

STRATEGIC FLOOD RISK ASSESSMENT STAGE 1 & STAGE 2



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Joint Portarlinton Local Area Plan 2018-2024
(draft)



This Strategic Flood Risk Assessment (Stage 1 and Stage 2) report forms part of the (draft) Portarlinton Local Area Plan 2018-2024 and provides a comprehensive consideration of flood risk in Portarlinton for inclusion in the preparation of the plan.



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EXECUTIVE SUMMARY

Laois and Offaly County Councils have prepared the Joint draft Portarlington Local Area Plan. The Local Area Plan sets out the landuse framework for the development of Portarlington over the period 2018-2024. In accordance with “*The Planning System and Flood Risk Management - Guidelines for Planning Authorities*”¹ as amended by Circular PL2/2014, a Strategic Flood Risk Assessment (SFRA) is required to be undertaken during the development of the Plan.

The SFRA is an assessment of flood risk within Portarlington and includes an indicative Flood Risk map, taking into account various factors including local knowledge, photography, site walkovers and published data sources indicative of flood risk.

The recommendations proposed in this SFRA for dealing with flood risk in Portarlington are based on the general policy approach to flood risk in Counties Laois and Offaly as well as national guidance based on best planning principles for managing flood risk.

- Identify Flood Risk at an early stage in the planning process.
- AVOID or minimise development in areas at risk of flooding.
- Permit development in areas at risk of flooding ONLY where there is no alternative or reasonable site available in areas at lower risk.
- Select an appropriate landuse where development is NECESSARY in areas at risk of flooding.
- A precautionary approach to be taken to reflect uncertainties in flood datasets, to provide for climate change and performance of flood defenses. Development should be designed with consideration of possible future changes in flood risk including the effect of climate change.
- Land required for current and future flood management eg. Conveyance and storage of flood water and flood protection schemes should be identified and safeguarded from development.
- Flood risk to, and arising from new development should be managed through location, layout and design incorporating Sustainable Drainage Systems and compensation for any loss of floodplain should be compensated for elsewhere.

Approach to managing Flood Risk in Portarlington

A number of approaches to managing flood risk in Portarlington have and will be employed during the making of the local plan and also in dealing with planning applications for particular developments. These include:

1. Areas at risk of flooding have been identified and there is a greater understanding of why flooding occurs in the general area.
2. A precautionary approach has largely been employed to landuse zoning to avoid directing development towards areas at risk of flooding.
3. Areas at risk of flooding as identified which are being put forward for landuse zoning have been subject to assessment through the justification test.
4. Where particular areas were examined as being strategically important for the consolidated and coherent growth of the town and zoned accordingly, an area specific flood risk assessment will be required and mitigation measures for site and building works will be required to be integrated.

¹ Department of the Environment, Heritage and Local Government and Office of Public Works, 2009

1.0 INTRODUCTION

Offaly County Council has prepared the draft Portarlington Local Area Plan in accordance with the requirements and provisions of the Planning and Development Act 2000 (as amended). The Local Area Plan sets out the landuse framework for the development of Portarlington over the period 2018-2024.

In accordance with “*The Planning System and Flood Risk Management - Guidelines for Planning Authorities*” as amended by Circular PL2/2014, a Strategic Flood Risk Assessment (SFRA) is required to be undertaken during the development of the Plan.

The SFRA is an assessment of flood risk within Portarlington and includes mapped boundaries for indicative Flood Risk Zones, taking into account various factors including local knowledge, photography, site walkovers and published data sources indicative of flood risk. The preparation of this SFRA is being undertaken alongside the preparation of the Plan from draft stage through to material alteration stage and adoption stage. The SFRA has informed the draft Plan and enables compliance with the Flood Risk Management Guidelines.

Flooding is a natural process that can happen at any time in a wide variety of locations. Flooding has significant impacts on human activities; it can threaten people’s lives, their property and the environment. Assets at risk can include housing, transport and public service infrastructure, commercial, industrial and agricultural enterprises. The health, social, economic and environmental impacts of flooding can be significant and have a wide community impact.

1.1 Purpose of Strategic flood risk assessment

The primary purpose of the SFRA is to determine flood risk within a particular geographical area, in this instance, Portarlington town and to support spatial planning decisions in relation to the zoning of particular areas or lands for development. Under the Guidelines the objectives of an SFRA is to:

- Provide for an improved understanding of flood risk.
- Provide an identification of areas of natural floodplain to be safeguarded.
- Produce a suitably detailed flood risk assessment drawing on existing data and apply the sequential approach to development in areas identified at risk of flooding.
- Inform the application of the Justification Test.
- Define measures required to deal with flood risks to reduce the risks to an acceptable level while not increasing flood risk elsewhere, and
- Produce guidance on mitigation measures on how surface water should be managed and appropriate criteria to be used in the review of site specific flood risk assessments.

It should be noted the SFRA is an ever evolving document, which is to be reviewed and updated on a regular basis in light of emerging information, flood data and an improved understanding of flood risk. This SFRA takes into account the latest flood risk information/data available from the OPW and national guidance available.

1.2 Disclaimer

The appraisal of flood risk is an evolving process as it is based on emerging data on flood events. The assessment and mapping of areas at risk of flooding awaits the publication both of Preliminary Flood Risk

Assessments [PFRAs] and Catchment-based Flood Risk Assessment and Management Plans [CFRAMs]. As a consequence, the SFRA for Portarlinton is based on the most current available information from the OPW who are charged with responsibility in this area.

Accordingly, all information in relation to flood risk is provided for general policy guidance and may be updated in respect of emerging new data and analysis. Owners/occupiers, developers and any other interested body are advised to take all reasonable measures to assess the flooding vulnerability or risk of lands in which they have or may have an interest prior to making planning or development decisions.

The aim of this SFRA is to provide an appraisal of all sources of flooding within the Portarlinton area and to set out a number of approaches in the plan making process to avoid, reduce and manage flood risk as part of a wider objective to ensure the protection of property, people and infrastructure. The SFRA does not contain advice for existing occupiers who currently live in areas at risk of flooding or those that may experience flooding.

2.0 LEGISLATIVE AND PLANNING CONTEXT

2.1 European Policy

Water Framework Directive

The EU Water Framework Directive (WFD) aims at improving our water environment. It applies to rivers, lakes, groundwater, estuaries and coastal waters. Member States must aim to achieve good status in all waters and must ensure that status does not deteriorate in any waters. In addition, the WFD defines a planning, management and reporting system based upon River Basin Districts and International River Basin Districts.

The Water Framework Directive is being implemented in parallel to the National CFRAM Programme and the EU 'Floods' Directive. The implementation of the two directives is being coordinated to promote integrated river basin management.

River Basin Management Plans (RBMPs) are plans to protect and improve the water environment. They are prepared and reviewed every six years. The first RBMPs covered the period 2010 to 2015. The second cycle plan is currently being developed. The 2nd cycle RBMP and Programme of Measures are expected to be published in December 2017.

EU Floods Directive

The EU Directive on the assessment and management of flood risks [2007/60/EC], often referred to as the 'Floods' Directive, is a framework directive that requires Member States to follow a certain process, namely:

- Undertake a Preliminary Flood Risk Assessment (PFRA), to identify areas of existing or foreseeable future potentially significant flood risk (referred to as 'Areas for Further Assessment, or 'AFA's).
- Prepare flood hazard and risk maps for the AFAs by December 2013, and,
- Prepare flood risk management plans by December 2015, setting objectives for managing the flood risk within the AFAs and setting out a prioritised set of measures for achieving those objectives.

