

Appendix A

Flood Risk Assessment

WICKLOW TOWN – RATHNEW DEVELOPMENT PLAN 2013 - 2019

WICKLOW TOWN - RATHNEW DEVELOPMENT PLAN 2013-2019

FLOOD RISK ASSESSMENT

INTRODUCTION

The Flood Risk Assessment for the Wicklow Town - Rathnew Development Plan 2013-2019 has been prepared in accordance with the Guidelines for Planning Authorities 'The Planning System and Flood Risk Management'.

In this plan, the approach is to avoid development in areas at risk of flooding, and where development in floodplains cannot be avoided, to take a sequential approach to flood risk management based on avoidance, reduction and mitigation of risk.

The information about flood risks that has been used in the preparation of this plan has been collated from a number of sources including:

- 'Floodmaps.ie' – The national flood hazard mapping website operated by the Office of Public Works, where information about past flood events is recorded and made available to the public. 'Flood point' information is available on this site and has been noted.
- OPW Draft Preliminary Flood Risk Assessment
- 'Wicklow Town River Analysis' (Barry and Partners, 2004)
- Alluvial deposits maps of the Geological Survey of Ireland – indicating areas that have flooded in the past (the source of alluvium)
- Interviews with local members of the public
- Photographic evidence
- Walk over survey to assess potential sources of flooding
- You Tube video footage of 1965 flood in Wicklow Town
- Examination of the old '6 Inch' maps
- Consultation with the engineering section of Wicklow County Council
- An examination of contours.
- Aerial photographs

At present, no CFRAMS are available for the plan area.

The information from the above sources has been amalgamated to form an Indicative Flood Zone Map for the plan area (Flood Zone map attached). This map provides information on two main areas of flood risk: **Zone A** where there is a high probability of flooding, and **Zone B** where there is a moderate probability of flooding.

Flood Zone A includes lands 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 includes lands 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).




The flood zones described above are indicative of river and coastal flooding only. They should not be used to suggest that any areas are free from flood risk, since they do not include the effects of other forms of flooding such as from pluvial flooding, groundwater or artificial drainage systems (e.g. foul or surface water drainage system).

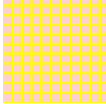
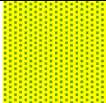



FLOOD RISK ASSESSMENT

Following the Guidelines this flood risk assessment shows the zoning objectives of the plan and their typical permitted uses. This is followed by the justification test for each plot of zoned land within the Flood zone area's A and B. Where the zone is deemed to be appropriate no further action is required here in the FRA. Where the zone requires the justification text to be carried out, it is done so with any necessary mitigation measures recommended.

WICKLOW TOWN - RATHNEW DEVELOPMENT PLAN 2013-2019




The Wicklow Town - Rathnew Development Plan 2013-2019 includes the following land use zoning objectives with their typical permitted uses-




Zone	Legend	Description	Objective	Typical Permitted Uses
RE		Existing Residential: To protect and preserve existing residential uses and provide for infill residential development.	To protect, provide and improve residential amenities of existing properties and areas while allowing for infill residential development that reflects the established character of the area in which it is located and with minimal impact on the existing residential amenity.	New dwellings, Home Based Commercial Activities, Religious Building, Crèche or Nursery School, Community Facility, Open Space, Playground, Residential Institution
R1		New Residential: To provide for new residential development at densities up to 40 units per hectare	To allow for the provision of high quality new residential developments at increased densities with good layout and design, with adequate public transport and cycle links and within walking distance of community facilities. Provide an appropriate mix of house sizes, types and tenures in order to meet household needs and to promote balanced communities	New dwellings, Home Based Commercial Activities, Religious Building, Crèche or Nursery School, Community Facility, Open Space, Playground, Residential Institution
R2		New Residential: To provide for new residential development at densities up to 28 units per hectare	To allow for the provision of high quality new residential environments at a medium-high densities with good layout and design, with adequate public transport and cycle links and within walking distance of community facilities. Provide an appropriate mix of house sizes, types and tenures in order to meet household needs and to promote balanced communities.	New dwellings, Home Based Commercial Activities, Religious Building, Crèche or Nursery School, Community Facility, Open Space, Playground, Residential Institution

Zone	Legend	Description	Objective	Typical Permitted Uses
R3		New Residential: To provide for new residential development at densities up to 20 units per hectare	To allow for the provision of high quality new residential environments at low-medium densities with good layout and design, reflecting the low-medium density character of the surrounding area.	New dwellings, Home Based Commercial Activities, Religious Building, Crèche or Nursery School, Community Facility, Open Space, Playground, Residential Institution
R4		New Residential: To provide for new residential development at densities up to 10 units per hectare	To allow for the provision of high quality new residential environments at low densities with good layout and design, reflecting the low density character of the surrounding area.	New dwellings, Home Based Commercial Activities, Religious Building, Crèche or Nursery School, Community Facility, Open Space, Playground, Residential Institution
E1		Enterprise and Employment: To provide for enterprise and employment development in the form of business parks, light industrial uses, office, technology parks etc with pure warehousing use generally not accounting for more than 20% of the floor area permitted on any site.	To facilitate the further development and improvement of existing employment areas and to facilitate opportunities for the development of new high quality business / technology / office parks and light industrial / warehousing units in a good quality physical environment.	Car Park, Crèche, Enterprise Centre, Industry (General), Industry (Light), Laboratory, Office-Based Employment, Public Services, Restaurant ¹ , Warehouse
E2		Enterprise and Employment: To provide for enterprise and employment development in the form of light industry, warehousing and logistics development.	To facilitate the further development and improvement of existing employment areas and to facilitate the development of new high quality light industrial, warehousing and logistics developments / units.	Car Park, Crèche, Enterprise Centre, Industry (General), Industry (Light), Office-Based Employment, Petrol Station, Port related uses, Public Services, Recycling Centre, Restaurant ² , Service Garage, Warehouse, Waste Transfer Station.
E3		Enterprise and Employment: To provide for enterprise and employment development in the form of retail warehousing development.	To facilitate the sale of bulky goods within high quality settings and highly accessible locations, with an emphasis on exemplar sustainable design and aesthetic quality	Car Park, Cash and Carry Outlet, Garden Centre, Motor Sales Outlet, Public Services, Restaurant, Retail Warehouse, Wholesale Outlet.

¹ Restaurant – This refers strictly only to small restaurant servicing only the needs of those employed in the zone





² Restaurant – This refers strictly only to small restaurant servicing only the needs of those employed in the zone




Zone	Legend	Description	Objective	Typical Permitted Uses
PT		Port: To protect and provide for commercial and industrial port related uses.	To maintain this area as a commercial cargo port and to facilitate the development of new infrastructure and buildings associated with this use subject to any new development being of the highest design quality reflecting its amenity and gateway location in the town.	Industry (Light), Office, Port related uses, Public Services
TC		Town Centre: To preserve, improve and provide for town centre uses.	To develop and consolidate the existing town centre to improve its vibrancy and vitality with the densification of appropriate commercial and residential developments ensuring a mix of commercial, recreational, civic, cultural, leisure, residential uses, and urban streets, while delivering a quality urban environment which will enhance the quality of life of resident, visitor and workers alike. The zone will strengthen retail provision in accordance with the County Retail Strategy, emphasise urban conservation, ensure priority for public transport, pedestrians and cyclists while minimising the impact of private car based traffic and enhance and develop the existing urban fabric.	Car Park, Church / Religious Building, Cinema, Community Facility, Crèche or Nursery School, Cultural Use, Disco or Nightclub, Discount Food Store, Doctor/Dentist, etc., Education, Enterprise Centre, Funeral Home, Garda Station, Guest House, Health Centre, Hotel/Motel, Office-Based Employment, Open Space, Public House, Public Services, Recreational Building, Residential, Residential Institution, Restaurant, Retail services, Service Garage, Shop – Local, Shop Other
VC		Village Centre: To preserve, improve and provide for village centre uses.	To consolidate the existing village centre to improve its vibrancy and vitality with the densification of local community, commercial and residential developments ensuring a mix of commercial, recreational, civic, cultural, leisure, residential uses, and urban streets, while delivering a quality urban environment. Retail developments shall be facilitated in accordance with the County Retail Strategy. The scale of development shall be to cater for both existing residential development and zoned undeveloped lands, as appropriate, at locations which minimise the need for use of the private car and encourage pedestrians, cyclists and the use of public transport.	Car Park, Church / Religious Building, Community Facility, Crèche or Nursery School, Cultural Use, Disco or Nightclub, Doctor/Dentist, etc, Education, Funeral Home, Garda Station, Guest House, Health Centre, Office, Open Space, Public House, Public Services, Recreational Building, Residential, Residential Institution, Restaurant, Retail services, Service Garage, Shop – Local, Shop - Other

