other adjoining locations will not be increased, or if practicable, will be reduced. With regard to the second matter, the text amendment is noted; however where the existing use zoning is in flood zone A/B and is considered a vulnerable use, where necessary a mitigation objective has been incorporated into the local plan and/or an appropriate zoning has been applied for the existing use. Any flood risk management measures are to be considered at the development management stage.

1.3.3 Regional Level

A Regional Flood Risk Appraisal (RFRA) was prepared as part of the Strategic Environmental Assessment of the Eastern & Midland Regional Spatial and Economic Strategy (RSES) in accordance with national and EU legislation. This RFRA was prepared by considering the requirements of The Planning System and Flood Risk Assessment Guidelines for Planning Authorities (2009) and Circular PL02/2014 (August 2014). The purpose of this RFRA is to ensure that the RSES follow the principles of the Guidelines and implements policies and development strategies that:

- Avoid inappropriate development in areas at risk of flooding, unless there are proven wider sustainability grounds that justify appropriate development and where the flood risk can be reduced or managed to an acceptable level;
- Avoid developments increasing flood risk elsewhere;
- Adopt a sequential approach to flood risk management when assessing the location for new development based on avoidance, reduction and mitigation of flood risk;
- Avoid unnecessary restriction of national, regional or local economic and social growth;

- Incorporate flood risk assessments into the planning process;
- Improve the understanding of flood risk among relevant stakeholders; and
- Ensure that the requirements of EU and national law in relation to the natural environment and nature conservation are complied with at all stages of flood risk management.

The RFRA provides a high level review of the known existing flood risk to the growth settlements in the geographic area of EMRA (in County Wicklow these being Bray and Wicklow – Rathnew) and an assessment of the potential flood risk impacts associated with the key messages of Ireland 2040 to ensure EMRA makes informed strategic planning decisions in respect of the RFRA.

The EMRA RSES has included objectives that recommend that subsequently produced County and City development plans carry out flood risk assessments in accordance with the Guidelines following the sequential approach to ensure development is carried out in a sustainable manner with respect to flood risk. Objectives are also included to ensure Local Authorities shall incorporate the recommendations of the CFRAM Flood Risk Management Plans into the development of local planning policy and decision making. This includes planned investment measures for managing and reducing flood risk and having due regard to the CFRAM flood maps and other flood maps as available.

They have also included objectives for local authorities to implement policies that will reduce surface water runoff and also consider the potential impacts of climate change on flood extents. These policies will ensure that any development and regeneration areas that have been or will be identified as having a flood risk will be either be developed in accordance with the Guidelines or the appropriateness of their land zoning will be reviewed to ensure that development is sustainable and not increasing flood risk in other areas.

1.3.4 County and Local Level

Local Authorities must undertake a Strategic Flood Risk Assessment for future plans in line with the EU, National and Regional legislative and policy framework. The Department's Guidance on the Planning System and Flood Risk are the key tool in undertaking SFRA. Local Authorities should ensure that they adhere to the principles of avoiding risk where possible in preparing future plans.

In the preparation of a Development Plan, Local Authorities are advised to:

- Identify and consider at the earliest stage in the planning process flood hazard and potential risk;
- Identify flood risk areas on the Plan maps;
- Review existing plans zonings to ensure that issues of Flood Risk has been addressed in a manner consistent with the Flood Risk Guidelines. Where lands are already zoned for housing or other vulnerable development in flood risk areas, the Council should undertake a re-examination of the zoning in accordance with the sequential approach;
- Include policies which ensure that flood risk areas targeted for development following the sequential approach should be planned, designed and constructed to reduce and manage flood risk and be adaptable to changes in climate;
- Include policies to ensure that flood risk and impact is considered as a key element in the assessment of future waste and mineral planning strategies and developments;
- Include policies that ensure that the location of key infrastructure will be subject to FRA;
- Include policies on the importance of the inclusion of Sustainable Drainage Systems (SUDS) in future developments, in accordance with the recommendations of the Greater Dublin Strategic Drainage Study Guidelines and Appendix B of the Flooding Risk Guidelines published by the Department and the OPW.

1.4 Consultation

As required by the Flood Risk Guidelines, the SFRA process is integrated into the Strategic Environmental Assessment (SEA) process that is being undertaken alongside the preparation of the County Development Plan. The environmental authorities specified by the SEA Regulations were consulted during formal SEA scoping on issues including those related to both the SFRA and flooding early in the process. The findings of the SFRA have been integrated into the SEA. The Office of Public Works (OPW) is a statutory consultee for the CDP and is the leading agency for implementing flood risk management policy in Ireland. As such, it has been consulted throughout this SFRA and consulted as a prescribed body through the CDP process.

1.5 Flood Mapping

With regard to flood mapping on a national level, the OPW published the 'Preliminary Flood Risk Assessment' (PFRA) mapping in 2011 and identified a number of 'Areas for Further Assessment' (AFA). The PFRA covered the County and identified areas at risk of significant flooding and includes maps showing areas deemed to be at risk. The areas deemed to be at significant risk, where the flood risk is of particular concern nationally, were identified as Areas for Further Assessment (AFAs) and more detailed assessment on the extent and degree of flood risk was undertaken in these areas, with Flood Hazard Mapping (CFRAMs) published in draft format in 2015 and finalized in 2017. In Wicklow the CFRAMs cover all or part of the following areas: Arklow, Ashford, Aughrim, Avoca, Baltinglass, Blessington, Greystones & environs, Kilcoole, Newcastle, Rathnew and Wicklow.

In early 2021 the PFRA flood mapping was replaced by the National Indicative Fluvial Map, which was based on a number of significant refinements to the hydrological methods and modelling approach to produce more accurate, but still broadscale, flood extent maps.

Available information in relation to flood risk - which is imperfect and incomplete - may be altered in light of emerging data and analysis. Any new Flood Hazard and Risk mapping, published by the OPW after the adoption of the CDP has not been integrated into this SFRA. Future publishing of new and emerging flooding data from the OPW will be assessed upon publication and consideration will be given to whether a variation of the CDP would be necessary.

1.6 Information Gathering

The information about flood risk that has been used in the preparation of the strategic flood risk assessment has been collated from a number of sources. In all cases, the best and most appropriate source of data has been reviewed and used, resulting in a countywide Flood Zone map which is based on a collation of various data sources. It is recognised that some of these sources are high quality, predicative mapping, such as the CFRAM outputs, whilst others are indicative or surrogate layers which have been used to cross reference and corroborate other information of flood risk. Further details of the data available for use in the SFRA is provided in Section 2.

In preparing the flood risk zones, a precautionary approach has been applied, where necessary, to reflect uncertainties in flooding datasets and risk assessment techniques.

1.7 Flood Risk

Flooding is an environmental phenomenon that can pose a risk to human health as well as causing economic and social effects. Flooding events, whether widespread or extremely localised, can cause serious damage to people, property, infrastructure and the environment. The cost of such disruption is significant to business, causes hardship to residents and also can place people in at risk situations.

Parts of County Wicklow are vulnerable to flooding from a variety of sources, including fluvial (rivers), coastal, pluvial (surface water), groundwater and from the failure of drainage system and other man-made infrastructure. This vulnerability can be exacerbated by changes in the occurrence of severe rainfall events, increased storm activity, erosion and deposition of the coastline, sea level rise and associated flooding. Local conditions such as low-lying lands, high groundwater table and slow surface water drainage increase the risk of flooding. This risk can be increased by human actions including clearing of natural vegetation to make way for agriculture, draining/rehabilitation of bog and wetland areas, the development of settlements in the flood plains of rivers and on low lying or eroding coastlines, as well as by changing weather patterns. Inadequately planned infrastructural development, culverting, forestry operations and urban development in the floodplain, for example, can also give rise to flooding hazards. It is essential that current and future plans and development now do not create significant problems in the future. It is important that the possible impacts of climate change and associated rainfall and river flow increases and sea level rise form part of policy development and fluvial and coastal zone management for these areas, using longer time horizons than the Development Plan cycle.

Flood risk must be seen in the context of both the long history of settlement in the county and in the context of existing and emerging policy and practice in relation to planning, development and flooding. The location and layout of the county's towns have generally evolved to avoid flood-prone areas. The direct impact of new urban development on surface water flooding is generally not as significant a problem now as it was in the past because of the implementation of Sustainable Drainage Systems (SUDS) that aim to control run-off as close to its source as possible using a sequence of management practices and control structures designed to drain

surface water in a more sustainable fashion than some conventional techniques. However vigilance is still needed at the planning and zoning stage to avoid flood risk, for example in less well understood urban fringe areas – hence the need for SFRAs of plans for various sectors and at various levels, including SFRAs for County Development Plans and Local Area Plans and Flood Risk Assessments for individual projects.

1.7.1 Types of Flooding

Flooding can occur from a range of sources, individually or in combination, as described below.

Fluvial flooding occurs when rivers and streams break their banks and water flows out onto the adjacent low-lying areas (the natural floodplains). This can arise where the runoff from heavy rain exceeds the natural capacity of the river channel and can be exacerbated where a channel is blocked or constrained or, in estuarine areas, where high tide levels impede the flow of the river out into the sea. While there is a lot of uncertainty on the impacts of climate change on rainfall patterns, there is a clear potential that fluvial flood risk could increase into the future.

Coastal flooding occurs when sea levels along the coast or in estuaries exceed neighbouring land levels, or overcome coastal defences where these exist, or when waves overtop the coastline or coastal defences.

Pluvial flooding occurs when the amount of rainfall exceeds the capacity of urban storm water drainage systems or the infiltration capacity of the ground to absorb it. This excess water flows overland, ponding in natural or man-made hollows and low-lying areas or behind obstructions. This occurs as a rapid response to intense rainfall before the flood waters eventually enter a piped or natural drainage system. This type of flooding is driven in particular by short, intense rain storms.

Groundwater flooding occurs when the level of water stored in the ground rises as a result of prolonged rainfall, to meet the ground surface and flows out over it, i.e. when the capacity of this underground reservoir is exceeded. Groundwater flooding results from the interaction of site-specific factors such as local geology, rainfall infiltration routes and tidal variations. While the water level may rise slowly, it may cause flooding for extended periods of time. Hence, such flooding may often result in significant damage to property or disruption to transport. In Ireland, groundwater flooding is most commonly related to turloughs in the karstic limestone areas prevalent in particular in the west of Ireland

Failure of infrastructure can lead to flooding whether it is the catastrophic failure of a dam or flood defence, the blockage of culvert or a watermain burst.

The wide range of flooding types described indicates that, not only our urban areas, but also our rural and coastal environments are also susceptible to flood risk. The Guidelines acknowledge this fully, recognising the potential detrimental impacts on people, communities, the economy and the environment should consideration of the recommendations for land use and infrastructure planning in the Guidelines not be incorporated into national, regional, and local development plans.

1.7.2 Flood Zones

Flood Zones are geographical areas within which the likelihood of flooding is in a particular range and they are a key tool in flood risk management within the planning process, as well as in flood warning and emergency planning. There are three types or levels of flood zones defined for the purposes of implementing the Flood Risk Guidelines. These zones indicate a high, moderate and low risk of flooding from fluvial or coastal sources and are defined as follows:

- Flood Zone A – where the probability of flooding from rivers and the sea is highest (greater than 1% or 1 in 100 for river flooding or 0.5% or 1 in 200 for coastal flooding);
- Flood Zone B – where the probability of flooding from rivers and the sea is moderate (between 0.1% or 1 in 1000 and 1% or 1 in 100 for river flooding and between 0.1% or 1 in 1000 year and 0.5% or 1 in 200 for coastal flooding); and
- Flood Zone C – where the probability of flooding from rivers and the sea is low (less than 0.1% or 1 in 1000 for both river and coastal flooding). Flood Zone C covers all areas of the plan which are not in zones A or B (i.e. flood zones are only coloured for A and B zones with C uncoloured). Localised flooding from sources other than rivers and the coast can still occur and may need to be taken into account at the planning application stage.

The flood zones are generated without the inclusion of climate change factors. The flood zones only account for inland and coastal flooding. They should not be used to suggest that any areas are free from flood risk as they do not account for potential flooding from pluvial and groundwater flooding. Similarly flood defences must be ignored in determining flood zones as defended areas are still carry a residual risk of flooding from overtopping, failure of the defences and deterioration due to lack of maintenance.

1.8 Draft Wicklow County Development Plan 2021– 2027

The Draft County Development Plan (CDP) contains a Core Strategy and strategic goals, with policies and objectives for various sections including the settlement strategy, economic development, community development, housing, heritage, retail, etc. These goals, policies and objectives are enhanced with the measures recommended in the SFRA.

The Core Strategy for the County is prepared in line with guidance, strategies and policies at national and regional level. The main issues which faced the County in the preparation of this Core Strategy included the overall planning strategy, population, housing, rural housing, community development, retail development and town centres, transport and infrastructure and employment. One of the key requirements for this County Development Plan is to demonstrate how its policies and objectives are consistent with national and regional population and development targets.

1.8.1 Settlement Hierarchy & Flood Risk Assessment

The proposed settlement hierarchy set out in the proposed draft CDP has 10 'levels', which are as follows:

Table 1-3: Settlement Hierarchy

Level	Settlement Typology	Settlement	Plan Type	Existing / Proposed Flood Risk Assessment
1	Metropolitan Area Key Town	Bray	Local Area Plan	SFRA 2018
2	Core Region Key Town	Wicklow - Rathnew	Town Development Plan	SFRA 2013
3	Core Region Self-Sustaining Growth Towns	Arklow	Local Area Plan	SFRA 2018
		Greystones - Delgany	Local Area Plan	SFRA 2013
		Blessington	Local Area Plan	SFRA 2013
4	Core Region Self-Sustaining Towns	Baltinglass	Level 4 Town Plan	Detailed in this plan
		Enniskerry	Local Area Plan	SFRA 2018
		Kilcoole	Local Area Plan	SFRA 2013
		Newtownmountkennedy	Level 4 Town Plan	Detailed in this plan
		Rathdrum	Level 4 Town Plan	Detailed in this plan
5	Towns & Villages Small Towns Type 1	Ashford	Level 5 Town Plan	Detailed in this plan
		Aughrim	Level 5 Town Plan	Detailed in this plan
		Carnew	Level 5 Town Plan	No lands at risk of flooding
		Dunlavin	Level 5 Town Plan	No lands at risk of flooding
		Tinahely	Level 5 Town Plan	Detailed in this plan
6	Towns & Villages Small Towns Type 2	Avoca	Level 6 Town Plan	Detailed in this plan
		Donard	Level 6 Town Plan	
		Kilmacanogue	Local Area Plan	SFRA 2018
		Newcastle	Level 6 Town Plan	Detailed in this plan

Level	Settlement Typology	Settlement	Plan Type	Existing / Proposed Flood Risk Assessment
		Roundwood	Level 6 Town Plan	
		Shillelagh	Level 6 Town Plan	
7	Villages Type 1	Glenealy, Grangecon, Hollywood Kiltegan Knockananna, Laragh, Redcross, Stratford-on-Slaney	Village boundary	Detailed in this plan
8	Villages Type 2	Annacurragh, Ballinaclash, Ballyconnell, Ballycoog, Ballyknockan, Ballynacarrig (Brittas Bay), Barndarrig, Coolafancy, Coolboy, Crossbridge, Donaghmore, Kilpedder – Willowgrove, Lackan, Manor Kilbride, Moneystown, Rathdangan, Talbotstown, Thomastown, Valleymount,	Village boundary	Detailed in this plan
9	Rural Nodes	Annamoe, Killiskey, Connary, Greenan, Johnstown, Kirikee, Askanagap, Ballinglen, Coolattin, Coolkenno, Crab Lane, Davidstown, KIlamoat, Kilquiggan, Knockanarrigan, Moyne, Mullinacluff, Park Bridge, Stranakelly, Tomacork	Node boundary	Detailed in this plan
10	Open countryside			CDP Flood Risk objectives and to the Flood Zone Maps

All settlements down to 'Level 6' have an appropriate level land use plan in place, with all lands within the settlement boundary zoned.

The Bray Municipal District Local Area Plan 2018 (which includes the settlements of Bray, Enniskerry and Kilmacanogue), the Arklow Town and Environs Local Area Plan 2018 and the Rathdrum LAP 2017 were all subject to detailed SFRA in accordance with the Guidelines, utilizing the current, most up to date data from the OPW including CFRAM and other data sources (the River Dargle Flood Defence Scheme (Bray) and the Avoca River Flood Relief Scheme (Arklow) both were a significant source of information for Bray and Arklow).

The Wicklow Town – Rathnew Development Plan 2013, the Greystones- Delgany – Kilcoole Local Area Plan 2013 and the Blessington LAP 2013 were similarly subject to detailed SFRA, and while it is acknowledged that these were carried out prior to the completion of the CFRAMs, these SFRAs carried out at the time of the plan making process complied with the methodology set out in the Guidelines and utilized all relevant flood information available at the time.

Upon review of each of these plans post adoption of the new County Development Plan, all SFRAs will be reviewed and updated as necessary[1].

Flood risk to all other settlements has been assessed as part of this SFRA.

1.8.2 Other Flood Risk Assessments

A number of one-off development zonings in the CDP (tourism and employment) have been incorporated into the draft CDP and have had a flood risk identification assessment carried out and this is presented in section 6.

1.9 Flood Risk & Development Management

Notwithstanding the availability of flood zone maps and a SFRA, and where a site has passed the Justification Test for Plan Making, the applicant is primarily responsible in the first instance for assessing whether there is a flood risk issue and how it will be addressed in the development that is proposed.

At all sites, an assessment of flood risk should be undertaken to screen out flood risk from sources other than fluvial and pluvial and to ensure surface water management is appropriately undertaken. Where flood risk may be an issue for any proposed development, a more detailed flood risk assessment should be carried out appropriate to the scale and nature of the development and the risks arising. The detailed site specific Flood Risk Assessment should quantify the risks and the effects of any necessary mitigation, together with the measures needed or proposed to manage residual risks. Information on site-specific flood risk assessments and potential sources of information are contained Section 4 of this document and in Appendix A of the Planning System and Flood Risk Guidelines.

It is essential that the risk potentially arising from other sources of flooding should also be taken into account in all areas and at all stages of the planning process. The flood zones ignore the presence of defences. Areas that benefit from an existing flood relief scheme or flood defences, such as Baltinglass, have a reduced probability of flooding whilst the scheme is operational, but can be particularly vulnerable due to the speed of flooding when overtopping or a breach or other failure takes place. Because this residual risk of flooding remains, the sequential approach and the Justification Test apply to such defended locations as well as undefended ones.

Table 1-4: The planning implications for each of the flood zones

Flood Zone	Planning Implication
Flood Zone A	High probability of flooding. Most types of development would be considered inappropriate in this zone. Development in this zone should be avoided and/or only considered in exceptional circumstances, such as in city and town centres, or in the case of essential infrastructure that cannot be located elsewhere, and where the Justification Test has been applied. Only water-compatible development, such as docks and marinas, dockside activities that require a waterside location, amenity open space, outdoor sports and recreation, would be considered appropriate in this zone.
Flood Zone B	Moderate probability of flooding. Highly vulnerable development, such as hospitals, residential care homes, Garda, fire and ambulance stations, dwelling houses and primary strategic transport and utilities infrastructure, would generally be considered inappropriate in this zone, unless the requirements of the Justification Test can be met. Less vulnerable development, such as retail, commercial and industrial uses, sites used for short-let for caravans and camping and secondary strategic transport and utilities infrastructure, and water-compatible development might be considered appropriate in this zone. In general however, less vulnerable development should only be considered in this zone if adequate lands or sites are not available in Zone C and subject to a flood risk assessment to the appropriate level of detail to demonstrate that flood risk to and from the development can or will adequately be managed.

1 Other than the LAP for Rathdrum which is being replaced with a 'Level 4 Town Plan' in the new County Development Plan.

Flood Zone C	Zone C - Low probability of flooding. Development in this zone is appropriate from a flood risk perspective (subject to assessment of flood hazard from sources other than rivers and the coast) but would need to meet the normal range of other proper planning and sustainable development considerations.
Source: DoEHLG The Planning System and Flood Risk Management Guidelines	

1.9.1 Sequential approach at the Development Management Stage

A sequential approach to planning is a key tool in ensuring that development, particularly new development, is first and foremost directed towards land that is at low risk of flooding. The sequential approach (Figure 1-1) should be applied to all stages of the planning and development management process. It is of particular importance at the plan-making stage but is also applicable in the layout and design of development within a specific site at the development management stage. The Sequential Approach sets out the broad philosophy underpinning the sequential approach in flood risk management, which is further illustrated in Figure 1-2, which describes its mechanism for use in the planning process.

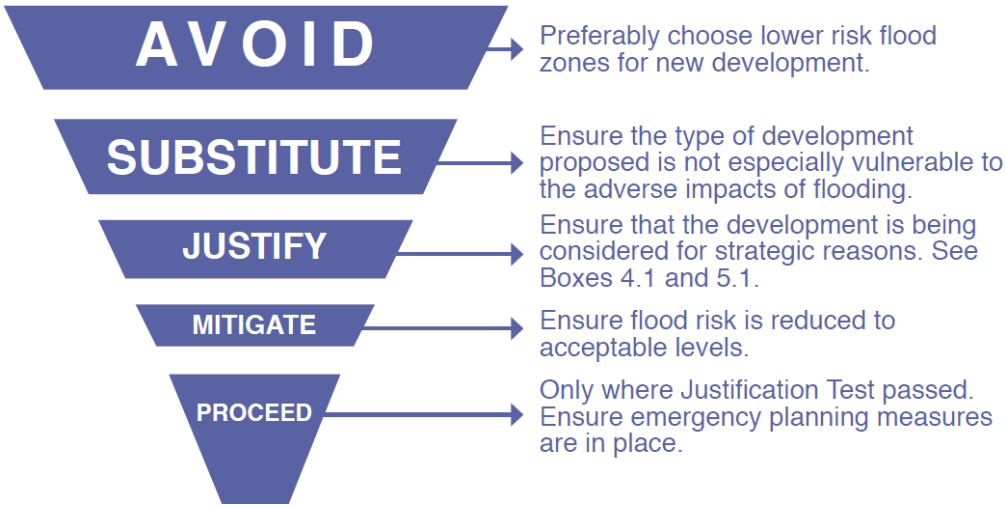


Figure 1-1: Sequential approach principles in flood risk management (source Figure 3.1 of the Flood Risk Guidelines)

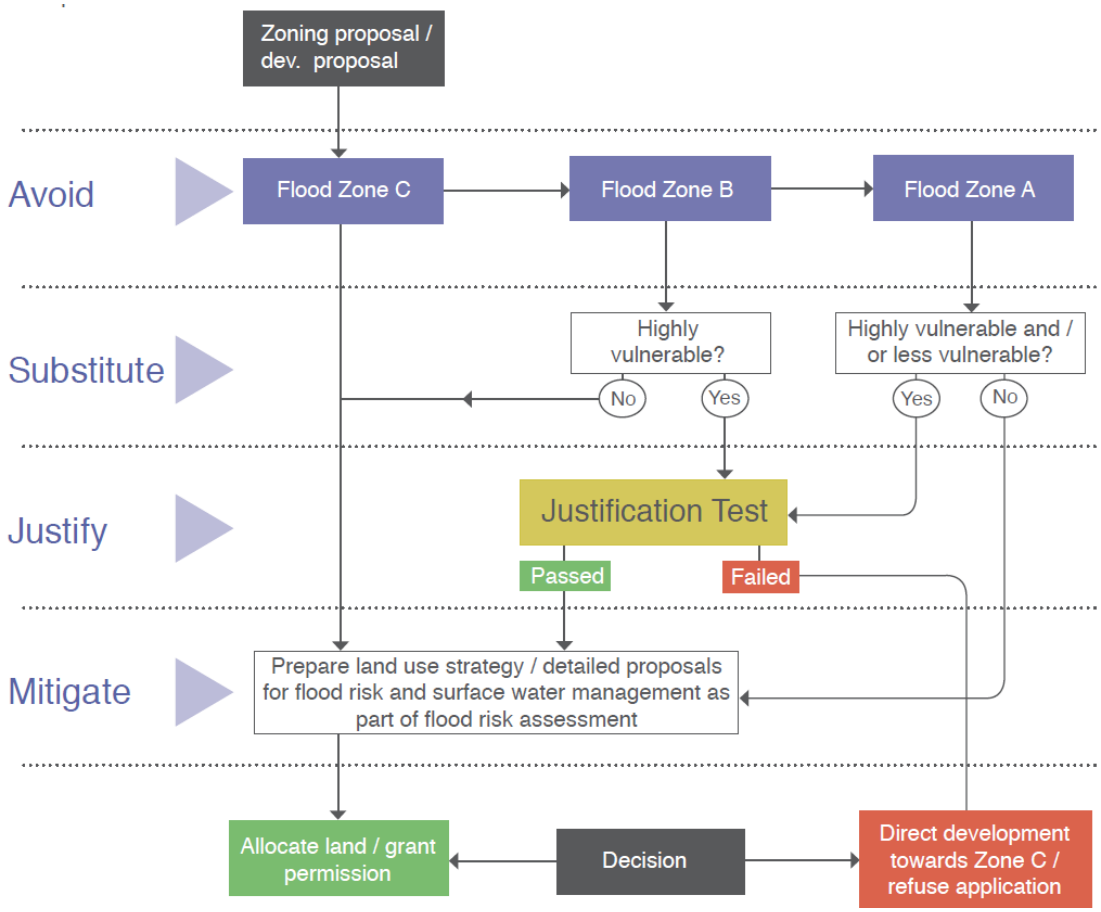


Figure 1-2: The Sequential Approach Mechanism for use in the planning process (source Figure 3.2 of the Flood Risk Guidelines)

Table 1-5: Classification of vulnerability of different types of development

Vulnerability class	Land uses and types of development which include*:
Highly vulnerable development (including essential infrastructure)	Garda, ambulance and fire stations and command centres required to be operational during flooding; Hospitals; Emergency access and egress points; Schools; Dwelling houses, student halls of residence and hostels; Residential institutions such as residential care homes, children's homes and social services homes; Caravans and mobile home parks; Dwelling houses designed, constructed or adapted for the elderly or other people with impaired mobility; and Essential infrastructure, such as primary transport and utilities distribution, including electricity generating power stations and sub-stations, water and sewage treatment, and potential significant sources of pollution (SEVESO sites, IPPC sites, etc.) in the event of flooding.
Less vulnerable development	Buildings used for: retail, leisure, warehousing, commercial, industrial and non-residential institutions; Land and buildings used for holiday or short-let caravans and camping, subject to specific warning and evacuation plans; Land and buildings used for agriculture and forestry;

Vulnerability class	Land uses and types of development which include*:
	Waste treatment (except landfill and hazardous waste); Mineral working and processing; and Local transport infrastructure.
Water compatible development	Flood control infrastructure; Docks, marinas and wharves; Navigation facilities; Ship building, repairing and dismantling, dockside fish processing and refrigeration and compatible activities requiring a waterside location; Water-based recreation and tourism (excluding sleeping accommodation); Lifeguard and coastguard stations; Amenity open space, outdoor sports and recreation and essential facilities such as changing rooms; and Essential ancillary sleeping or residential accommodation for staff required by uses in this category (subject to a specific warning and evacuation plan).
Source: DoEHLG The Planning System and Flood Risk Management Guidelines	

*Uses not listed here should be considered on their own merits

Table 1-6: Matrix of vulnerability versus Flood Zone

Development Types	Flood Zone A	Flood Zone B	Flood Zone C
Highly vulnerable development (including essential infrastructure)	Justification Test	Justification Test	Appropriate
Less vulnerable development	Justification Test	Appropriate	Appropriate
Water-compatible development	Appropriate	Appropriate	Appropriate
Source: DoEHLG The Planning System and Flood Risk Management Guidelines			

1.9.2 Justification Test

Notwithstanding the need for future development to avoid areas at risk of flooding, it is recognised that the existing urban structure of the country contains many well established cities and urban centres which will continue to be at risk of flooding. At the same time such centres may also have been targeted for growth in the National Planning Framework, Regional Spatial and Economic Strategies, and the various City and County Development Plans taking account of historical patterns of development and their national and strategic value. In addition, development plans have identified various strategically located urban centres and particularly city and town centre areas, whose continued consolidation, growth, development or regeneration, including for residential use, is being encouraged in order to bring about compact and sustainable urban development, and more balanced regional development. Furthermore the DoEHLG Development Plan Guidelines have underlined the importance of compact and sequential development of urban areas with a focus on town and city centre locations for major retailing and higher residential densities.

The Justification Test has been designed to rigorously assess the appropriateness, or otherwise, of particular developments that, for the reasons outlined above, are being considered in areas of moderate or high flood risk.

The test is comprised of two processes with the first being the Plan-Making Justification Test described in chapter 4 of the Flood Risk Guidelines and used at the plan preparation and adoption stage where it is intended to zone or otherwise designate land which is at moderate or high risk of flooding. In the Development Management process the second test, the Development Management Justification Test described in chapter 5 of the Flood Risk Guidelines and used at the planning application stage where it is intended to develop land at moderate or high risk of flooding for uses or development vulnerable to flooding that would generally be inappropriate for that land.

A planning circular (PL2/20142) has also been issued which provides greater clarity on the need to apply the Justification Test to existing development and areas which are proposed for redevelopment, included as Section

2 Department of Environment, Community and Local Government, Planning Circular PL2/2014 (13/08/2015)

4.27a of the Planning Guidelines. Further, this amendment requires the SFRA to specify the nature and design of structural or non-structural flood risk management measures required prior to development in such areas. As part of the Application of the Justification Test for Development Plans, detailed in Section 5 consideration has been given as to how this applies to lands within county Wicklow. This has generally taken the form of a qualitative appraisal of the condition and protection afforded by existing defences, along with a review of flood protection needs highlighted in the relevant CFRAM Study Preliminary Option Report (POR). The outcome of this assessment is included in the Justification Test for Development Plans and indicates where future development is premature until there is a scheme in place. There were no locations highlighted where flood protection was needed to allow development to proceed that were not also included in the CFRAM POR.

2 Flood Risk Identification

2.1 Introduction

'Identification' is the process for deciding whether a plan or project requires a flood risk assessment and is essentially a desk-based exercise based on existing information. In order to establish whether a flood risk issue exists or may exist in the future, a range of sources have been consulted.

2.2 Sources of Information available at the time of assessment

The primary sources of information are the predictive flood extent maps which have been produced by the OPW (CFRAM mapping – these are only available for some areas/watercourses, and NIFM). Given the limitations to these maps, the Flood Risk Guidelines also recommend that flooding from other sources such as surface water systems or adjoining hillsides that are difficult to map, need to be carefully considered.

This section identifies flooding or surface water management issues in the County that may warrant further investigation at the appropriate plan level or at planning application level. Identified for this purpose are two main categories of data:

- Predictive flood extents which have a probability assigned and can be readily incorporated into a Flood Zone Map, including the OPW's CFRAM Study outputs and NIFM.
- Indicators of flood risk that are based on historical flooding events, which may or may not have been assigned a probability of occurrence
- Surrogate data sources which indicate flooding may be a risk but do not directly translate into a defined flood extent, such as alluvial soil mapping and benefiting land maps.

Table 2-1: Indicators of Flood Risk

Information Source	Description
Catchment Flood Risk Assessment and Management (CFRAM) Flood Risk Management Plans (FRMP)	Under the CFRAM, a number of 'AFAs' were highlighted where a detailed assessment of the extent and degree of flood risk was carried out. Where flooding was confirmed, possible measures to manage and reduce the risk (through Flood Risk Management Plans) were investigated. The more detailed assessment, which focused on the AFAs, was undertaken by the OPW 2015-2017 through Catchment Flood Risk Assessment and Management Studies with Flood Hazard Mapping drafted for public consultation and finalized in 2017. The following areas were included in the AFAs and CFRAM studies; Arklow, Ashford, Aughrim, Avoca, Baltinglass, Blessington, Greystones & environs, Kilcoole, Newcastle, Rathnew and Wicklow. FRMPs have been prepared for the Avoca – Vartry River Basin (UOM10), Slaney & Wexford Harbour River Basin (UOM12) and the Liffey and Dublin Bay Basin (UOM09) This information is sourced at www.floodmaps.ie.
National Coastal Protection Strategy Study – flood and coastal erosion risk maps; Commissioned in 2003 and completed in 2013 OPW	The Irish Coastal Protection Strategy Study (ICPSS) is a national study that was commissioned in 2003 with the objective of providing information to support decision making about how best to manage risks associated with coastal flooding and coastal erosion. The Study was completed in 2013 and provides strategic current scenario and future scenario (up to 2100) coastal flood hazard maps and strategic coastal erosion maps for the national coastline. The predicted flood extents which were produced under the Irish Coastal Protection Strategy Study (ICPSS) are based on analysis and modelling. The project included: Analysis of historic recorded sea levels; Numerical modelling and statistical analysis of combined tide levels and storm surges to estimate extreme water levels along the national coastline for defined probabilities; and Calculation of the extent of the predictive flooding, by comparing calculated extreme tide

Information Source	Description
	and surge waters levels along the coast with ground level based on a Digital Terrain Model (DTM). Work packages 2 and 3 of this study were commissioned to establish an extreme flood extent for a pilot section of coastline between Dalkey Island and Carnsore Point and to derive predictive coastal flood extent maps for a range of probabilities, particularly for the 0.1% and 0.5% annual exceedance probabilities (AEP's). In addition, predictive coastal flood depth maps were derived for the 0.5% AEP. For the purposes of this study, these flood extent and flood depth maps are broadly classified as flood hazard maps. This information is sourced at www.floodmaps.ie.
National Indicative Fluvial Mapping	Produced by the OPW, these maps are 'predictive' flood maps showing indicative areas predicted to be inundated during a theoretical fluvial flood event with an estimated probability of occurrence. Flood Zone A is represented by the 1% AEP extent and Flood Zone B by the 0.1% AEP event. Indicative flood maps have been produced for all watercourses that are on the EPA watercourse layers "WATER_RivNetRoutes" and "WFD_LakeSegment", have a catchment area greater than 5km2, and for which flood maps were not produced under the National CFRAM Programme.
Previous Strategic Flood Risk Assessments	SFRAs have been undertaken for a number of lower level development plans within the administrative area of Wicklow County Council as part of plan preparation processes which are separate to the County Development Plan preparation process. These SFRAs have included the delineation of Flood Zones. SFRA has been undertaken for and has informed the review of the following Plans / variations of Plans: Bray Municipal District Local Area Plan 2018 Arklow Town and Environs Local Area Plan 2018 Wicklow Town – Rathnew Development Plan 2013 – 2017 Greystones – Delgany and Kilcoole Local Area Plan 2013 – 2019 Blessington Local Area Plan 2013 – 2019 The SFRAs of these plans are available to view online at www.wicklow.ie. With regard to specific settlements, the relevant sections of the plans include objectives, some of which relate to specific land parcels, giving effect to this overall approach to addressing flood risk in accordance with the Flood Risk Guidelines.
OPW Historic Flood Points and Extents	This information is sourced at www.floodmaps.ie. A flood event is the occurrence of recorded flooding at a given location on a given date. The flood event is derived from different types of information (reports, photographs etc.). The data is county wide data (uneven), especially in settlements and along roads and this dataset only provides a spot location or indicative spatial extent.
OPW Benefiting land maps	This information is sourced at www.floodmaps.ie. This drainage scheme mapping dataset was prepared on behalf of the Drainage Districts (Local Authorities with statutory responsibility for maintenance under the Arterial Drainage Act, 1925). These maps identify land that might benefit from the implementation of Arterial (Major) Drainage Schemes and indicate areas of land subject to flooding or poor drainage.
Alluvial deposit maps	Alluvial deposit maps of the Geological Survey of Ireland (which would allow the potential for the implementation of source control and infiltration techniques, groundwater and overland flood risk to be assessed). These maps, while not providing full coverage, can indicate areas that have flooded in the past (the source of the alluvium) and may be particularly useful at the early stages of the FRA process where no other information is available
'Six Inch 'maps	The Ordnance Survey of Ireland (OSI) 6" (1:10560) mapping identifies broad areas as being 'Liable to Floods', 'Covered by Spring Tides' as well as identifying areas of marsh, rough grassland and bog.