The OPW is the national authority for the implementation of the EU Directive on the Assessment and Management of Flood Risks [2007/60/EC].

2.2 National Flood Policy²

The National Flood Policy provides for the following recommendations:

- A focus on managing flood risk, rather than relying only flood protection measures aimed at reducing flooding.
- Taking a catchment-based approach to assess and manage risks within the whole-catchment context.
- Being proactive in assessing and managing flood risks, including the preparation of flood maps and flood risk management plans.

These recommendations lead to the development and implementation of the National CFRAM Programme.

² www.opw.ie

CFRAM Programme³

CFRAM is Catchment Flood Risk Assessment and Management. The national CFRAM programme commenced in Ireland in 2011. The CFRAM Programme is central to the medium to long-term strategy for the reduction and management of flood risk in Ireland. The Programme delivers on core components of the National Flood Policy, adopted in 2004, and on the requirements of the EU Floods Directive. The CFRAM Programme comprises three phases:

- The Preliminary Flood Risk Assessment (PFRA): 2011,
- The CFRAM Studies and parallel activities: 2011-2015,
- Implementation and Review: 2016 onwards.

The Programme provides for three main consultative stages:

- 2011 Preliminary Flood Risk Assessments
- 2013 Flood Hazard Mapping
- 2015 Flood Risk Management Plans.

Currently, in line with the EU Floods Directive, the National CFRAM Programme is underway, with CFRAM studies being carried out across seven river basin districts in Ireland. Portarlington lies within the South Eastern River Basin District.

The South Eastern Catchment Flood Risk Assessment and Management (CFRAM) study commenced in the South Eastern district in August 2011 and has run over its anticipated delivery timeline of end of 2016. Consultation with key stakeholders was held in late 2016 and following compilation and analysis of all official submissions received, the draft Flood Risk Management Plans are expected to be finalised. These will also include a National Priority Programme for the implementation of the preferred flood risk management measures. The finalised FRMPs will be presented for Ministerial approval and thereafter for formal approval with Local Authorities.

The draft Flood Risk Management Plan for the South Eastern Catchment is supported by a number of technical reports and sets out the proposed strategy, actions and measures that are considered to be most appropriate given the level of assessment, modelling and appraisal undertaken.

This FRMP will be finalised on assessment and evaluation of the final consultation process.

More information on the CFRAM programme is available on www.cfram.ie.

Preliminary Flood Risk Assessment

The National Preliminary Flood Risk Assessment (PFRA) is a requirement of the EU 'Floods' Directive. The PFRA identified areas at risk of significant flooding and includes maps showing areas deemed to be at risk. Built-up areas deemed to be at significant risk, where the flood risk that is of particular concern nationally, are identified

³ www.opw.ie

as Areas for Further Assessment (AFAs) and more detailed assessment of the extent and degree of flood risk is currently being undertaken in these areas with the objective of producing Flood Hazard Mapping. Portarlinton was designated as an AFA. The outcomes of the PFRA inform the need for more detailed assessment, flood mapping and the review of the Flood Risk Management Plans.

The South Eastern CFRAM Study Flood Risk Review report highlighted Portarlinton catchment as an AFA for fluvial flooding based on a review of historic flooding and the extents of flood risk determined during the PFRA.

The Planning System and Flood Risk Management, Guidelines for Planning Authorities.

The DoEHLG in conjunction with the OPW published guidelines for Planning Authorities in November 2009 entitled 'The Planning System and Flood Risk Management'. The guidelines introduce comprehensive mechanisms for the incorporation of flood risk identification, assessment and management into the planning process. Planning Authorities (both elected members and officials) must implement these guidelines in ensuring that, where relevant, flood risk is a key consideration in preparing development plans and in the assessment of planning applications.

Planning Authorities are required under section 28 of the Planning and Development Act 2000 (as amended) 'to have regard to' the guidelines in carrying out their planning function.

The core objectives of the 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.

The guidelines contain a lot of information relevant to the how the SFRA will be an informative policy framing document, the premise of which will be taken from the guidelines, transposed into the SFRA and enable it to act as a guidance document to inform decision making on land use zoning and general flood risk issues where required and relevant. In this regard, the provisions of the guidelines will be examined in further detail in section 3 of this SFRA.

Circular PL2/2014

Circular PL2/2014 was published by the Department of Environment, Community and Local Government in August 2014. This circular clarified and amended certain aspects of the Guidelines which are relevance to Local Authorities in the preparation of development plans: The clarifications provide for the following:

Justification Test:

- Clarification given to the principle of balancing flood risk management with the development and regeneration of existing areas at risk of flooding within established urban centres, even residential development.

- Planning Authority required to specify, in development plans, the requirements for flood risk management standards and measures in areas where vulnerable development is considered appropriate in flood zones A or B.

Regeneration Areas: Elaboration in guidance for flood risk management in areas that have been designed for urban regeneration by the Planning Authority.

Small scale infill/Rebuilding of houses: Not required to pass the justification test for development management.

Portarlinton Flood Risk Management Strategy

Portarlinton Flood Risk and Management Strategy (FRMS) was completed in January 2007. The FRMS recommended that, in order to alleviate the risk of flooding to existing developed areas **and** to improve the development potential of the town, mitigation measures in the form of floodwalls and embankments through the centre of Portarlinton along the River Barrow and the Blackstick Drain, is the preferred option.

The Strategy sets out 3 phases of works to address flood risk. Phase 1 **must** be carried out ahead of Phases 2 and 3 being implemented. Phase 1 will reduce the risk of flooding to existing properties, primarily the town centre area including Spa Street and Patrick Street. This phase will also reduce the flood risk to a limited amount of undeveloped land to the rear of Patrick Street, representing a key opportunity for Town Centre development.

While the Portarlinton Flood Relief Scheme has been in planning and development since 2006 it is understood that no element of the potential phased scheme has commenced to date.

3.0 FLOOD ASSESSMENT AND MANAGEMENT

3.1 Flood risk

Flooding is a natural process that can happen at any time in a wide variety of locations, in different forms and thus presenting varying degrees of difficulty to people, property and the environment. Climate change and its impact in relation to frequency, pattern and severity of flooding is recognised as becoming more uncertain and more damaging. Understanding flood risk is a key step in managing the impacts of flooding. Flood Risk is a combination of the **likelihood** of flooding and the potential **consequences** of flooding.

3.2 Planning Principles of flood risk management

The key principles of flood risk management are to:

- Avoid development that will be at risk of flooding or that will increase the risk of flooding elsewhere, where possible,
- Substitute less vulnerable uses where avoidance is not possible, and
- Mitigate and manage the risk, where avoidance and substitution are not possible.

The fundamental principle set out in the guidelines is that development should not be permitted in flood risk areas except where there are **no alternative** and appropriate sites available in lower risk areas that are **consistent** with the objectives of proper planning and sustainable development.

3.3 Flood Zones and Vulnerability Classes

In the guidelines, the probability of flooding is established through the identification of Flood zones which describe a High, Moderate or Low risk of flooding from fluvial or tidal sources. These are defined geographical areas defined and used as a key tool in flood management. This is described in further detail in the Table below:

Table 3.1 Description of Flood Zones

Zone	Risk	Description
Flood Zone A	High probability of flooding	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	Moderate probability of flooding	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);
Flood Zone C	Low probability of flooding	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.

It is important to note that the flood zones as defined do not take into consideration other sources of flooding such as groundwater or pluvial. This requires an assessment of risk arising from such sources.