Zone	Legend	Description	Objective	Typical Permitted Uses
NS		Neighbourhood Shops and Services: To provide for retail and non retail services such as grocery shops, newsagents, hairdressers, dry cleaners etc and local professional services.	To provide for small scale mixed use commercial / community / retail developments that serve only an immediate catchment or planned new areas of significant residential expansion.	Community Facility, Crèche or Nursery School, Cultural Use, Health Centre, Office, Public Services, Service Garage, Shop – Local, Retail Services, Residential
CC		Clermont Campus: To provide for a higher education and R&D campus	To develop Clermont Campus in conjunction with the Carlow Institute of Technology and other stakeholders as a third level education facility and as a centre of excellence for enterprise development, education, training, research and development. This will entail the development of appropriate infrastructure and facilities necessary for the development of a third level college in particular classrooms, lecture theatres, labs etc and necessary student facilities such as student accommodation, sports facilities and other student services. This area is also identified as suitable for the development of a high technology / R&D enterprise park, including corporate HQs, of the highest quality layout, setting and design in a landscaped setting.	Car Park, Community Facility, Crèche, Education, Enterprise Centre, Industry (Light), Laboratory, Office-Based Employment, Open Space, Public Services, Recreational Building, Recreational Facility/Sports Club, Residential ³ , Restaurant/public house ⁴
CE		Community/Educational/Institutional: To provide for and improve community, educational and institutional facilities.	To facilitate the development of necessary community, health, religious, educational, social and civic infrastructure.	Car Park, Cemetery, Church / Religious Building, Community Facility, Cultural Use, Education, Hospital / Nursing home, Office, Open Space, Playground, Public Services, Recreational Building, Recycling Centre,

³ Only Student accommodation related to the college

⁴ Strictly only to meet the needs of the student population.

Zone	Legend	Description	Objective	Typical Permitted Uses
AOS		Active Open Space: To preserve, improve and provide for recreational public and private open space.	To facilitate the further development and improvement of existing sports areas / clubs and to facilitate opportunities for the development of new high quality active sports and recreational areas	Community Facility, Open Space, Playground, Recreational Building/ Facility/Sports Club,
POS		Passive Open Space: To preserve, improve and provide for parks, recreational public and private open space, green corridors and ecological buffer zones.	To facilitate the further development and improvement of existing parks and other passive / amenity open areas and to facilitate opportunities for the development of new parks, recreational spaces, green corridors and ecological buffers.	Community Facility, Open Space, Playground, Recreational Building/Facility/Sports Club,
T		Tourism: To provide for tourism related uses including tourist accommodation.	To provide for the sustainable development of tourism related structures, uses and infrastructure. To provide for the development of tourism facilities including accommodation of an excellent sustainable design and aesthetic quality. Tourism related office, civic and cultural and commercial development will be facilitated.	Bed & Breakfast, Community Facility, Crèche or Nursery School, Cultural Use, Education, Guest House, Holiday Homes, Hotel/Motel, Public Services, Recreational Facility/Sports Club
MU		Mixed Use: To provide for mixed use development including residential, community, employment and retail uses subject to the objectives specified for each mixed use zone in the development plan	<p>To allow for new mixed use developments at the Murrough and the Whitegates MU zones as extension areas for the core town centre area of Wicklow.</p> <p>Development in The Murrough shall be in accordance with the objectives and standards set out in the Murrough Opportunity Area Brief, while the Whitegates area may be developed as a mixed use residential, employment, community and commercial zone subject to the development of a masterplan for the entire zone.</p> <p>In both areas, only retail development that would be consistent with the provisions of this plan and the County Retail Strategy shall be considered.</p>	Car Park, Cinema, Community Facility, Crèche or Nursery School, Cultural Use, Doctor/Dentist, etc., Education, Enterprise Centre, Guest House, Hotel/Motel, Office, Open Space, Playground, Public House, Public Services, Recreational Building, Recreational Facility/Sports Club, Residential, Restaurant, Shop – Local,

Zone	Legend	Description	Objective	Typical Permitted Uses
CZ		Conservation Zone: To protect Natura 2000 sites / proposed Natural Heritage Areas and a suitable buffer zone outwith their legal boundaries from inappropriate development	To protect these highly sensitive and scenic locations from inappropriate development, reinforce their character, distinctiveness and sense of place and better manage current access and amenity.	Applications for permission in the Conservation Zone shall be evaluated as follows: 1. Where there is underlying zoning, any use shall be assessed for its suitability having regard to the zoning objective and the uses allowable for that zone as set out in tables 13.1 and 13.2. 2. Any application shall be accompanied by the appropriate type of environmental assessment necessary, according to the designation / location of the site vis-a-vis Natura 2000 sites / pNHAs
PU		Public Utilities: To provide for public and service infrastructure and utilities	To allow for lands to be designated for public utilities such as waste water treatment plants, large ESB sub-stations, gasworks etc	Public utilities
SLB		Strategic Land Bank: To provide a suitable land bank for future development of the settlement.	These are lands that are identified as being within the potential built envelope of the settlement with regard to proximity and accessibility to infrastructure. The lands are to be seen as support in achieving the objectives of the main plan and ensure delivery of an overall coherent plan.	Generally any development proposals within the lifetime of the plan will be considered under the Wicklow County Development Plan Rural Objectives.

Flood Zones

As part of the preparation of the development plan, the Planning Authority in considering the future development of the urban settlement has satisfied the justification test in permitting in principle a range of developments in areas that are at moderate or high risk of flooding within the plan area. These area's are assessed in more detail in the flood risk assessment below. The following criteria have been used in the justification test, as recommended by the Guidelines, that is required in the preparation of the development plan:

FLOOD RISK ASSESSMENT

The justification test for each plot of zoned land within the Flood zone area's A and B have been assessed below and where the land use zone is deemed to be appropriate no further action is required here in the justification test. Where the zone requires the justification text (see below) to be carried out, it is done so with any necessary mitigation measures recommended.

Justification Test for development plan

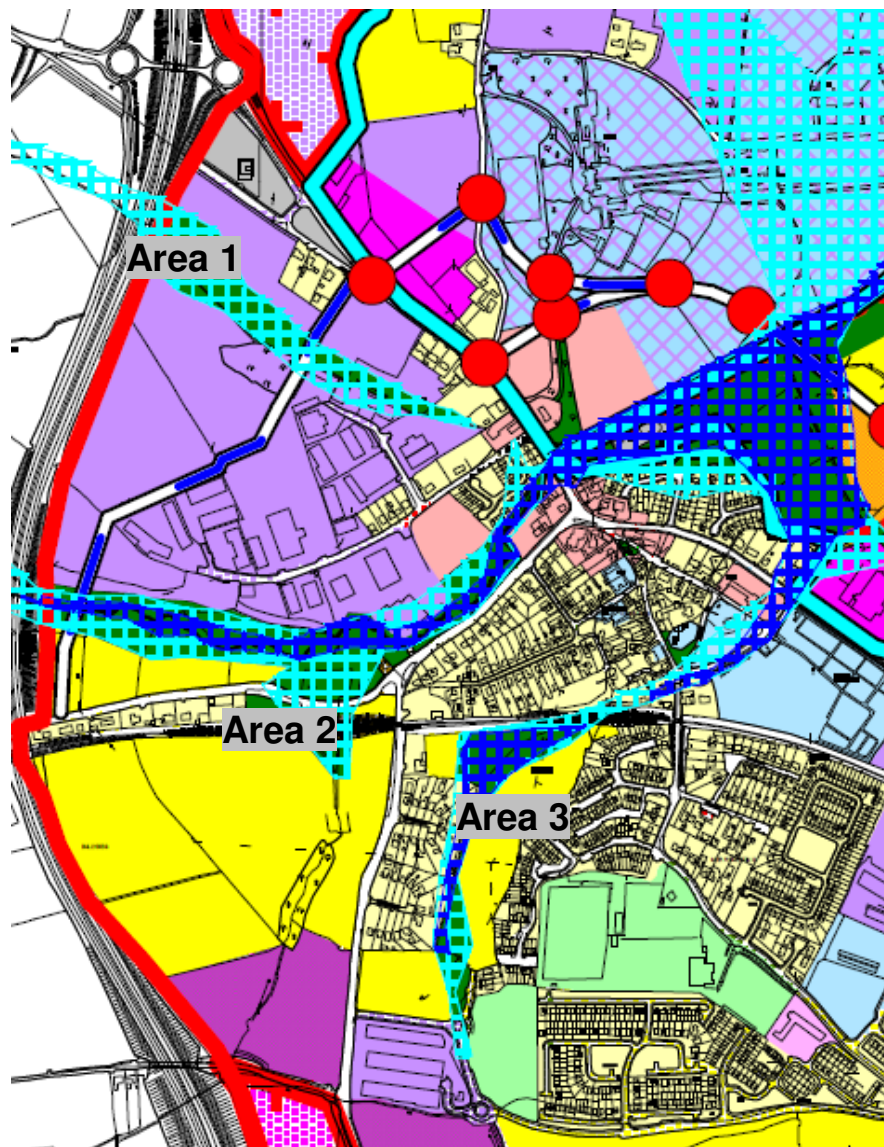
Criteria for area's with a moderate to high risk of flooding		Criteria must be satisfied
1	The urban settlement is targeted for growth under the National Spatial Strategy, regional planning guidelines, statutory plans as defined above or under the Planning Guidelines or Planning Directives provisions of the Planning and Development Act, 2000, as amended.	This test is satisfied for all of the lands within the settlement as Wicklow is identified as a Large Growth Town II and as such is identified as a growth centre under the Regional Planning Guidelines. Each plot of land will not be individually tested against this
2	The zoning or designation of the lands for the particular use or development type is required to achieve proper planning and sustainable development of the urban settlement and in particular:	Each plot of land within the land use zone and flood zone that is not appropriate will be assessed against each sub-point accordingly here. √ = Satisfied