Information Source	Description
	There are several limitations to the use of this mapping such as the following: • The OSI maps simply show the text 'Liable to Floods' without delineating the extent of these areas. • As these maps were based on survey work carried out from 1833-1844 with many updated in the 1930s and 40s, they do not show or take any account of recent changes including changes in surface drainage, such as development in floodplains, road realignments or drainage works for forestry or agriculture. So there is significant potential that flood risk in some areas may have increased or reduced since they were prepared. • Drainage may have changed significantly since the preparation of the OSI mapping.
Historic 'Six Inch' maps with flood feature applied.	The Ordnance Survey of Ireland (OSI) have digitized certain historic environmental and genealogy data, including flooding from the 6" maps and it is available on their historic mapping interactive map. There is very limited information available on flood data in County Wicklow here, and there are several general limitations to this information for example there are no details provided on the flood event or source of flooding.
Other Sources of Information	
	Expert advice from OPW - they may be able to provide reports containing the results of detailed modelling and flood-mapping studies, including critical drainage areas, and information on historic flood events, including flooding from all sources
	In house studies
	RSES and associated Regional Flood Risk Appraisal
	Consultation with the relevant municipal area engineer in WCC
	An examination of contours of the land
	Aerial photography
	Information on flood defence condition and performance
	River Basin Management Plans and reports
	Local libraries and newspaper reports
	Interviews with local people, local history/natural history societies etc
	Walkover survey to assess potential sources of flooding, likely routes for flood waters and the site's key features, including flood defences, and their condition
	River Dargle Flood Defence Scheme (Bray)
	River Avoca (Arklow Town) Flood Relief Scheme
	The Murrough Coastal Protection Study

2.3 Flood defence infrastructure

Within County Wicklow there are a number of settlements where flood relief schemes are either completed, under design and development or proposed for the future. Although the Flood Zones are based on undefended flood risk, it is important to know where a flood relief scheme is in place, and how the scheme moderates flood risk, both in 'normal' circumstances when the defence is functioning as designed, and also for the less frequent situations when the defence may breach or be overtopped. A summary of the defences in Wicklow is provided in Table 2-2.

Table 2-2: Flood defence infrastructure status

Settlement	Defence status
Baltinglass	Fixed hard (Cast in situ concrete wall) - 125 m long and 30 m long) and soft (Earth embankment – 175m and 230m long) flood defence along the northern side of (L77474) and along the bank of the River Slaney (north and west of Baltinglass Town Park).
Avoca	A flood relief scheme was recommended in the CFRAM Study and it has been added to the OPW's planned list of projects for more detailed assessment.

Settlement	Defence status
Local Area Plan towns (so not subject to SFRA as part of this exercise)	
Wicklow Town – Rathnew	There is a rock armour/revetment at the Murrough in Wicklow town and maintenance / upgrade works planned.
Bray	The Dargle Flood Relief Scheme has been completed for Bray.
Arklow	Flood Relief Scheme is in the design stage.

3 Objectives for County Development Plan

This section presents policy objectives that have been integrated into the draft Wicklow County Development Plan 2021-2027 and which will contribute towards both flood risk management in the county and compliance with the Flood Risk Guidelines.

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.
CPO14.02	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[3], 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.
CPO14.03	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.
CPO14.05	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

3 Natural Water Retention Measures (NWRM) are multi-functional measures that aim to protect water resources and address water-related challenges by restoring or maintaining ecosystems as well as natural features and characteristics of water bodies using natural means and processes.

	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 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 (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.

4 Policy Response

4.1 The Strategic Approach

A strategic approach to the management of flood risk is important in County Wicklow as the risks are varied and disparate, with scales of risk and scales of existing and proposed development varying greatly across the county.

Following the Flood Risk Guidelines, development should always be located in areas of lowest flood risk first, and only when it has been established that there are no suitable alternative options should development (of the lowest vulnerability) proceed. Consideration may then be given to factors which moderate risks, such as defences, and finally consideration of suitable flood risk mitigation and site management measures is necessary.

It is important to note that whilst it may be technically feasible to mitigate or manage flood risk at site level, strategically it may not be a sustainable approach.

A summary of flood risks associated with each of the zoning objectives has been provided in Table 4-1, below. It should be noted that this table is intended as a guide only and should be read in conjunction with the detailed assessment of risks in Sections 5 and 6. However, when applications are being considered it is important to remember that not all uses will be appropriate on flood risk grounds, hence the need to work through the Justification Test for Development Management on a site by site basis and with reference to Section 5. For example, a zoning objective for Town Centre could include a highly vulnerable crèche, less vulnerable shops and water compatible car parking but they are not all equally appropriate on the ground floor within Flood Zone A or B and require differing levels of mitigation, potentially including elevating a vulnerable use to first floor or higher.

Table 4-1: Zoning objective vulnerability

Land Use Zoning	Indicative primary vulnerability	Water compatibility
RE: Existing Residential	Highly vulnerable	Justification Test to be passed for highly vulnerable development in Flood Zone A and B and less vulnerable development in Flood Zone A. Consideration also to be given to areas requiring ongoing flood protection, as PL2/2014.
RN: New residential	Highly vulnerable	Justification Test to be passed for highly vulnerable development in Flood Zone A and B and less vulnerable development in Flood Zone A.
TC: Town Centre	Highly / less vulnerable	Justification Test to be passed for major new highly vulnerable development in Flood Zone A and B and less vulnerable development in Flood Zone A
VC: Village Centre	Highly / less vulnerable	Justification Test to be passed for highly vulnerable development in Flood Zone A and B and less vulnerable development in Flood Zone A
E: Employment	Less vulnerable	Justification Test to be passed for highly vulnerable development in Flood Zone A and B and less vulnerable development in Flood Zone A. .
CE: Community & Education	Highly / less vulnerable	Justification Test to be passed for highly vulnerable development in Flood Zone A and B and less vulnerable development in Flood Zone A.
AOS: Active Open Space	Water compatible	Appropriate for all Flood Zones. Any ancillary developments to be assessed in accordance with the sequential approach.
OS1: Open Space	Water compatible	Appropriate for all Flood Zones. Any ancillary developments to be assessed in accordance with the sequential approach.
OS2: Open Space	Water compatible	Appropriate for all Flood Zones. Any ancillary developments to be assessed in accordance with the

Land Use Zoning	Indicative primary vulnerability	Water compatibility
		sequential approach.
PU: Public Utility	Highly / less vulnerable	Justification Test to be passed for highly vulnerable development in Flood Zone A and B and less vulnerable development in Flood Zone A. Depending on the nature of the utility to be provided, vulnerability may be high, less or water compatible.
T: Tourism	Highly / less vulnerable / water compatible	Justification Test to be passed for highly vulnerable development in Flood Zone A and B and less vulnerable development in Flood Zone A. Water compatible elements are appropriate for all Flood Zones.
MU: Mixed Use	Highly / less vulnerable	Justification Test to be passed for highly vulnerable development in Flood Zone A and B and less vulnerable development in Flood Zone A.

With respect to Level 6 draft plans, a simple zoning format is provided; each plan map indicates the boundary of the settlement plan which includes only two or three zones – the primary, secondary and tertiary zones (where necessary). This is in recognition of the smaller scale of these settlements and the less well defined distinction between different land uses evident in these towns. The land use zoning objectives and the associated vision for each zone are as follows:

Development Zoning	Indicative primary vulnerability	Water compatibility
PRIMARY ZONE	Highly / less vulnerable / water compatible	Due to the size of the settlement and non-specific nature of the zoning, the Justification Test has not been satisfied and the sequential approach should be applied with major development located in Flood Zone C. Water compatible elements are appropriate for all Flood Zones.
SECONDARY ZONE	Highly / less vulnerable / water compatible	
TERTIARY LANDS: PERIPHERAL ZONE	Water compatible	

4.2 Application of the Justification Test

Having reviewed the level of flood risk within the County and determined appropriate measures for assessing and managing risks to high and low vulnerability development in Flood Zones A, B and C, a more detailed assessment of sites and areas was carried out (as detailed in Sections 5 and 6). The aim of this assessment was to identify settlements and land zonings where application of the Plan Making Justification Test was required, taking into account circular PL02/2014 in relation to existing highly vulnerable development. Existing, developed, zoned areas at risk of flooding was found to be relatively limited and incorporated less vulnerable uses, including employment and civic, community and educational facilities.

4.2.1 Town centre uses

Development with the town centres of level 4-6 settlements may take the form of minor development, such as changes of use and extensions, and may also be major development, such as infill and redevelopment. In all cases a review of risks in the Town Centres has been undertaken, including a consideration of the extent and possible severity of flooding. There were no locations identified were flood risks were considered significant enough that a general application of the guidance in the following section of this document would not allow flood risks to be managed at the development management scale. The Justification Test has been applied to all the town centre zonings within Flood Zones A and B and is detailed in Appendix A.

4.2.2 Highly vulnerable uses

Circular PL02/2014 provides an amendment to the Planning Guidelines in the form of Section 4.27a, which states that "*In some instances, particularly in older parts of cities and towns, an existing land use may be categorised as a "highly vulnerable development" such as housing, be zoned for residential purposes and also*

be located in flood zone A/B. Additional development such as small scale infill housing, extension or changes of use that could increase the risk or number of people in the flood-prone area can be expected in such a zone into the future. In these instances, where the residential/vulnerable use zoning has been considered as part of development plan preparation, including uses of the Justification Test as appropriate, and it is considered that the existing use zoning is still appropriate, the development plan must specify the nature and design of structural or non-structural flood risk management measures prior to future development in such areas in order to ensure that flood hazard and risk to the area and to other adjoining locations will not be increased or, if practicable, will be reduced".

With the exception of Avoca, no settlements with extensive areas of existing residential development within Flood Zone A and B were identified so there was no requirement to undertake the above analysis. The discussion on Avoca is provided in Section 5.2.2.7, with Justification Test in Appendix A.

4.3 Development Management and Flood Risk

In order to guide both applicants and planning officials through the process of planning for, and mitigating flood risk, the key features of a range of development scenarios have been identified (relating to the flood zone, development vulnerability and presence or absence of defences). For each scenario, a number of considerations relating to the suitability of the development are summarised below.

Where land has not passed the Justification Test for Development Plans for a particular use, where development is considered premature pending a flood relief scheme, or where flood risk arising from a watercourse is only identified at Development Management Stage, the following sections do not apply and a SSFRA may be premature. In these situations, a discussion with Wicklow County Council is required to determine an appropriate route forward.

In addition to the general recommendations in the following sections, Sections 5 and 6 should be reviewed for specific recommendations for the watercourses within Wicklow County.

All applications for development must be accompanied by an appropriately detailed SSFRA. This may be a qualitative appraisal of risks, including drainage design. Alternatively, the findings of the CFRAM, or other detailed study, may be drawn upon to inform finished floor levels. In other circumstances a detailed modelling study and flood risk assessment may need to be undertaken. Further details of each of these scenarios, including considerations for the flood risk assessment are provided in the following sections.

4.4 Requirements for a Flood Risk Assessment

An appropriately detailed flood risk assessment will be required in support of any planning application. The level of detail will vary depending on the risks identified and the proposed land use. As a minimum, all proposed development, including that in Flood Zone C, must consider the impact of surface water flood risks on drainage design. In addition, flood risk from sources other than fluvial and tidal should be reviewed, including groundwater flooding and/or flooding associated with stormwater deficiencies, restrictions or blockages.

For sites within Flood Zone A or B, a site specific "Stage 2 - Initial FRA" will be required, and may need to be developed into a "Stage 3 - Detailed FRA". The extents of Flood Zone A and B are delineated through this SFRA. However, future studies may refine the extents (either to reduce or enlarge them) so a comprehensive review of available data should be undertaken once a FRA has been triggered.

Within the FRA the impacts of climate change and residual risk (including culvert/structure blockage) should be considered and remodelled where necessary, using an appropriate level of detail, in the design of finished floor levels. Further information on the required content of the FRA is provided in the Planning System and Flood Risk Management Guidelines.

Any proposal that is considered acceptable in principle shall demonstrate the use of the sequential approach in terms of the site layout and design and, in satisfying the Justification Test (where required), the proposal will demonstrate that appropriate mitigation and management measures are put in place.

4.5 Development in Flood Zones A or B

4.5.1 Minor Developments

Section 5.28 of the Planning Guidelines on Flood Risk Management identifies certain types of development as being 'minor works' and therefore exempt from the Justification Test. As a variation to Section 5.28 of the Planning Guidelines on Flood Risk Management, Wicklow County Council do not consider infill development of any scale is “minor development” and should be assessed under Sections 4.5.2 and 4.5.3 below.

Applications for minor development, such as small extensions to houses or the rebuilding of houses, and most changes of use[4] of existing buildings and or extensions and additions to existing commercial and industrial enterprises, are unlikely to raise significant flooding issues, unless they obstruct important flow paths, introduce a significant additional number of people into flood risk areas or entail the storage of hazardous substances. Since such applications concern existing buildings or developed areas, the sequential approach cannot be used to locate them in lower-risk areas and the Justification Test will not apply. However, a commensurate assessment of the risks of flooding should accompany such applications to demonstrate that they would not have adverse impacts or impede access to a watercourse, floodplain or flood protection and management facilities. These proposals should follow best practice in the management of health and safety for users and residents of the proposal.

It should be noted that for residential buildings within Flood Zone A or B, bedroom accommodation shall not be permitted at basement or ground floor.

For commercial operations, business continuity must be considered, and steps taken to ensure operability during and recovery after a flood event for both residential and commercial developments. Emergency access must be considered as in many cases flood resilience will not be easily achieved in the existing build environment.

The requirement for providing compensatory storage for minor developments has been reviewed and can generally be relaxed, even where finished floor levels have been raised, and particularly where flood risk is primarily tidal or the development is behind defences. This is because the development concerns land which has previously been developed and would already have limited capacity to mitigate flooding. However, prior discussion with the Planning Section of Wicklow County Council is recommended and a commentary to this effect must be substantiated in the FRA.

4.5.2 Highly vulnerable development in Flood Zone A or B

Development which is highly vulnerable to flooding, as defined in The Planning System and Flood Risk Management, includes (but is not limited to) dwelling houses, hospitals, emergency services and caravan parks.

4.5.2.1 New development

It is not appropriate for new, highly vulnerable, development to be located in Flood Zones A or B outside the core of a settlement. Such proposals do not pass the Plan Making Justification Test. Instead, a less vulnerable or water compatible use should be considered.

In some cases, land use objectives which include for highly vulnerable uses have been justified in the Development Plan. This includes zonings focused around an urban core which allow for a mix of residential, commercial and other uses. In such cases, a sequential approach to land use within the site must be taken and will consider the presence or absence of defences, land raising and provision of compensatory storage, safe access and egress in a flood and the impact on the wider development area.

4.5.2.2 Existing developed areas

The Planning Circular (PL02/2014) states that "*notwithstanding the need for future development to avoid areas at risk of flooding, it is recognised that the existing urban structure of the country contains many well established cities and urban centres which will continue to be at risk of flooding. In addition, development plans have identified various strategically important urban centres … whose continued consolidation, growth, development or generation, including for residential use, is being encouraged to bring about compact and sustainable growth*.

4 changes of use that do not increase the level of vulnerability of the development

In cases where specific development proposals have passed the Justification Test for Development Plans, the outline requirements for a flood risk assessment and flood management measures are detailed in this SFRA in the following sections and the settlement specific assessments in Section 5, which also detail where such development has been justified. Of prime importance is the requirement to manage risk to the development site and not to increase flood risk elsewhere.

4.5.3 Less vulnerable development in Flood Zone A or B

This section applies to less vulnerable development in Flood Zone A which has passed the Justification test for development plans, and less vulnerable development in Flood Zone B, where this form of development is appropriate, and the Justification Test is not required. Development which is less vulnerable to flooding, as defined in The Planning Guidelines, includes (but is not limited to) retail, leisure and warehousing and buildings used for agriculture and forestry (see Table 1-5 for further information). This category includes less vulnerable development in all forms, including refurbishment or infill development, and new development both in defended and undefended situations.

The design and assessment of less vulnerable development should begin with 1% AEP fluvial or 0.5% tidal events as standard, with climate change and a suitable freeboard included in the setting of finished floor levels.

The presence or absence of flood defences informs the level of flood mitigation recommended for less vulnerable developments in areas at risk of flooding. In contrast with highly vulnerable development, there is greater scope for the developer of less vulnerable uses to accept flood risks and build to a lower standard of protection, which is still high enough to manage risks for the development in question. However, any deviation from the design standard of 1%/0.5% AEP, plus climate change, plus freeboard, needs to be fully justified within the FRA. However, in County Wicklow there are limited locations where flood defences are present; Baltinglass, Wicklow and Bray all have some form of flood defence asset.

4.5.4 Development in Defended Areas

The assessment of breach within the scope of a site specific FRA should be proportionate to the likelihood of the defence failing, taking into account the age, maintenance regime, construction type and the presence of any demountable or mechanically operated components. Defence overtopping during events which exceed the design standard of protection also present a risk to developments and should be addressed regardless of the likelihood of the defence breaching.

There are a number of ways in which breach and overtopping of defences can be investigated, depending on the scale of risk and the nature of the development:

- Projection of instream water levels across the floodplain – this approach provides a conservative (worst case) estimate of flood risk in the event of defence breach or overtopping as, in reality, water levels across the flood plain would be lower than in the channel. This means the resulting mitigation may be more significant (for example, in terms of ground levels proposed) than if a more detailed modelling approach was taken, particularly if the proposed development site is on the edge of the inundation area.
- Breach modelling – for more complex and higher value developments, bespoke breach modelling can be undertaken in which the overtopping or breach of a flood defence can be investigated with specific reference to a development site.

The decision as to which approach is most appropriate to the development should be made in conjunction with the WCC Planning and Engineering Departments.

4.6 Development in Flood Zone C

Where a site is within Flood Zone C but adjoining or in close proximity of a watercourse, there could be a risk of flooding associated with factors such as future scenarios (climate change) or in the event of failure of a defence, blocking of a bridge or culvert. Risk from sources other than fluvial and coastal must also be addressed for all development in Flood Zone C, including groundwater flooding and/or flooding associated with stormwater deficiencies, restrictions or blockages.

A statement from a competent person stating that the development will not contribute to flooding within the relevant catchment or be at risk from 'other' sources of flooding will be required with all small developments of

areas of 1 hectare or less. For larger developments, an appropriately detailed Flood Risk Assessment will be required.

As a minimum the flood impact assessment should be undertaken which will screen out possible sources of flood risk and where they cannot be screened out it should present mitigation measures. For developments in Flood Zone C, the most likely mitigation measure will involve setting finished floor levels to a height that is above the 1% AEP fluvial event or 0.5% AEP tidal flood event level, with an allowance for climate change and freeboard, or to ensure a step up from road level to prevent surface water ingress. Design elements such as channel maintenance or trash screens may also be required. Evacuation routes in the event of inundation of surrounding land should also be detailed.

The impacts of climate change should be considered for all proposed developments. This is particularly important for development near areas at risk of tidal flooding. A development which is currently in Flood Zone C may be shown to be at risk when an allowance for sea level rise is added to the extreme (1 in 200 year) tide. Details of the approach to incorporating climate change impacts into the assessment and design are provided in Section 4.5.4.

4.7 Water compatible uses in Flood Zone A or B

Water compatible uses can include the non-built environment, such as open space, agriculture and green corridors. These uses do not require a flood risk assessment and are appropriate for Flood Zone A and B. However, there are numerous other uses which are classified as water compatible, but which involve some kind of built development, such as lifeguard stations, fish processing plants and other activities requiring a waterside location. The Justification Tests are not required for such development, but an appropriately detailed flood risk assessment is required. This should consider mitigation measures such as development layout and finished floor levels, access, egress and emergency plans. Climate change and other residual risks should also be considered within the SSFRA.

4.8 Drainage Impact Assessment

All proposed development, including that in Flood Zone C, must consider the impact of surface water flood risks on drainage design. In this regard, all the other development scenarios must pass through this stage before completing the planning and development process and should be accompanied by an appropriately detailed flood risk assessment, and/or drainage impact assessment.

There is the potential for generation of extensive networks of surface water runoff routes across the County. Particular attention should be given to development in low-lying areas which may act as natural ponds for collection of runoff.

The drainage design shall ensure no increase in flood risk to the site, or the downstream catchment. Reference should be made to the relevant policy objectives. Considerable detail on the process and design of SuDS is also provided in C7535, the Greater Dublin Strategic Drainage Study, and the forthcoming Dublin SuDS Manual[6].

Master planning of development sites should ensure that existing flow routes are maintained, through the use of green infrastructure. Where possible, and particularly in areas of new development, floor levels should at a minimum be 300mm above adjacent roads and hard standing areas to reduce the consequences of any localised flooding. Where this is not possible, an alternative design appropriate to the location may be prepared. Further discussion with the Engineering Section of Wicklow County Council is recommended in this situation.

4.9 Checklist for Applications for Development in Areas at Risk of Flooding

This section applies to both highly and less vulnerable development in Flood Zone A and highly vulnerable development in Flood Zone B that satisfy the following:

- Meet the definition of Minor Development; or
- Pass the Justification Test for Development Plans and Justification Test for Development Management to the satisfaction of the Planning Authority.

5 C753, The SUDS Manual, CIRIA (2015)

6 The Dublin SUDS Manual is currently in preparation but will be finalised in the lifetime of the Development Plan.

The following checklist is required for all development proposals:

- The SSFRA be carried out by an appropriately qualified Engineer with relevant FRA experience (as deemed acceptable by the Planning Authority), in accordance the Wicklow County Council SFRA and the Flood Risk Guidelines.
- Demonstration that the specific objectives or requirements for managing flood risk set out in Section 5 of this SFRA have been complied with, including an assessment of residual risks.
- Preparation of access, egress and emergency plans which are appropriate to the vulnerability of the development and its occupiers, the intensity of use and the level of flood risk.
- An assessment of the potential impacts of climate change and the adaptive capacity of the development.
- Compliance with C753 CIRIA SUDS guide, GDSDS and inclusion of SuDS.

4.10 Climate Change

Ireland's climate is changing and analysis of the potential impacts of future climate change is essential for understanding and planning. Climate change should be considered when assessing flood risk and in particular residual flood risk. Areas of residual risk are highly sensitive to climate change impacts as an increase in flood levels will increase the likelihood of defence failure.

The Planning Guidelines recommend that a precautionary approach to climate change is adopted due to the level of uncertainty involved in the potential effects. Specific advice on the expected impacts of climate change and the allowances to be provided for future flood risk management in Ireland is given in the OPW draft guidance[7]. However, this guidance is over 10 years old now and climate science, particularly in relation to sea level rise, has developed rapidly. There are many coastal related climate change impacts, these include:

- continued sea level rise;
- potentially more severe Atlantic storms, which could generate more significant storm surges and extreme waves;
- increased water depths lead to larger waves reaching the coast.

The OPW guidance recommended two climate change scenarios are considered. These are the Mid-Range Future Scenario (MRFS) and the High-End Future Scenario (HEFS). A revised suite of recommendations has been adopted for accounting for climate change within development proposals. In all cases, the allowances should be applied to the 1% AEP fluvial or 0.5% AEP tidal levels. Where a development is critical or extremely vulnerable (see Table 4-2) the impact of climate change on 0.1% AEP flows should also be tested.

These climate change allowances are particularly important at the development management stage of planning and will ensure that proposed development is designed and constructed according to current local and national Government advice.

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 (MRFS)	20% increase in rainfall
Highly vulnerable	20%	0.5m (MRFS)	
Critical or extremely vulnerable (e.g. hospitals, major sub-stations, blue light services)	30%	1.0m (HEFS)	
Note: there will be no discounting of climate change allowances for shorter lifespan developments.			

7 OPW Assessment of Potential Future Scenarios, Flood Risk Management Draft Guidance, 2009

Further work on the impacts of climate change on flood levels was undertaken as part of the South Eastern CFRAM Study and the ICPSS. The studies provided flood extents for both fluvial and coastal risk, which are available on www.floodinfo.ie.

Assessment of climate change impacts can be carried out in a number of ways. For watercourses that fall within the South Eastern CFRAM study area, flood extents and water levels for the MRFS and HEFS have been developed. For other fluvial watercourses a conservative approach would be to take the 0.1% AEP event levels and extent as representing the 1% AEP event plus climate change. Where access to the hydraulic river model is readily available a run with climate change could be carried out, or hand calculations undertaken to determine the likely impact of additional flows on river levels. In a coastal or tidal scenario, a 0.5 or 1m increase to the 0.5% AEP sea level can be assessed based on topographic levels.

4.11 Flood Mitigation Measures at Site Design

For any development proposal in an area at moderate or high risk of flooding that is considered acceptable in principle, it must be demonstrated that appropriate mitigation measures can be put in place and that residual risks can be managed to acceptable levels. Guidance on what might be considered 'acceptable' has been given in a number of sections in this document.

To ensure that adequate measures are put in place to deal with residual risks, proposals should demonstrate the use of flood-resistant construction measures that are aimed at preventing water from entering a building and that mitigate the damage floodwater causes to buildings. Alternatively, designs for flood resilient construction may be adopted where it can be demonstrated that entry of floodwater into buildings is preferable to limit damage caused by floodwater and allow relatively quick recovery.

Various mitigation measures are outlined below and further detail on flood resilience and flood resistance are included in the Technical Appendices of the Planning Guidelines, The Planning System and Flood Risk Management[8].

It should be emphasised that measures such as those highlighted below should only be considered once it has been deemed 'appropriate' to allow development in a given location. The Planning Guidelines do not advocate an approach of engineering solutions in order to justify the development which would otherwise be inappropriate.

4.11.1 Site Layout and Design

To address flood risk in the design of new development, a risk based approach should be adopted to locate more vulnerable land use to higher ground while water compatible development i.e. car parking, recreational space can be located in higher flood risk areas. Highly vulnerable land uses (i.e. residential housing) should be substituted with less vulnerable development (i.e. retail unit).

The site layout should identify and protect land required for current and future flood risk management. Waterside areas or areas along known flow routes can be used for recreation, amenity and environmental purposes to allow preservation of flow routes and flood storage, while at the same time providing valuable social and environmental benefits.

4.11.2 Ground levels, floor levels and building use

Modifying ground levels to raise land above the design flood level is a very effective way of reducing flood risk to the particular site in question. However, in most areas of fluvial flood risk, conveyance or flood storage would be reduced locally and could have an adverse effect on flood risk off site. There are a number of criteria which must all be met before this is considered a valid approach:

- Development at the site must have been justified through this SFRA based on the existing (unmodified) ground levels.
- The FRA should establish the function provided by the floodplain. Where conveyance is a prime function then a hydraulic model will be required to show the impact of its alteration.
- Compensatory storage should be provided on a level for level basis to balance the total area that will be lost through infilling where the floodplain provides static storage.

8 The Planning System and Flood Risk Management Guidelines for Planning Authorities, Technical Appendices, November 2009

- The provision of the compensatory storage should be in close proximity to the area that storage is being lost from (i.e. within the same flood cell).
- The land proposed to provide the compensatory storage area must be within the ownership / control of the developer.
- The land being given over to storage must be land which does not flood in the 1% AEP event (i.e. Flood Zone B or C).
- The compensatory storage area should be constructed before land is raised to facilitate development.

In some sites it is possible that ground levels can be re-landscaped to provide a sufficiently large development footprint within Flood Zone C. However, it is likely that in other potential development locations there is insufficient land available to fully compensate for the loss of floodplain. In such cases it will be necessary to reconsider the layout or reduce the scale of development, or propose an alternative and less vulnerable type of development. In other cases, it is possible that the lack of availability of suitable areas of compensatory storage mean the target site cannot be developed and should remain open space.

Raising finished floor levels within a development is an effective way of avoiding damage to the interior of buildings (i.e. furniture and fittings) in times of flood. Finished floor levels should be assessed in relation to the specific development, but the minimum levels set out in Table 4-3 should apply. It should be noted that in certain locations it may be appropriate to adopt a more precautionary approach to setting finished floor levels, for example where residual risks associated with bridge blockage occur, and this should be specifically assessed in the FRA. It is also noted that typically finished floor levels should be set a minimum of 150mm above surrounding ground levels to prevent ingress of surface water.

Table 4-3: Recommended minimum finished floor levels

Scenario	Finished floor level to be based on
Fluvial, undefended	1% AEP flood + climate change (as Table 4-2) + 300mm
Tidal, undefended	0.5% AEP flood + climate change (as Table 4-2) + 300mm
Fluvial, defended	1% AEP flood + 300mm. Climate change allowance does not need to be included, provided the defence either includes climate change allowance directly or has been designed to be adaptive.
Tidal, defended	0.5% AEP flood + 300mm. Climate change allowance does not need to be included, provided the defence either includes climate change allowance directly or has been designed to be adaptive.

Alternatively, assigning a water compatible use (i.e. garage / car parking) or less vulnerable use to the ground floor level, along with suitable flood resilient construction, is an effective way of raising vulnerable living space above design flood levels. It can however have an impact on the streetscape. Safe access and egress is a critical consideration in allocating ground floor uses.

Depending on the scale of residual risk, resilient and resistance measures may be an appropriate response but this will mostly apply to less vulnerable development.

4.11.3 Raised Defences

Construction of raised defences (i.e. flood walls and embankments) traditionally has been the response to flood risk. However, this is not a preferred option on an ad-hoc basis where the defences to protect the development are not part of a strategically led flood relief scheme. Where a defence scheme is proposed as the means of providing flood defence, the impact of the scheme on flood risk up and downstream must be assessed and appropriate compensatory storage must be provided.

4.11.4 Flood Resilient and Resistant Development

Depending on the scale of actual and residual risk, flood resilient and resistant design measures may be an appropriate response but this will mostly apply to less vulnerable development.

Design can include for wet-proofing of a building to make it flood resilient and reduce the impact of flooding. For example, use of water-resistant materials such as tiles on floors and walls that can be easily washed down and

sanitised after a flood event, and the installation of electrical sockets and other circuits at higher levels, with power wires running down from ceiling level rather than up from floor level.

Flood resistance measures can also be incorporated such as the provision of temporary and permanent flood barriers, but would not be considered acceptable as the primary means of managing flood risk. Permanent barriers, in the form of steps (or ramps) at doorways, rendered brick walls and toughened glass barriers, can help prevent flood water entering buildings. Alternatively, temporary barriers can be fitted into doorways and windows, with discrete permanent fixings that keep architectural impact to a minimum. However, flood warning becomes a very important issue when dealing with temporary or demountable defences and such measures are only suitable for relatively shallow depths of flooding (typically under 600mm).

Whilst it may be desirable to retro-fit flood resilience and resistance to an existing development, for example as part of a change of use application, it is often difficult and costly to achieve, with options limited depending on the age and construction of the existing building.

4.11.5 Emergency Flood Response Plans

In some instances, and only when all parts both the Plan Making and Development Management Justification Tests have been passed, it may be necessary for an emergency flood response plan to be prepared to support other flood management measures within the context of a development. An emergency response plan may be required to trigger the operation of demountable flood defences to a less vulnerable development, evacuation of a car park or closure of a business or retail premises.

The emergency plan will need to consider triggers for activation, including receipt of a timely flood warning, a staged response and to set out the management and operational roles and responsibilities. The plan will also need to set out arrangements for access and egress, both for pedestrians, vehicles and emergency services.

However, just because it is possible to prepare an emergency plan does not mean this is advisable or appropriate for the nature and vulnerability of development and WCC will generally not accept an emergency response plan as part of a residential development.

4.12 'Riparian Corridor'

It is recommended that, where possible, and particularly where there is greenfield land adjacent to the river, a 'riparian corridor', is retained on all rivers and streams The use of riparian corridors is detailed in a number of the policy objectives of the County Development Plan. This will have a number of benefits, including:

- Retention of all, or some, of the natural floodplain;
- Potential opportunities for amenity, including riverside walks and public open spaces;
- Maintenance of the connectivity between the river and its floodplain, encouraging the development of a full range of habitats;
- Natural attenuation of flows will help ensure no increase in flood risk downstream;
- Allows access to the river for maintenance works;
- Retention of clearly demarcated areas where development is not appropriate on flood risk grounds, and in accordance with the Planning System and Flood Risk Management.

The width of this corridor should be determined by the available land and topographical constraints, such as raised land and flood defences, but would ideally span the fully width of the floodplain (i.e. all of Flood Zone A).

5 Settlement Based Flood Risk Assessment

Within Wicklow the various settlements have differing levels of flood risk and a screening exercise has been carried out to ensure an appropriate level of assessment is provided in each settlement.

5.1 Settlements in Flood Zone C

An initial screening of flood risk was undertaken to identify which settlements were located wholly within Flood Zone C. In those settlements listed below, no fluvial or tidal flood risk was identified, and development proposals should proceed following the approach laid out in Sections 4.5.4 and 4.8 to ensure all other sources of flood risk, including surface water and groundwater, have been appropriately assessed and, where required mitigated.

- Dunlavin
- Coolkenno
- Knockananna
- Stratford-on-Slaney
- Ballycoog
- Ballyconnell
- Ballyknockan
- Coolafancy,
- Donaghmore
- Talbotstown
- Valleymount
- Ballynacarrig – Brittas Bay
- Moneystown
- Annamoe
- Killiskey
- Connary
- Coolattin
- Crab Lane
- Davidstown
- Kilamoat
- Knockanarrigan
- Moyne
- Park Bridge
- Stranakelly

5.2 Settlements in Flood Zone A and B

5.2.1 Settlements Level 1 to 3

All settlements from Level 1 to Level 3 have an appropriate level land use development plan in place (i.e. Town Development Plan or Local Area Plan) with all land within the settlement boundary zoned. These plans have all undergone Strategic Flood Risk Assessment as part of the individual plan/SEA based on the information available at that time. These plans sit below the County Development Plan in the plan hierarchy and the objectives of the County Development Plan are applicable to any development within these settlements.