The consequences of flooding depend on the hazards caused by flooding and the vulnerability of receptors i.e. nature of development, age structure of population integral to the development, mitigation measures etc.

On helping to define flood risk further, taking into account matters of probability and consequence, the guidelines have identified the planning implications for each of the Flood Zones A,B & C.

Table 3.2: Flood Zones and implications for planning

Zone	Inappropriate development	Appropriate development
<p>Zone A – High probability of flooding</p>	<p>Most types of development would be considered <u>inappropriate</u> in this zone. Development in this zone should be <u>avoided</u> and/or only considered in <u>exceptional circumstances</u> such as in City/Town Centres or in the case of essential infrastructure that cannot be provided elsewhere. Justification Test must be applied in such cases.</p>	<p>Water compatible development such as docks, marinas, dockside activities that require a waterside location, amenity open space, outdoor sports and recreation.</p>
<p>Zone B Moderate probability of flooding</p>	<p>Highly vulnerable development such as hospitals, residential care homes, Garda, Fire and Ambulance stations, dwelling houses and primary strategic transport and utilities infrastructure would be generally considered <u>inappropriate</u> at this location unless the justification test can be met.</p>	<p>Less vulnerable development such as retail, commercial and industrial uses, sites used for short term caravan and camping and secondary strategic transport and utilities, infrastructure and water compatible development might be considered appropriate in this zone. Less vulnerable development should only be considered if adequate lands/sites <u>are not available</u> in Zone C and subject to a <u>flood risk assessment</u> to the appropriate level of detail to demonstrate that flood risk to/from the development can or will be managed adequately.</p>
<p>Zone C – Low Probability of flooding</p>		<p>Development in this zone is <u>appropriate</u> from a flood risk perspective subject to assessment of <u>flood hazard</u> from sources other than rivers or tidal and would need to meet the normal range of other proper planning and sustainable development considerations.</p>

3.4 Staged Approach

The guidelines recommend a staged approach to be adopted to ensure that only such an appraisal or assessment as is needed for the purposes of decision making at the various plan levels is undertaken. The stages include:

Stage 1: Flood risk Identification: To identify whether there may be any flooding or surface water management issues related to the area of the regional planning guidelines, development plans or local area plans (LAPs) or a proposed development site that may warrant further investigation at the appropriate lower level plan or planning application level. If the Planning Authority considers that there is potential flood risk issue, then stage 2 shall be entered into.

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.

Stage 3: Detailed flood risk assessment: To assess flood risk issues in sufficient detail and to provide 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.

This staged approach is recommended for flood risk assessments at Regional, County and site-specific levels. Within this hierarchy of Regional, County and site-specific flood-risk assessments, a staged approach ensures that the level of information is appropriate to the scale and nature of the flood-risk issues and the location and type of development proposed, avoiding expensive flood modelling and development of mitigation measures where it is not necessary.

4.0 STAGE 1 - FLOOD RISK IDENTIFICATION

4.1 Introduction

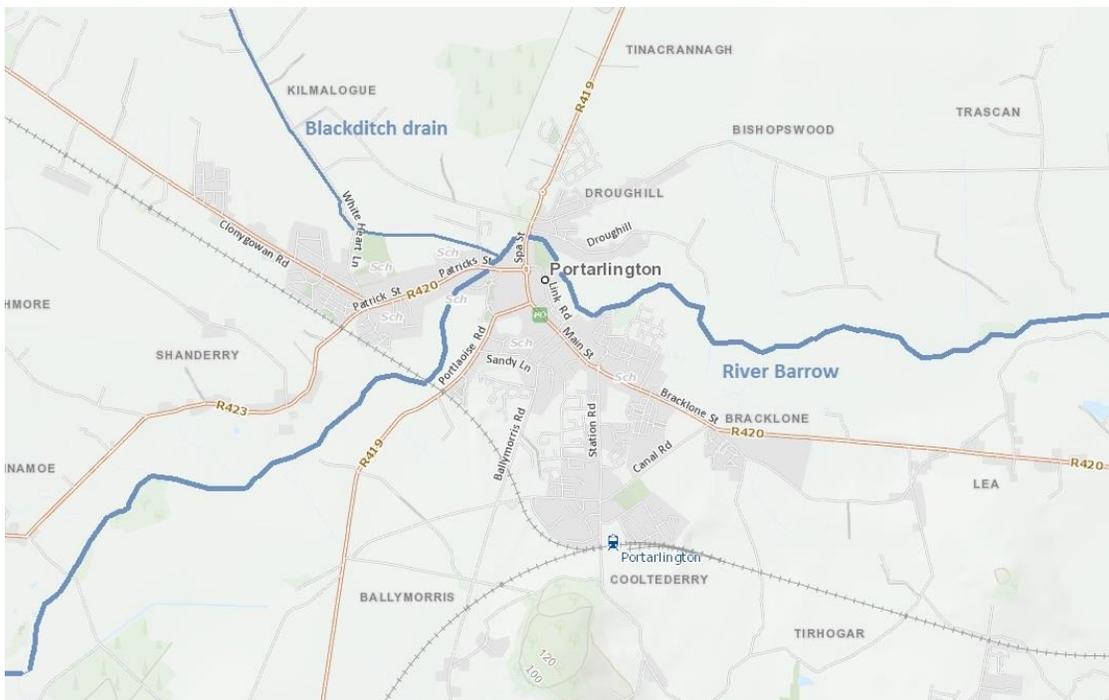
Stage 1 of the Strategic Flood Risk Assessment was undertaken in order to identify whether there may be any flooding or surface water management issues within the town. This informs whether a Stage 2 SFRA, Initial Flood Risk Assessment, should be undertaken. The Stage 1 examines existing flooding information to identify flood risk within the plan area.

4.2 Portarlinton in Context

Portarlinton town is located to the east of County Offaly spanning the administrative boundaries of Laois and Offaly County Councils.

Portarlinton is located on the River Barrow downstream of Mountmellick. Flowing through Portarlinton is the River Barrow and also the Blackstick Drain which is a small tributary of the River Barrow that flows from the north.

Map 4.1: Existing Watercourse network.



4.3 Data Collection and Review

The SFRA provides an appraisal and assessment of available flood risk data. These are itemized below. Table 4.1 sets out the historical flood events while Table 4.2 sets out the indicators of flood risk based on predictive mapping or Hydraulic Modelling.

The following relevant reports and documents were collated and reviewed:

- Portarlinton Local Area Plan 2012-2018 including accompanying reports.

- Portarlington Flood Risk Assessment Plan 2007.
- Public Consultation and Pre-draft submissions on Portarlington Local Area Plan 2018-2024.
- Offaly County Development Plan 2014-2020 and Strategic Flood Risk Assessment.
- Laois County Development Plan 2017-2023
- HA14 Hydraulics Report Portarlington (2016-2017) CFRAM.
- National Preliminary Flood Risk Assessment Study (PFRA).
- Historical Flood records including photographs and reports – floodmaps.ie
- Benefitting land maps and drainage districts.