In order to carry out a detailed assessment the plan area has been divided into 7 appropriate areas with each area assessed in line with the Guidelines. The 6 area's area –

1. Rathnew
2. Newrath
3. Murrough
4. Bollarney
5. Wicklow
6. Marlton
7. Strategic Land Bank
8. Dunbur Upper

The following assessments of flood risk has been undertaken for the areas:

1. Rathnew

**Rathnew Area**

- Area 1** Stream with mainly POS zoning under Flood zone B with small areas of E1 zone
- Area 2** Stream with mainly POS zoning under Flood zone A and B with small areas of E1, RE and VC zone
- Area 3** Stream with mainly POS zoning under Flood zone A and B with small areas of RE, CE and VC zone



Flood Zone A



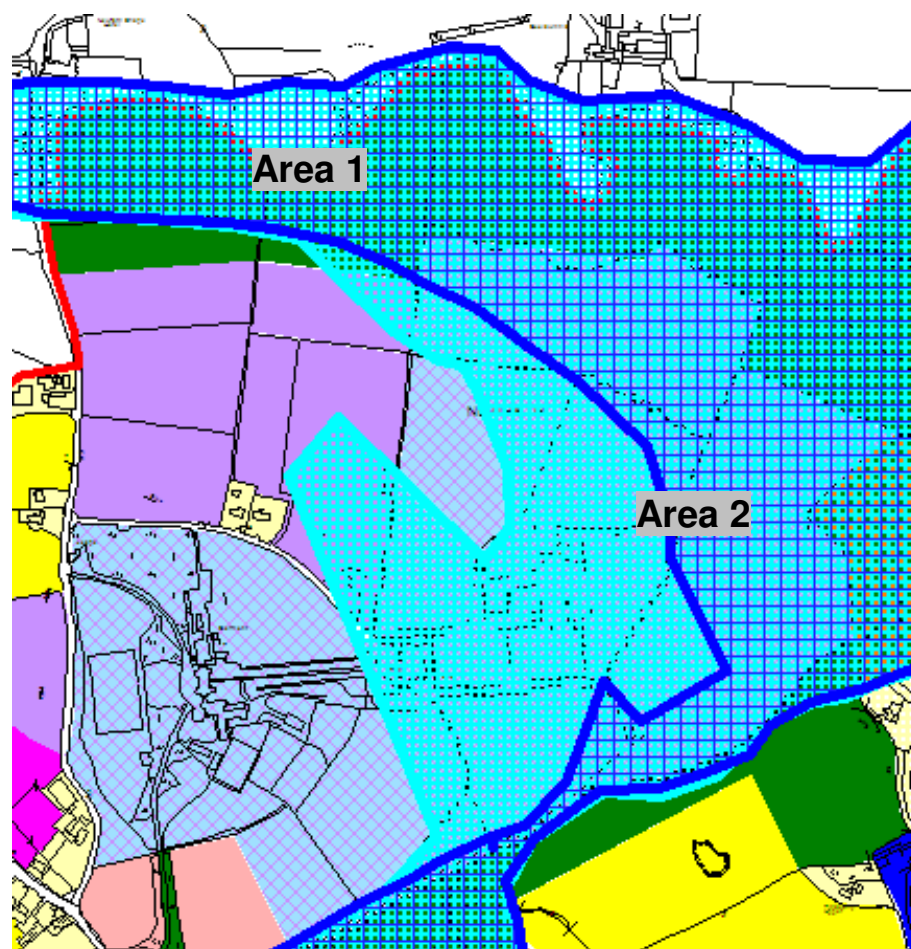
Flood Zone B

Area	Zonings within Flood Zone	Flood Zone	Vulnerability Vrs Flood Zone	Justification Test															
Rathnew 1	POS	B	Appropriate																
	E1	B	Appropriate																
Rathnew 2	POS	A	Appropriate																
	POS	B	Appropriate																
	E1	A	Justification Test	<table><tr><th colspan="5">JUSTIFICATION TEST</th></tr><tr><td>2 (i)</td><td>2 (ii)</td><td>2 (iii)</td><td>2 (iv)</td><td>2 (V)</td></tr><tr><td>√</td><td>√</td><td>√</td><td>√</td><td>√</td></tr></table> <p>Test is satisfied as these lands meet all of the criteria of the justification test However these lands are developed, therefore should infill of vulnerable development be proposed, mitigation measures are required. Objective FL2 of the Development Plan shall apply.</p>	JUSTIFICATION TEST					2 (i)	2 (ii)	2 (iii)	2 (iv)	2 (V)	√	√	√	√	√
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2. Newrath



Newrath Area

Area 1 River with mainly POS zoning under Flood zone A and B with small areas of E1 and CC zone

Area 2 Streams with mainly CC zoning under Flood zone A and B with small areas of E1 zone