It is a proposed objective of the new CDP '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'. As part of the development of this SFRA, updated Flood Zone maps have been produced for all settlements, including those in Level 1 to 3, and these updated Flood Zone maps may be used to inform site specific flood risk assessment undertaken as part of the Development Management process.

5.2.2 Settlements Level 4 to 6

Level 4 'Self Sustaining Towns' (excluding Enniskerry and Kilcoole which have LAPs), Level 5 "Small Towns Type 1" and Level 6 "Small Town Type 2" are part of the County Development Plan 2021 – 2027 and have an individual "Town Plan" proposed with an individual Flood Zone map attached to each plan. The flood risk assessment for each of these towns is presented as part of this SFRA in the following sections.

5.2.2.1 Baltinglass

Much of town centre and some existing residential is within Flood Zone A and B, but benefits from flood protection (hatched area in Figure 5-1) so is not shown to flood in the 1% AEP existing (with defences) scenario. The defended 0.1% AEP extent covers a similar area to that of Flood Zone B.

There is no proposed new residential development within Flood Zone A or B. Much of the land within Flood Zone A and B is open space. Aside from water compatible open space zonings, zoning objectives within Flood Zone A and B are limited to town centre (TC), community and education (CE) (1 in Figure 5-1) and employment

(E) (2), all of which constitute, or can constitute, less vulnerable uses. The TC zoning can also include highly vulnerable residential land uses.

Following the sequential approach, residential uses should be located within Flood Zone C in preference. The CFRAM modelling (pre-defended scenario) indicates a flow path through the town centre with flood depths in excess of 1m in the 0.1% AEP event. Although the defences have moderated this risk, it is still possible the significant depths of flooding could occur if the defence were to overtop. Therefore, residential development will only be permitted in Flood Zone A or B where the application is supported by a site specific flood risk assessment that addresses the risk of the defence being overtopped and provides an appropriate response to mitigate such risks.

Less vulnerable development in the TC, CE and E zoned areas, despite being within Flood Zone A, benefits from the flood defence scheme and has been shown to pass the Justification Test (Appendix A).

In all cases, a site specific FRA should be prepared for each proposed development, which will consider the impact of residual risks, including defence overtopping, and preparation of appropriate mitigation measures, including an emergency plan if required. The risk of defence breach is considered low as the defences are of recent construction.

Where there is existing residential within Flood Zone A or B, new development should be limited to minor development only (Section 5.28 as amended) with no new, major development permitted within this area.

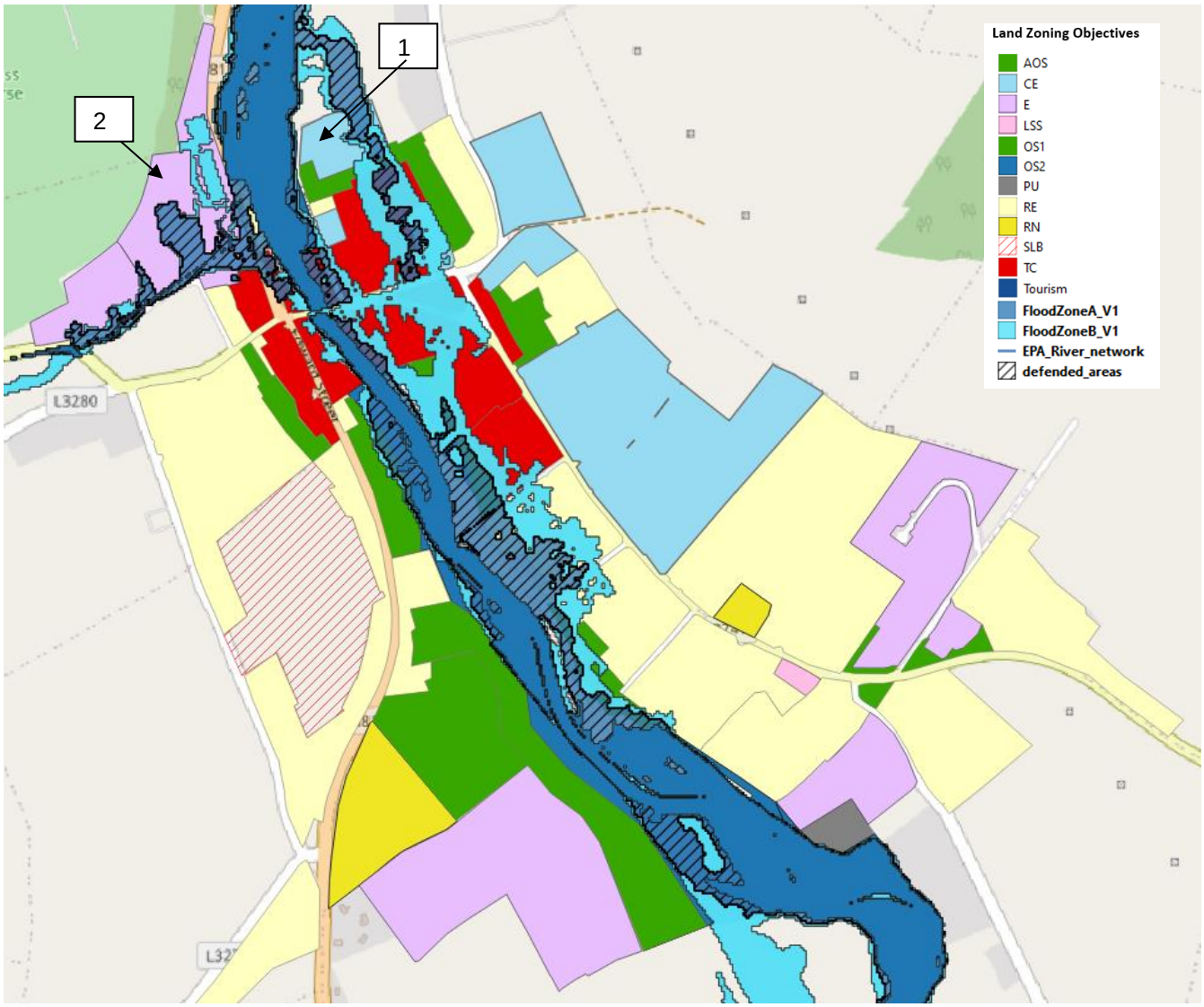


Figure 5-1: Baltinglass

5.2.2.2 Newtownmountkennedy

The river runs from north to south through the eastern part of the town. The areas falling with Flood Zone A and B are largely designated for water compatible forestry (1 in Figure 5-2) and open space (2) in middle of Newtownmountkennedy along the main river and its tributary. The extents of Flood Zone A and B cover a small part of the town centre (see Appendix A for Justification Test), and a very small area of existing residential development. The extent of Flood Zone A / B across the town centre zoning is very limited and risks can be managed by following the sequential approach, guided by an appropriately detailed FRA. Where the is existing residential zoning within Flood Zone A or B, new development should be limited to minor development only (Section 5.28 as amended) with no new, major development permitted within this area.

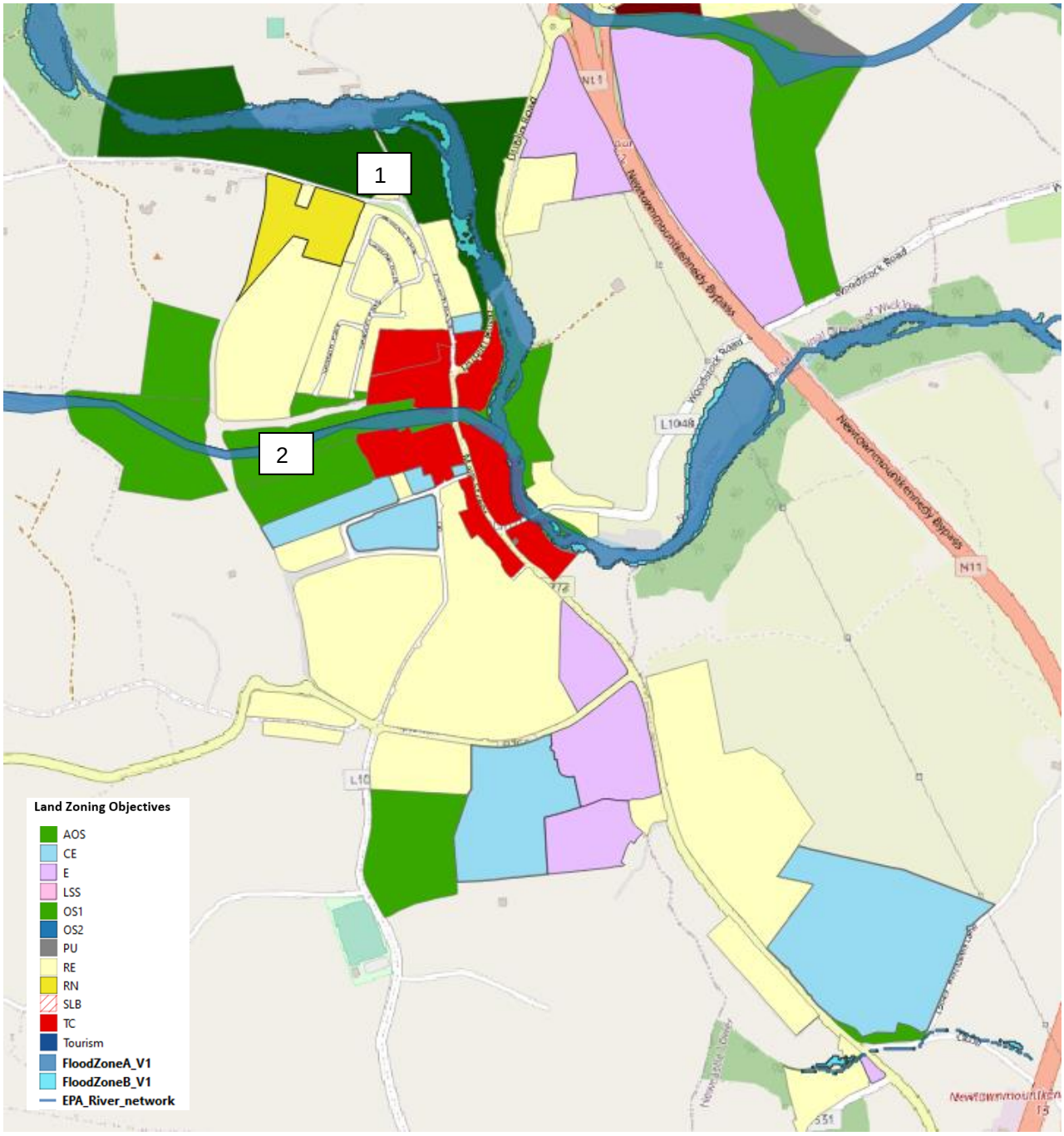


Figure 5-2: Newtownmountkennedy

5.2.2.3 Rathdrum

The River Avonmore runs to the east of Rathdrum with the majority of land on either bank zoned for open space, which is appropriate and should be maintained. There are three sites to the north of Rathdrum which are partly or entirely within Flood A /B. An area of existing residential (RE) (1 in Figure 5-3) to the west of the Hidden Valley Holiday Park, the holiday park (T) itself (2) and a mixed use (MU) site to the south of Glenealy Road (3).

The MU and RE sites are already developed and largely within Flood Zone C. Any future development within these sites should include a flood risk assessment and appropriate mitigation, and the sequential approach shall be followed to avoid development within Flood Zone A and B. The land zoned for Tourism is developed as a

holiday park and is fully within Flood Zone A and constitutes a highly vulnerable use. Future development here should be limited to minor development (Section 5.28 as amended) as new, major development will not satisfy the Plan Making Justification Test.

There is a small area of existing residential (4) development adjacent to the Poundbrook Stream, and as with area 1, the Justification Test has not been passed and new major development within Flood Zone A and B will not be permitted.

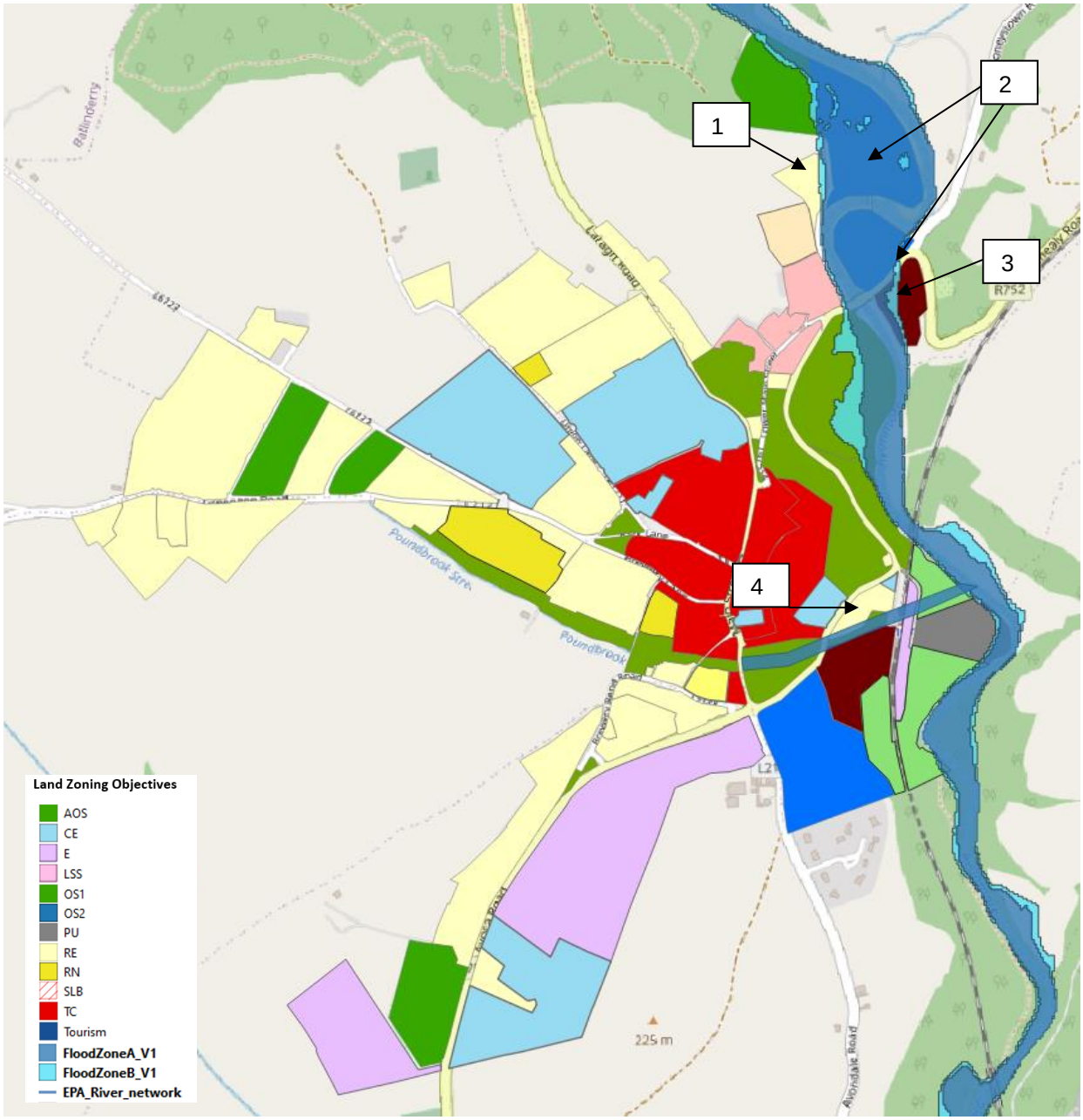


Figure 5-3: Rathdrum

5.2.2.4 Ashford

The Vartry River runs through Ashford from west to east, with a tributary joining the Vartry in the centre of town. The majority of the land within Flood Zone A and B is zoned for open space which is appropriate and should be maintained. A small part of the town centre zoning is within Flood Zone A and B, and the Justification Test has been applied and passed (Appendix A). The extent of Flood Zone A / B across the town centre zoning is very

limited and risks can be managed by following the sequential approach, guided by an appropriately detailed FRA.

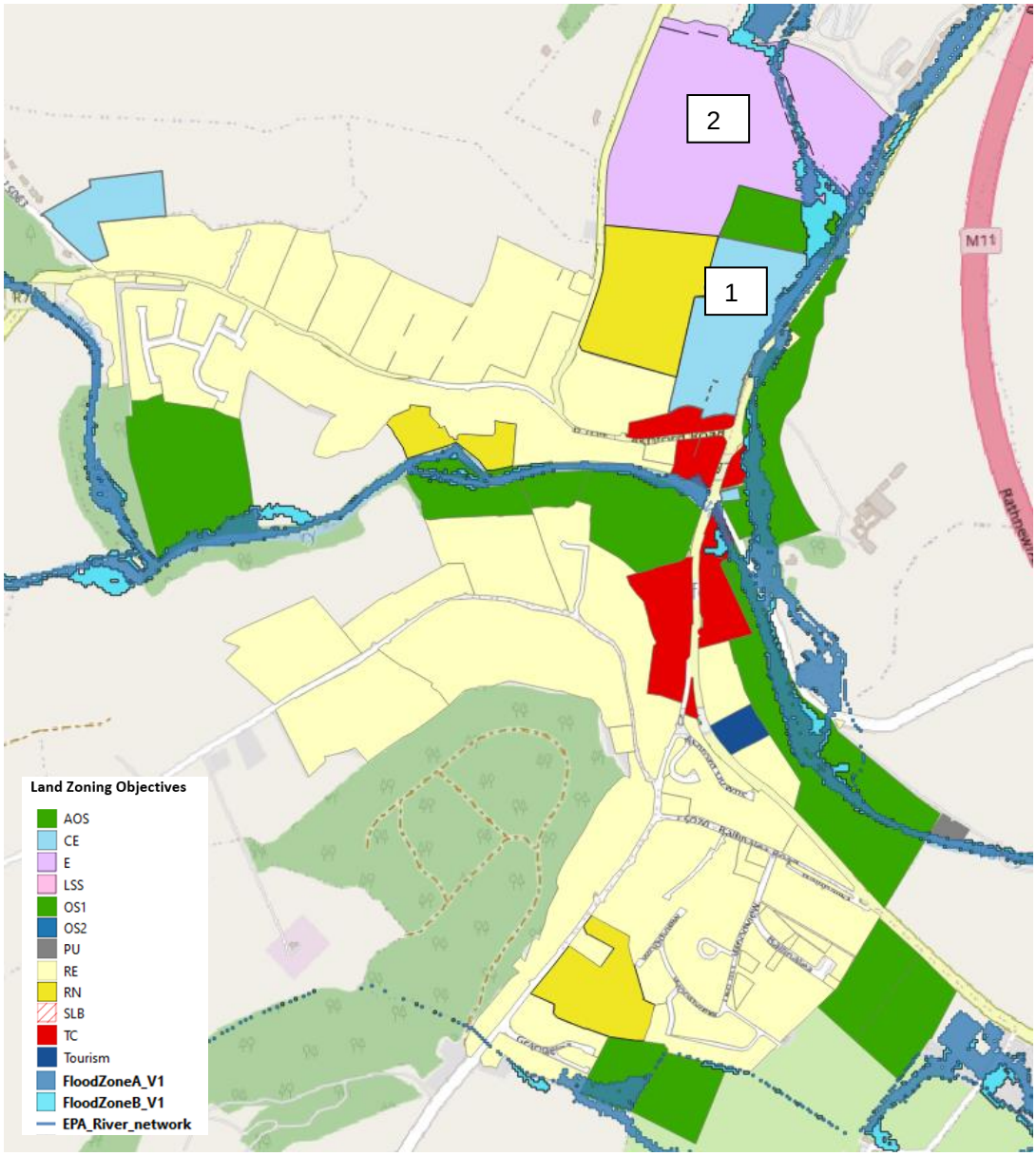


Figure 5-4: Ashford

There are two sites to the north of Ashford, which are partly within Flood Zone A and B. One area is zoned for Community and Education (1 in Figure 5-4) where part of the road frontage to the R772 is within Flood Zone A/B. The area to the north of this, zoned Employment (2), is bisected by a tributary of the Vartry and also has an area of Flood Zone A / B shown along the frontage to the R772 road. As these sites are outside the core of the settlement, the Justification Test (Part 2) cannot be passed. However, the extents of Flood Zone A / B from both the Vartry and tributary are small, and there is ample land available to apply the sequential approach and locate development within Flood Zone C. Any development within these sites will need to ensure safe access and egress to the R772 can be maintained, without increasing the risk of flooding to others. In addition, any proposals to include a crossing over the stream running through the Employment site will need to receive Section 50 consent from the OPW prior to construction.

5.2.2.5 Aughrim

The Aughrim River runs slightly to the south of Aughrim with tributaries joining it from the north up and downstream of the settlement. The majority of land within Flood Zone A and B is zoned for open space, which is water compatible and should be maintained. There are several areas of Existing Residential development and holiday homes (zoned Tourism) which are shown to be within Flood Zones A /B. Future development here should be limited to minor development (Section 5.28 as amended) with no new, major development permitted within this area.

Some of the town centre is also within Flood Zone A and B, and the Justification Test has been applied and passed (Appendix A). The extent of Flood Zone A / B across the town centre zoning is very limited and risks can be managed by following the sequential approach, guided by an appropriately detailed FRA.

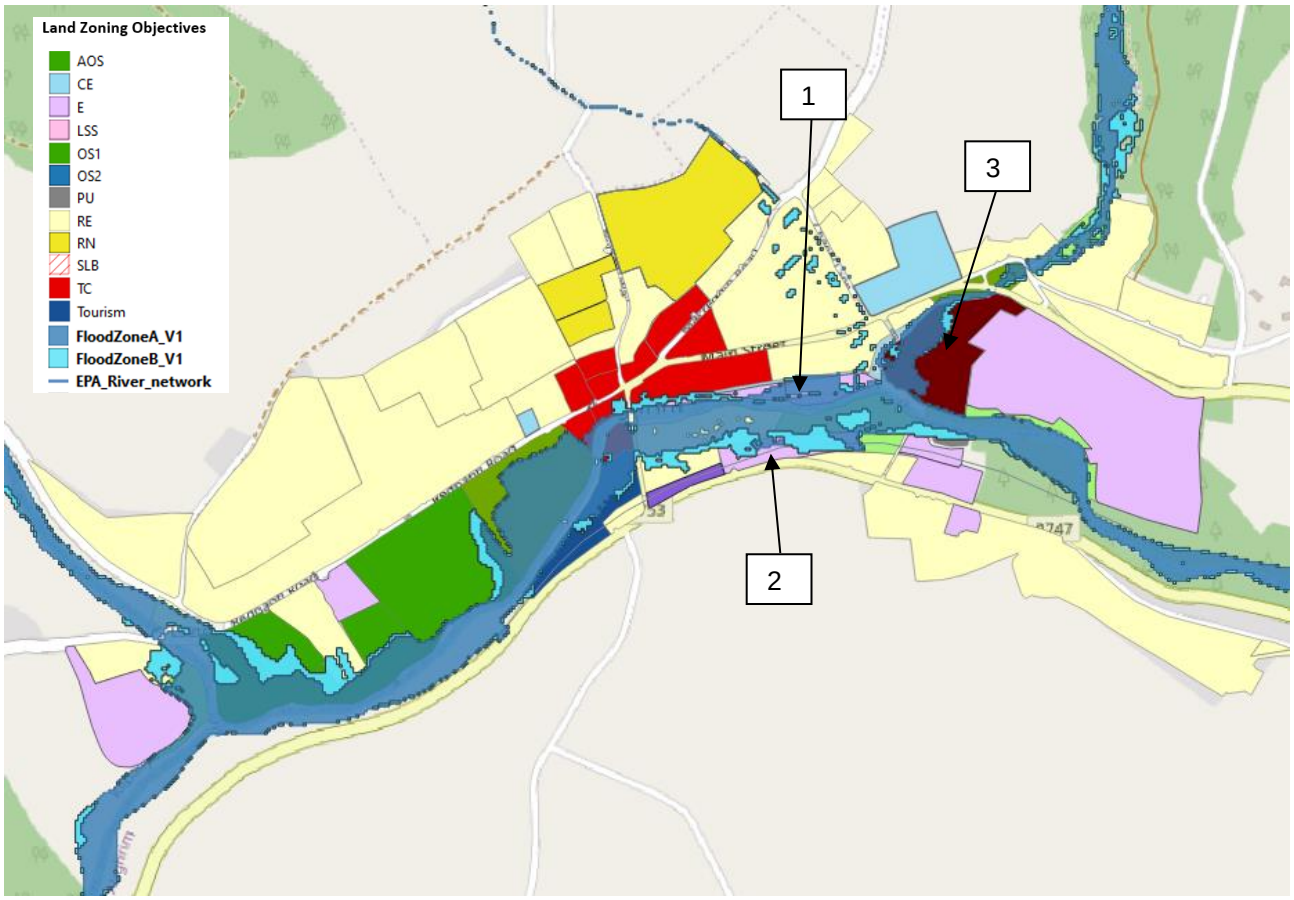


Figure 5-5: Aughrim

There is an Employment zoning (1 in Figure 5-5), which is an extension to the Town Centre zoning, running along the north bank of the Aughrim River and within Flood Zone A / B. This land is currently developed as a fish farm which is considered to be a water compatible use. Any new development within this site, and associated with the existing fish pass, would need a site specific FRA to be carried out, but the Justification Test is not required. Another area of Employment zoning is located on the south bank (2), at the old railway station. This site is within Flood Zones B and C, with small areas of Flood Zone A. The Employment zoning is a less vulnerable use and within Flood Zones B and C is considered appropriate. Within the site, the sequential approach should be applied and an appropriately detailed flood risk assessment undertaken to support any future planning application. The focus of the FRA should be on ensuring finished floor levels are appropriate, climate change impacts are addressed and that third party lands are not adversely impacted.

An area of Mixed Use development (3) is proposed on the bend at the confluence of the Aughrim and Aughrim Lower Rivers. The sequential approach should be applied here, with less and highly vulnerable development focused to the east and which Flood Zone C and water compatible uses within Flood Zone A / B as the Justification Test has not been passed for this site.

5.2.2.6 Tinahely

The Derry River flows through the centre of Tinahely from north to south. The land within Flood Zones A and B are largely zoned for water compatible open spaces uses, which is appropriate and should be retained. There is one small section of town centre zoning and a public utility also within Flood Zone A. The Justification Test has been applied and passed (Appendix A) for the town centre zoning. The extent of Flood Zone A / B across the town centre zoning is very limited and risks can be managed by following the sequential approach, guided by an appropriately detailed FRA.

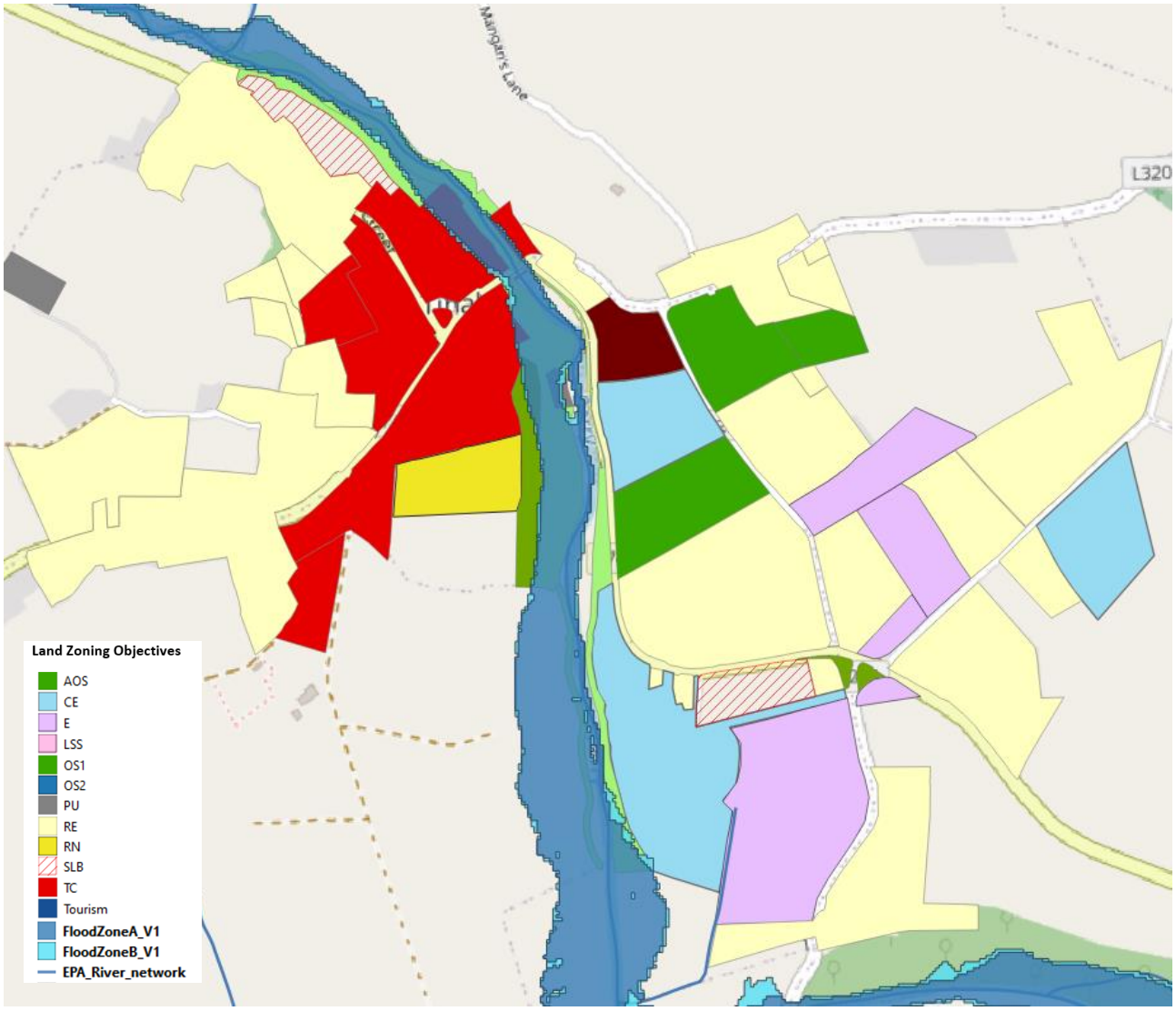


Figure 5-6: Tinahely

5.2.2.7 Avoca

The village of Avoca is divided in two development zones and in both the primary and secondary development zones there are significant areas of Flood Zone A and B.

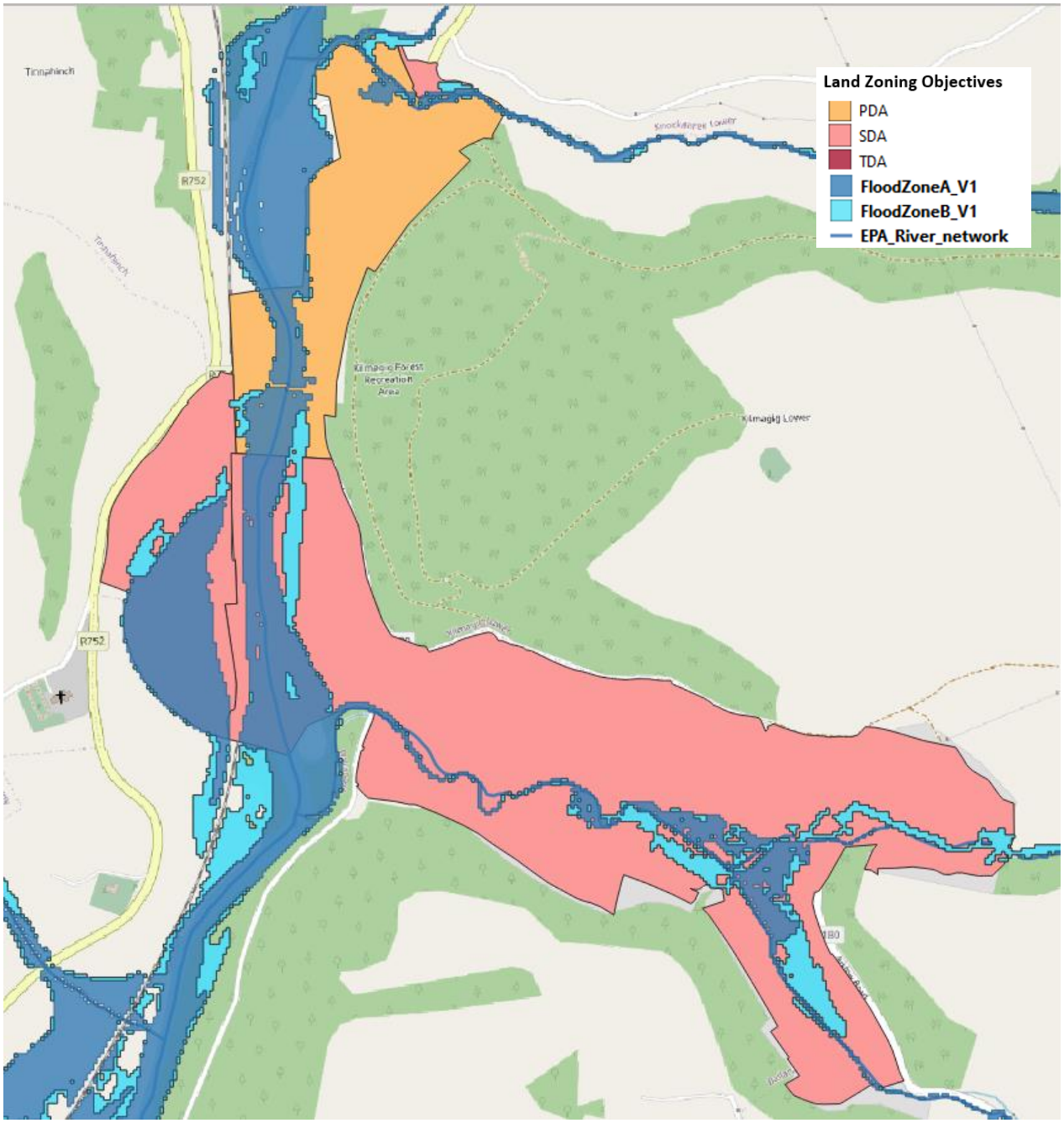


Figure 5-7: Avoca

Although it is possible that development in the Primary Development Zone could be justified in terms of proximity to the centre of the settlement, Avoca has been highlighted under the CFRAM as having a high level of existing flood risk and a flood relief scheme is being considered. As such, development in this area within Flood Zone A and B is considered to be premature until the scheme has been completed. Until that time, development in Flood Zone A and B should be limited to minor development (Section 5.28 as amended) and major development restricted to Flood Zone C.