Table 4.1: Historical Flood Events

Historical Flood Events:	
August 2008	<p>Flooding occurred in Portarlington after a heavy and prolonged period of rainfall.</p> <p>Flooding occurred at the Laois County Council yard, the swimming pool and on roads and properties around Spa Bridge and Barrow Bridge. A peak river level recorded at this time was the 4th highest level on record.</p>
January 2005	<p>Flooding occurred at an Industrial Estate in Buttle Lane, Bog Lane and Mill Island with no additional information provided. The event occurred on the 8th January.</p>
January 2004	<p>Flooding occurred at Mill Island and in the vicinity of Barrow Bridge in Portarlington on 16th January 2004. No details on the full extent of damage caused were available on floodmaps.ie.</p>
January 2000	<p>Flooding occurred at an Industrial Estate in Buttle Lane. No additional information was provided on floodmaps.ie. The event occurred on the 12th January 2000.</p>
January 1985	<p>Historical data available on www.floodmaps.ie indicates that flooding occurred in Portarlington, starting on 28th January 1995 when heavy rain caused the River Barrow to break its banks.</p>

February 1990	<p>The River Barrow flooded in Portarlinton as a result of heavy and prolonged rainfall.</p> <p>The Convent and CBS schools were closed on advice of the local authority and dozens of households were flooded. Water supply was also cut as the Council decided against drawing water supplies from the Barrow. Both Patrick and Spa Streets were flooded and two premises on Lower Main Street required pumping by the fire brigade. The vicinity of the railway station was also flooded.</p>
December 1968	<p>Information from Irish Independent and Irish Times press articles discuss flood event which occurred in Portarlinton on 24th and 25th December 1968. Heavy rain caused the River Barrow to break its banks forcing 20 families to spend Christmas in the upper stories of their houses on Spa Street.</p>
December 1964	<p>River Barrow burst its banks flooding hundreds of acres of land in the area. Flood water and stormy conditions caused a wall of a cottage to collapse.</p>

Table 4.2: Predictive Hydraulic Modelling

Predictive/Hydraulic Modelling:	
OPW Preliminary Flood Risk Assessment (PFRA)	<p>PFRA Fluvial flood extents includes land adjacent to the River Barrow (flood plain) and low lying agricultural lands surrounding the built up area of the town to the east and west from River Barrow and north west from the Blackditch drain.</p> <p>Part of urban/built up area subject to flooding. River Barrow and Blackditch Drain.</p>
Emerging data – South Eastern CFRAM	<p>Portarlinton and its environs were identified as an ‘Area for Further Assessment’ through the Catchment Flood Risk Assessment and Management Studies (CFRAMs).</p> <p>A Hydraulics Report for Portarlinton was carried in support of the South Eastern CFRAM Flood Risk Review HA/UoM 14 (Barrow), Catchment and informed the Fluvial Flood Extents Mapping and specific and general risk to habitants and the environment.</p>

4.4 Findings from Data Collection and Review

There are a number of issues giving rise to the risk of flooding in Portarlinton across the 1 in 10 year, 1 in 100 year and 1 in 1000 year flood events.

At time of inundation, three critical structures identified in the Hydraulics Report HA14 play a significant role in flow restriction. These include the Annamoe road bridge, the Patrick/French Church Street road bridge and the Spa Street road bridge. During all flood events, all three structures restrict flow and cause flow to build upstream affecting agricultural, grassland and a number of residential properties in the urban area. The Spa Street bridge in its restriction gives rise to impact on a significant number of properties in the area.

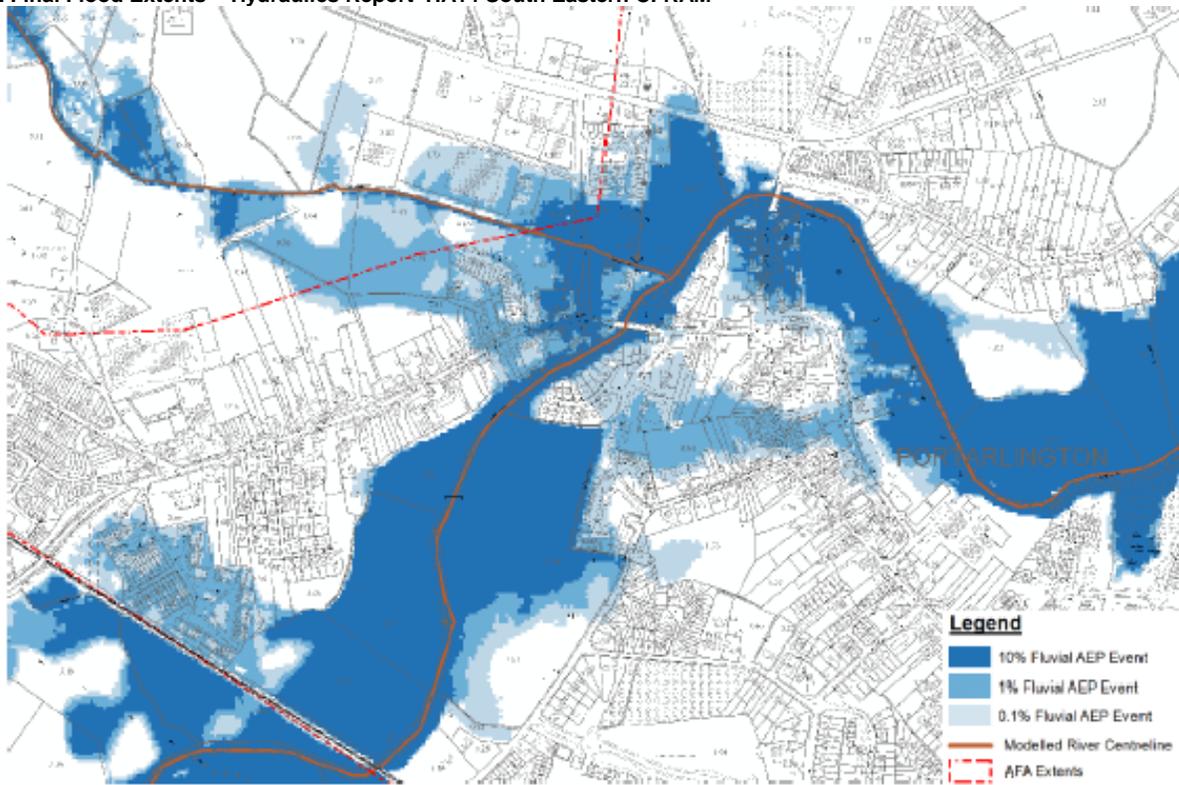
Adding to the issue of flow restriction, the capacity of the river channel is insufficient to convey flood flows.

Convergence point of River Barrow and Blackstick Drain gives rise to flooding on account of high levels in the River Barrow in itself giving rise to flooding and also backing up the Blackstick Drain.

During more extreme flood events floodwaters inundate a larger part of the town particularly the Spa Street and Patrick Street areas. Floodwaters have been recorded to overtop the railway embankment flooding a significant number of houses in the Bog Road area.

Following informal and formal public consultation and modelling through the South Eastern CFRAM process flood hazard and risk mapping have been revised from previous flood mappings (through PFRA and Portarlinton Flood Study 2007) to reflect less 1% (1 in 100 year) Annual Exceedance Probability flooding along the Blackstick Drain.

Map 4.2 Final Flood Extents - Hydraulics Report HA14 South Eastern CFRAM



5.0 STAGE 2 – INITIAL FLOOD RISK ASSESSMENT

5.1 Introduction

Stage 1 (Flood Risk Identification) has identified potential flood risk issues stemming from the River Barrow and Blackditch Drain. Stage 2 examines initial flood risk to ensure that all relevant flood risk issues are assessed in relation to the decisions to be made and that the potential conflicts between flood risk and development are addressed to the appropriate level of detail.