Flood Zone A

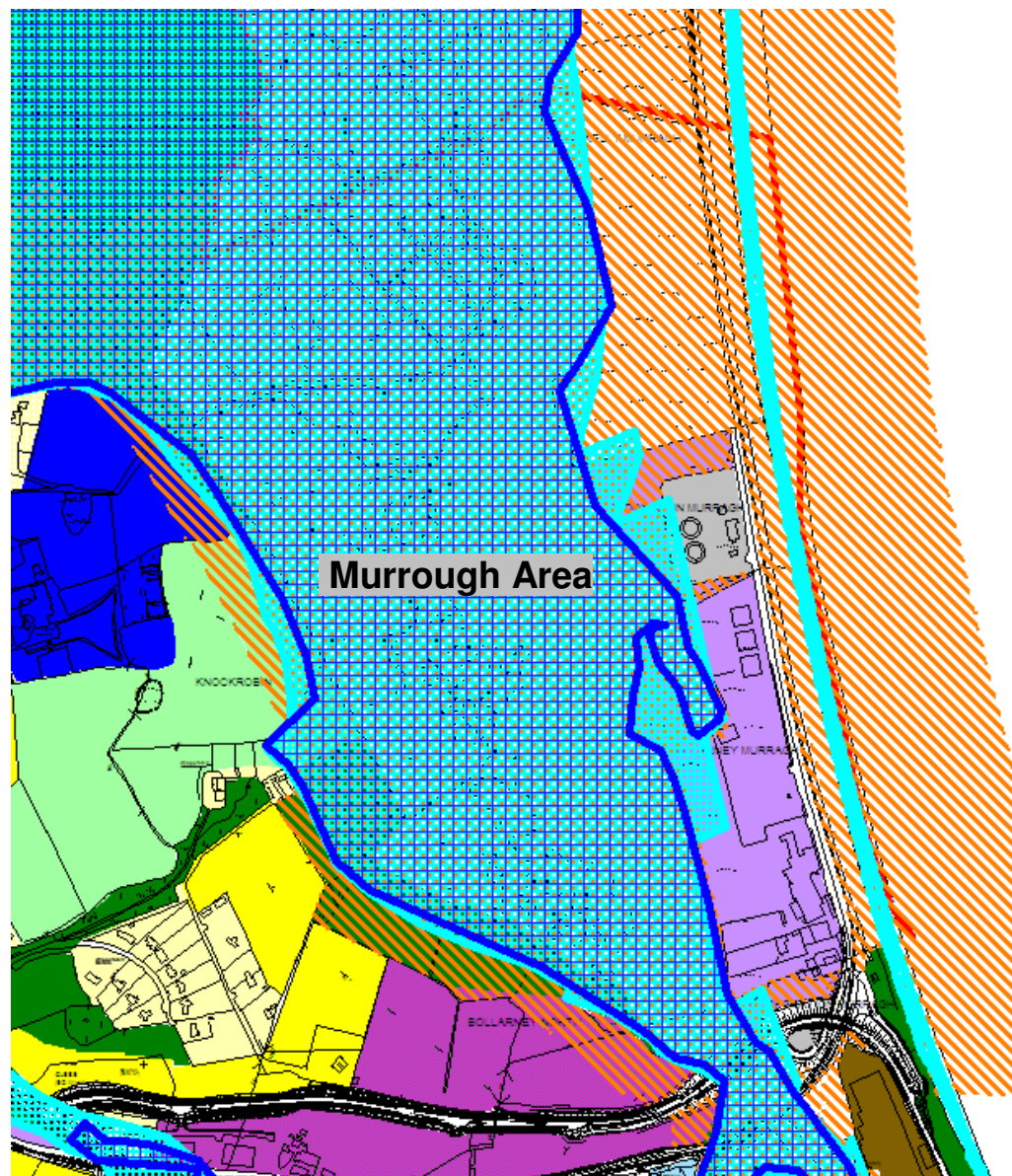


Flood Zone B

Area	Zonings within Flood Zone	Flood Zone	Vulnerability Vrs Flood Zone	Justification Test															
Newrath 1	POS	A	Appropriate																
	POS	B	Appropriate																
	E1	B	Appropriate																
	CC	A	Justification Test	<table><tr><th colspan="5">JUSTIFICATION TEST</th></tr><tr><td>2 (i)</td><td>2 (ii)</td><td>2 (iii)</td><td>2 (Iv)</td><td>2 (V)</td></tr><tr><td>√</td><td>√</td><td>√</td><td>√</td><td>X</td></tr></table> <p>Test is FAILED However these lands are partially developed, therefore should new infill of vulnerable development be proposed, mitigation measures are required. Objective FL2 and section 12.1 of the Clermont – Tinakelly Action Area of the Development Plan shall apply.</p>	JUSTIFICATION TEST					2 (i)	2 (ii)	2 (iii)	2 (Iv)	2 (V)	√	√	√	√	X
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Newrath 2	POS	A	Appropriate																
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√	√	√	√	X															
E1		B	Appropriate																

3. Murrough



Murrough Area

Area Broadlough Estuary with mainly POS zoning under Flood zone A and B with small areas of E1, PU, AOS and CZ zones.



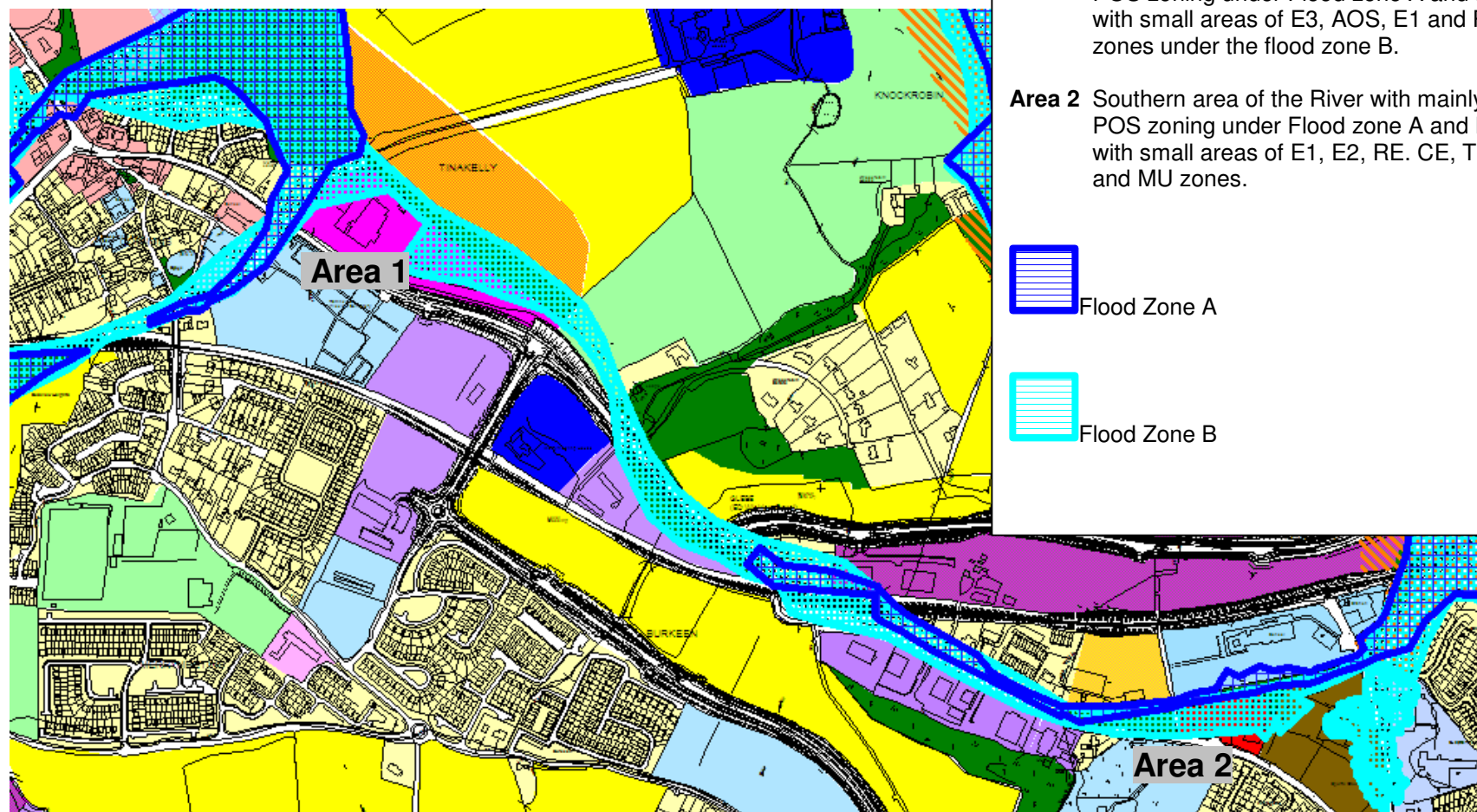
Flood Zone A



Flood Zone B

Area	Zonings within Flood Zone	Flood Zone	Vulnerability Vrs Flood Zone	Justification Test
Murrough	POS	A	Appropriate	
	POS	B	Appropriate	
	E1	B	Appropriate	.
	PU	B	Appropriate	
	AOS	A	Appropriate	
	AOS	B	Appropriate	
	CZ	A	Appropriate	
	CZ	B	Appropriate	