Highly and less vulnerable development in Flood Zone A and B within the Secondary Development Zone is outside the core of the settlement and cannot be justified. Instead, water compatible uses such as agriculture and forestry should be retained. Where there is existing development within these zoned, new development should be limited to minor development (Section 5.28 as amended) and major development restricted to Flood Zone C.

5.2.2.8 Donard

The Browns Beck Brook runs to the west of the settlement, with a small area of Flood Zone A / B encroaching into the lands zoned as tertiary development area and includes the Donard GAA and the currently undeveloped land to the north of the GAA. Recreation land, such as the GAA pitches and surrounds, is water compatible and should be maintained. The sequential approach should be applied to the land to the north and water compatible uses located within Flood Zone A and B as the Justification Test would not be passed here. Part of the secondary development area is also shown to be within Flood Zone A and is between the Browns Beck Brook and the Donard Brook. Further development within this site should be considered on the basis of Section 5.28 (as amended). Proposals for development should be accompanied by a site specific FRA, which should assess the capacity of the bridge below the L317 road and the risks associate with blockage of same.

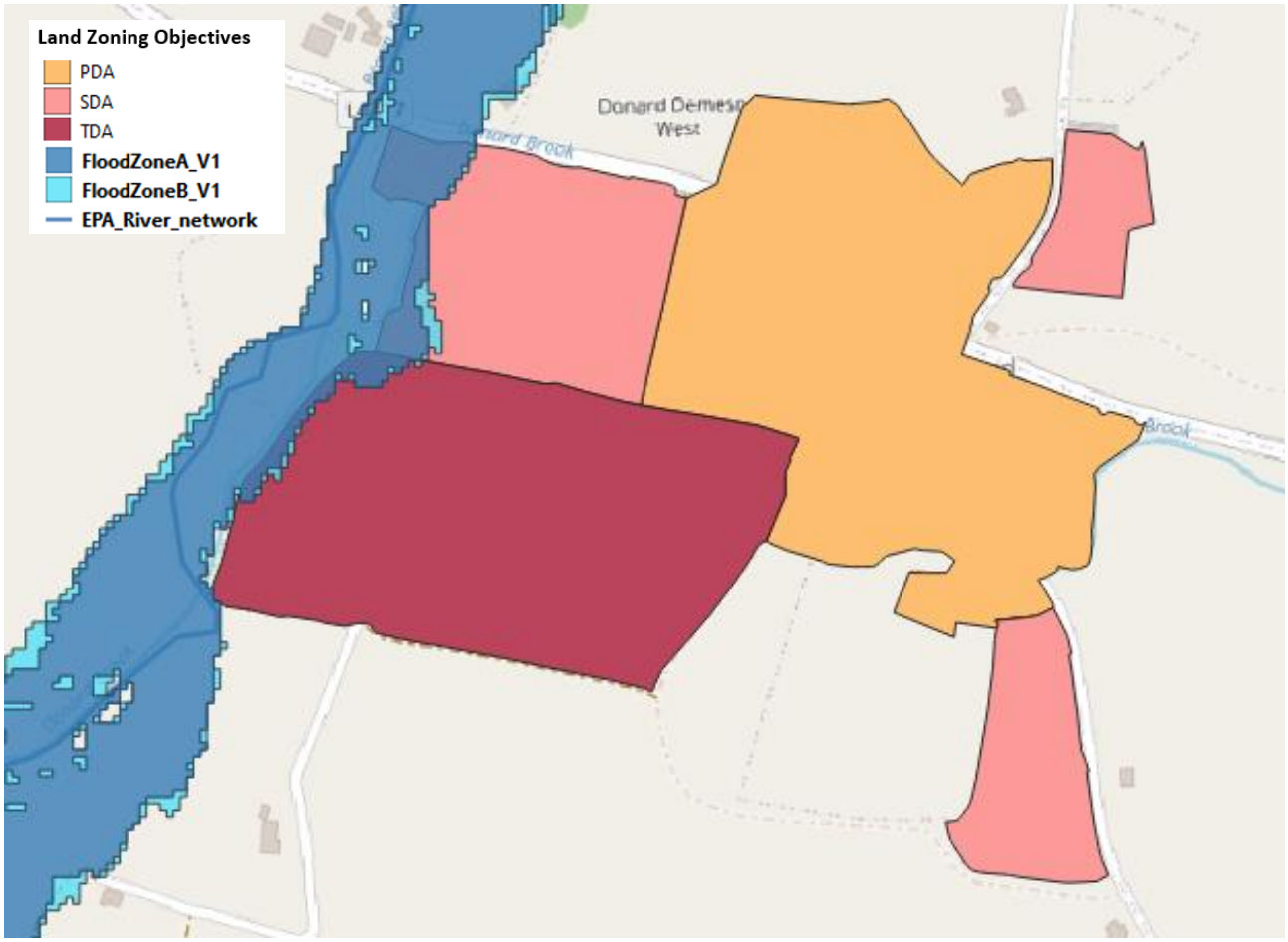


Figure 5-8: Donard

5.2.2.9 Newcastle

The Leamore Stream runs from west to east through Newcastle, which has Primary and Secondary Development Area. There are relatively extensive areas of Flood Zone A and B to the downstream of the stream within the SDA and some flood risk with the PDA. The Flood Zones cover land which is largely already developed with residential and small businesses.

Highly and less vulnerable development in Flood Zone A and B within these Development Zones is outside the core of the settlement and cannot be justified and development should be limited to minor development (Section 5.28 as amended) and major development restricted to Flood Zone C.

Although it is possible that development in the Primary Development Area could be justified in terms of proximity to the centre of the settlement, there is significant land within Flood zone C and within the PDA, so development

in Flood Zone A and B should be limited to minor development (Section 5.28 as amended) and major development restricted to Flood Zone C.

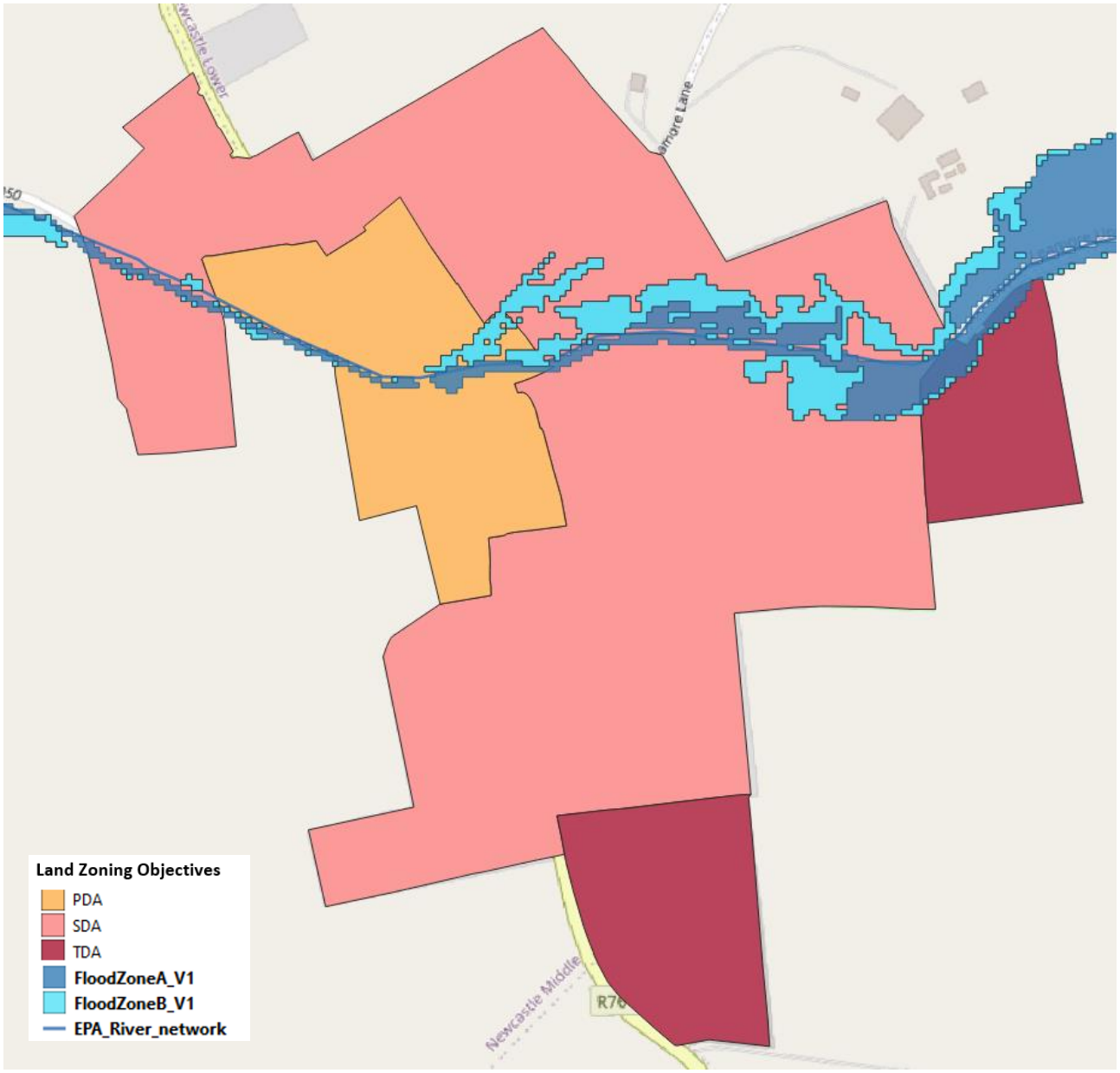


Figure 5-9: Newcastle

5.2.2.10 Roundwood

A small stream runs through the south of Roundwood, along the edge of the Primary Development Area. Due to the site of the catchment (under 3km^2) risk from this stream has not been detailed in the available mapping sources. In addition, this stream is largely culverted as it passes below the developed core of the village. Any development in proximity to the stream will need to be supported by a site specific flood risk assessment, which should consider the risk of blockage of the culvert and the possible impacts. The sequential approach shall be applied to avoid development in Flood Zone A and B. Flood risks to development arising from residual sources can then be managed through the setting of finished floor levels and consideration of landscaping within the site.

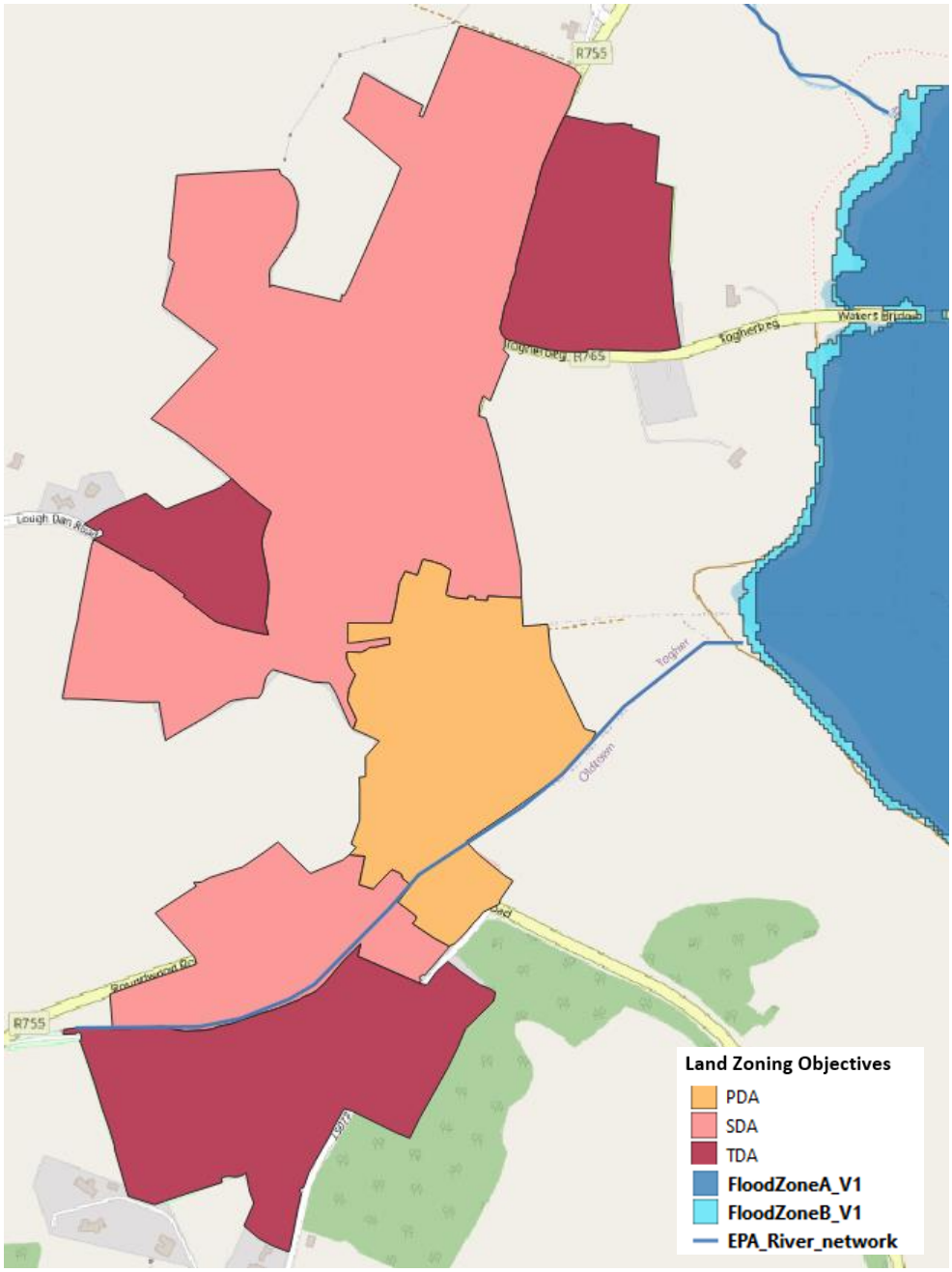


Figure 5-10: Roundwood

5.2.2.11 Shillelagh

The village of Shillelagh is divided in three development zones and spans Flood Zones A, B and C.

Although it is possible that development in the Primary Development Area could be justified in terms of proximity to the centre of the settlement, there is significant land within Flood zone C and within the PDA, so development in Flood Zone A and B should be limited to minor development (Section 5.28 as amended) and major development restricted to Flood Zone C.

In the secondary development zone there are significant areas of Flood Zone A and B. Highly and less vulnerable development in Flood Zone A and B within this Development Areas is outside the core of the settlement and cannot be justified. Instead, water compatible uses such as open space, agriculture and forestry

should be retained. Only minor development (Section 5.28 as amended) will be permitted in Flood Zone A and B and major development restricted to Flood Zone C.

The tertiary development zone is fully within Flood Zone C and all development vulnerabilities are appropriate here.

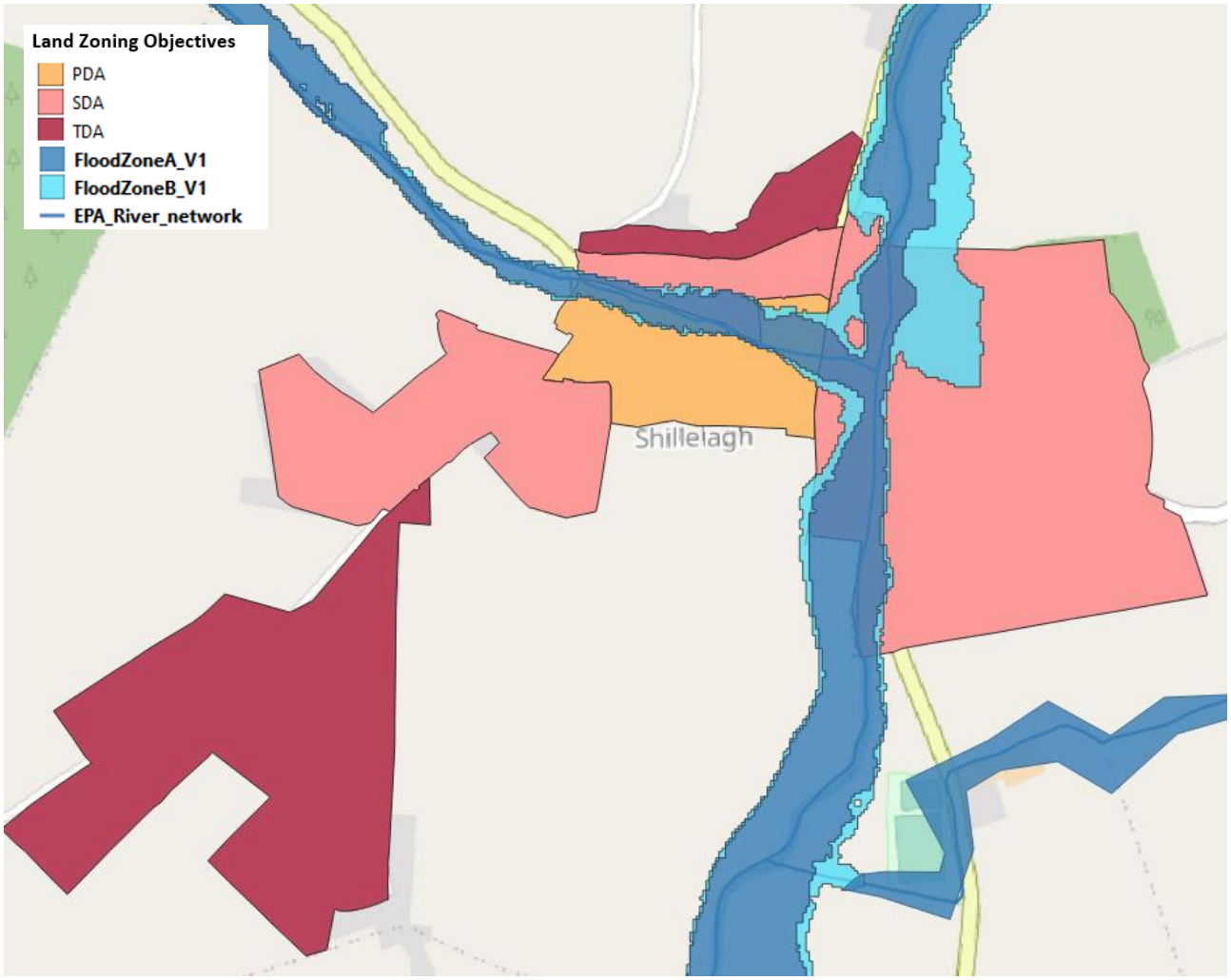


Figure 5-11: Shilellagh

5.2.3 Settlements Level 7 to 9

As part of the screening assessment, fluvial and/or tidal risk has been identified in a number of Level 7, 8 and 9 rural villages and nodes, as listed below:

- Glenealy
- Redcross
- Hollywood
- Kiltegan
- Grangecon
- Annacurragh
- Ballinaclash
- Barndarrig
- Thomastown
- Coolboy
- Crossbridge
- Lackan
- Manor-Kilbride
- Rathdangan
- Kilpedder / Willowgrove
- Greenan
- Johnstown
- Kirikee
- Askanagap
- Ballinglen
- Kilquiggan
- Mullinacluff
- Tomacork

With the exception of Laragh-Glendalough (see 5.2.3.1), these settlements have no specific zoning objectives, just a settlement boundary or node. In these settlements new, highly and less vulnerable development is not considered to have passed the Justification Test and should be located in Flood Zone C. In Flood Zones A and B, in general only minor development (Section 5.28 as amended) and water compatible uses will be permitted.

In a number of these settlements, a watercourse has been identified but due to the size of the catchment, the Flood Zone has not been delineated. In these cases, it is the responsibility of the applicant to undertake an appropriately detailed FRA and to then apply the sequential approach as the Plan Making Justification Test has not been satisfied in these settlements.

5.2.3.1 Laragh – Glendalough

The tourism corridor covers the area around Glendalough, including the lakes and river themselves, which are water compatible. A site specific FRA will be required for new development in this area, but considering the wider objectives constraining development within the area, the FRA will be used to determine an appropriate FFL and other mitigation measures as may be required.

In Laragh the sequential approach should be followed with new development to be located in Flood Zone C and avoided in Flood Zone A / B of the Secondary Development Area, which is currently water compatible sports use. In the Primary Development Area Flood Zone A / B is currently open space which is water compatible and should be retained.

Figure 5-12: Laragh - Glendalough

5.2.4 Rural Area

All areas outside of Level 1 to 9 settlements have been classed as the ‘rural area’ in the settlement hierarchy of the County Development Plan.

The County Development Plan itself generally does not provide for land use zonings therefore, in line with the Flood Risk Guidelines, the sequential approach should be applied. In these areas new, highly and less vulnerable development has not passed the Justification Test and should be located in Flood Zone C. In Flood Zones A and B, only minor development (Section 5.28 as amended) and water compatible uses will be permitted.

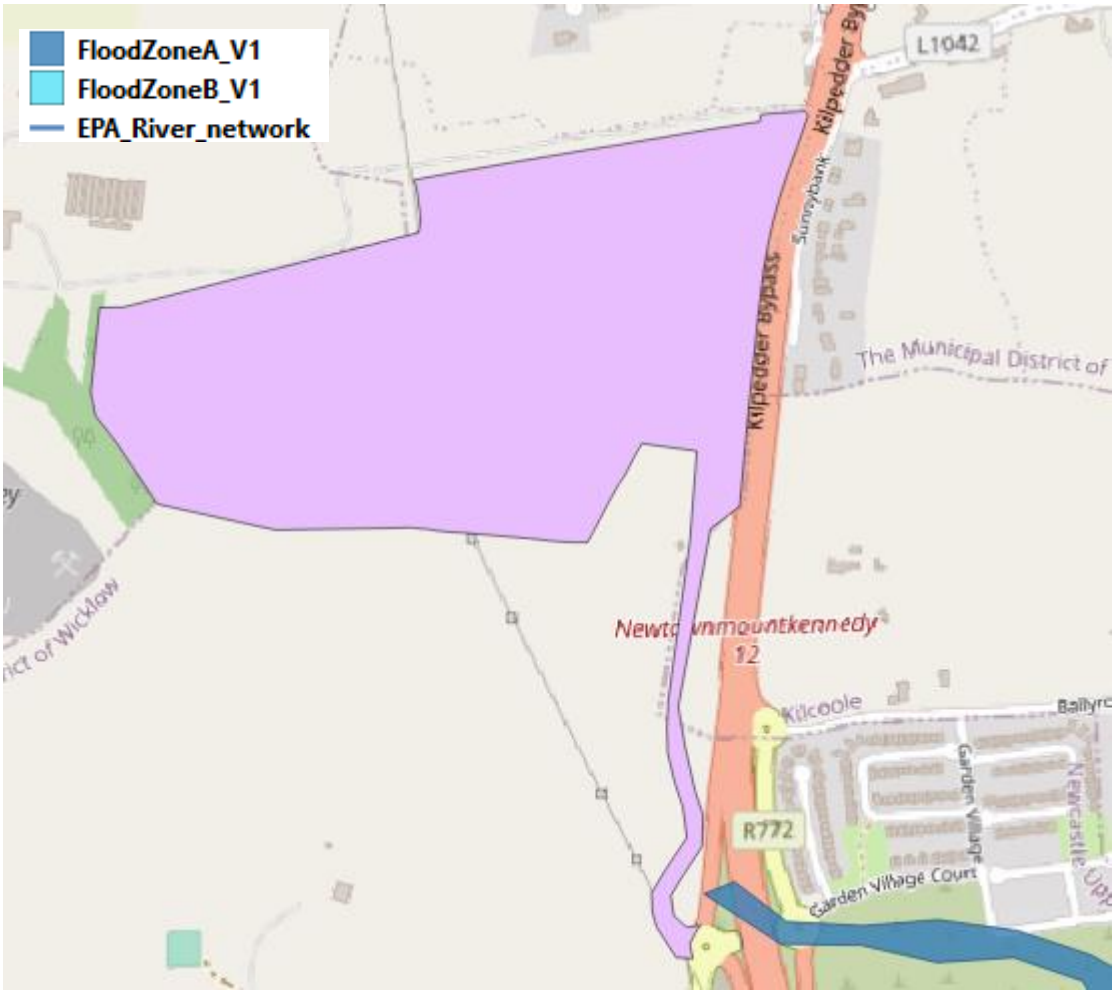
To support the assessment of site specific risk and application of the sequential approach, a Flood Zone map for the rural area has been prepared, covering all watercourses with a catchment area of greater than 5km^2. Where there are local watercourses present, but not included in the Flood Zone map, a site specific flood risk assessment should be carried out with a view to defining the Flood Zones and then applying the sequential approach.

6 Non-Settlement Flood Risk Assessment

6.1 Introduction

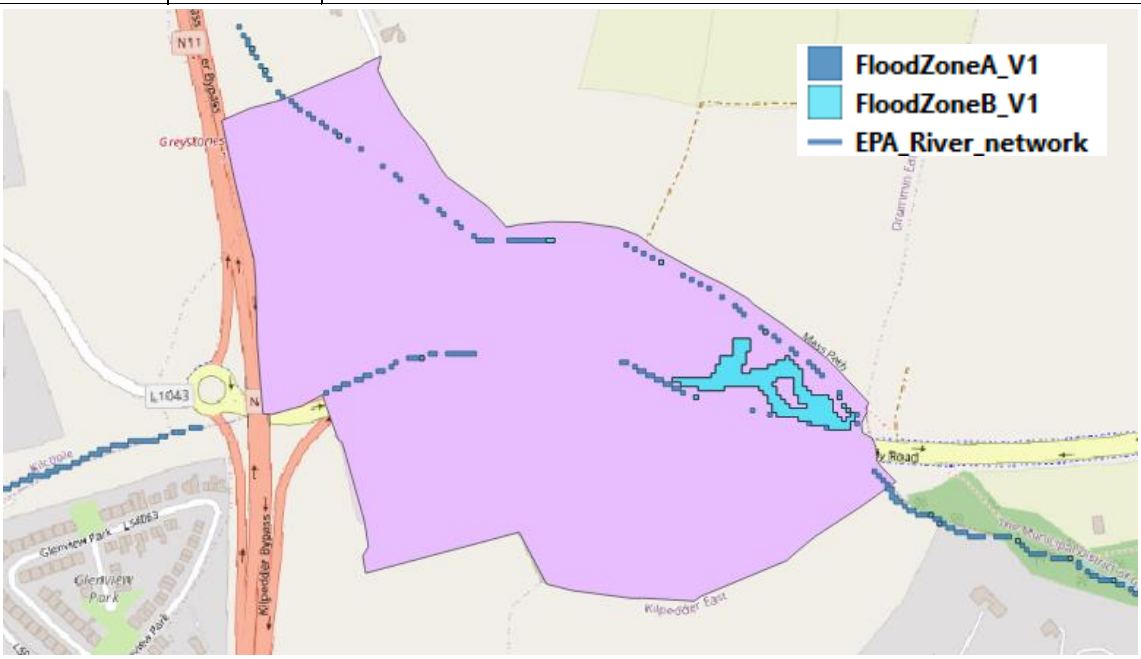
A number of one-off development zonings of economic development and tourism are incorporated into the County Development Plan which have also been subject to flood risk assessment.

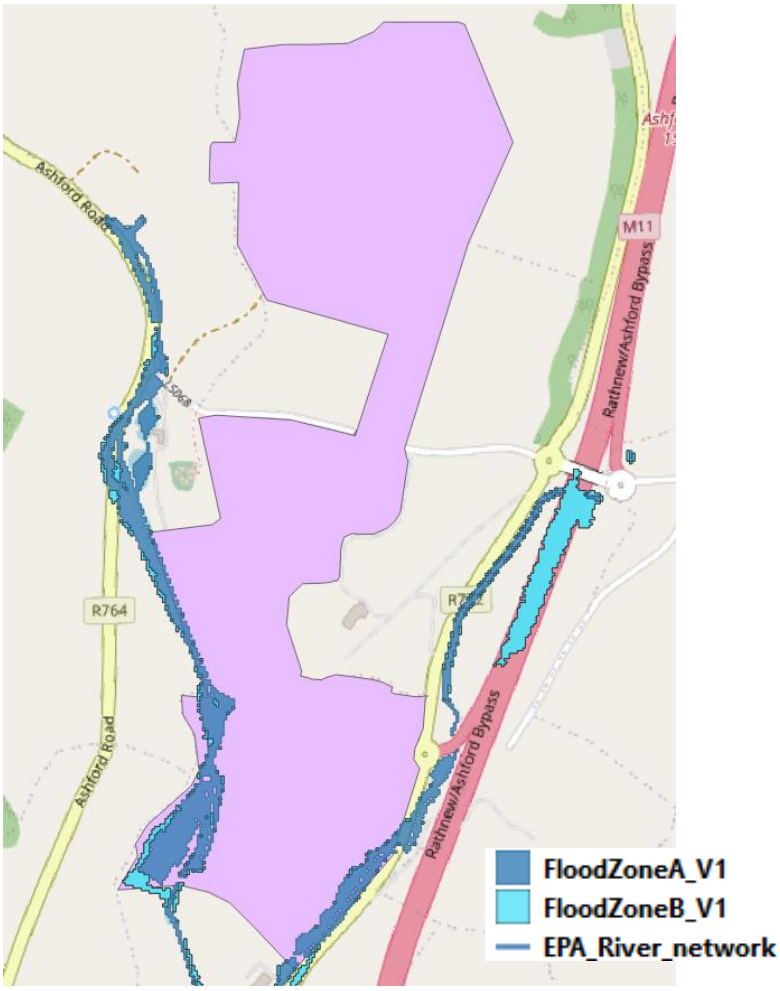
6.2 Economic Development Zoning Objectives

Location	Size (ha)	Zoning Objective
Mountkennedy Demesne, Kilpedder	34.7	To provide for a data centre facility9 and associated related industries set in open parkland with extensive landscaping, a high architectural standard of layout and building design with low site coverage. Employment types other than those strictly related to data storage shall show a clear process related requirement to locate in proximity to a data centre.
		
Flood risk assessment	The site is fully within Flood Zone C. Any development with this area should be accompanied by an appropriately detailed Flood Risk Assessment, based on	

9 A data centre is a facility used to house computer systems and associated components, such as telecommunications and storage systems. It generally includes redundant or backup power supplies, redundant data communications connections, environmental controls (e.g., air conditioning, fire suppression) and security devices.

Location	Size (ha)	Zoning Objective
	the guidance in Section 4.5.4, and a drainage impact assessment.	

Location	Size (ha)	Zoning Objective
Kilpedder Interchange 5.04	27.7	To provide for employment uses including industrial, transport, distribution and warehouse developments of good architectural design, layout and landscaping including substantial screening from N11. The provision of transport and warehouse facilities will not be at the expense of facilities in existing settlements. Any redevelopment of the (former) Dan Morrissey / SM Morris sites shall include significant proposals to address the unsightly appearance of these sites. In addition, any development on these lands shall connect the footpath from Greystones towards the pedestrian bridge at Kilpedder.
		
Flood risk assessment	The majority of the site is within Flood Zone C, with a small area to the east being shown to be within Flood Zone B. There are two small watercourses which flow along the northern boundary and parallel to the R774 road. The proposed land zoning is less vulnerable and does not require application of the Plan Making Justification Test. Development within this zone will require a site specific flood risk assessment which should review the risk of blockage arising from the culverts up and downstream of the site. Climate change risks should also be assessed and used to guide site layout and finished floor levels. Surface water management shall be addressed in accordance with the relevant policies in the CDP and the guidance in Section 4.8. The area within Flood Zone B should be retained for water compatible uses, or sufficient accommodation made for these waters to ensure no flood impact on neighbouring lands.	

Location	Size (ha)	Zoning Objective
Inchanappa South and Ballyhenry, Ashford	60	To provide for the development of and expansion of the existing film studios in Ashford on the lands shown on Map 5.05.
		
Flood risk assessment	The majority of the site is within Flood Zone C, with part of the western and eastern boundaries being within Flood Zone A, where two watercourses run from north to south. The proposed land zoning is less vulnerable and does not require application of the Plan Making Justification Test. Development within this zone will require a site specific flood risk assessment which should review the risk of blockage arising from the culverts below the R772 and must propose safe access to the site. Any proposals to culvert watercourses will require Section 50 consent from the OPW. Climate change risks should also be assessed and used to guide site layout and finished floor levels. Surface water management shall be addressed in accordance with the relevant policies in the CDP and the guidance in Section 4.8. The area within Flood Zone A/B should be retained for water compatible uses, or sufficient accommodation made for these waters to ensure no flood impact on neighbouring lands.	

6.3 Tourism Zones Objectives

Three areas have been identified for tourism related uses with the objective to support development at existing / proposed integrated tourism / leisure / recreational complexes at the following locations:

- Brook Lodge, Macreddin West, Aughrim (Figure 6-1)
- Druids Glen Golf Club, Woodstock Demesne (Figure 6-2)
- Rathsallagh House, Dunlavin (Figure 6-3).

Golf courses are considered to be water compatible uses so do not require application of the Plan Making Justification test. Rathsallagh House is shown to be in wholly within Flood Zone C, but both Druids Glen and Brook Lodge span Flood Zones A, B and C. In these cases, any new development of buildings should be located in Flood Zone C, with appropriate setting of FFL, and with surface water being managed through a Drainage Impact Assessment.