A Stage 2 SFRA (initial flood risk assessment) is undertaken to:

- Confirm the sources of flooding that may affect areas within the Plan boundary;
- Appraise the adequacy of existing information as identified in the Stage 1 SFRA;
- Scope the extent of the risk of flooding through the preparation of indicative flood zone maps specifically to inform landuse zoning in the plan.

5.2 Hydraulics Report

The Hydraulics Report (HA14) completed as part of the CFRAM study for UoM-14 for the Barrow Catchment and particularly for the Portarlinton Area of Further Assessment (AFA) provides the complete assessment of flood risk in the town. This technical report supports and informs the CFRAM.

The report details:

- General Hydraulic Model Information.
- Hydraulic Model Construction including critical structures.
- Historical Flooding.
- Hydraulic Assumptions.
- Parameters of flood risk.

The findings on flood events and risk in the Hydraulic Report are representative of historical flood extents as reported and documented for Portarlinton.

Flood risk Findings:

The historical flooding records, the model outputs report and the FRMP Mapping all identified the same areas as being particularly susceptible to flood risk. Flooding in the urban area of Portarlinton and surrounding lands is predominantly as a result of the exceedance of the river channel and the convergence with the Blackstick Drain.

Flooding from the River Barrow: Exceedance of the channel in times of increased rainfall as well as restrictions on flow from three bridge result in a backfall/overflow effect impacting on lands and properties adjoining the river to the east of the town centre, within the town centre and south west of town centre.

Flooding from Blackditch Drain: Significant area of flooding at the River Barrow and Blackditch Drain confluence with a backwater effect of Blackditch Drain.

5.3 Flood Defence Assets and Structures

There are none in Portarlinton. The Flood Study completed in 2007 for the town recommended floodwalls and embankments. This option included the construction of floodwalls and embankments through the centre of Portarlinton along the River Barrow and the Blackstick Drain. These measures sought to primarily protect existing properties from flooding and included the construction of riverside walls and earth embankments designed to retain floodwater. None of these works commenced.

5.4 Indicative Flood Risk Zone Mapping

Taking into account the stage 1 SFRA and the Stage 2 SFRA an indicative flood risk zone map has been produced.

- Indicative Flood Zone A – where the probability of flooding is highest (greater than 1 in 10), and
- Indicative Flood Zone B – where the probability of flooding is moderate (greater than 1 in 100).

All other areas are considered to be Indicative Flood Zone C – where the probability of flooding is less than 1 in 1000.

The flood zone areas have been developed by using the extents of coverage by:

- Portarlinton Flood Study 2007.
- Hydraulics Report mapping (HA14).
- Historical 6" maps.

Please refer to Appendix A1 for Indicative Flood Risk Zone Map.

5.5 Flood Risk and Justification Test

The Landuse zoning map for Portarlinton Town has been developed taking into consideration the areas identified as being at risk of flooding as per the indicative flood risk map (**please refer to Appendix A2 for Landuse Zoning and Indicative flood Zone map merged**). Largely a precautionary approach has been taken to landuse zoning and this provides for the avoidance or minimization of development in areas at risk of flooding.

The flood risk in Portarlinton is high as identified in stage 1 and explored further in stage 2 and is expansive in its occurrence. Given the expansive nature of the area subject to flooding and for the purposes of the justification test, 3 areas having been identified for evaluation under the criteria of the plan making justification test.

The 3 areas subject to the Justification Test are delineated for the purposes of identification in Appendix A3.

Justification Test

Land Zoning in areas identified as being at risk of flooding	<p>Area FR1: Amenity and Open Space</p> <p>Area FR2: Amenity and Open Space, Existing residential, Town centre/mixed.</p> <p>Area FR3: Town centre/mixed, Amenity & Open Space, Industry, Enterprise & employment, existing residential and Tourism/Leisure</p> <p>Please refer to Appendix A3 for identification of areas FR1, FR2, and FR3 with landuse zonings and mapped flood extent.</p>
Flood Zone	Flood Zone: 1/100 year AEP
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.	In the Core Strategy of the Laois County Development Plan 2017-2023 and the Offaly County Development Plan 2014-2020 Portarlinton is identified as Key Service Town and is recognized as an important driver for the local economy on account of the economic, administrative and social functions provided. Portarlinton is targeted for further population growth given its strategic location and with access to rail transport.
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;	<p>Area FR1: This area extends from the centre of the town eastwards. The zoning objective Amenity and Open Space, follows the extent of areas subject to flooding reflecting the need for significant tracts of flood plain or storage area in this part of the town. Uses permitted in the Amenity and Open Space zoning objective would be of low vulnerability. A significant level of importance is placed on this area for water storage in times of inundation rather than the promotion of development thus providing for the proper sustainable development of the town of Portarlinton.</p> <p>Area FR2: This area is located south west of the town centre and provides for a large area of Amenity and Open Space zoning, Town</p>

		<p>centre/mixed use zoning towards the centre of the town and established residential zoning.</p> <p>Lands associated with the Amenity and Open Space Zoning are relied upon as floodplain or water storage areas in times of inundation particularly given the restrictions in conveying flow through the town centre. While these lands can be considered for low vulnerable uses it is not the intention to bring them forward for development.</p> <p>Lands associated with town centre/mixed use uses are necessary to facilitate both the regeneration and the logical expansion of the town centre. These lands are centrally located and are predominantly developed upon already for the purposes of retail and commercial development. Other undeveloped lands in this this area comprise backland areas/garden areas of retail units along the main street. Given the existing established development and the central location of this area it is considered that for the proper consolidation and a more efficient use of town centre lands this area is important for the future growth of the town.</p> <p>Lands associated with existing residential accommodates the residential area of Rose Court which is established. While it is not considered important to facilitate regeneration and the logical expansion of the town, consideration must be given to the needs of this residential area with respect to housing standards and requirements.</p> <p>Area FR3: This area is located west of the town centre and provides for zoning objectives including; Amenity & Open Space, Tourism & Leisure, Industry, Existing residential, Residential 2, Town Centre/Mixed Uses and Business/Employment</p> <p>The Industry and Business/Employment Zoned lands are located in an important area of the town where expansion could be reasonably expected to take place. These lands are considered an appropriate location for the expansion of business/employment generating development.</p> <p>Town Centre/Mixed Uses are located towards the centre are of the town. This area while not considered essential to the regeneration of the</p>
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		<p>centre of the town, the zoning takes account of the existing nature of development at this location.</p> <p>Tourism/Leisure Lands: These lands north of the existing town centre may accommodate tourism related developments which would be necessary to boost the economic development of the area and leverage off tourist related opportunities.</p> <p>Residential 2: The backland area off Patrick Street is considered essential to the coherent and compact development of the area, promoting a more sustainable approach to urban development. A balance needs to be struck at the location for the reasoned protection of future residential development and the reliance on the floodplain area bounding the residential 2 areas. Precautionary approach taken to zoning of residential 2 in these areas.</p> <p>Existing Residential: Consideration must be given to the needs of this residential area with respect to housing standards and requirements.</p> <p>The area zoned Amenity and Open Space are relied upon as floodplain or water storage areas in times of inundation. While these lands can be considered for low vulnerable uses it is not the intention to bring them forward for development.</p> <p>.</p>
	<p>(ii) Comprises significant previously developed and/or under-utilised lands</p>	<p>Area FR1: The area of land zoned for amenity and open space is largely undeveloped and assumes the function/capacity as a natural floodplain to deal with backfall and exceedance from the river channel.</p> <p>Area FR2: The area of land zoned for amenity and open space is largely undeveloped and has the capacity to act as a natural floodplain to deal with backfall and exceedance from the river channel.</p> <p>Lands where Town centre/Mixed Use zoning applies is largely developed with tracts of backland/ garden areas undeveloped.</p> <p>Residential area Rose Court is an established residential area.</p>