4. Bollarney

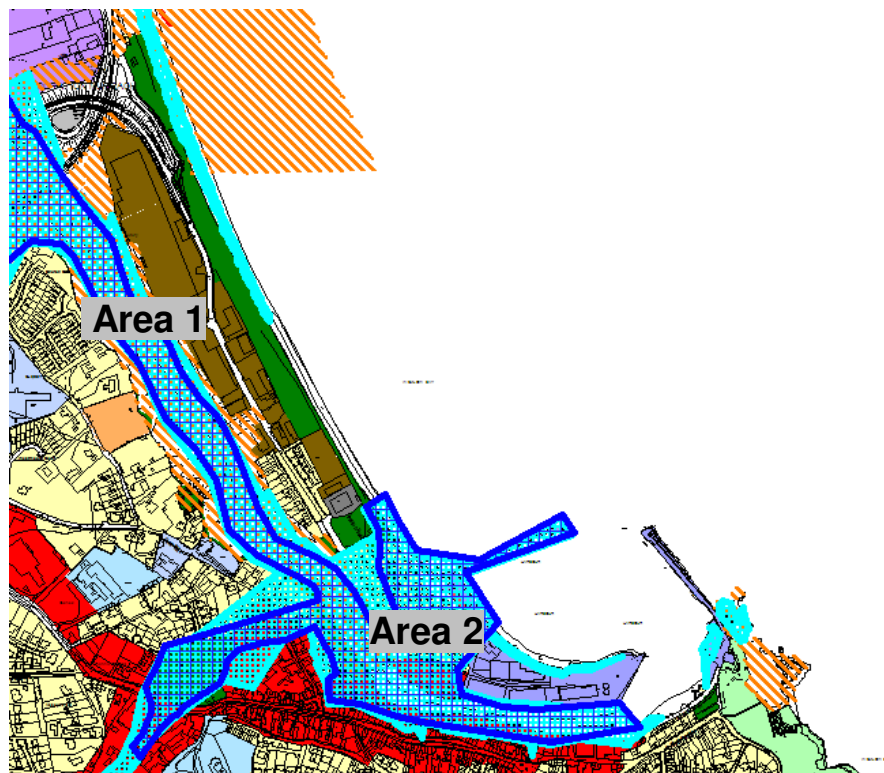


Area	Zonings within Flood Zone	Flood Zone	Vulnerability Vrs Flood Zone	Justification Test															
Bollarney 1	POS	A	Appropriate																
	POS	B	Appropriate																
	E3	B	Appropriate																
	AOS	B	Appropriate																
	RE	B	Justification Test	<table><tr><th colspan="5">JUSTIFICATION TEST</th></tr><tr><td>2 (i)</td><td>2 (ii)</td><td>2 (iii)</td><td>2 (Iv)</td><td>2 (V)</td></tr><tr><td>√</td><td>√</td><td>√</td><td>√</td><td>√</td></tr></table> <p>Test is satisfied as these lands meet all of the criteria of the justification test However these lands are developed, therefore should infill of vulnerable development be proposed, mitigation measures are required. Objective FL2 of the Development Plan shall apply.</p>	JUSTIFICATION TEST					2 (i)	2 (ii)	2 (iii)	2 (Iv)	2 (V)	√	√	√	√	√
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√	√	√	√	√															
POS	B	Appropriate																	
Bollarney 2	POS	A	Appropriate																
	POS	B	Appropriate																
	RE	A	Justification Test	<table><tr><th colspan="5">JUSTIFICATION TEST</th></tr><tr><td>2 (i)</td><td>2 (ii)</td><td>2 (iii)</td><td>2 (Iv)</td><td>2 (V)</td></tr><tr><td>√</td><td>√</td><td>√</td><td>√</td><td>√</td></tr></table> <p>Test is satisfied as these lands meet all of the criteria of the justification test However these lands are developed, therefore should infill of vulnerable development be proposed, mitigation measures are required. Objective FL2 of the Development Plan shall apply.</p>	JUSTIFICATION TEST					2 (i)	2 (ii)	2 (iii)	2 (Iv)	2 (V)	√	√	√	√	√
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	E2	B	Appropriate																
	E1	A	Justification Test	<table><tr><th colspan="5">JUSTIFICATION TEST</th></tr><tr><td>2 (i)</td><td>2 (ii)</td><td>2 (iii)</td><td>2 (iv)</td><td>2 (V)</td></tr><tr><td>√</td><td>√</td><td>√</td><td>√</td><td>X</td></tr></table> <p>Test is FAILED However these lands are partially developed, therefore should new infill of vulnerable development be proposed, mitigation measures are required. Objective FL2 of the Development Plan shall apply.</p>	JUSTIFICATION TEST					2 (i)	2 (ii)	2 (iii)	2 (iv)	2 (V)	√	√	√	√	X
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√	√	√	√	X															
E1	B																		
CE	A	Justification Test	<table><tr><th colspan="5">JUSTIFICATION TEST</th></tr><tr><td>2 (i)</td><td>2 (ii)</td><td>2 (iii)</td><td>2 (iv)</td><td>2 (V)</td></tr><tr><td>√</td><td>√</td><td>√</td><td>√</td><td>√</td></tr></table> <p>Test is satisfied as these lands meet all of the criteria of the justification test However these lands are developed, therefore should infill of vulnerable development be proposed, mitigation measures are required. Objective FL2 of the Development Plan shall apply.</p>	JUSTIFICATION TEST					2 (i)	2 (ii)	2 (iii)	2 (iv)	2 (V)	√	√	√	√	√	
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CE	B	Appropriate																	
TC	B	Appropriate																	

	MU	B	Justification Test	<table border="1"> <tr> <th colspan="5">JUSTIFICATION TEST</th></tr> <tr> <td>2 (i)</td><td>2 (ii)</td><td>2 (iii)</td><td>2 (iv)</td><td>2 (v)</td></tr> <tr> <td>√</td><td>√</td><td>√</td><td>√</td><td>√</td></tr> </table> <p>Test is satisfied as these lands meet all of the criteria of the justification test However these lands are developed, therefore should infill of vulnerable development be proposed, mitigation measures are required. Objective FL2 of the Development Plan shall apply.</p>	JUSTIFICATION TEST					2 (i)	2 (ii)	2 (iii)	2 (iv)	2 (v)	√	√	√	√	√
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√	√	√	√	√															

5. Wicklow



Wicklow Area

Area 1 Leitrim River with mainly POS and CZ zonings under the Flood zone A and B with small areas of RE zone.

Area 2 The centre of the town with a mixture of RE, TC, PT, CE, POS and CZ zones.



Flood Zone A



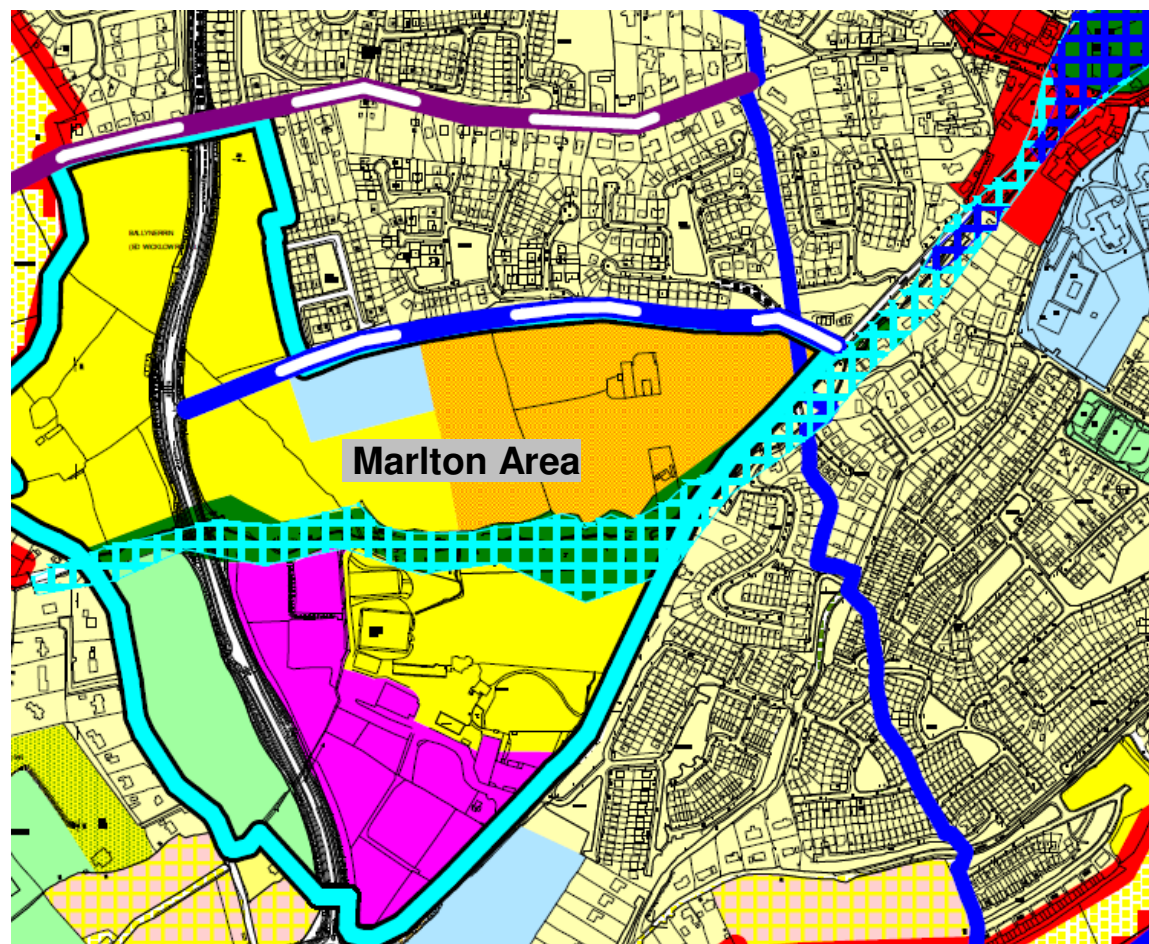
Flood Zone B

Area	Zonings within Flood Zone	Flood Zone	Vulnerability Vrs Flood Zone	Justification Test															
Wicklow 1	POS	A	Appropriate																
	POS	B	Appropriate																
	CZ	A	Appropriate																
	CZ	B	Appropriate																
	RE	A	Justification Test	<table><tr><th colspan="5">JUSTIFICATION TEST</th></tr><tr><td>2 (i)</td><td>2 (ii)</td><td>2 (iii)</td><td>2 (Iv)</td><td>2 (V)</td></tr><tr><td>√</td><td>√</td><td>√</td><td>√</td><td>√</td></tr></table> <p>Test is satisfied as these lands meet all of the criteria of the justification test However these lands are developed, therefore should infill of vulnerable development be proposed, mitigation measures are required. Objective FL2 of the Development Plan shall apply.</p>	JUSTIFICATION TEST					2 (i)	2 (ii)	2 (iii)	2 (Iv)	2 (V)	√	√	√	√	√
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√	√	√	√	√															