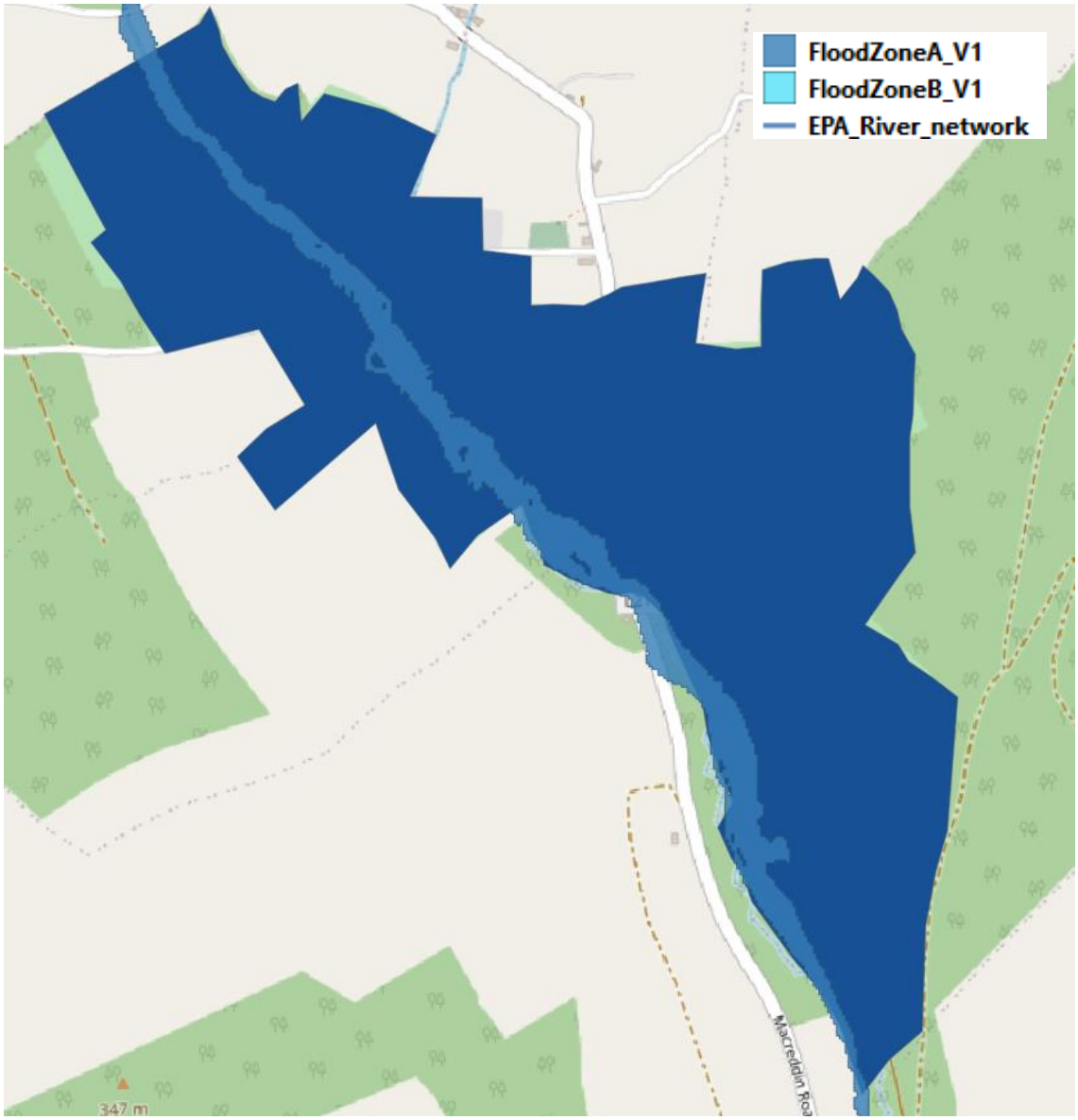


Figure 6-1: Brook Lodge

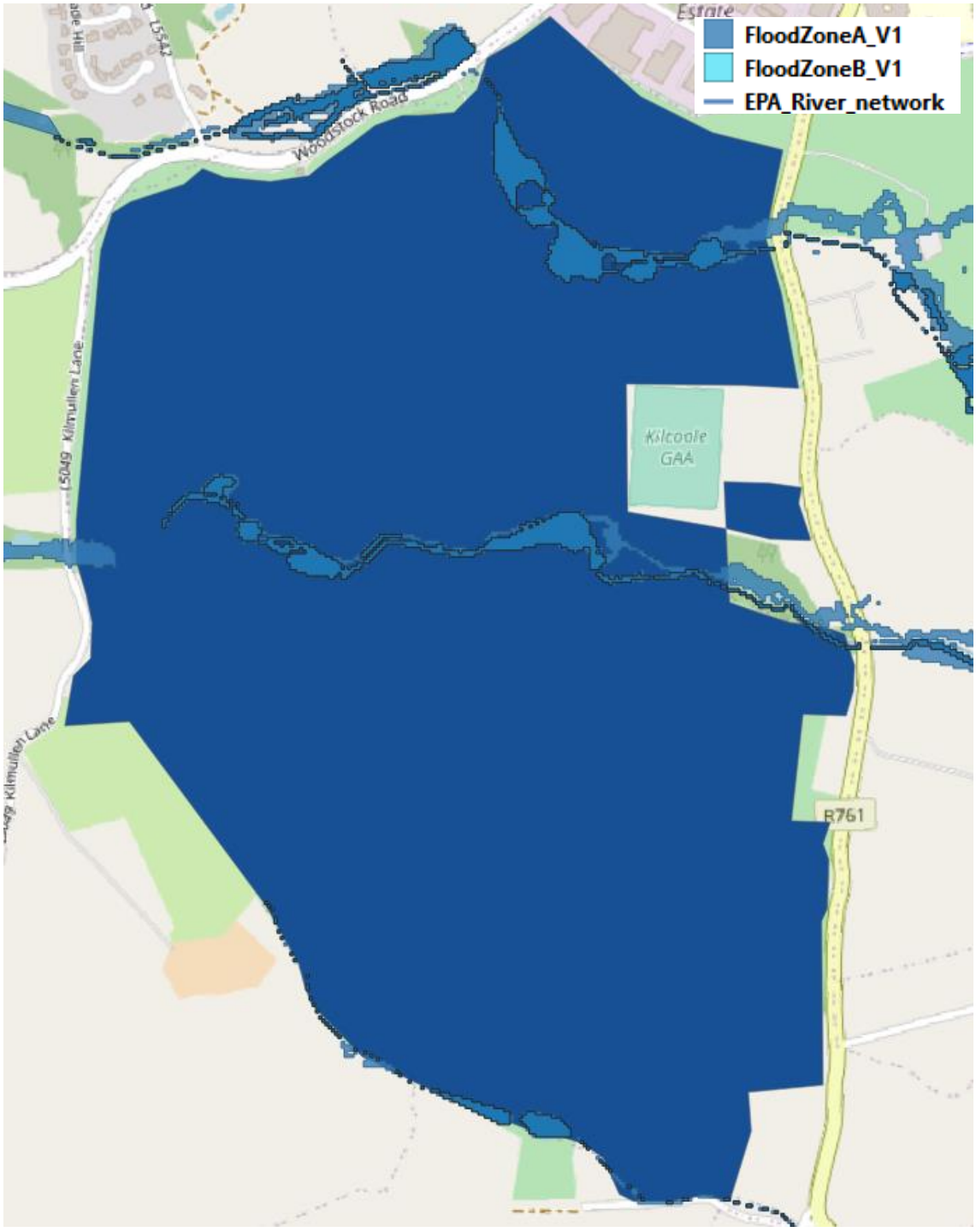


Figure 6-2: Druids Glen

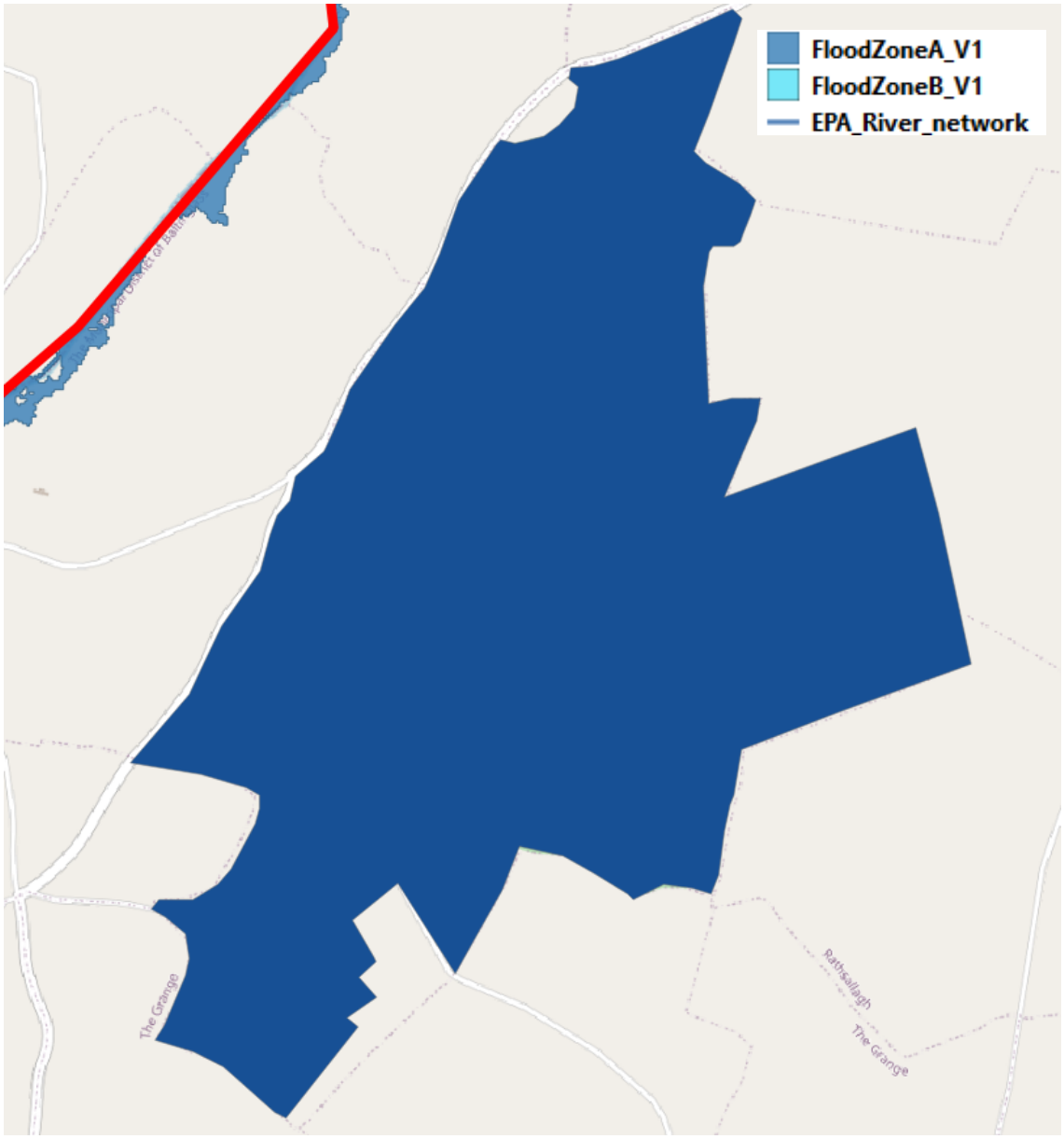


Figure 6-3: Rathsallagh House

7 SFRA Review and Monitoring

An update to the SFRA will be triggered by the six year review cycle that applies to Local Authority development plans. In addition, there are a number of other potential triggers for an SFRA review and these are listed in Table 7-1.

There are a number of key outputs from possible future studies and datasets, which should be incorporated into any update of the SFRA as availability allows. Not all future sources of information should trigger an immediate full update of the SFRA; however, new information should be collected and kept alongside the SFRA until it is updated.

Additional information will arise from the OPW flood relief schemes, when completed. Not only will these studies revisit the CFRAM assessment, but once schemes are in place the definition of risk will change significantly for existing development, and possibly also for undeveloped lands.

The CFRAM Studies themselves also run on a six yearly cycle, so updates arising from future iterations and extensions of the CFRAM should be incorporated into SFRA updates.

Detailed, site specific FRAs may be submitted to support planning applications. Whilst these reports will not trigger a review of the Flood Zone maps or SFRA, they should be retained and reviewed as part of the next cycle of the Development Plan.

Table 7-1: SFRA Review Triggers

Trigger	Source	Possible Timescale
Catchment Flood Risk Assessment and Management (CFRAM) Cycle 2	OPW	At least 2026
OPW Flood Relief Scheme outputs	OPW	Unknown
Flood maps of other sources, such as drainage networks	Various	Unknown
Significant flood events	Various	Unknown
Changes to Planning and / or Flood Management Policy	DoEHLG / OPW	Unknown

Appendices

A Justification Tests

A.1 Town Centre - Level 4 Settlements

Justification Test		
1	The urban settlement is targeted for growth	This Justification Test covers the Town Centre zoning in Baltinglass and Newtownmountkennedy. Under the (draft) Wicklow County Development Plan 2021, the Level 4 towns are designated 'Self Sustaining Town' in accordance with the settlement typology set out in the RSES, described as 'towns with high levels of population growth and a weak employment base which are reliant on other areas for employment and/or services and which require targeted 'catch up' investment to become more self-sustaining'. Under the 'Core Strategy' of the draft CDP, the population of Baltinglass is targeted to growth to 2,725 by 2031 (from 2,251 in 2016) and Newtownmountkennedy is targeted to growth to 5,220 by 2031 (from 3,552 in 2016). Level 4 towns are identified as a Level 3 'town and / or district centres and sub county town centres' in the Retail Strategy for the Greater Dublin Area. These centres will vary both in the scale of provision and the size of catchment, due to proximity to a Major or County Town Centre, i.e. Bray or Wicklow Town. Generally where the centre has a large catchment (e.g. market town in a rural area) and is not close to a larger centre, there will be a good range of comparison shopping, though no large department stores or shopping centres, with a mix of retail types benefiting from lower rents away from larger urban sites, leisure / cultural facilities and a range of cafes and restaurants. Level 4 towns will aim to become more self-sustaining by concentrating on local enterprise and employment growth and catch-up facilities. This will include attracting investment in a mixture of 'people' and some 'product' intensive industries that will generate new employment opportunities and improve the jobs ratio. In accordance with the County community facilities hierarchy, Level 4 settlements generally fall into the 2,000-7,000 population range and should be ideally serviced by the following community infrastructure: community / parish hall, multi-purpose community space and / or meeting rooms, local town park and open spaces/nature areas, outdoor multi-use games areas, playgrounds, playing pitches and a library.
2	The zoning or designation of the lands for the particular use or development type is required to achieve the proper and sustainable planning of the urban settlement and in particular:	
	(i) Is essential to facilitate regeneration and/or expansion of the centre of the urban settlement;	These lands are zoned TC - to provide for the development and improvement of appropriate town centre uses including residential, retail, commercial, office and civic use. This TC zoning in the town is required to achieve the proper planning and sustainable development of the urban settlement. The zoning is essential to facilitate regeneration and vitality of the settlement.
	(ii) Comprises significant previously developed and/or under-utilised lands;	Yes - the lands are previously developed and contain a mix of existing uses
	(iii) Is within or adjoining the core of an established or designated urban settlement;	Yes – the land constitutes the town centre
	(iv) Will be essential in achieving compact or sustainable urban growth;	Yes - the zoning is essential to achieving compact and sustainable urban growth
	(v) There are no suitable alternative lands for the particular use or development type, in areas at lower risk of flooding within or adjoining the core of the urban settlement.	The lands are already developed for this use.

A flood risk assessment to an appropriate level of detail has been carried out	Flood risk to each of the settlements is relatively low, and in the case of Baltinglass is defended. All proposals for new development should be accompanied by an appropriately detailed FRA, undertaken in accordance with Section 4 of this SFRA and the relevant policies and objectives in the County Development Plan. See relevant sections of this SFRA for more specific discussion of flood risks: - Baltinglass - Section 5.2.2.1 - Newtownmountkennedy - Section 5.2.2.2
Result	Pass
Recommendation	Retain zoning

A.2 Town Centre - Level 5 Settlements

Justification Test		
1	The urban settlement is targeted for growth	This Justification Test covers Town Centre zoning in Ashford, Aughrim and Tinahely. Under the (draft) Wicklow County Development Plan 2021, Level 5 towns are designated 'Small Towns (Type 1)', in accordance with the settlement typology set out in the RSES, the larger of the town types in the category described in the RSES as 'towns and villages with local service and employment functions'. Under the 'Core Strategy' of the draft CDP, the population of the Level 5 towns is targeted to 7,210 in 2031 from 5,710 in 2016, with population growth in Level 5 towns overall targeted to be in the 15%-25% range between 2016 and 2031. These towns are identified as a Level 4 'local centre – small towns and villages' in the Retail Strategy for the Greater Dublin Area where the retail needs would be expected to include one supermarket / two medium sized convenience stores (up to 1,000sqm aggregate) and c. 10-20 smaller shops. The economic function of 'Small Towns (Type 1)' is to be attractors for local investment and to target investment in the form of product and some 'people' intensive industries. In accordance with the County community facilities hierarchy, Level 5 settlements generally fall into the 2,000-7,000 population range and ideally should be serviced by the following community infrastructure: community/parish hall, multi purpose community space and / or meeting rooms, local town park and open spaces/nature areas, outdoor multi-use games areas, playgrounds, playing pitches and a library. Although these settlements all have a current population below 2,000, they generally serve a wide rural catchment of between 2,000 and 7,000 persons.
2	The zoning or designation of the lands for the particular use or development type is required to achieve the proper and sustainable planning of the urban settlement and in particular:	
	(i) Is essential to facilitate regeneration and/or expansion of the centre of the urban settlement;	These lands are zoned TC - to provide for the development and improvement of appropriate town centre uses including residential, retail, commercial, office and civic use. This TC zoning in the town is required to achieve the proper planning and sustainable development of the urban settlement. The zoning is essential to facilitate regeneration and vitality of the settlement.
	(ii) Comprises significant previously developed and/or under-utilised lands;	Yes - the lands are previously developed and contain a mix of existing uses
	(iii) Is within or adjoining the core of an established or designated urban settlement;	Yes – the land constitutes the town centre
	(iv) Will be essential in achieving compact or sustainable urban growth;	Yes - the zoning is essential to achieving compact and sustainable urban growth
	(v) There are no suitable alternative lands for the	The lands are already developed for this use.

	particular use or development type, in areas at lower risk of flooding within or adjoining the core of the urban settlement.	
A flood risk assessment to an appropriate level of detail has been carried out		Flood risk to each of the settlements is relatively low. All proposals for new development should be accompanied by an appropriately detailed FRA, undertaken in accordance with Section 4 of this SFRA and the relevant policies and objectives in the County Development Plan. See relevant sections of this SFRA for more specific discussion of flood risks: - Ashford - Section 5.2.2.4 - Aughrim - Section 5.2.2.5 - Tinahely - Section 5.2.2.6
Result		Pass
Recommendation		Retain zoning

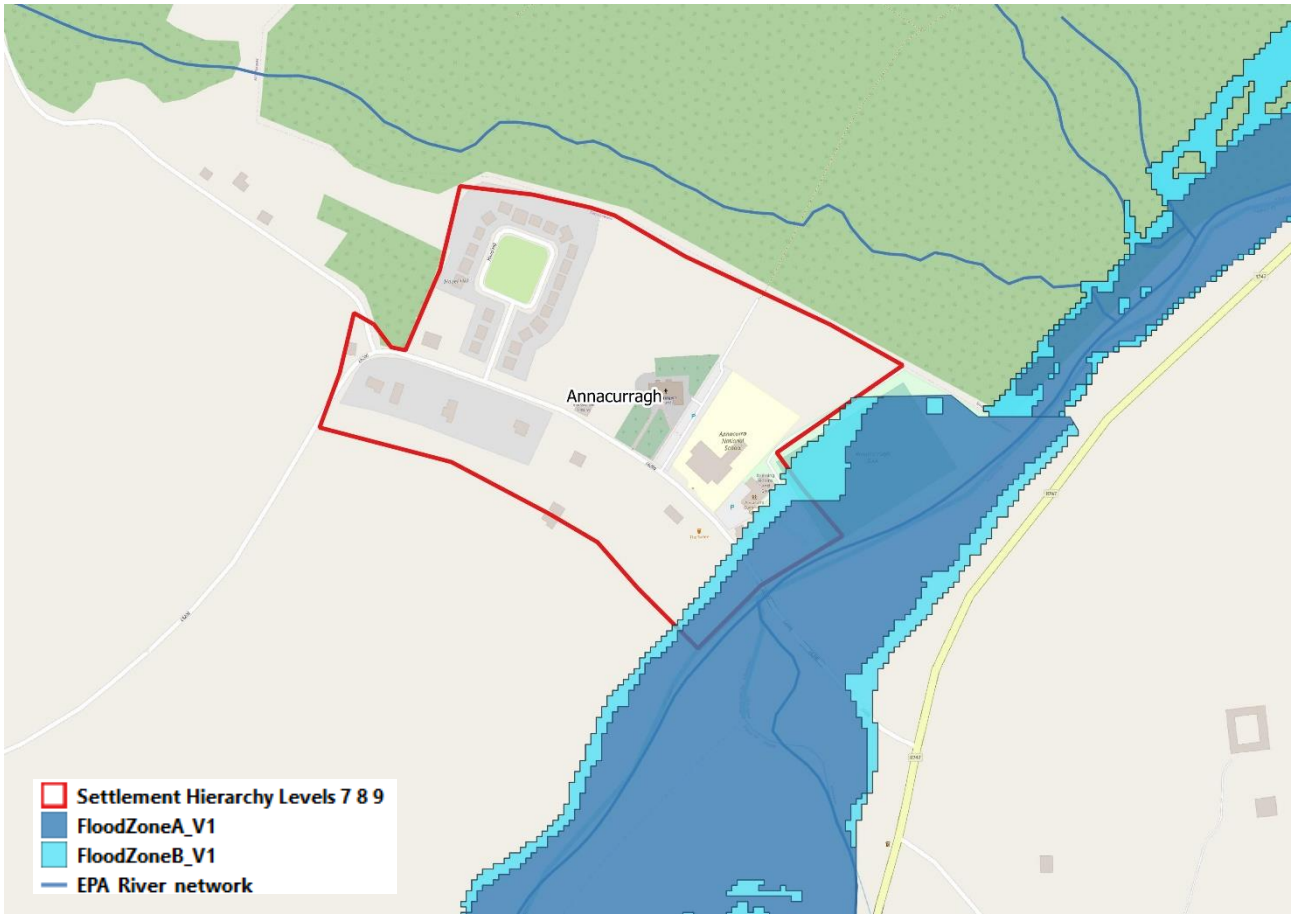
A.3 CE and E Zoning - Baltinglass

Justification Test			
1	The urban settlement is targeted for growth	Under the (draft) Wicklow County Development Plan 2021 Baltinglass is designated a Level 4 'Self Sustaining Town' in accordance with the settlement typology set out in the RSES, described as 'towns with high levels of population growth and a weak employment base which are reliant on other areas for employment and/or services and which require targeted 'catch up' investment to become more self-sustaining'. Under the 'Core Strategy' of the draft CDP, the population of Baltinglass is targeted to growth to 2,725 by 2031 (from 2,251 in 2016) Level 4 towns will aim to become more self-sustaining by concentrating on local enterprise and employment growth and catch-up facilities. This will include attracting investment in a mixture of 'people' and some 'product' intensive industries that will generate new employment opportunities and improve the jobs ratio. In accordance with the County community facilities hierarchy, Level 4 settlements generally fall into the 2,000-7,000 population range and should be ideally serviced by the following community infrastructure: community / parish hall, multi-purpose community space and / or meeting rooms, local town park and open spaces/nature areas, outdoor multi-use games areas, playgrounds, playing pitches and a library.	
2	The zoning or designation of the lands for the particular use or development type is required to achieve the proper and sustainable planning of the urban settlement and in particular:		
	(i) Is essential to facilitate regeneration and/or expansion of the centre of the urban settlement;	These lands are zoned CE - to provide for civic, community and educational facilities. This CE zoning in the town is required to achieve the proper planning and sustainable development of the urban settlement. The zoning is essential to facilitate regeneration and vitality of the settlement.	These lands are zoned E - to provide for the development of enterprise and employment This E Zoning in the town is required to achieve the proper planning and sustainable development of the urban settlement. The zoning is essential to facilitate regeneration and vitality of the settlement.
	(ii) Comprises significant previously developed and/or under-utilised lands;	Yes - the lands are previously developed and contain a mix of existing uses.	
	(iii) Is within or adjoining the core of an established or designated urban settlement;	Yes – the site is within / adjoining Baltinglass town centre	
	(iv) Will be essential in achieving compact or sustainable urban growth;	Yes - the zoning is essential to achieving compact and sustainable urban growth	
	(v) There are no suitable alternative lands for the particular use or development	The lands are already developed for this use.	

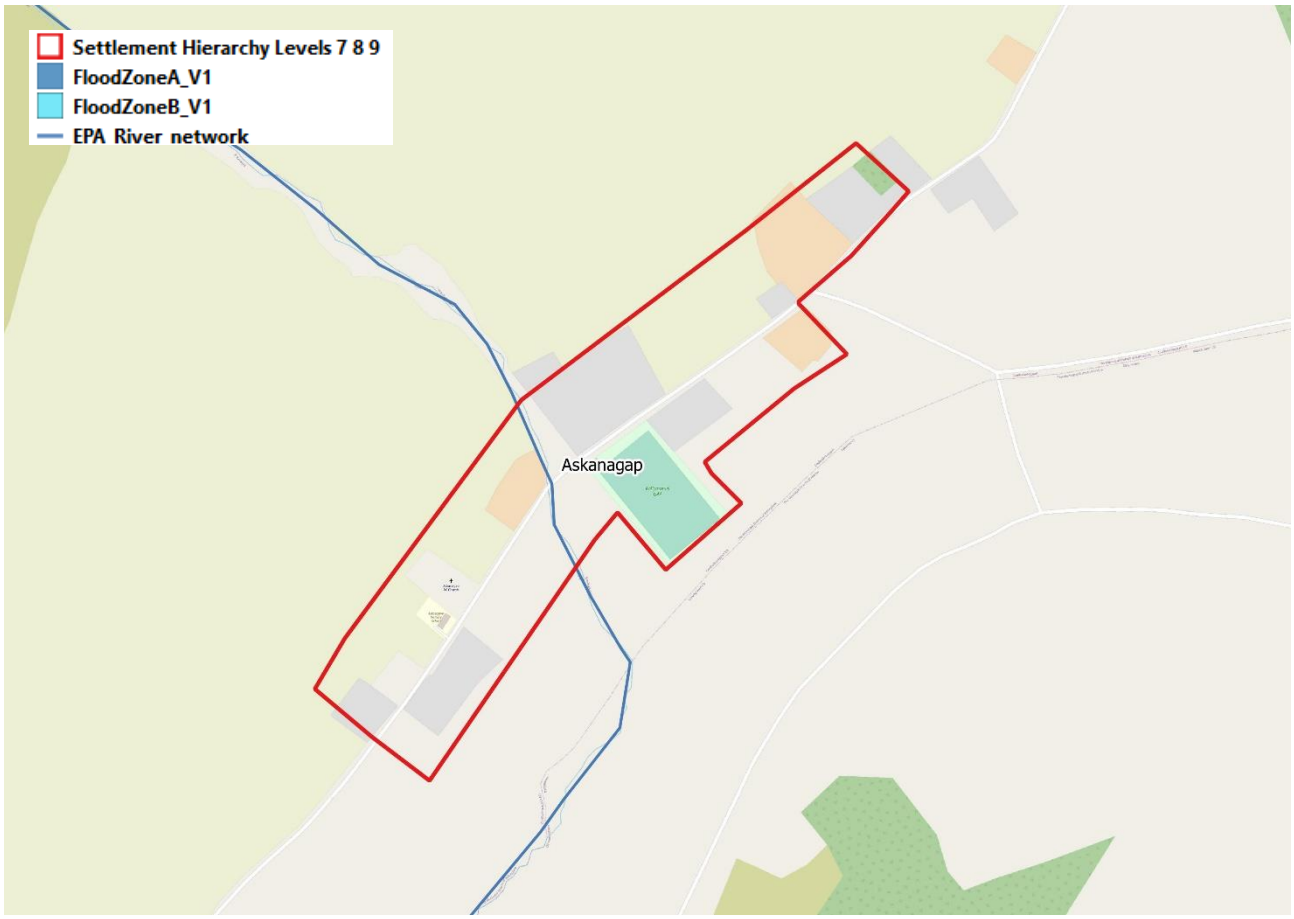
	type, in areas at lower risk of flooding within or adjoining the core of the urban settlement.	
A flood risk assessment to an appropriate level of detail has been carried out		See Section 5.2.2.1 of this SFRA.
Result		Pass
Recommendation		Retain zoning