		<p>Area FR3: Industry and Business/employment zoned lands are considered underutilised as they present opportunities for development to the north west of the town.</p> <p>The area of land zoned for amenity and open space is largely undeveloped and assumes the function/capacity as a natural floodplain to deal with backfall and exceedance from the river channel.</p> <p>Tourism and leisure lands are currently undeveloped.</p> <p>Town Centre/Mixed Use – located to the east of the area are fundamentally developed.</p> <p>Existing Residential are currently developed.</p> <p>Residential 2 are largely undeveloped.</p>
	<p>(iii) Is within or adjoining the core of an established or designated urban settlement;</p>	<p>Area FR1: Adjoins Town Centre to west.</p> <p>Area FR2: Town Centre/Mixed Use zoning forms part of the defined Town Centre.</p> <p>Area FR3: Area of land zoned Town Centre forms part of the delineated Town Centre.</p> <p>Industry and business/employment are slight remove given nature of developments located there as well as site size requirements of prospective occupiers.</p>
	<p>(iv) Will be essential in achieving compact or sustainable urban growth;</p>	<p>Area FR1: N/A given the function/capacity to deal with flood waters.</p> <p>Area FR2: Town Centre/Mixed Use is essential in achieving consolidation of the urban core area providing for more effective, efficient and sustainable use of lands at a key central location.</p> <p>Area FR3: Town Centre/Mixed Use is essential in achieving consolidation of the urban core area</p>

		<p>providing for more effective, efficient and sustainable use of lands at a key central location.</p> <p>Industry & Business/employment zoned lands will contribute to the economic growth of the town providing wider benefits in the provision of employment. Development of these lands represents an extension of the existing developed area on lands that are less constrained to attract developments appropriate to the employment generating landuses.</p>
	<p>(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.</p>	<p>Area FR1: N/A</p> <p>Area FR2: For Town Centre/Mixed Use zoned lands there are no suitable alternative lands for the particular use. The Portarlinton Town centre has evolved historically with a definite form and urban grain. The landuse zoning plan sets a framework around the prevailing and historical form promoting the consolidation of the town centre and strengthening the range and offer of daytime and nighttime uses that would encourage vitality and vibrancy</p> <p>Area FR3: For Town Centre/Mixed Use zoned lands there is no alternative lands for the particular use. The Portarlinton Town centre has evolved historically with a definite form and urban grain. The landuse zoning plan sets a framework around the prevailing and historical form promoting the consolidation of the town centre and strengthening the range and offer of daytime and nighttime uses that would encourage vitality and vibrancy.</p> <p>Industrial and business/employment landuses are established in this area. The extent of Business/employment land in particular represents an extension of the developed Industry area and facilitates a landuse that is not identified on the western part of the town.</p>
<p>3</p>	<p>A flood risk assessment to an appropriate level of detail has been carried out as part of the Strategic Environmental Assessment as part of the development plan preparation process, which demonstrates that flood risk to the development can be adequately managed and</p>	<p>Flooding and Flood risk have been considered as part of the SEA. The SEA has informed the policies of the local area plan.</p> <p>Flood Risk Assessments will be required to be carried out for specific new development in all</p>

the use or development of the lands will not cause unacceptable adverse impacts elsewhere.	areas at risk of flooding to ensure that the development can be adequately managed.
Conclusion	
<p>It is considered appropriate to:</p> <p>Area FR1:</p> <ul style="list-style-type: none"> • Retain Amenity and Open Space zoning in recognition of the function of this area to deal with exceedence of the river channel. <p>Area FR2:</p> <ul style="list-style-type: none"> • Retain Town Centre/Mixed landuses in acknowledgement of the central location and pattern of the historical town center of the town and the promotion of consolidation and regeneration in this central area. • Retain Amenity and Open Space zoning in recognition of the function of this area to deal with exceedence of the river channel. • Retain Existing residential landuse zoning in recognition of the needs of this particular established residential area with respect to housing standards and requirements. <p>Area FR3:</p> <ul style="list-style-type: none"> • Retain Town Centre/Mixed landuses in acknowledgement of the central location and pattern of the historical town center of the town and the promotion of consolidation and regeneration in this central area. • Retain Industry and Business/employment zoning in respect of the existing established business development in the area and the potential to generate further economic development in this area as an extension to the existing area. • Retain Existing residential landuse zoning in recognition of the needs of this particular established residential area with respect to housing standards and requirements. • Retain Amenity and Open Space zoning in recognition of the function of this area to deal with exceedence of the channel of the watercourse. • Retain Residential 2 (backland areas) to promote the coherent and compact development of the area, promoting a more sustainable approach to urban development. A balance needs to be struck at the location for the reasoned protection of future residential development and the reliance on the floodplain area bounding the residential 2 areas. <p>Various areas have been identified that are at risk of flooding but for compelling reasons are being considered for types of development which are not generally compatible with flood risk areas (i.e. vulnerable risk criteria). For some areas the extent of flooding is not likely to be of significance as to undermine the strategic landuse direction for the lands in question. In these cases the SFRA recommends that development proposals for sites in these areas be subject to site specific flood risk assessment appropriate to the nature and scale of the development being proposed. The maps included in appendix A2 and A3 shows the areas for which the site specific flood risk assessment is recommended.</p>	

Recommendation	
<p>According to the above a site specific Flood Risk Assessment is required for the development of all lands identified as being at risk of flooding in the areas examined under FR1, FR2, FR3, to:</p> <ul style="list-style-type: none"> • assess flood risk issues in sufficient detail against the specific type(s) of development proposed • examine the potential impact on flood risk elsewhere (particularly displacement impacting on capacity issues elsewhere in the watercourses/drainage channels) • examine the effectiveness of any proposed mitigation measures. <p>Mitigation objectives shall apply (refer Section 5.6 below). Specific mitigation objectives must be incorporated into proposals for new development. These should be informed by the area specific flood risk assessment.</p> <p>Refer to Appendix A3 for areas subject to site specific SFRA.</p>	

5.6 Mitigation Measures

In order to manage flood risk the following action and mitigation objectives are recommended for inclusion in the Portarlinton LAP.

Action for landuse zoning plan:

1. Areas at risk of flooding and to which a detailed Flood Risk Assessment will be required for development proposals must be clearly delineated on the landuse Zoning Map of the LAP in accordance with the boundaries of the map.

Action(s) for inclusion as Policies/Objectives in LAP:

Insert the following Flood Risk Objectives in Portarlinton LAP:

- 1 (a) A detailed site specific Flood Risk Assessment is required for sites/areas located in the areas at risk of flooding as identified in the plan to avoid inappropriate development in areas at risk of flooding and ensure new development does not increase flood risk elsewhere, including that which may arise from surface water run-off. The following will be required to be examined as part of the site specific flood risk assessment:
 - Assessment of flood risk issues in sufficient detail against the specific type(s) of development proposed.
 - Examination of the potential impact on flood risk elsewhere.
 - Examination of the effectiveness of any proposed mitigation measures.
- (b) All development on lands identified as being at risk of flooding must demonstrate, through the carrying out of a Site Specific Flood Risk Assessment flood impact assessment and the use of Sustainable Urban Drainage Systems, that any flood risk can be adequately managed and the use or development of the lands will not cause unacceptable adverse impacts elsewhere.