	RE	B	Justification Test	<table><tr><th colspan="5">JUSTIFICATION TEST</th></tr><tr><td>2 (i)</td><td>2 (ii)</td><td>2 (iii)</td><td>2 (iv)</td><td>2 (V)</td></tr><tr><td>√</td><td>√</td><td>√</td><td>√</td><td>√</td></tr></table> <p>Test is FAILED However these lands are partially developed, therefore should new infill of vulnerable development be proposed, mitigation measures are required. Objective FL2 of the Development Plan shall apply.</p>	JUSTIFICATION TEST					2 (i)	2 (ii)	2 (iii)	2 (iv)	2 (V)	√	√	√	√	√
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JUSTIFICATION TEST																			
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√	√	√	√	√															
PT	A	Appropriate																	
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JUSTIFICATION TEST																			
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√	√	√	√	√															
CE	B	Appropriate																	

	POS	A	Appropriate	
	POS	B	Appropriate	
	CZ	A	Appropriate	
	CZ	B	Appropriate	

6. Marlton

**Marlton Area**

Area Stream with mainly POS zoning under the Flood zone B with RE, TC and POS zones under the A and B Flood zones

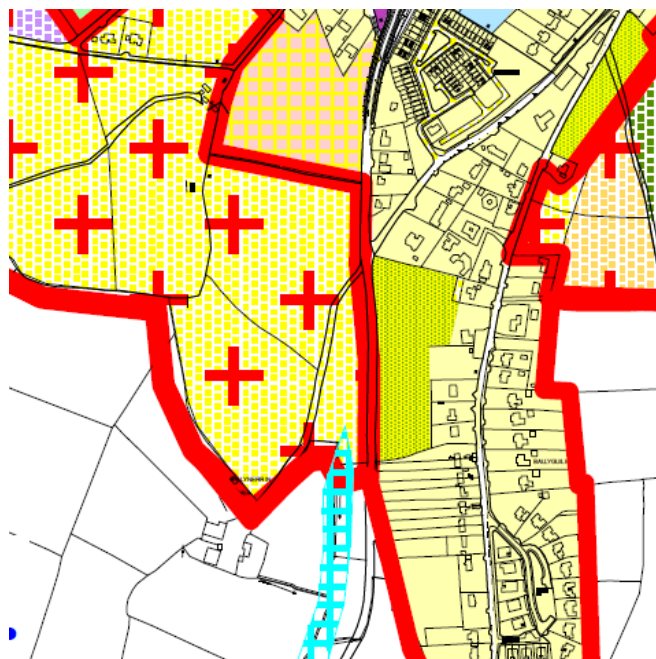
 Flood Zone A

 Flood Zone B

Area	Zonings within Flood Zone	Flood Zone	Vulnerability Vrs Flood Zone	Justification Test															
Marlton 1	POS	A	Appropriate																
	POS	B	Appropriate																
	RE	A	Justification Test	<table><tr><th colspan="5">JUSTIFICATION TEST</th></tr><tr><td>2 (i)</td><td>2 (ii)</td><td>2 (iii)</td><td>2 (Iv)</td><td>2 (V)</td></tr><tr><td>√</td><td>√</td><td>√</td><td>√</td><td>√</td></tr></table> <p>Test is satisfied as these lands meet all of the criteria of the justification test However these lands are developed, therefore should infill of vulnerable development be proposed, mitigation measures are required. Objective FL2 of the Development Plan shall apply.</p>	JUSTIFICATION TEST					2 (i)	2 (ii)	2 (iii)	2 (Iv)	2 (V)	√	√	√	√	√
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RE	B	Justification Test	<table><tr><th colspan="5">JUSTIFICATION TEST</th></tr><tr><td>2 (i)</td><td>2 (ii)</td><td>2 (iii)</td><td>2 (Iv)</td><td>2 (V)</td></tr><tr><td>√</td><td>√</td><td>√</td><td>√</td><td>√</td></tr></table> <p>Test is satisfied as these lands meet all of the criteria of the justification test However these lands are developed, therefore should infill of vulnerable development be proposed, mitigation measures are required. Objective FL2 of the Development Plan shall apply.</p>	JUSTIFICATION TEST					2 (i)	2 (ii)	2 (iii)	2 (Iv)	2 (V)	√	√	√	√	√	
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	TC	B	Justification Test	<table border="1"> <tr> <th colspan="5">JUSTIFICATION TEST</th></tr> <tr> <td>2 (i)</td><td>2 (ii)</td><td>2 (iii)</td><td>2 (iv)</td><td>2 (v)</td></tr> <tr> <td>√</td><td>√</td><td>√</td><td>√</td><td>√</td></tr> </table> <p>Test is satisfied as these lands meet all of the criteria of the justification test However these lands are developed, therefore should infill of vulnerable development be proposed, mitigation measures are required. Objective FL2 of the Development Plan shall apply..</p>	JUSTIFICATION TEST					2 (i)	2 (ii)	2 (iii)	2 (iv)	2 (v)	√	√	√	√	√
JUSTIFICATION TEST																			
2 (i)	2 (ii)	2 (iii)	2 (iv)	2 (v)															
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7. Ballynerrin Upper



Ballynerrin Upper

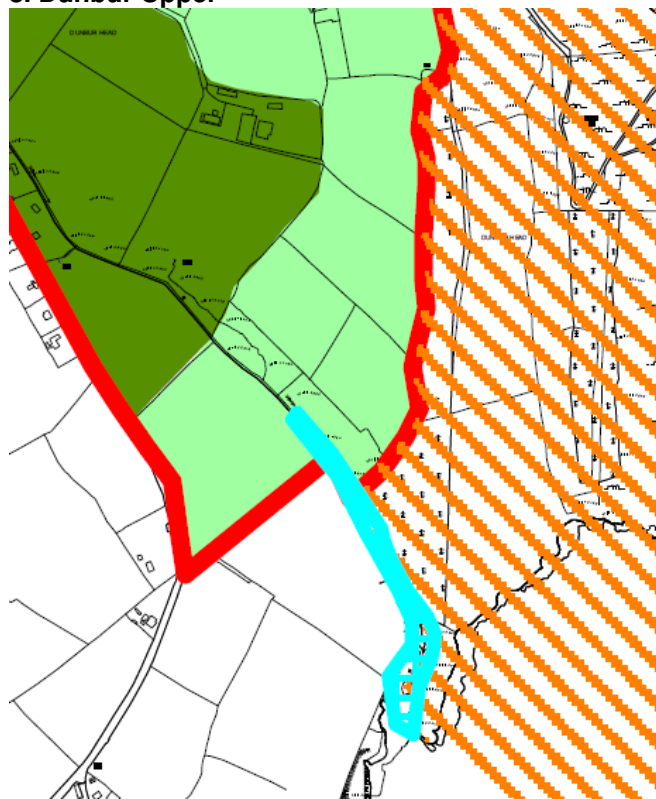
Area Low lands with POS zoning under the Flood zone B



Flood Zone B

Area	Zonings within Flood Zone	Flood Zone	Vulnerability Vrs Flood Zone	Justification Test
Ballynerrin Upper	POS	B	Appropriate	

8. Dunbur Upper



Dunbur Upper

Area Low lands with stream with AOS zoning under the Flood zone B



Flood Zone B

Area	Zonings within Flood Zone	Flood Zone	Vulnerability Vrs Flood Zone	Justification Test
Dunbur Upper	AOS	B	Appropriate	

Development Plan Flood Management Strategy

The Council shall adopt a comprehensive risk-based planning approach to flood management to prevent or minimize future flood risk. In accordance with the Ministerial *Guidelines on the Planning System and Flood Risk Management*, the avoidance of development in areas where flood risk has been identified shall be the primary response. Proposals for mitigation and management of flood risk will only be considered where avoidance is not possible and where development can be clearly justified with the guidelines' *Justification Test*. The justification test has been designed to rigorously assess the appropriateness, or otherwise, of particular developments that, for the reasons of town centre location, are being considered in areas of moderate or high flood risk. Flood management should have regard to surface water, groundwater, drinking water supply, flood plains and water and wastewater infrastructure.

Avoidance of Development in Flood Risk Areas

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 the guidelines:

- Flood zone A – where the probability of flooding is highest (greater than 1% or 1 in 100 for river flooding or 0.5% or 1 in 200 for coastal flooding) and where a wide range of receptors would be vulnerable;
- Flood zone B – where the probability of flooding 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 is low (less than 0.1% or 1 in 1000 for both river and coastal flooding).

A flood risk assessment has been carried out in accordance with the *Guidelines on the Planning System and Flood Risk Management* and is included in this plan as an Appendix. Map No.1 below illustrates Flood Zones A and B in the plan area – for clarity and legibility, Flood Zone C is not marked and can be taken to be all other areas.