B Settlements 7 to 9 - Flood Zone Maps

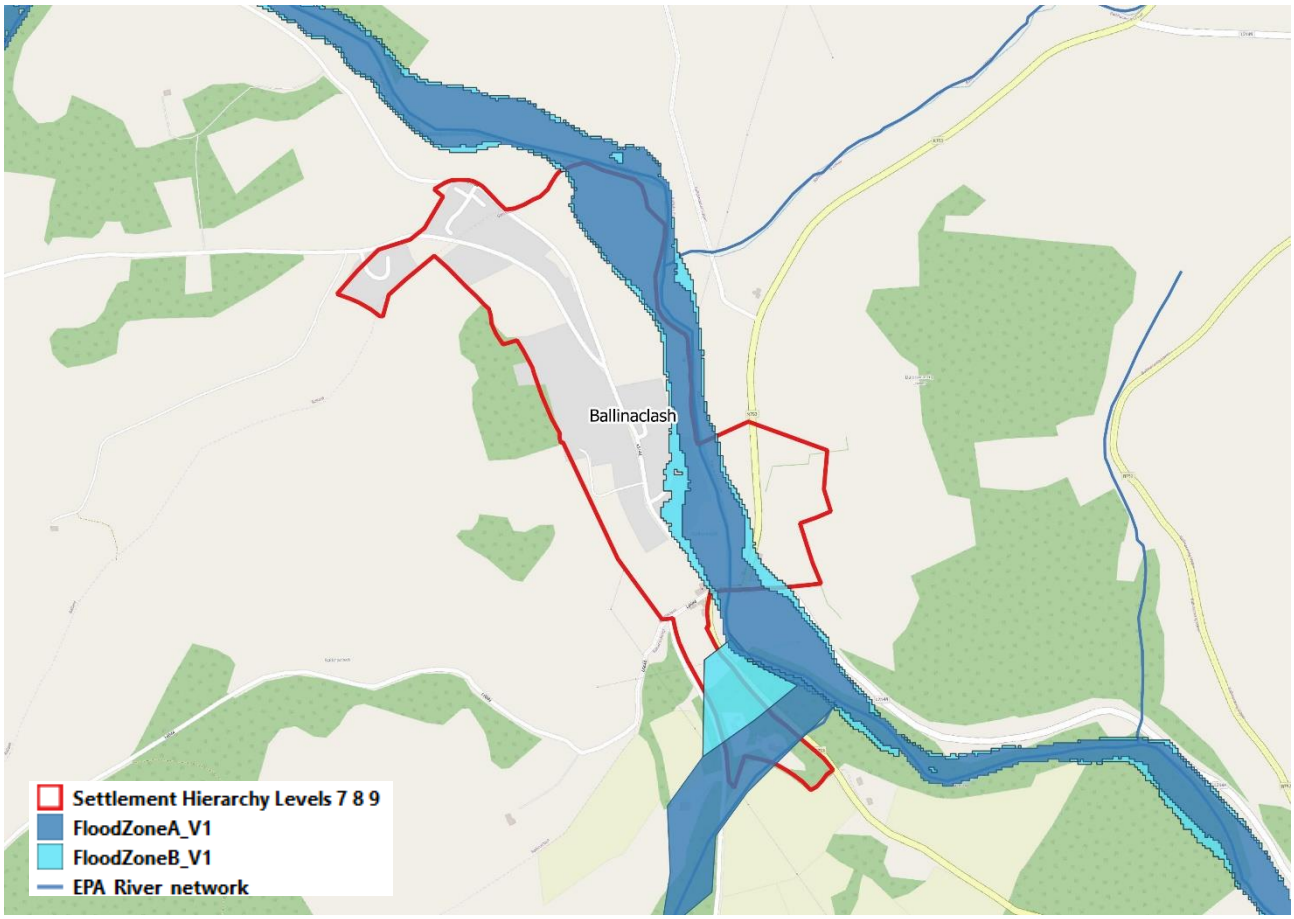
B.1 Annacurragh



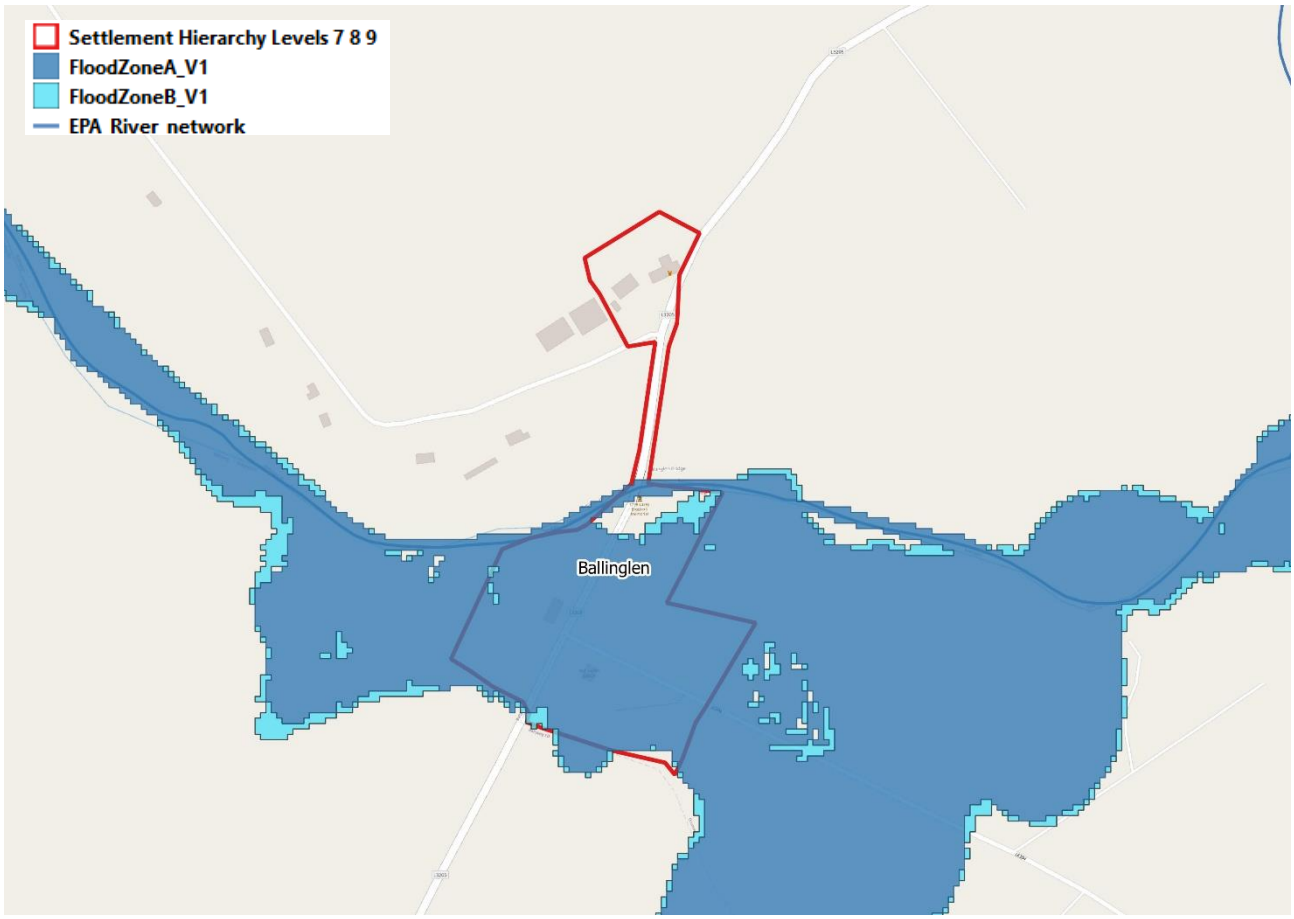
B.2 Askanagap



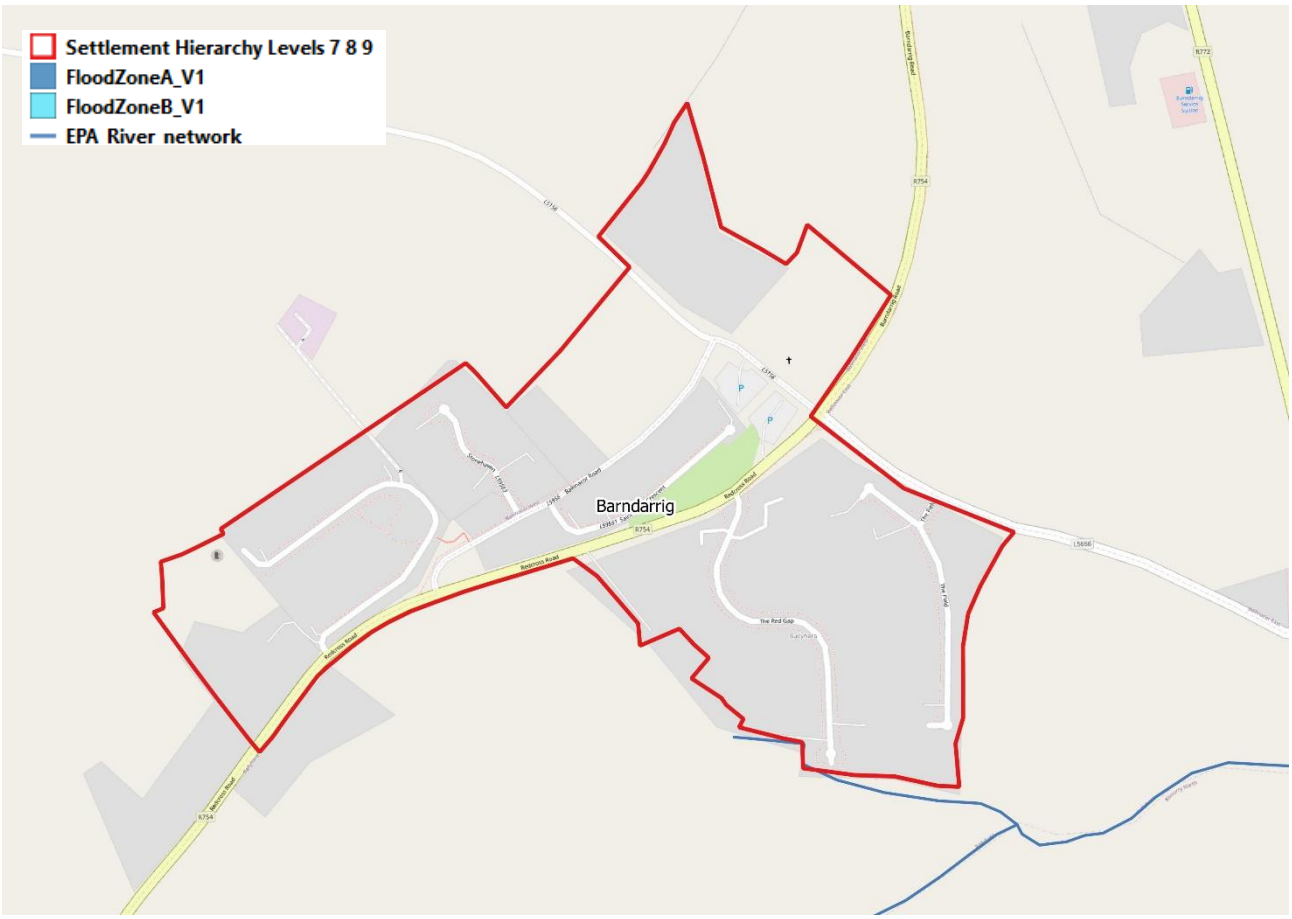
B.3 Ballinaclash



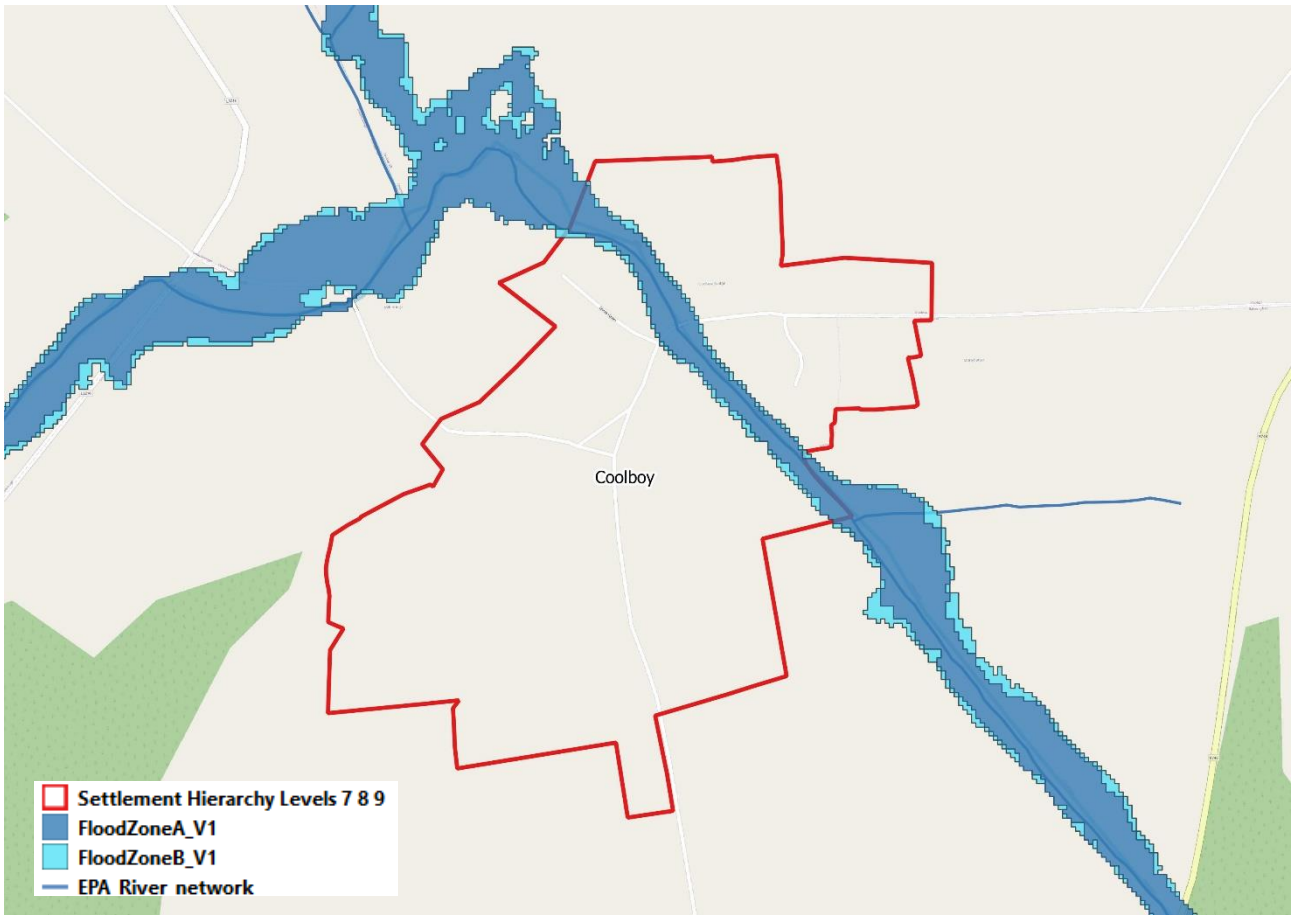
B.4 Ballinglen



B.5 Barndarrig

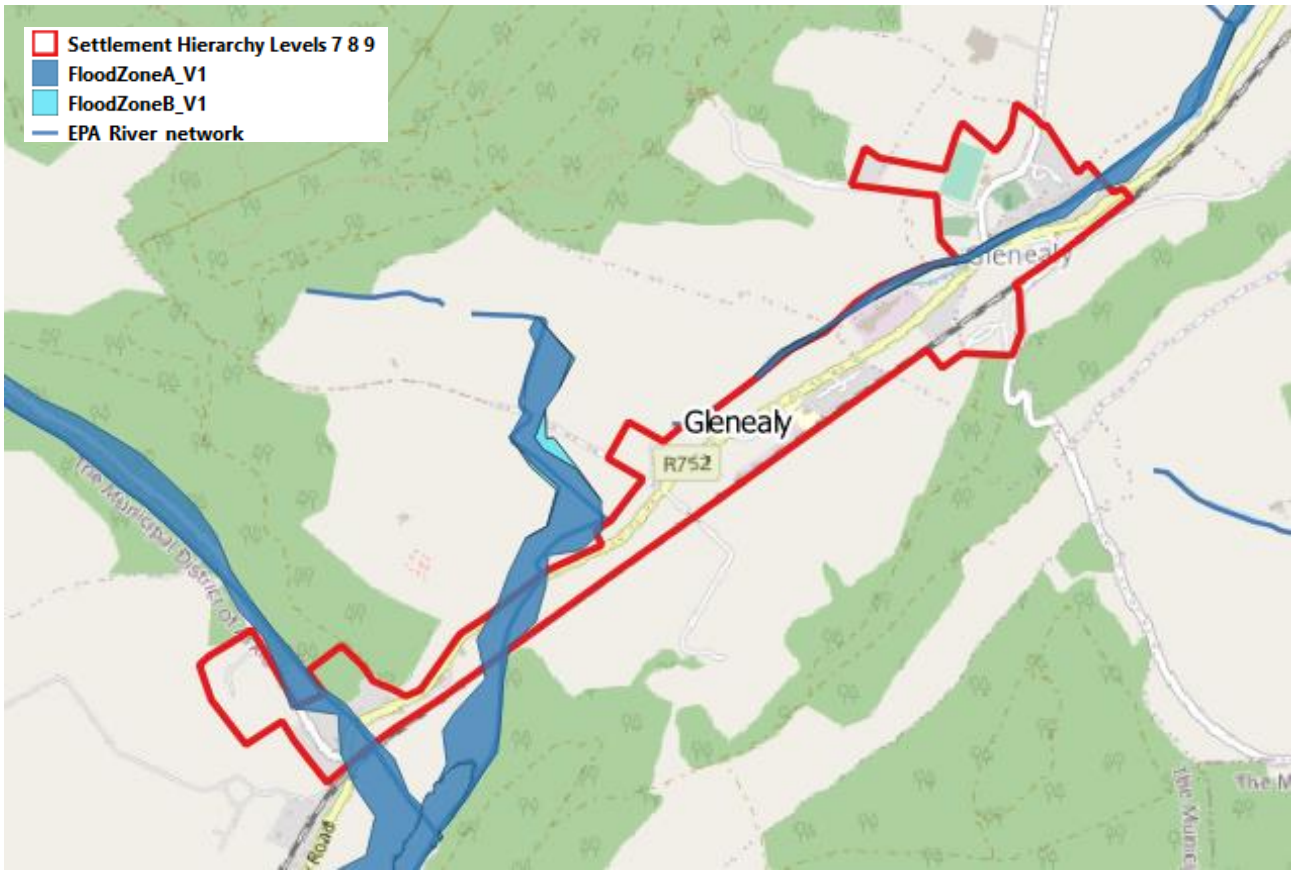


B.6 Coolboy

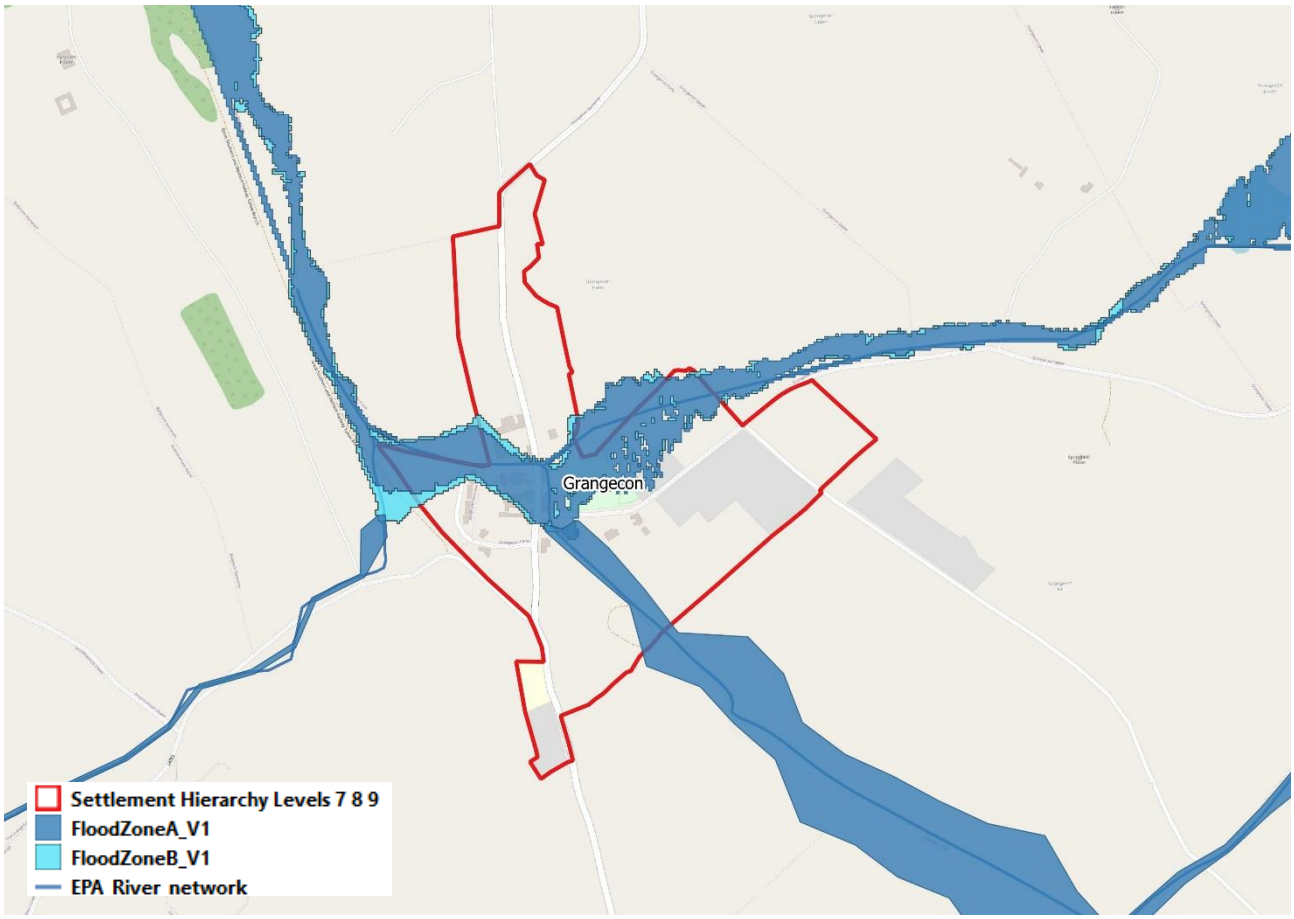

Coolboy
Settlement Hierarchy Levels 7 8 9
FloodZoneA_V1
FloodZoneB_V1
EPA River network

B.7 Crossbridge

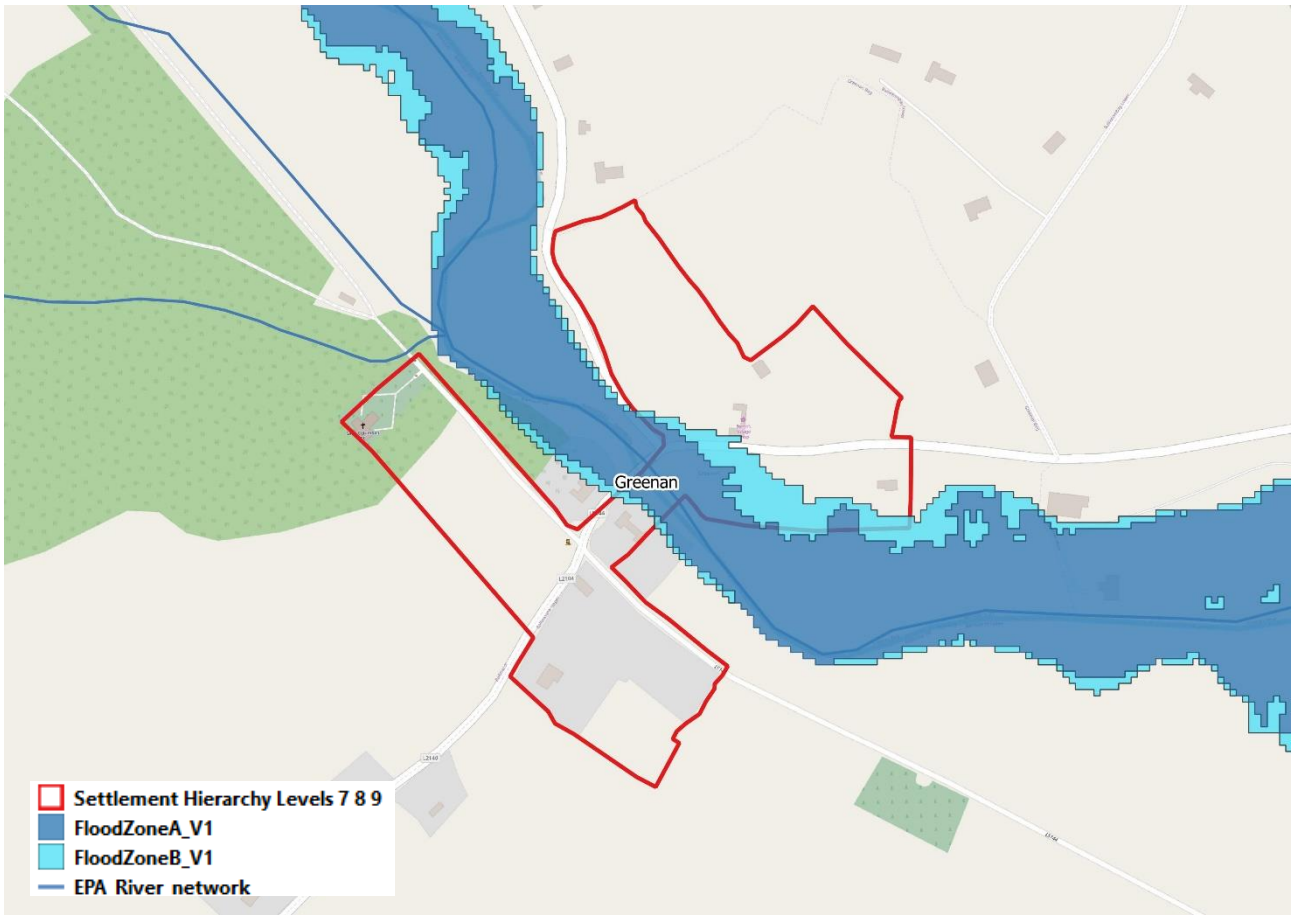
B.8 Glenealy



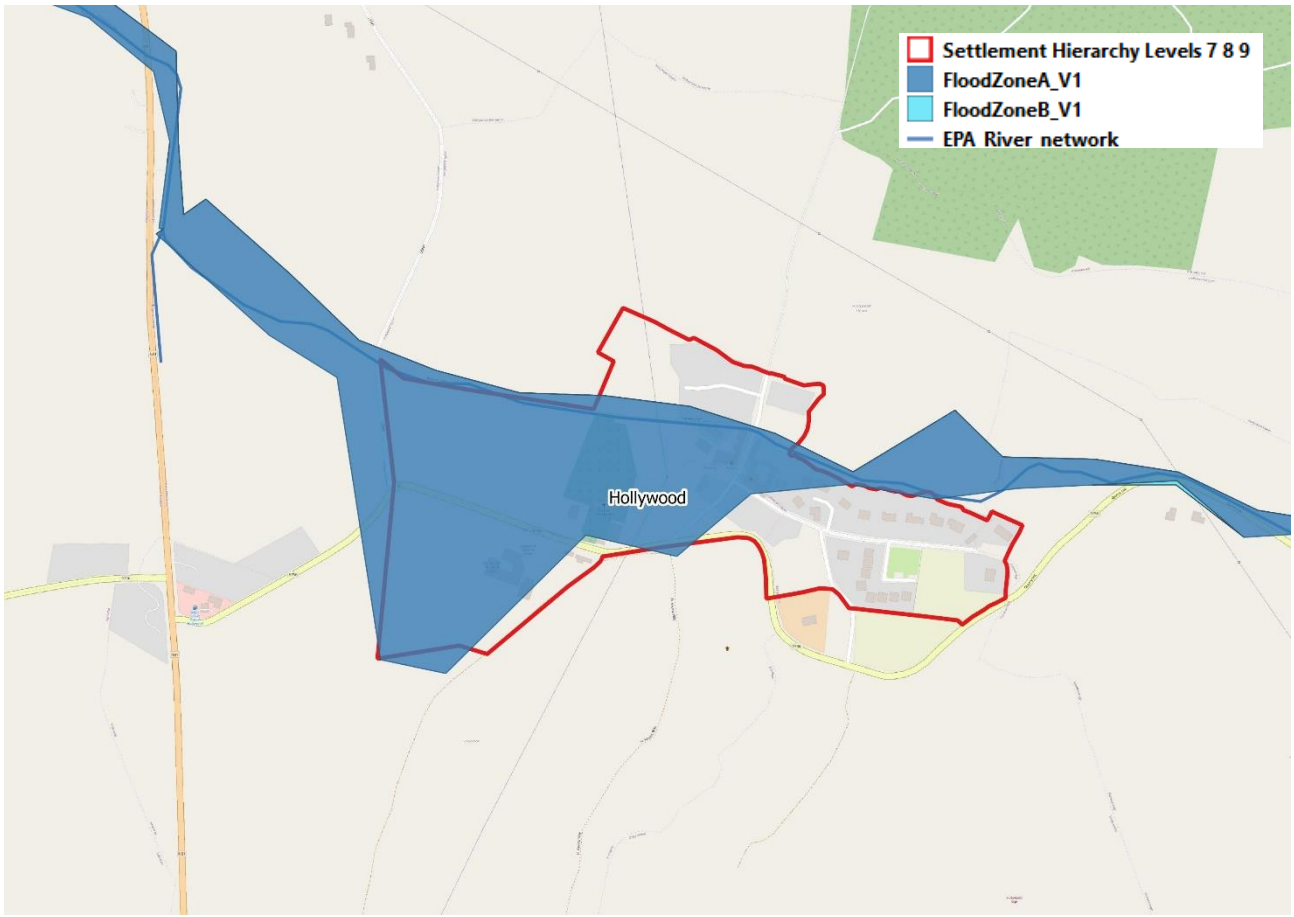
B.9 Grangecon



B.10 Greenan

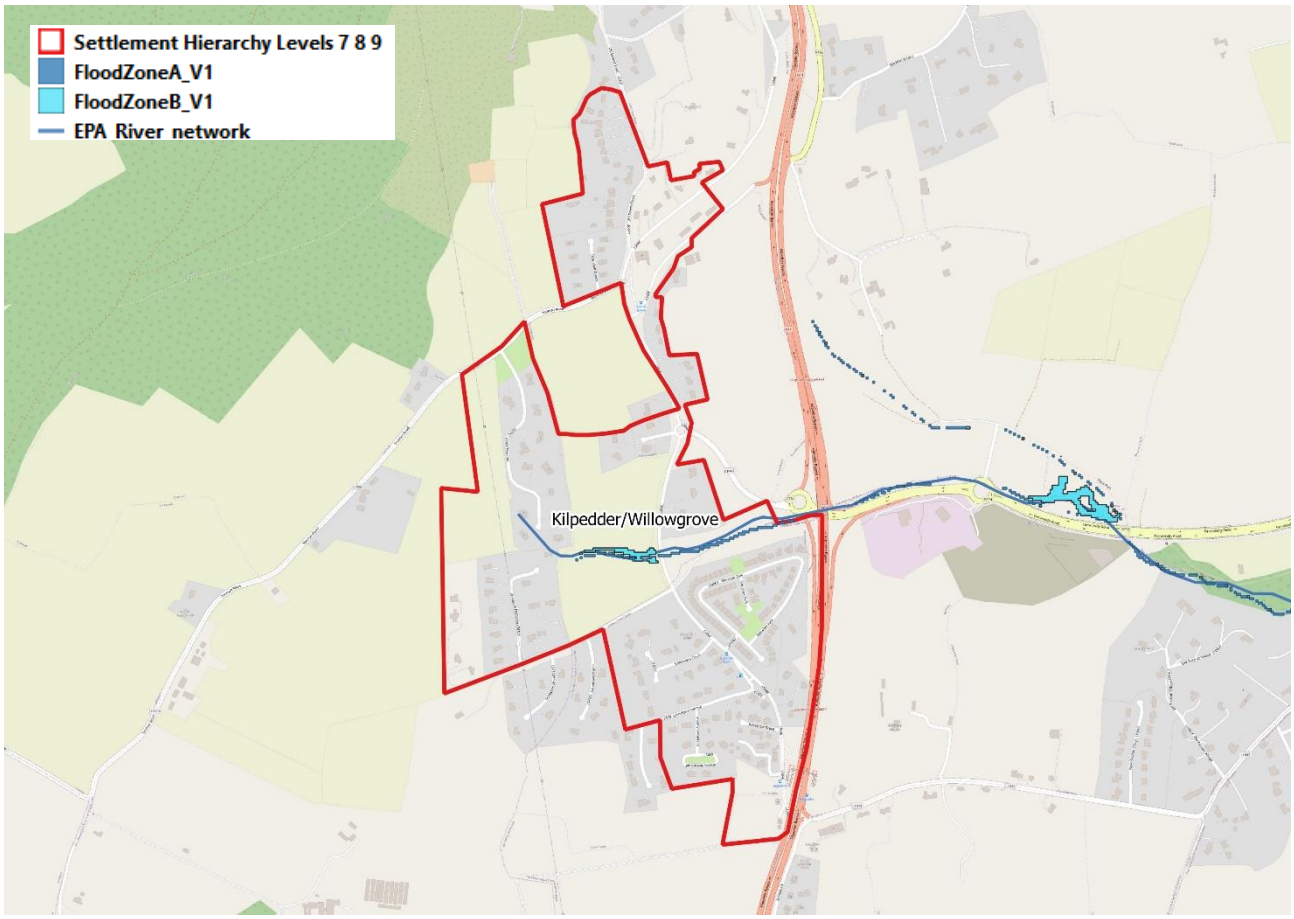

Greenan
Settlement Hierarchy Levels 7 8 9
FloodZoneA_V1
FloodZoneB_V1
EPA River network

B.11 Hollywood



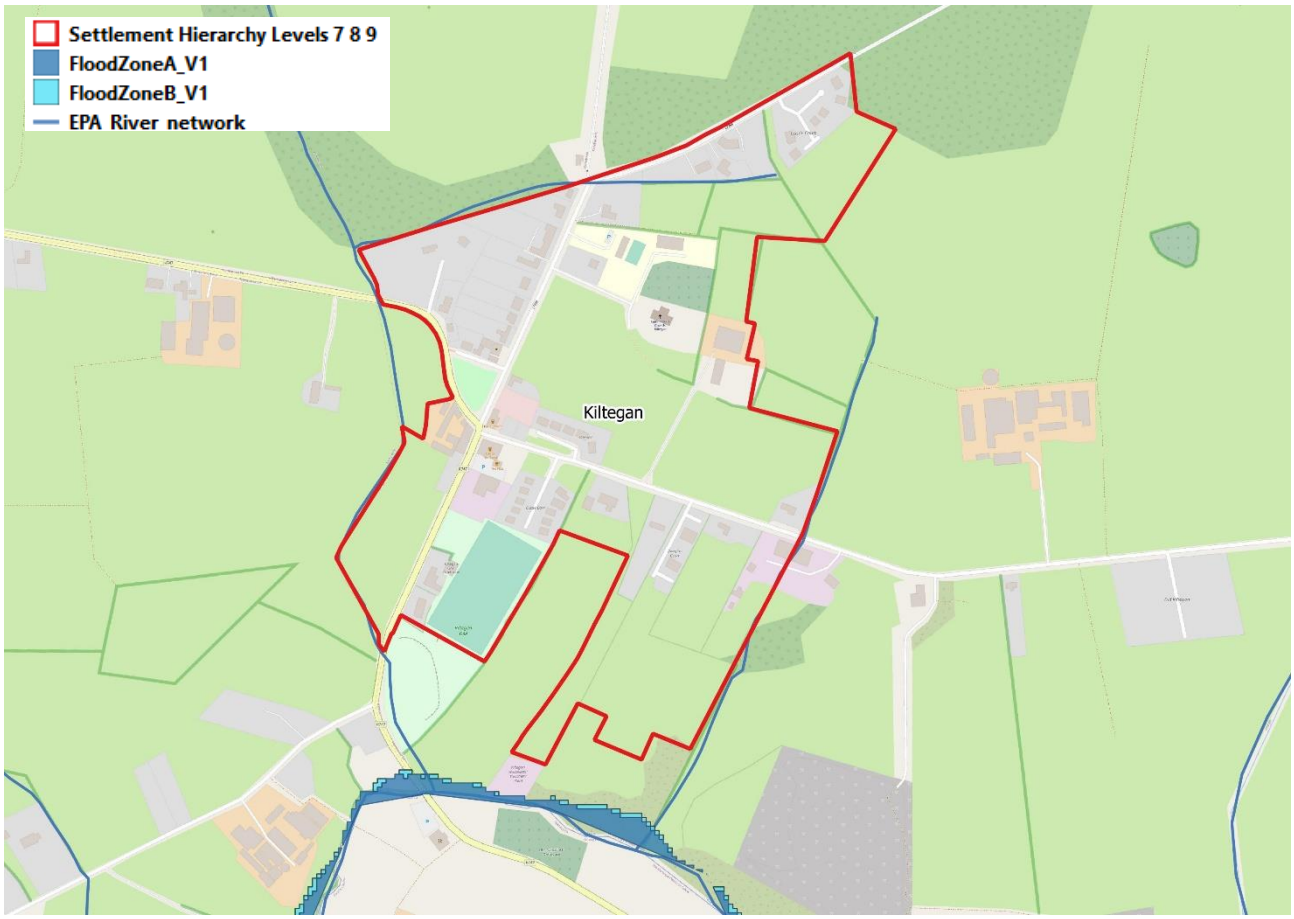
B.12 Johnstown

B.13 Kilpedder/Willowgrove

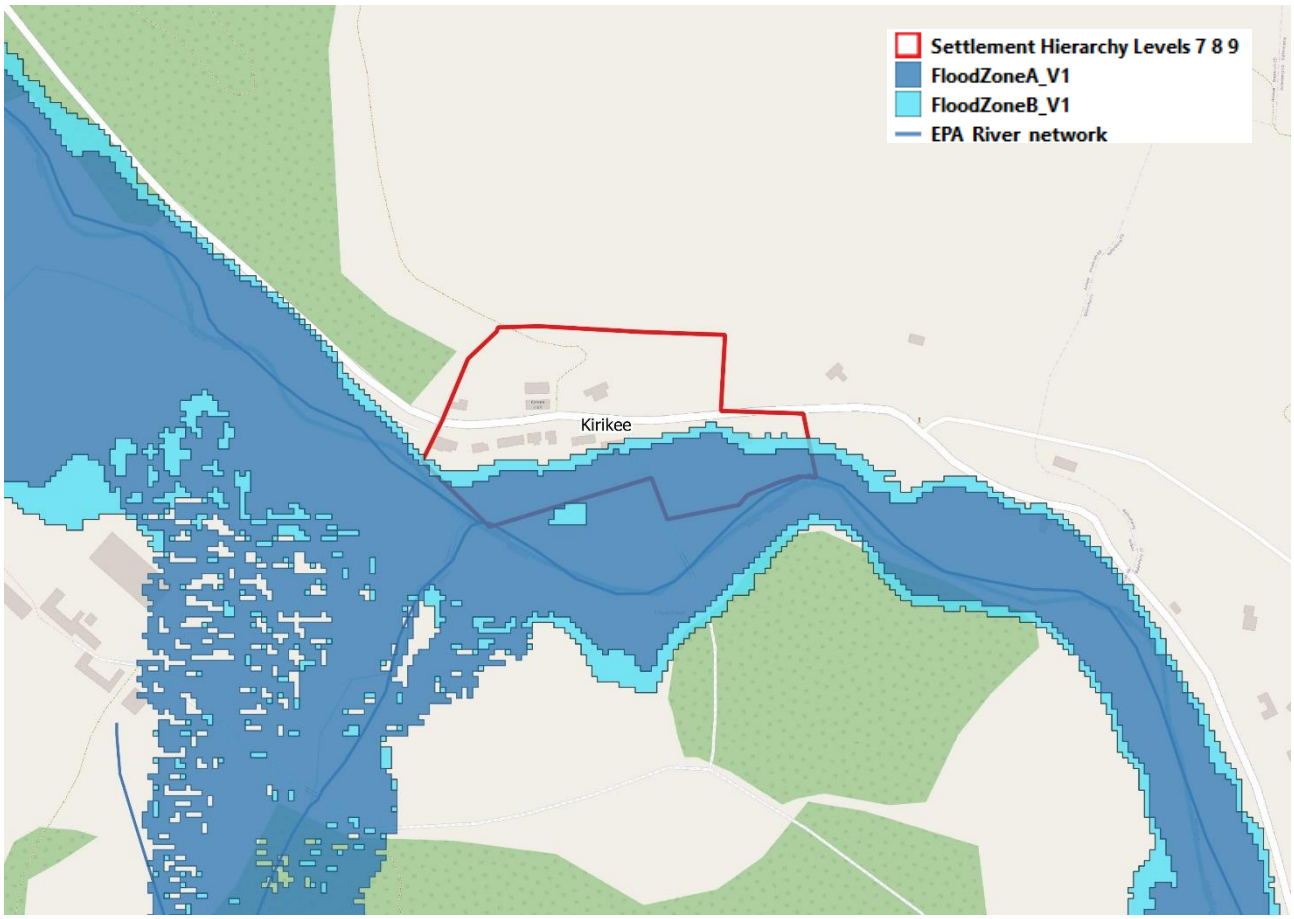


B.14 Kilquiggan

B.15 Kiltegan



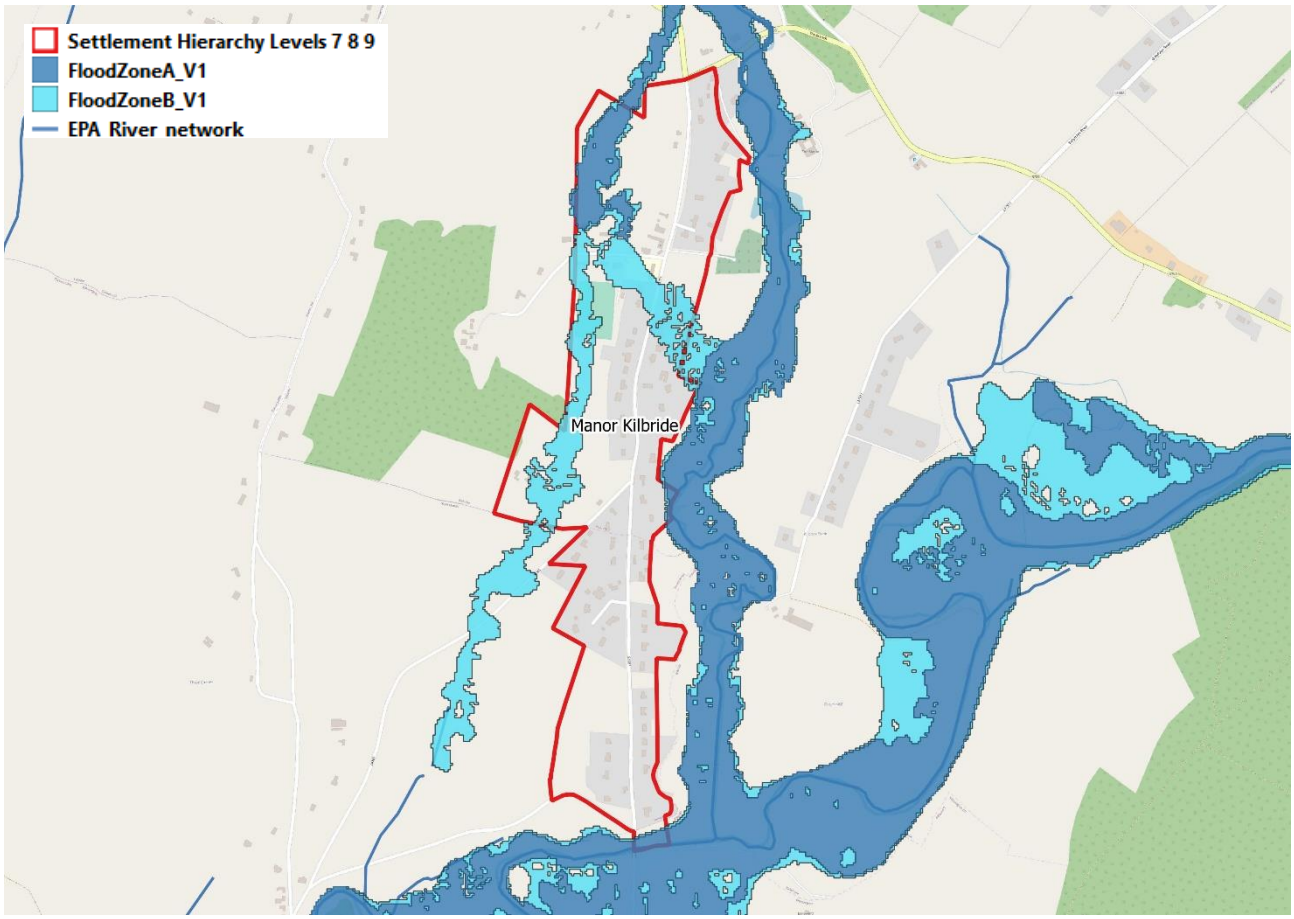
B.16 Kirikee


Settlement Hierarchy Levels 7 8 9
FloodZoneA_V1
FloodZoneB_V1
EPA River network
Kirikee