2. To comply with DoEHLG Guidelines “*The Planning System and Flood Risk Management – Guidelines for Planning Authorities (2009)*” and any future Guidelines in relation to flood risk.
3. (a) To co-operate with the OPW in relation to the development of the Catchment Flood Risk Assessment (CFRAM) South Eastern River Basin and for the River Barrow and its tributaries in particular and to comply with any guidance and recommendations of this flood risk management plan.
 - (b) The recommendations of the South Eastern CFRAM should be incorporated into any site specific flood risk assessment undertaken for individual sites/areas.
- 4 (a) All development proposals in areas at risk of flooding should include details of how it is proposed to deal with rain and surface water employing Sustainable drainage techniques including rainwater harvesting, attenuation and Sustainable Urban Drainage Systems (SUDS).
 - (b) Development proposals incorporating SuDS shall demonstrate how SuDS will benefit the overall scheme or contribute to the site/area by an end use that is (a) functional to the scheme, (b) has an amenity value, or (c) has a habitat creation value.
5. Any development proposals must provide an appropriate set back from the edge of the watercourse allow access for channel clearing/maintenance.
6. The requirements of the Inland Fisheries and National Parks and Wildlife Service should be adhered to in the construction of any flood alleviation measures.
7. comply with relevant provisions of the Arterial Drainage Act, 1945 and the Arterial Drainage (Amendment) Act 1995;
8. To liaise with the Barrow Drainage Board in the exercise of its functions for the alleviation of flood risk in the study area and for regular maintenance of the River Barrow taking into account the requirements of the EU Habitats Directive [Article 6] and the Appropriate assessment thereof;
9. To ensure protection of Natura 2000 sites supporting rivers and streams by avoiding development on flood plains and ensure flood risk assessment policies, plans or projects are compliant with Article 6 of the Habitats Directive and avoid or mitigate negative impacts on Natura 2000 sites.

6.0 RECOMMENDATIONS AND APPROACH TO FLOOD RISK MANAGEMENT

This section of the SFRA provides recommendations for the approach to flood risk management for the development and growth strategy that is the Portarlington Local Area Plan.

6.1 Recommendations:

The recommendations proposed in this SFRA for dealing with flood risk in Portarlington is based on the general policy approach to flood risk in Counties Laois and Offaly as well as national guidance based on best planning principles for managing flood risk.

- Identify Flood Risk at an early stage in the planning process.
- AVOID or minimise development in areas at risk of flooding.

- Permit development in areas at risk of flooding ONLY where there is no alternative or reasonable site available in areas at lower risk.
- Select an appropriate landuse where development is NECESSARY in areas at risk of flooding.
- A precautionary approach to be taken to reflect uncertainties in flood datasets, to provide for climate change and performance of flood defenses. Development should be designed with consideration of possible future changes in flood risk including the effect of climate change.
- Land required for current and future flood management eg. Conveyance and storage of flood water and flood protection schemes should be identified and safeguarded from development.
- Flood risk to, and arising from new development should be managed through location, layout and design incorporating Sustainable Drainage Systems and compensation for any loss of floodplain should be compensated for elsewhere.

6.2 Approach to managing Flood Risk in Portarlinton

A number of approaches to managing flood risk in Portarlinton have and will be employed during the making of the local plan and also in dealing with planning applications for particular developments. These include:

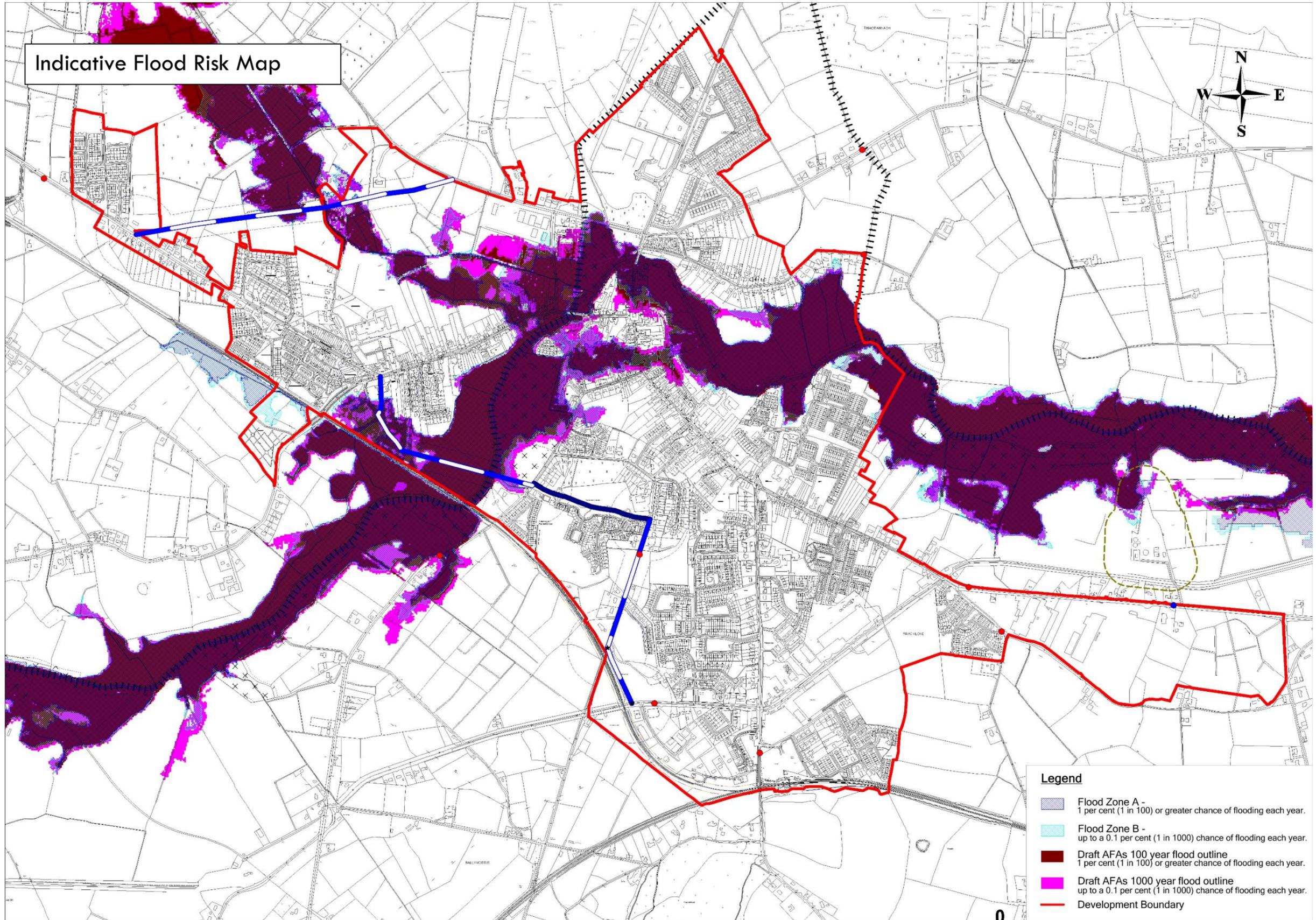
1. Areas at risk of flooding have been identified and there is a greater understanding of why flooding occurs in the general area.
2. A precautionary approach has largely been employed to landuse zoning to avoid directing development towards areas at risk of flooding.
3. Areas at risk of flooding as identified which are being put forward for landuse zoning have been subject to assessment through the justification test.
4. Where particular areas were examined as being strategically important for the consolidated and coherent growth of the town and zoned accordingly, area specific flood risk assessment will be required and mitigation measures for site and building works will be required to be integrated.