Flood Management Objectives to be included in the Development Plan

- FL1** To implement the provisions of the *Guidelines on the Planning System and Flood Risk Management* and the Flood Risk Assessment carried out as part of this plan.
- FL2** Applications for developments in high or moderate flood risk areas (Flood Zones A and B) shall be assessed in accordance with 'The Planning System and Flood Risk Management Guidelines (Nov 2009 DEHLG & OPW)'. Where the planning authority is considering proposals for new development in areas at high or moderate risk of flooding that include types of development that are vulnerable to flooding and that would generally be inappropriate as set out in Table 3.2 of the Guidelines, the planning authority shall be satisfied that the development satisfies all the criteria of 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.
- FL3** Notwithstanding the identification of an area as being at low or no risk of flooding (Flood Zone C) where the Planning Authority is of the opinion that flood risk may arise or new information has come to light that may alter the flood designation of the land, an appropriate flood risk assessment may be required to be submitted by an applicant for development permission.
- FL4** 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.
- FL5** 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.

- FL6** To require all new developments to include proposals to deal with rain and surface water collected on site and where deemed necessary, to integrate attenuation and SUDS measures.
- FL7** For developments adjacent to all watercourses of a significant conveyance capacity 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 to allow access for channel clearing/ maintenance/ vegetation. A minimum setback of up to 10-15m will be required either side depending on the width of the watercourse with riparian vegetation generally being retained in as natural a state as possible.

Planning Implications for each of the Flood Zones

The initial justification test has been met in the zoning of lands, which are subject to moderate or high risk of flooding as outlined above. The second process is the Development Management Justification Test which will be applied 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. The following table illustrates criteria as outlined in the *Guidelines on the Planning System and Flood Risk Management* that must be adhered to when considering a proposed development in the different flood zones.

The table below illustrates the type of development that would be appropriate to each flood zone and those that would be required to meet the justification test.

Table 1: Classification of vulnerability versus flood zone

	Land Uses and Types of development	Flood Zone A	Flood Zone B	Flood Zone C
Highly vulnerable development (including essential infrastructure)	Garda, ambulance, fire stations. Hospitals, Dwelling houses, residential care homes, children's homes and social services homes, Caravans and mobile homes.	Justification Test	Justification Test	Appropriate
Less vulnerable development	Buildings for retail, leisure, warehousing, commercial, industrial and non-residential institutions, Waste treatment, local transport infrastructure, land and buildings used for holiday or short-let caravans and camping. Waste treatment, local transport infrastructure.	Justification Test	Appropriate	Appropriate
Water-compatible development	Docks, marinas, amenity open space, outdoor sports and recreations and changing rooms, water based recreations and tourism (excluding sleeping facilities), essential ancillary sleeping or residential accommodation for staff.	Appropriate	Appropriate	Appropriate

Reduction and Mitigation of Flood Risk

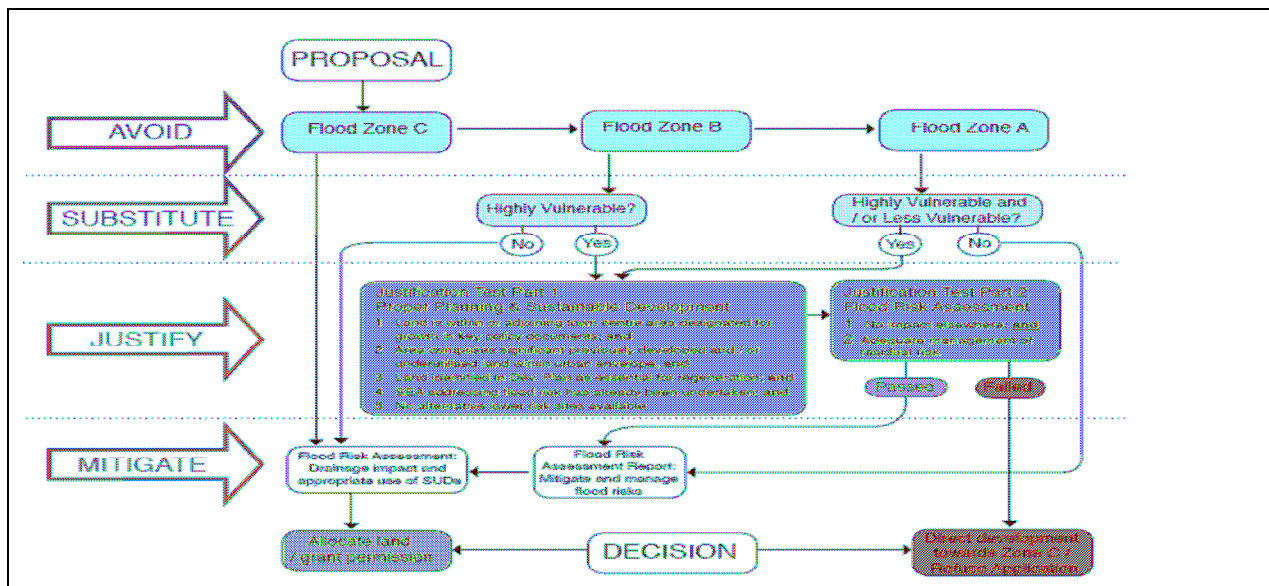
The risks associated with flooding at any particular location can be reduced and mitigated in a number of ways depending on the scale and type of flooding that may be likely, for example:

- Through structural measures that block or restrict the pathways of floodwaters, such as river or coastal defences;
- The provision of attenuation measures (either natural or man made) that hold excess water until it can be released back into the natural water systems;

- Through the proper design of surface water systems, that allow the system to convey away from the site (to an appropriate outfall) the water that may be generated in an extreme event⁵;
- Through the minimisation of 'hard surfacing' in new developments, which prevents waters from seeping into the ground;
- Through 'flood routing' i.e. the integration into the design of a development of escape routes for water;
- Flood resistant and resilient construction;
- Effective emergency planning.

Flood Risk Management

Applications for permission will be evaluated following the sequential approach as set out in the guidelines. This is summarised in the flow diagram⁶ to follow:



Flood Risk Assessment

Where flood risk may be an issue for any proposed development, a flood risk assessment should be carried out that is appropriate to the scale and nature of the development and the risks arising. This shall be undertaken in accordance with the DoE Flood Risk Assessment Guidelines. This shall include proposals for the storage or attenuation of runoff/discharges (including foul drains) to ensure the development does not increase the flood risk in the relevant catchments. Those planning new developments are advised to refer to the OPW National Flood Hazard Mapping Website, the Flood zone map (08.1), Coastal flood maps and GSI data etc prior to submitting proposals.

In regard to the assessment of the land use zones, the following context, strategy and objectives are included in section 10.3 of the Wicklow Town - Rathnew Development Plan 2013-2019 will apply:

Flooding (Flood Management)

Flooding is a natural phenomenon of the hydrological cycle. Different types of flooding include overland flows, river flooding, coastal flooding, groundwater flooding, estuarial flooding and flooding resulting from

⁵ What constitutes an extreme event will depend on the location of the site and the uses thereon. For urban/built up areas or where developments (existing, proposed or anticipated) are involved, design for a 1 in 100 year event will be required; along estuaries, design for the 200-year tide level will be required.