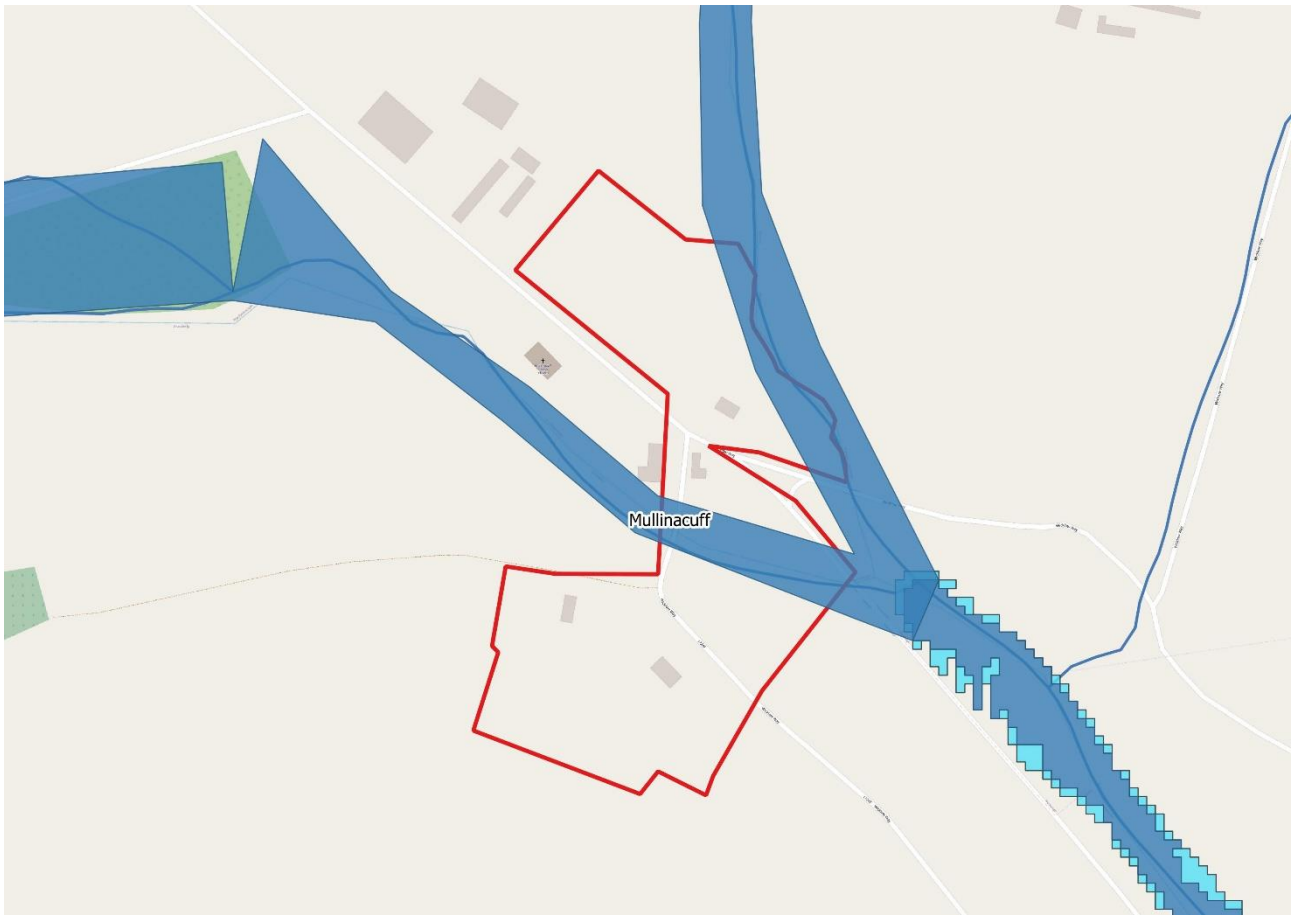
B.17 Lackan


Settlement Hierarchy Levels 7 8 9
FloodZoneA_V1
FloodZoneB_V1
EPA_River_network
Lackan

B.18 Manor-Kilbride



B.19 Mullinacluff



B.20 Rathdangan

B.21 Redcross

B.22 Thomastown

B.23 Tomacork

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ADDENDUM I

TO THE STRATEGIC FLOOD RISK ASSESSMENT

OF THE

DRAFT WICKLOW COUNTY DEVELOPMENT PLAN 2021 – 2027

STRATEGIC FLOOD RISK ASSESSMENT OF THE AMENDMENTS MADE TO THE PROPOSED DRAFT COUNTY DEVELOPMENT PLAN MAY 2021

THIS REPORT IS ADDENDUM I TO THE 'STRATEGIC FLOOD RISK ASSESSMENT OF THE PROPOSED DRAFT WICKLOW COUNTY DEVELOPMENT PLAN 2021 – 2027' ISSUED MARCH 2021

1 Introduction

A Strategic Flood Risk Assessment (SFRA) of the proposed draft Wicklow County Development, prepared in accordance with Section 11 (5) of the Planning and Development Act 2000 (as amended) was undertaken and prepared by JBA Consulting on behalf of Wicklow County Council in accordance with 'The Planning System and Flood Risk Management - Guidelines for Planning Authorities' published in 2009 by the Department of the Environment, Heritage and Local Government and Office of Public Works (Flood Risk Guidelines). This SFRA is set out in Part 1 of this document.

Following consideration of the proposed draft plan and the associated SFRA, the members of Wicklow County Council resolved to amend the proposed draft plan, and this amended plan now comprises the 'Draft Wicklow County Development Plan 2021-2027', published for consultation with statutory authorities and the public, in June 2021.

This 'Addendum I' to the Strategic Flood Risk Assessment of the Proposed Draft Wicklow County Development Plan 2021-2027 sets out the Strategic Flood Risk Assessment of the amendments made to the Proposed Draft Plan as resolved by the Elected Members.

It should be noted that changes are not made to the original Strategic Flood Risk Assessment Report at this stage; this addendum forms part of the documentation of the ongoing SFRA/Plan-making process. It supplements and should be read in conjunction with the Strategic Flood Risk Assessment Report prepared by JBA in March 2021.

1.1 Process for making Plan

The making of amendments to the Proposed Draft Plan constitutes a further stage in the process of making a new Development Plan for County Wicklow.

The Proposed Draft Plan and accompanying Strategic Flood Risk Assessment, Appropriate Assessment and Environmental Report were issued to the members of Wicklow County Council on 16th March 2021. Having considered the Proposed Draft Plan, the members resolved at their meetings on 10th and 17th May 2021 to amend said plan prior to same being accepted as the 'Draft Plan' and being placed on public display.

The Draft Plan, including those amendments made by the members, is required to be placed on public display for a period of not less than 10 weeks. Written submissions or observations with respect to the Draft Plan are taken into consideration by the Members before the making of the final Plan.

1.2 Purpose of this report

This is Addendum I to the Strategic Flood Risk Assessment and the purpose of this report is to carry out a flood risk assessment on the proposed amendments, in particular those relating to the zoning of land or the identification of land for future development. A Stage 1 Flood Risk Identification Assessment will be carried out for each location under assessment identifying where lands are within the flood zones A, B or C. Where the proposed zoning has lands within flood zone A and/or B, the Justification Test shall be applied.

In Section 2 of this Addendum, the full list of the proposed amendments requiring assessment is set out, with the assessment following each amendment. The amendments are set out in the order that they appear in the Draft Plan.

1.3 Assessment Conclusions

The proposed amendments to the Proposed Draft Wicklow County Development Plan 2021-2027 have been assessed to identify what flood zone 'designation' applies to the lands.

Where the amendment entails the zoning of lands, and it is determined that such lands are located in Flood Zones A and/or B, the 'plan-making justification test' has been applied.

This will only apply in the following settlements:

Level 4 Baltinglass
Rathdrum
Newtownmountkennedy

Level 5 Ashford
Aughrim
Carnew
Dunlavin
Tinahely

Level 6 Avoca
Donard
Newcastle
Roundwood
Shillelagh

It will also apply where land is proposed to be zoned outside of any of the settlements above, such as employment or tourism zoning.

The 'Plan-making Justification Test' has been designed to rigorously assess the appropriateness, or otherwise, of particular developments that, are being considered in areas of moderate or high flood risk (Flood Zones A and B). The processes is described in Chapter 4 of the Flood Risk Guidelines and used at the plan preparation and adoption stage where it is intended to zone or otherwise designate land which is at moderate or high risk of flooding.

Where an amendment relates to:

(a) A change in the boundary of a Level 7, 8 or 9 village / cluster; or
(b) The inclusion of an additional Level 7, 8 or 9 village / cluster that was not included in the Proposed Draft Plan and therefore not identified in the original SFRA prepared by JBA Consulting;

a 'Flood Zone Identification Map' in accordance with the format set out in Section 6 B of the original SFRA is provided, where the village / cluster is found to include lands in Flood Zones A or B.

2 Strategic Flood Risk Identification

2.1 Level 7 settlements

The adopted list of Level 7 settlements is:

Arklow MD – Barndarrig, Ballinaclash, Redcross
Baltinglass MD – Hollywood, Kiltegan, Knockananna, Stratford-on-Slaney, Coolboy, Manor Kilbride.
Greystones MD – Kilpedder / Willowgrove
Wicklow MD – Laragh, Glenealy

Of this list, the followings settlements require new flood risk identification maps to be created, due to boundary changes (compared to those originally assessed by JBA):

- Barndarrig
- Hollywood

2.1.2 Flood Identification Maps Level 7

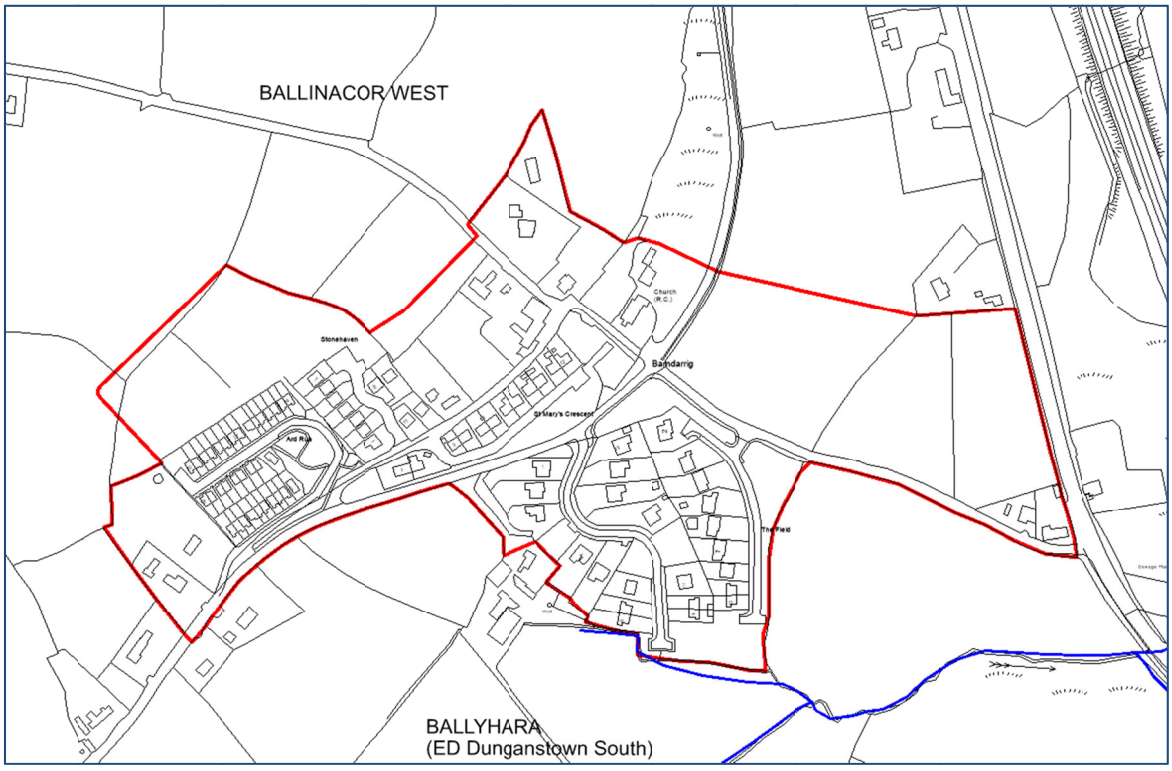
Flood Zone A

Flood Zone B

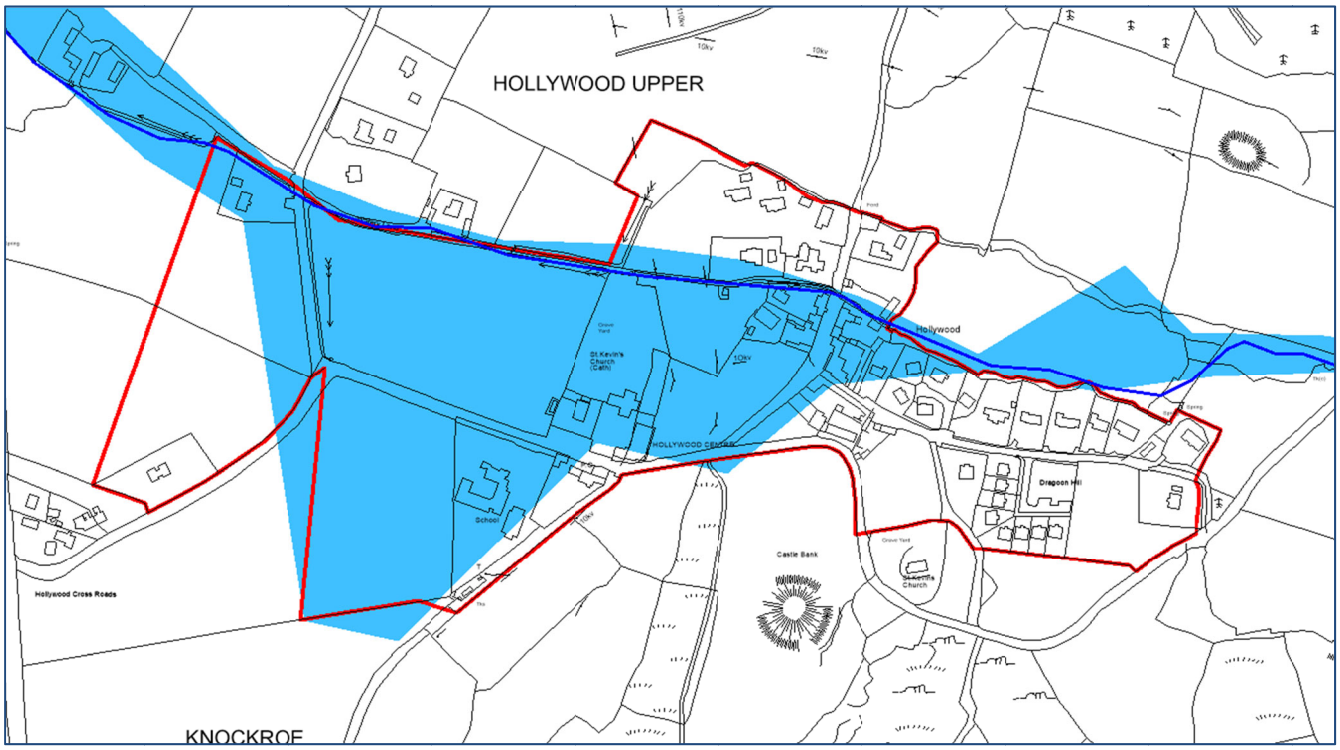
EPA River Network

Level 7 settlement boundary

Barndarrig



Hollywood



2.2 Level 8 settlement

The adopted list of Level 8 settlements is:

Arklow MD – Annacurragh, Ballycoog, Connary**,** Greenane, Johnstown, Kirikee, Thomastown,
Baltinglass MD – Askanagap, Ballyconnell, Ballyknockan, Coolafancy, Coolattin, Coolkenno, Crossbridge, Donaghmore, Grangecon, Kilquiggan, Knockanarrigan, Lackan, Rathdangan, Talbotstown, Valleymount
Wicklow MD – Annamoe, Ballynacarrig (Brittas Bay), Moneystown

Flood identification exercise has been carried out for all of these settlements in the original SFRA prepared by JBA; of the 25 settlements in this category, no fluvial or tidal flood risk was identified for 13 and flood identification maps produced for 12. No changes to settlement boundaries have been made that would necessitate any new assessment or the creation of new maps.

2.3 Level 9 settlements

The adopted list of Level 9 settlements is:

Arklow MD – Barranisky, Glenmalure, Kilcarra, Kingston, Macreddin
Baltinglass MD - Ballinglen, Ballyfolan, Ballynulltagh, Baltyboys, Carrigacurra, Crab Lane, Croneyhorn, Davidstown, Goldenhill, Gorteen, Kilamoat, Moyne, Mullinacluff, Oldcourt, Park Bridge, Rathmoon, Redwells, Stranakelly, Tomacork
Wicklow MD – Ballyduff, Boleynass, Killiskey, Kilmurray (NTMK), Tomriland

Of this list, the followings settlements may require new flood risk identification maps to be created, as they were not previously identified as settlements in the original SFRA:

- Barranisky, Glenmalure, Kilcarra, Kingston

- Ballyfolan, Ballynulltagh, Baltyboys, Carrigacurra, Croneyhorn, Goldenhill, Gorteen, Oldcourt, Rathmoon, Redwells,
- Ballyduff, Boleynass, Kilmurray (NTMK), Tomriland

However, of these, no fluvial or tidal flood risk has been identified and no flood risk identification maps are necessary to present for Barraniskey, Kingston, Kilcarra, Ballyfolan, Baltyboys, Carrigacurra, Croneyhorn, Goldenhill, Gorteen, Oldcourt, Rathmoon, Boleynass, Kilmurray (NTMK) and Tomriland; development proposals in these settlements should proceed following the approach laid out in Sections 4.5.4 and 4.8 of the SFRA to ensure all other sources of flood risk, including surface water and groundwater, have been appropriately assessed and, where required mitigated.

The Level 9 settlements therefore that require flood risk identification maps are Ballyduff, Ballynultagh, Glenmalure and Redwells.

2.3.1 Flood Risk Identification Maps Level 9

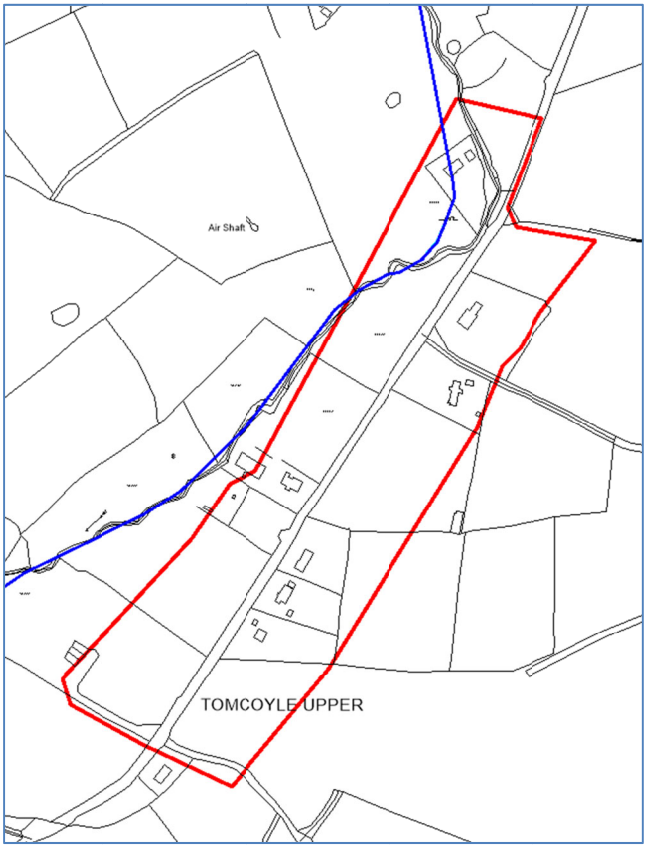
Flood Zone A

Flood Zone B

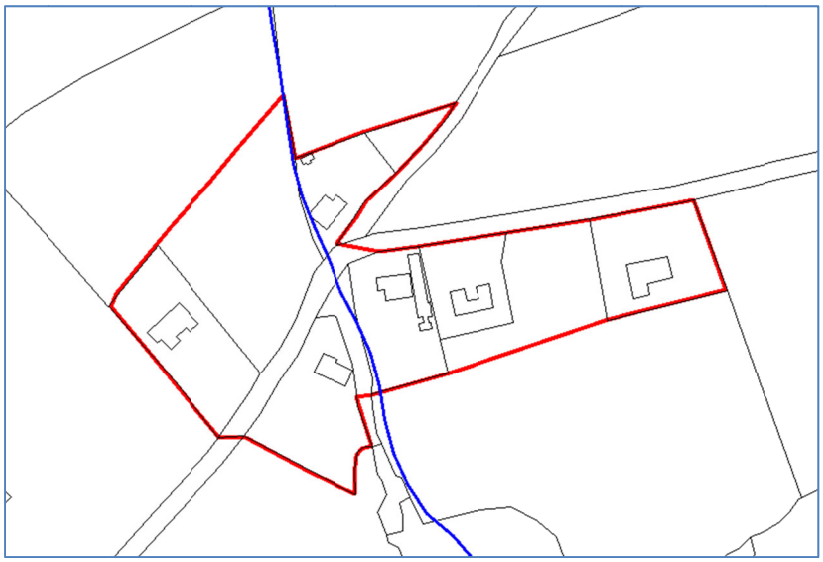
EPA River Network

Level 9 settlement boundary

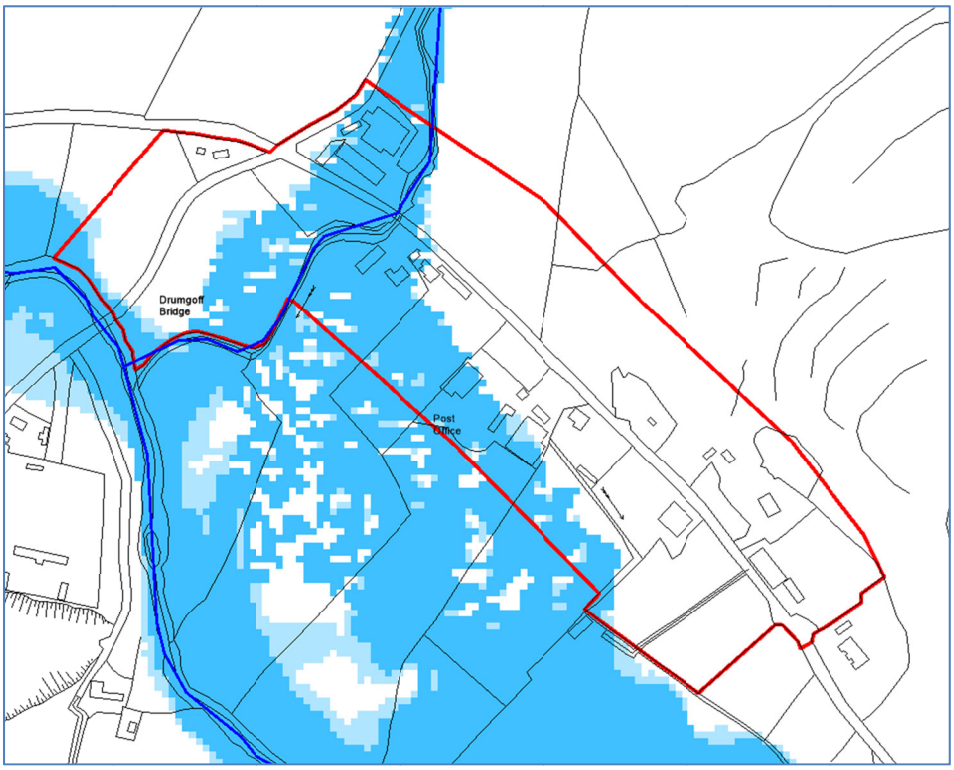
Ballyduff



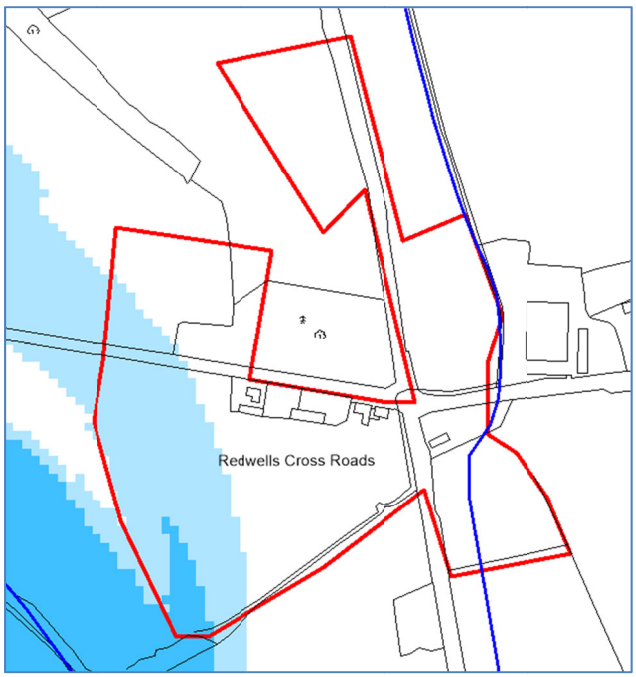
Ballynultagh



Glenmalure



Redwells



3 Strategic Flood Risk Assessment

3.1 Tourism Zoning

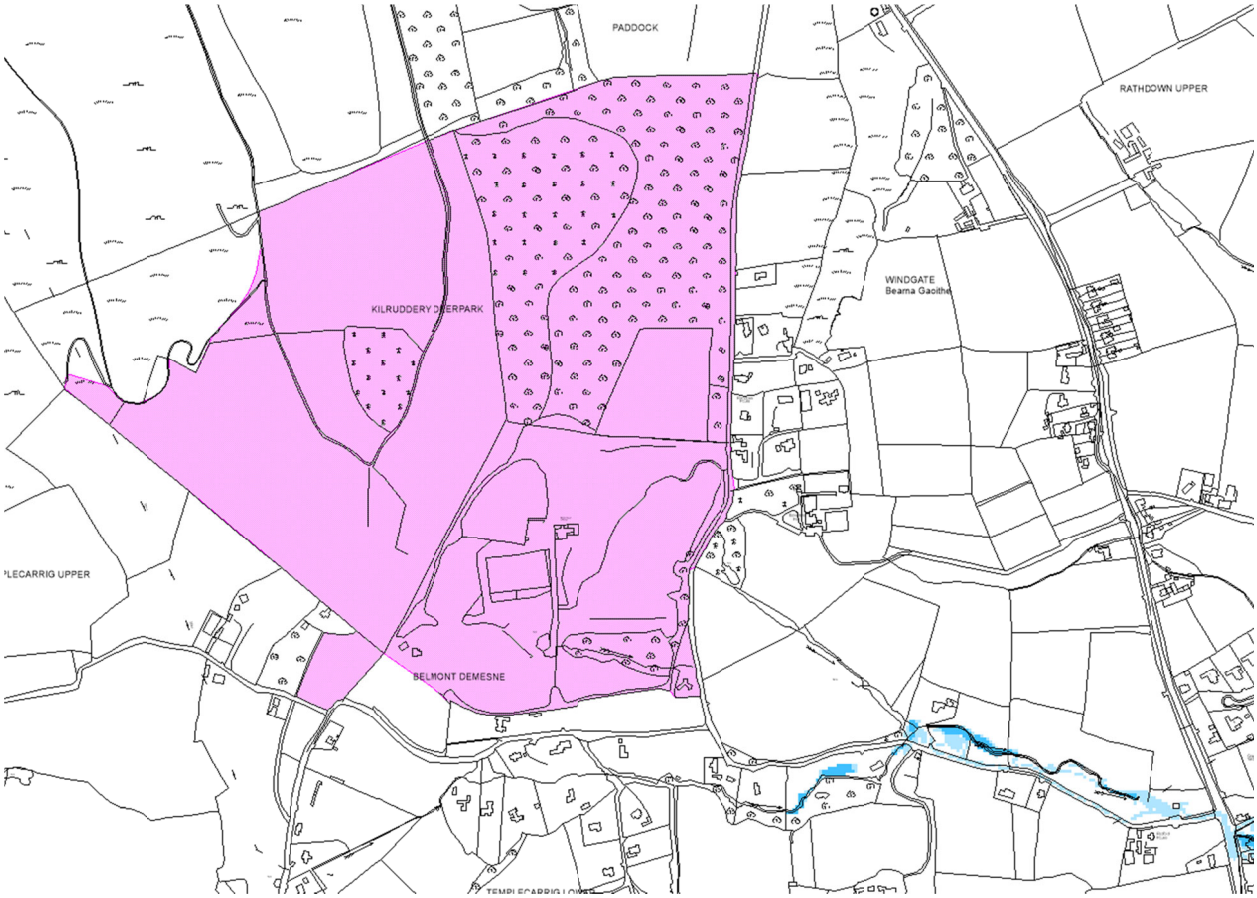
Map 11.04 Belmont Demesne

Flood Zone A

Flood Zone B

EPA River Network

Tourism Zoning



Land zoning	Tourism
Flood Zone	C
Development Type	Highly vulnerable / Less vulnerable (exact future uses unspecified)
Requirement for Justification Test	No

No fluvial or tidal flood risk was identified; development proposals should proceed following the approach laid out in Sections 4.5.4 and 4.8 of the SFRA to ensure all other sources of flood risk, including surface water and groundwater, have been appropriately assessed and where required mitigated.