*** End***

Appendix A1

Indicative Flood Risk Map

Indicative Flood Risk Map



Legend

- Flood Zone A - 1 per cent (1 in 100) or greater chance of flooding each year.
- Flood Zone B - up to a 0.1 per cent (1 in 1000) chance of flooding each year.
- Draft AFAs 100 year flood outline 1 per cent (1 in 100) or greater chance of flooding each year.
- Draft AFAs 1000 year flood outline up to a 0.1 per cent (1 in 1000) chance of flooding each year.
- Development Boundary

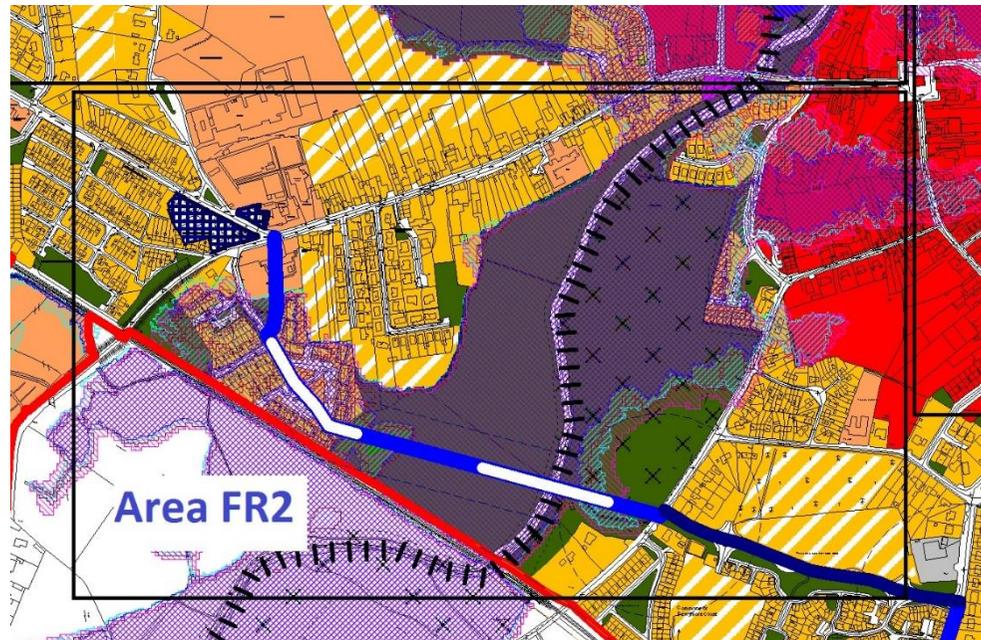
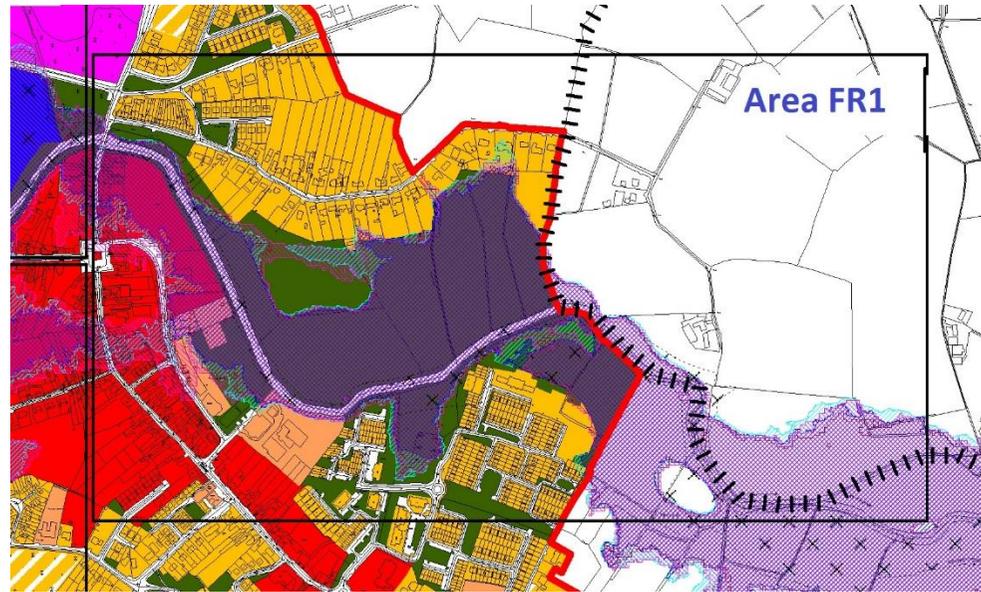
Appendix A2

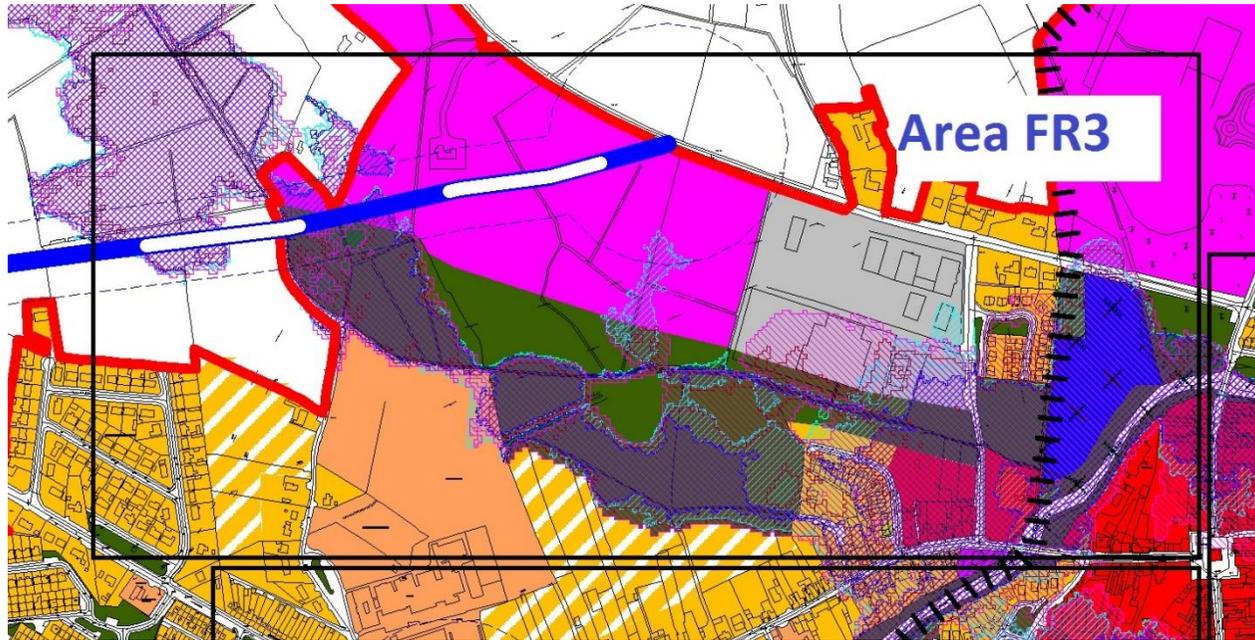
Indicative Flood Risk and Landuse Zoning Map Merged

Appendix A3

FR1, FR2 & FR3 Areas subject to a detailed Flood Risk Assessment for Development proposals

Areas to which a detailed flood risk assessment is required for development proposals.





*****Report End*****