⁶ Reproduced with permission from jba Consulting

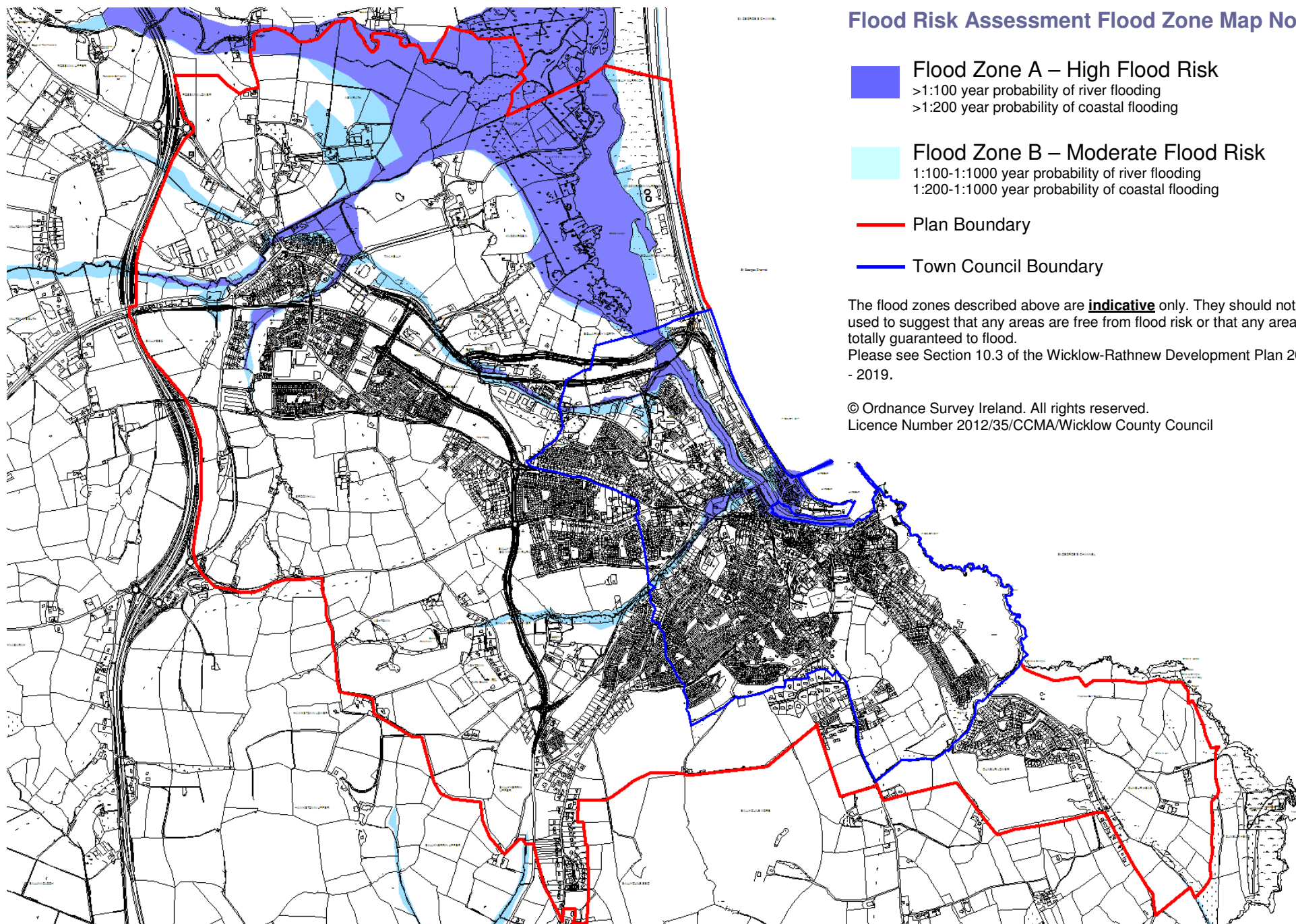
the failure of infrastructure. Like any other natural process, flooding cannot be completely eliminated, but its impacts can be avoided or minimised with proactive and environmentally sustainable management and planning.

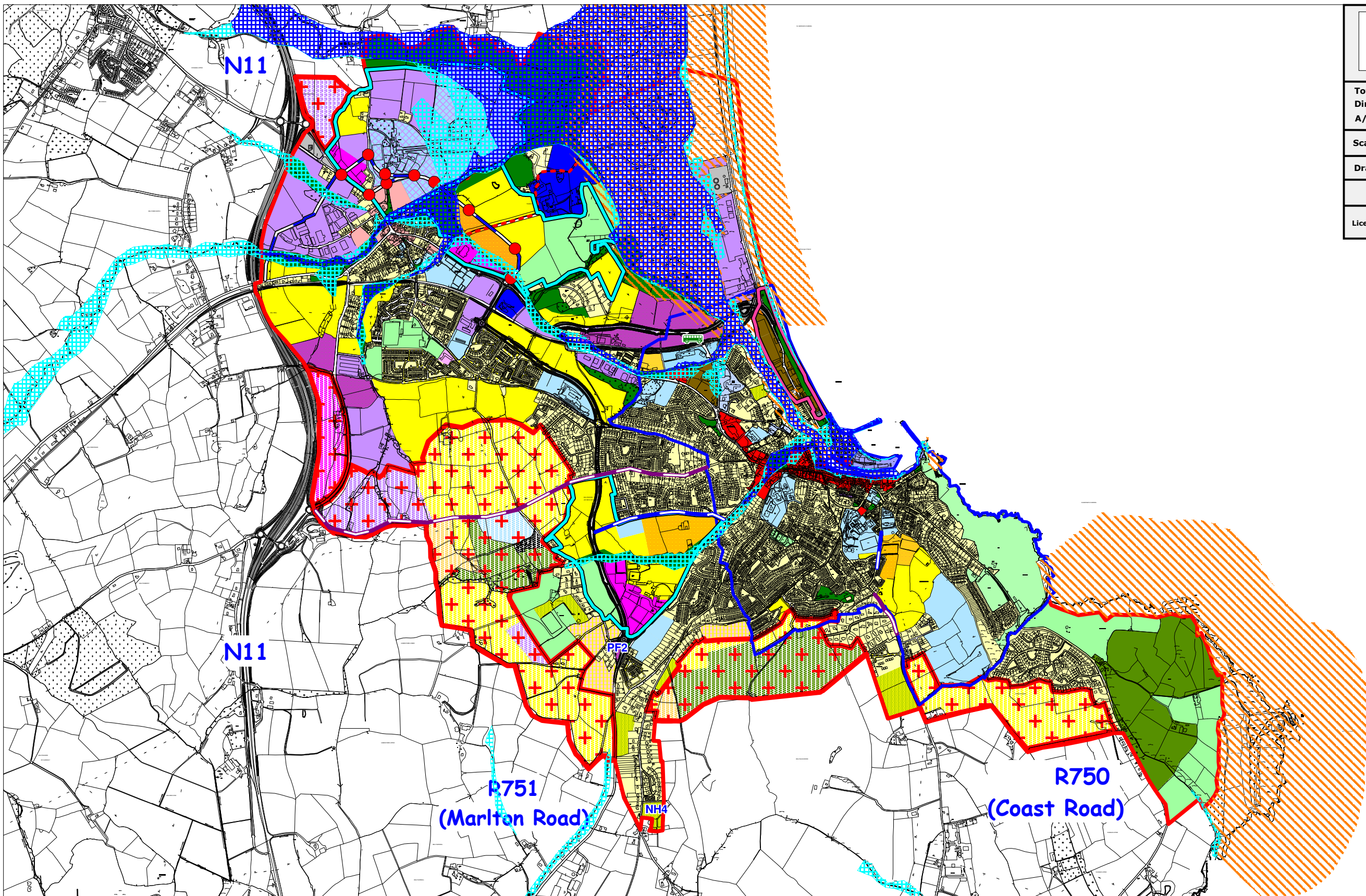
The Office of Public Works (OPW) is the lead agency for flood risk management in Ireland. This gives the OPW a role in policy advice and coordination in addition to its operational roles, but not responsibility for addressing all issues related to flooding. Local Authorities are required to implement the provisions of '*The Planning System and Flood Risk Management*' Guidelines (DoEHLG 2009) in the carrying out of their development management functions.

These guidelines require the planning system at national, regional and local levels to:
































- (1) Avoid development in areas at risk of flooding by not permitting development in flood risk areas, particularly floodplains, unless where it is fully justified that there are wider sustainability grounds for appropriate development and unless the flood risk can be managed to an acceptable level without increasing flood risk elsewhere and where possible, reducing flood risk overall;
- (2) Adopt a sequential approach to flood risk management based on avoidance, reduction and then mitigation of flood risk as the overall framework for assessing the location of new development in the development planning processes; and
- (3) Incorporate flood risk assessment into the process of making decisions on planning applications and planning appeals.

Flood Risk Assessment Flood Zone Map No.1





  	
Town Manager:	Michael Nicholson
Director of Services:	Desmond O' Brien
A/Senior Planner:	Sorcha Walsh
Scale: 1: 25,000 @ A3	Date: 04/09/2013
Drawn By: BH	Checked By: POF
Adopted WCC 2nd September 2013 Adopted WTC 4th September 2013	
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WICKLOW TOWN COUNCIL WICKLOW COUNTY COUNCIL Wicklow County Council Planning Department County Buildings, Station Road, Wicklow Tel: (0404) 20100 Email: plandev@wicklowcoco.ie		WICKLOW TOWN - RATHNEW DEVELOPMENT PLAN 2013 - 2019 FLOOD RISK ASSESSMENT LAND USE ZONING OBJECTIVES	
 Residential - Infill (RE)	 Community/Education/Institutional (CE)	 Conservation Zone (CZ)	 Action Area
 Residential (R1)	 Clermont Campus (CC)	 Port (PT)	 Opportunity Area
 Residential (R2)	 Enterprise & Employment (E1)	 Active Open Space (AOS)	 Mixed Use (MU)
 Residential (R3)	 E & E - Warehousing (E2)	 Passive Open Space (POS)	 Strategic Land Bank (SLB)
 Residential (R4)	 E & E - Retail Warehousing (E3)	 Neighbourhood Shops and Services (NS)	 Public Utilities (PU)
 Town Centre (TC)	 Village Centre (VC)	 Tourism (T)	 Flood Zone A
			 Flood Zone B
			 Town Council Boundary
			 Development Boundary
			 Future Road Alignment (Reserve free from development)
			 Road Improvement
			 Indicative Pedestrian Walkway
			 Park and Ride facility