3.2 Level 4 Settlements

Baltinglass

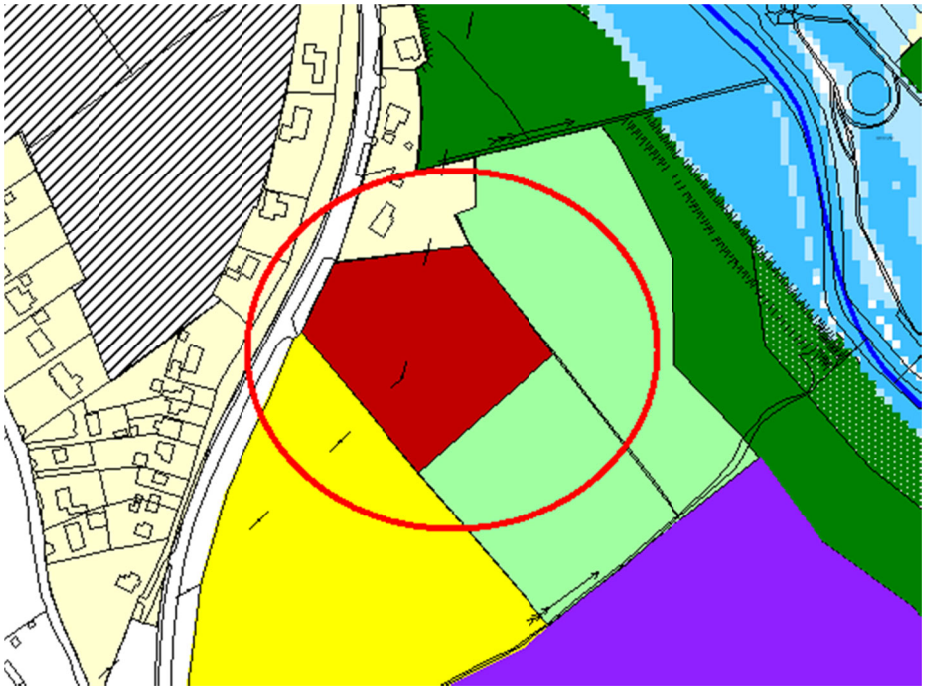
Area 1

Flood Zone A

Flood Zone B

EPA River Network

Area under assessment



Land zoning	MU (Mixed Use - Retail)
Flood Zone	C
Development Type	Less vulnerable
Requirement for Justification Test	No

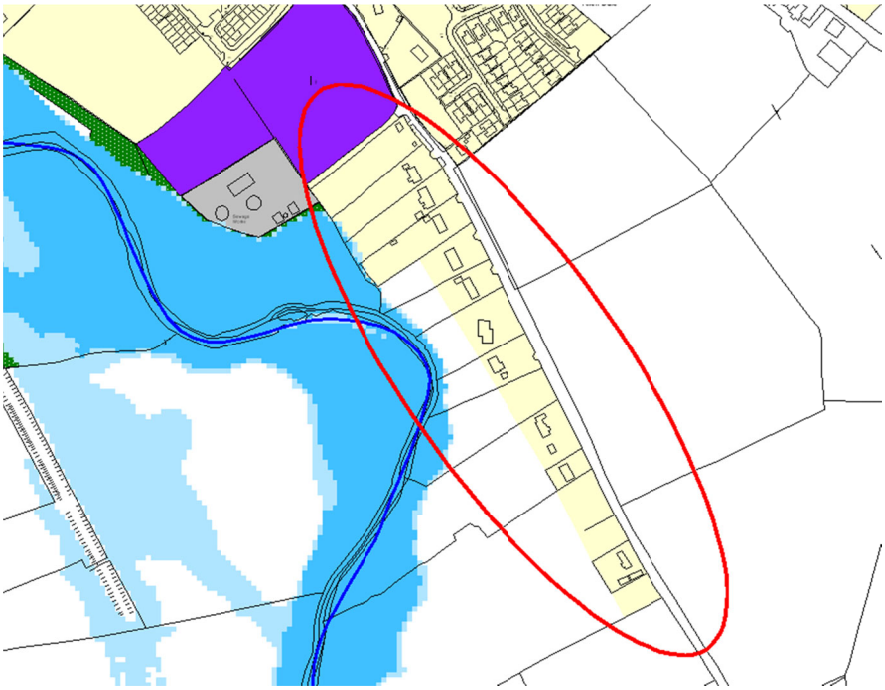
Area 2

Flood Zone A

Flood Zone B

EPA River Network

Area under assessment



Land zoning		RE (Existing Residential)
Flood Zone		A and B
Development Type		Highly vulnerable
Requirement for Justification Test		Yes
Justification Test		
1	The urban settlement is targeted for growth under the National Spatial Strategy, regional planning guidelines, statutory plans as defined above or under the Planning Guidelines or Planning Directives provisions of the Planning and Development Act 2000, as amended.	Under the draft Wicklow County Development Plan, Baltinglass is designated a Level 4'Self Sustaining Town, in accordance with the settlement typology set out in the RSES, described as 'towns with high levels of population growth and a weak employment base which are reliant on other areas for employment and/or services and which require targeted 'catch up' investment to become more self-sustaining'. Under the 'Core Strategy' of the draft CDP, the population of Baltinglass is targeted to growth by c. 20% between 2016 and 2031, from a population of 2,251 in 2016.

		Level 4 towns are identified as a Level 3 'town and / or district centres and sub county town centres' in the Retail Strategy for the Greater Dublin Area. These centres will vary both in the scale of provision and the size of catchment, due to proximity to a Major or County Town Centre, i.e. Bray or Wicklow Town. Generally where the centre has a large catchment (e.g. market town in a rural area) and is not close to a larger centre, there will be a good range of comparison shopping, though no large department stores or shopping centres, with a mix of retail types benefiting from lower rents away from larger urban sites, leisure / cultural facilities and a range of cafes and restaurants. Level 4 towns will aim to become more self-sustaining by concentrating on local enterprise and employment growth and catch-up facilities. This will include attracting investment in a mixture of 'people' and some 'product' intensive industries that will generate new employment opportunities and improve the jobs ratio. In accordance with the County community facilities hierarchy, Level 4 settlements generally fall into the 2,000-7,000 population range and should be ideally serviced by the following community infrastructure: community / parish hall, multi-purpose community space and / or meeting rooms, local town park and open spaces/nature areas, outdoor multi-use games areas, playgrounds, playing pitches and a library.
2	The zoning or designation of the lands for the particular use or development type is required to achieve the proper and sustainable planning of the urban settlement and in particular:	
	(i) Is essential to facilitate regeneration and/or expansion of the centre of the urban settlement;	No
	(ii) Comprises significant previously developed and/or under-utilised lands;	Lands already partially developed for residential use
	(iii) Is within or adjoining the core of an established or designated urban settlement;	No
	(iv) Will be essential in achieving compact or sustainable urban growth;	No
	(v) There are no suitable alternative lands for the particular use or development type, in areas at lower risk of flooding within or adjoining the core of the urban settlement.	There are suitable alternative lands available for this use.
3	A flood risk assessment to an appropriate level of detail has been carried out	Refer to main SFRA document
Conclusion		
Justification test FAILED.		
Comment		
A small portion of the lands in this zone have been identified as being located in Flood Zone A and B with a high and moderate probability of flooding from rivers/watercourses. The zoning objective does not proscribe exactly where in the zone development should occur. Any proposals for new development should be accompanied by an appropriately detailed FRA, undertaken in accordance with Section 4 of this SFRA and the relevant policies and objectives in the County Development Plan.		

Newtownmountkennedy

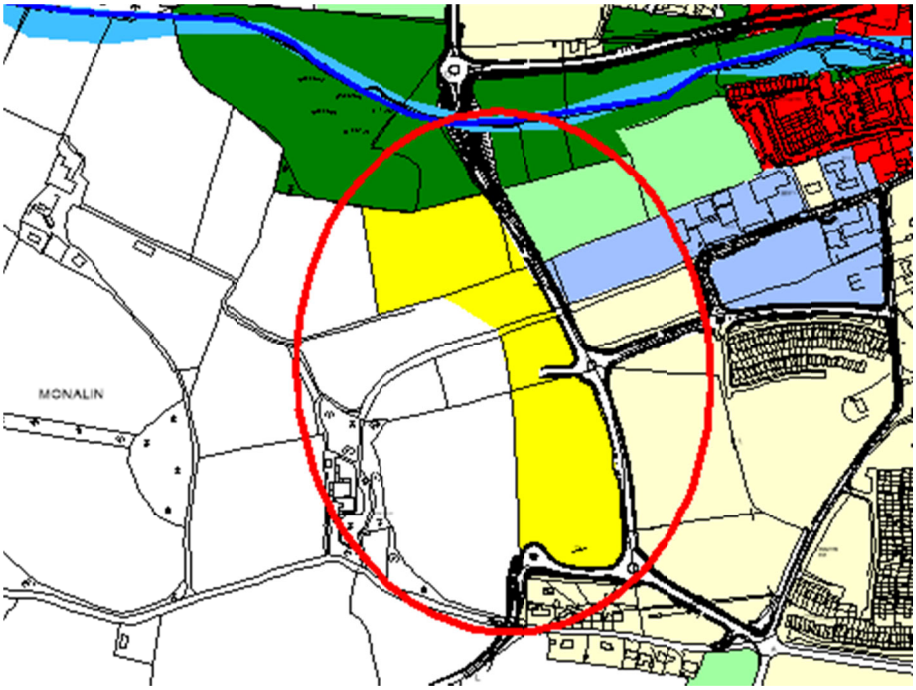
Area 1

Flood Zone A

Flood Zone B

EPA River Network

Area under assessment



Land zoning	R-N (New Residential)
Flood Zone	C
Development Type	Highly vulnerable
Requirement for Justification Test	No

No fluvial or tidal flood risk was identified; development proposals should proceed following the approach laid out in Sections 4.5.4 and 4.8 of the SFRA to ensure all other sources of flood risk, including surface water and groundwater, have been appropriately assessed and where required mitigated.

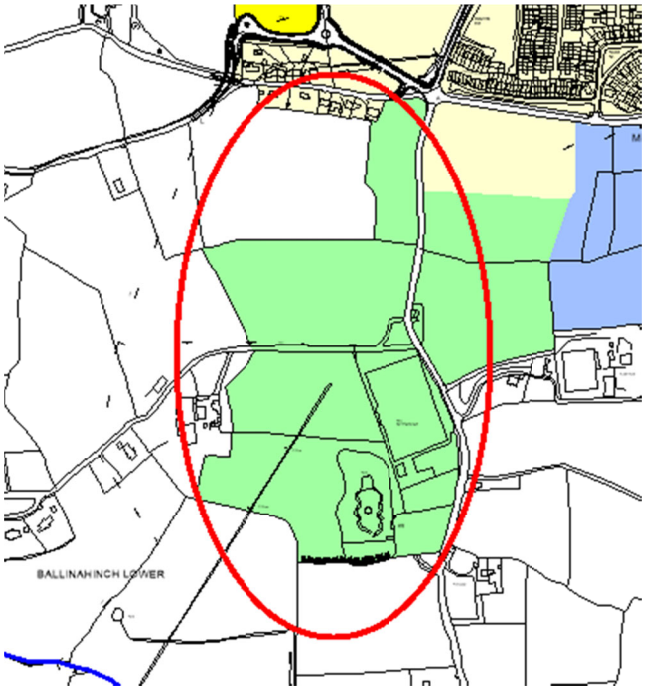
Area 2

Flood Zone A

Flood Zone B

EPA River Network

Area under assessment



Land zoning	Active Open Space
Flood Zone	C
Development Type	Water compatible
Requirement for Justification Test	No

No fluvial or tidal flood risk was identified; development proposals should proceed following the approach laid out in Sections 4.5.4 and 4.8 of the SFRA to ensure all other sources of flood risk, including surface water and groundwater, have been appropriately assessed and where required mitigated.

3.8 Level 5 Settlements

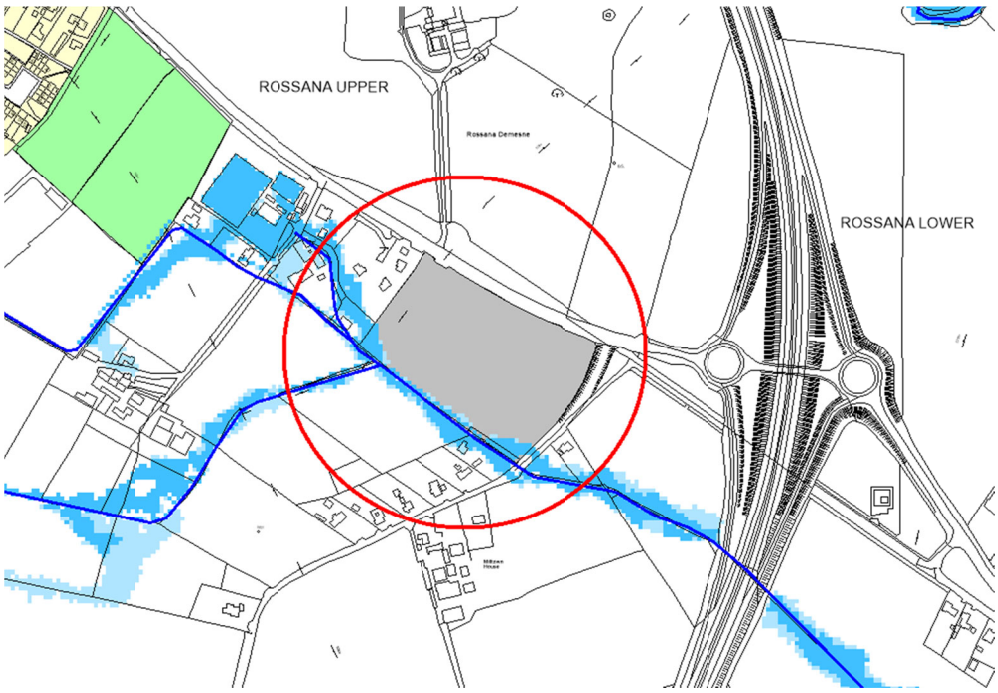
Ashford

Flood Zone A

Flood Zone B

EPA River Network

Area under assessment



Stage 1 Strategic Flood Risk Assessment

Land zoning		PU Public Utility (Park and Ride)
Development Type		Less vulnerable
Flood Zone		A and B
Requirement for Justification Test		Yes
Justification Test		
1	The urban settlement is targeted for growth under the National Spatial Strategy, regional planning guidelines, statutory plans as defined above or under the Planning Guidelines or Planning Directives provisions of the Planning and Development Act 2000, an amended.	Under the draft Wicklow County Development Plan, Ashford is designated a Level 5 Small Town (Type 1), in accordance with the settlement typology set out in the RSES, the larger of the town types in the category described in the RSES as 'towns and villages with local service and employment functions'. Under the 'Core Strategy' of the draft CDP, the population of Ashford is targeted to growth by c. 20% between 2016 and 2031, from a population of 1,427 in 2016.

		These towns are identified as a Level 4 'local centre – small towns and villages' in the Retail Strategy for the Greater Dublin Area where the retail needs would be expected to include one supermarket / two medium sized convenience stores (up to 1,000sqm aggregate) and c. 10-20 smaller shops. The economic function of 'Small Towns (Type 1)' is to be attractors for local investment and to target investment in the form of product and some 'people' intensive industries. In accordance with the County community facilities hierarchy, Level 5 settlements generally fall into the 2,000-7,000 population range and ideally should be serviced by the following community infrastructure: community/parish hall, multipurpose community space and / or meeting rooms, local town park and open spaces/nature areas, outdoor multi-use games areas, playgrounds, playing pitches and a library. Although these settlements all have a current population below 2,000, they generally
2	The zoning or designation of the lands for the particular use or development type is required to achieve the proper and sustainable planning of the urban settlement and in particular:	
	(i) Is essential to facilitate regeneration and/or expansion of the centre of the urban settlement;	No
	(ii) Comprises significant previously developed and/or under-utilised lands;	No
	(iii) Is within or adjoining the core of an established or designated urban settlement;	No
	(iv) Will be essential in achieving compact or sustainable urban growth;	No
	(v) There are no suitable alternative lands for the particular use or development type, in areas at lower risk of flooding within or adjoining the core of the urban settlement.	There are suitable alternative lands available for this use.
3	A flood risk assessment to an appropriate level of detail has been carried out	Refer to main SFRA document
Conclusion		
Justification test FAILED.		
Comment		
A small portion of the lands in this zone have been identified as being located in Flood Zone A and B with a high and moderate probability of flooding from rivers/watercourses. The zoning objective does not proscribe exactly where in the zone development should occur. Any proposals for new development should be accompanied by an appropriately detailed FRA, undertaken in accordance with Section 4 of this SFRA and the relevant policies and objectives in the County Development Plan.		

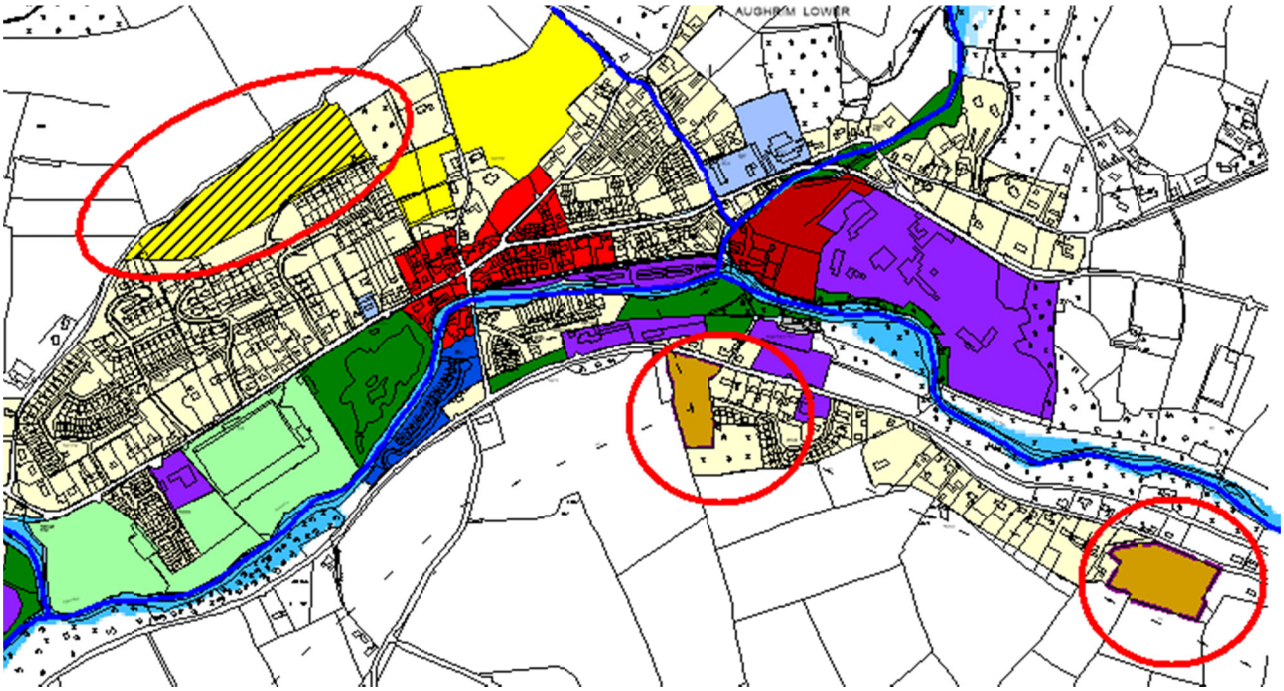
Aughrim

Flood Zone A

Flood Zone B

EPA River Network

Areas under assessment



Land zoning	R2.5 (New Residential – low density) RS (Special Residential) RE (Existing Residential)
Flood Zone	C
Development Type	Highly vulnerable
Requirement for Justification Test	No

No fluvial or tidal flood risk was identified; development proposals should proceed following the approach laid out in Sections 4.5.4 and 4.8 of the SFRA to ensure all other sources of flood risk, including surface water and groundwater, have been appropriately assessed and where required mitigated.

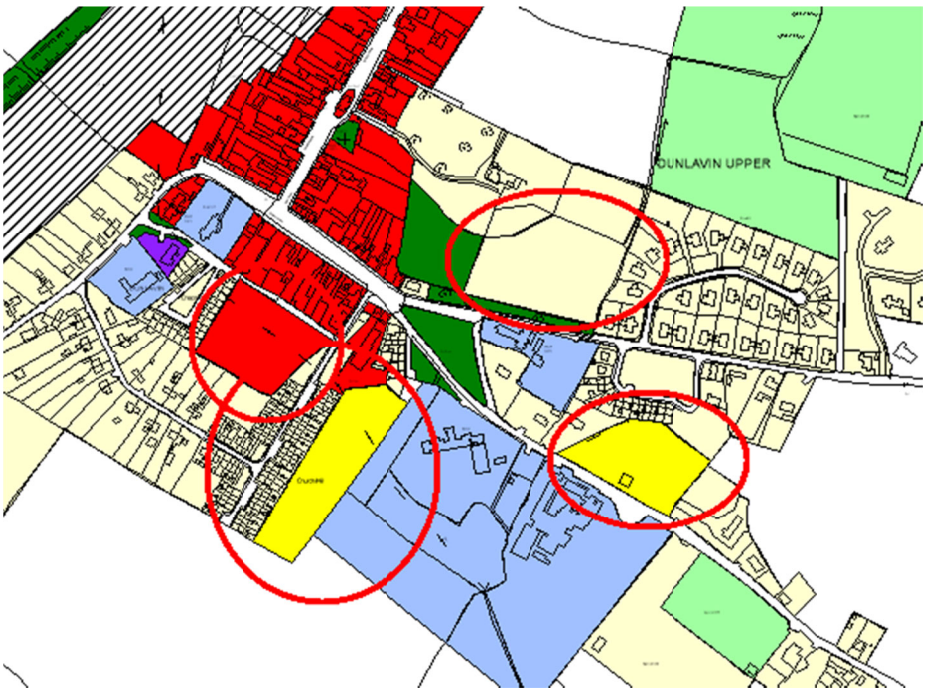
Dunlavin

Flood Zone A

Flood Zone B

EPA River Network

Areas under assessment



Land zoning	TC (Town Centre) RE (Existing Residential) R-N (New Residential)
Flood Zone	C
Development Type	Highly vulnerable
Requirement for Justification Test	No

No fluvial or tidal flood risk was identified; development proposals should proceed following the approach laid out in Sections 4.5.4 and 4.8 of the SFRA to ensure all other sources of flood risk, including surface water and groundwater, have been appropriately assessed and where required mitigated.

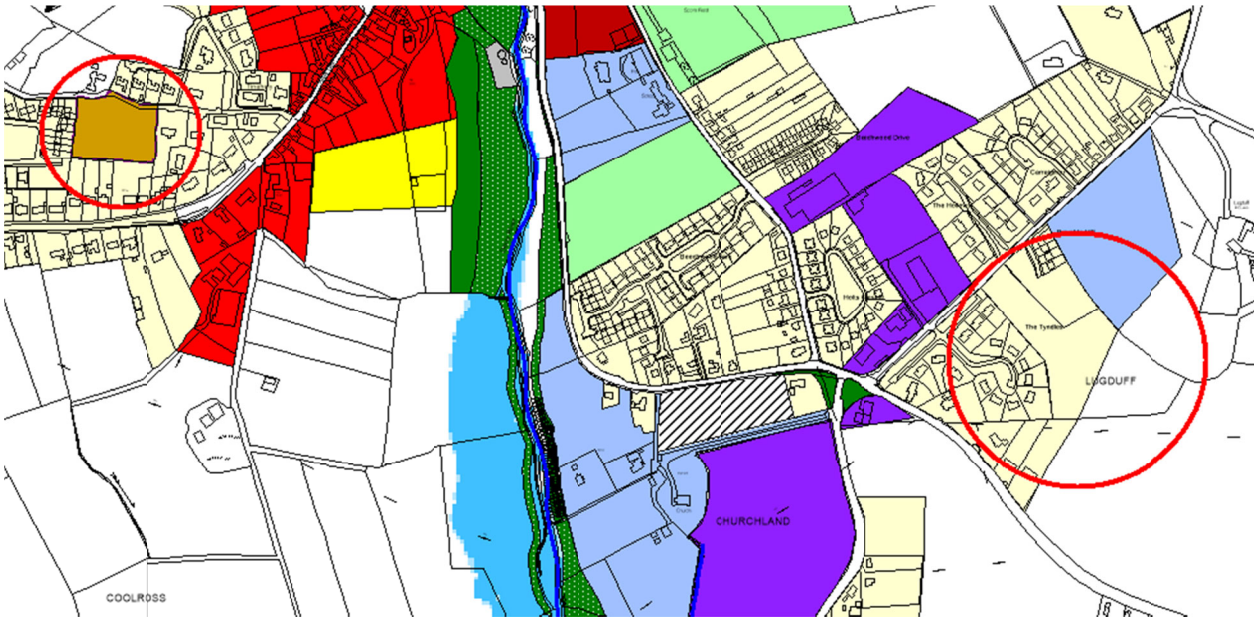
Tinahely

Flood Zone A

Flood Zone B

EPA River Network

Areas under assessment



Land zoning	RE (Existing Residential) R Special (New Residential)
Flood Zone	C
Development Type	Highly vulnerable
Requirement for Justification Test	No

No fluvial or tidal flood risk was identified; development proposals should proceed following the approach laid out in Sections 4.5.4 and 4.8 of the SFRA to ensure all other sources of flood risk, including surface water and groundwater, have been appropriately assessed and where required mitigated.

3.11 Level 6 Settlements

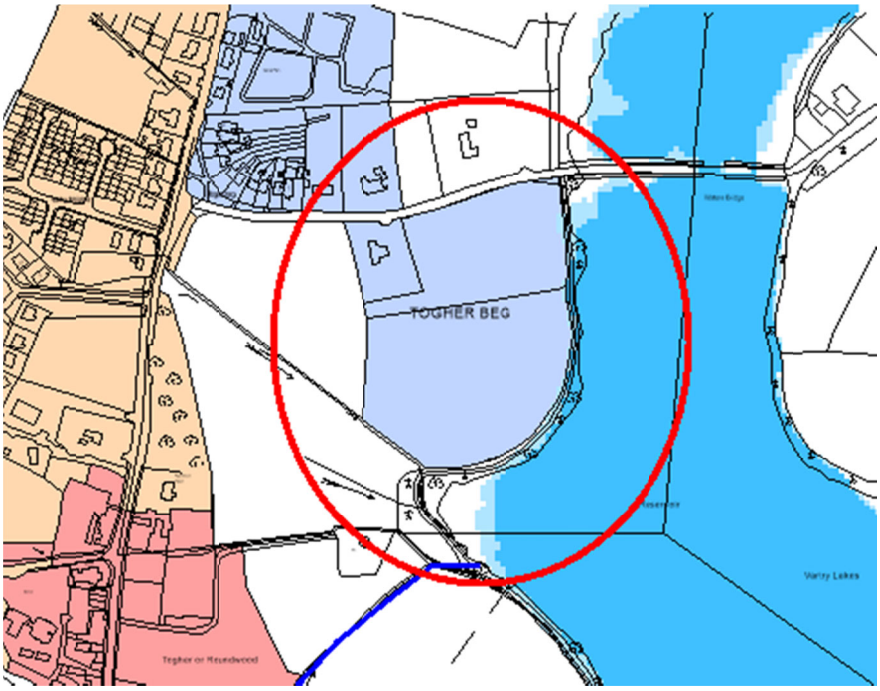
Roundwood

Flood Zone A

Flood Zone B

EPA River Network

Area under assessment



Land zoning		Tertiary Zone (Tourism only)
Flood Zone		B
Development Type		Highly vulnerable / Less vulnerable (exact future uses unspecified)
Requirement for Justification Test		Yes
Justification Test		
1	The urban settlement is targeted for growth under the National Spatial Strategy, regional planning guidelines, statutory plans as defined above or under the Planning Guidelines or Planning Directives provisions of the Planning and Development Act 2000, as amended.	Under the draft Wicklow County Development Plan, Roundwood is designated a Level 6 settlement; Level 6 settlements are designated 'Small Towns Type 2' with moderate local service and employment functions. These settlements range in size (as per the last Census of population 2016) from c. 200 to 1,100 persons. Population growth in Level 5 towns will be approximately 15% between 2016 and 2031. The economic function of 'Small Towns Type 2' is to be an attractor for local investment and to target investment in the form of product intensive industries particularly those related to rural resources. All Level 6 settlements are identified as 'Level 4' in the County retail hierarchy. Level 4 retail centres are defined as 'local centres / small towns' where the retail needs

		would be expected to include one supermarket / two medium sized convenience stores (up to 1,000sqm aggregate) and c. 10-20 smaller shops. In accordance with the County community facilities hierarchy, Level 6 settlements generally fall into the <2,000 population range and should ideally be served with: community / parish hall, open spaces/play areas, outdoor multi-use games area and playing pitches.
2	The zoning or designation of the lands for the particular use or development type is required to achieve the proper and sustainable planning of the urban settlement and in particular:	
	(i) Is essential to facilitate regeneration and/or expansion of the centre of the urban settlement;	No
	(ii) Comprises significant previously developed and/or under-utilised lands;	No
	(iii) Is within or adjoining the core of an established or designated urban settlement;	No
	(iv) Will be essential in achieving compact or sustainable urban growth;	No
	(v) There are no suitable alternative lands for the particular use or development type, in areas at lower risk of flooding within or adjoining the core of the urban settlement.	There are suitable alternative lands available for this use.
3	A flood risk assessment to an appropriate level of detail has been carried out	Refer to main SFRA document
Conclusion		
Justification test FAILED.		
Comment		
A small portion of the lands in this zone have been identified as being located in Flood Zone B with a moderate probability of flooding from rivers/watercourses. The zoning objective does not proscribe exactly where in the zone development should occur or the nature of the development (tourism) which may include less vulnerable and / or water compatible development. Any proposals for new development should be accompanied by an appropriately detailed FRA, undertaken in accordance with Section 4 of this SFRA and the relevant policies and objectives in the County Development Plan.		

Shillelagh

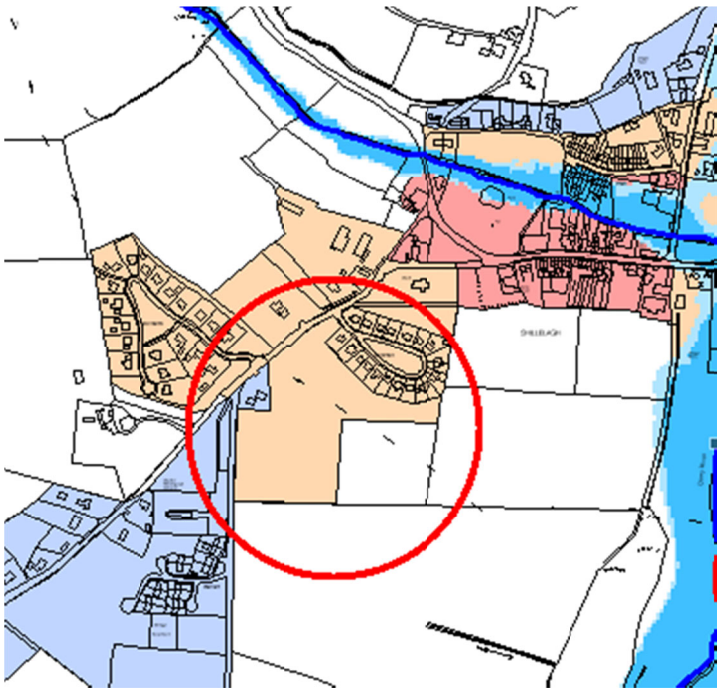
Area 1

Flood Zone A

Flood Zone B

EPA River Network

Area under assessment



Land zoning	Secondary Zone (Mixed Use incl Residential)
Flood Zone	C
Development Type	Highly vulnerable
Requirement for Justification Test	No

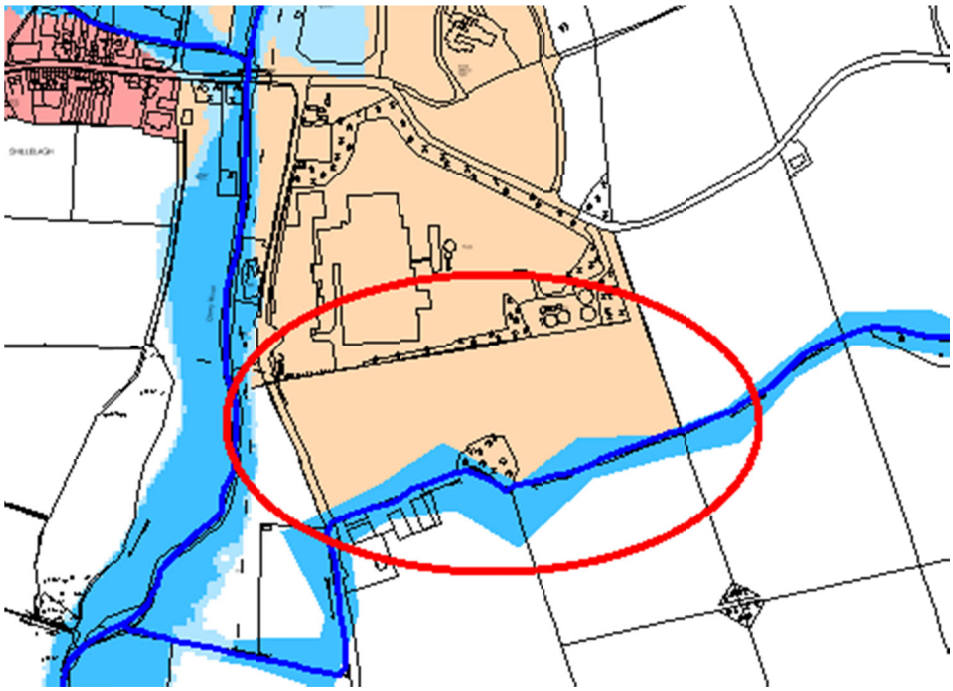
Area 2

Flood Zone A

Flood Zone B

EPA River Network

Area under assessment



Land zoning		Secondary Zone (Employment only)
Flood Zone		A and B
Development Type		Less vulnerable
Requirement for Justification Test		Yes
Justification Test		
1	The urban settlement is targeted for growth under the National Spatial Strategy, regional planning guidelines, statutory plans as defined above or under the Planning Guidelines or Planning Directives provisions of the Planning and Development Act 2000, as amended.	Under the draft Wicklow County Development Plan, Shillelagh is designated a Level 6 settlement; Level 6 settlements are designated 'Small Towns Type 2' with moderate local service and employment functions. These settlements range in size (as per the last Census of population 2016) from c. 200 to 1,100 persons. Population growth in Level 5 towns will be approximately 15% between 2016 and 2031. The economic function of 'Small Towns Type 2' is to be an attractor for local investment and to target investment in the form of product intensive industries particularly those related to rural resources. All Level 6 settlements are identified as 'Level 4' in the County retail hierarchy. Level 4 retail centres are defined as 'local centres / small towns' where the retail needs

		would be expected to include one supermarket / two medium sized convenience stores (up to 1,000sqm aggregate) and c. 10-20 smaller shops. In accordance with the County community facilities hierarchy, Level 6 settlements generally fall into the <2,000 population range and should ideally be served with: community / parish hall, open spaces/play areas, outdoor multi-use games area and playing pitches.
2	The zoning or designation of the lands for the particular use or development type is required to achieve the proper and sustainable planning of the urban settlement and in particular:	
	(i) Is essential to facilitate regeneration and/or expansion of the centre of the urban settlement;	No
	(ii) Comprises significant previously developed and/or under-utilised lands;	No
	(iii) Is within or adjoining the core of an established or designated urban settlement;	No
	(iv) Will be essential in achieving compact or sustainable urban growth;	No
	(v) There are no suitable alternative lands for the particular use or development type, in areas at lower risk of flooding within or adjoining the core of the urban settlement.	There are suitable alternative lands available for this use.
3	A flood risk assessment to an appropriate level of detail has been carried out	Refer to main SFRA document
Conclusion		
Justification test FAILED.		
Comment		
A small portion of the lands in this zone have been identified as being located in Flood Zone A with a high probability of flooding from rivers/watercourses. The zoning objective does not proscribe exactly where in the zone development should occur or the nature of the development (employment) which may include less vulnerable and / or water compatible development. Any proposals for new development should be accompanied by an appropriately detailed FRA, undertaken in accordance with Section 4 of this SFRA and the relevant policies and objectives in the County Development Plan.		