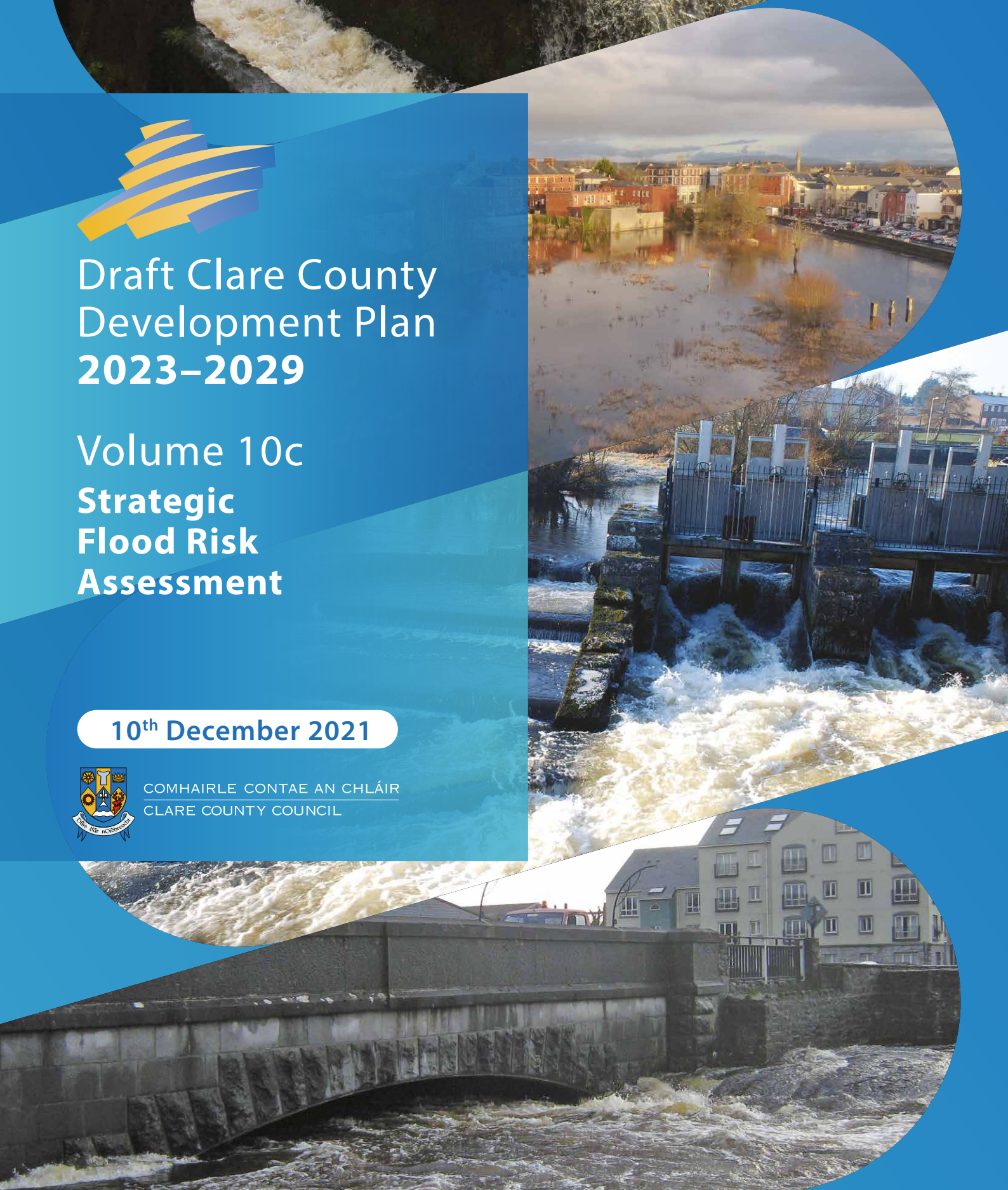
# Draft Clare County Development Plan **2023–2029**

## Volume 10c

## **Strategic Flood Risk Assessment**

**10th December 2021**

COMHAIRLE CONTAE AN CHLÁIR
CLARE COUNTY COUNCIL



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# Abbreviations

| | |
|---|---|
| AEP | Annual Exceedance Probability |
| AFA | Area for Further Assessment |
| CFRAM | Catchment Flood Risk Assessment and Management |
| DoEHLG | Department of the Environment, Heritage and Local Government |
| DTM | Digital Terrain Model |
| FRA | Flood Risk Assessment |
| FRMP | Flood Risk Management Plan |
| GIS | Geographical Information System |
| HEFS | High End Future Scenario |
| ICPSS | Irish Coastal Protection Strategy Study |
| JFLOW | 2-D hydraulic modelling package developed by JBA |
| LA | Local Authority |
| LAP | Local Area Plan |
| mOD | Meters above Ordnance Datum |
| MRFS | Medium Range Future Scenario |
| OPW | Office of Public Works |
| OS | Ordnance Survey |
| PFRA | Preliminary Flood Risk Assessment |
| SAC | Special Area of Conservation, protected under the EU Habitats Directive |
| SFRA | Strategic Flood Risk Assessment |
| SPR | Standard percentage runoff |
| SUDS | Sustainable Urban Drainage Systems |
| Tp | Time to Peak |

# 1 Study Background

JBA Consulting was appointed by Clare County Council to carry out the Strategic Flood Risk Assessment (SFRA) for the Clare County Development Plan 2023-2029.

This report details the SFRA for this area and has been prepared in accordance with the requirements of the DoEHLG and OPW Planning Guidelines, The Planning System and Flood Risk Management[1]; these guidelines were issued under the Planning and Development Act 2000, as amended and recognise the significance of proper planning to manage flood risk.

## 1.1 Scope of Study

Under the "Planning System and Flood Risk Management" guidelines, the purpose for the FRA is detailed as being *"to provide a broad (wide area) assessment of all types of flood risk to inform strategic land-use planning decisions. SFRAs enable the LA to undertake the sequential approach, including the Justification Test, allocate appropriate sites for development and identify how flood risk can be reduced as part of the development plan process".*

The Clare County Development Plan 2023-2029 (CCDP) will be the key document for setting out a vision for the development of the county during the plan period.

It is important that the CCDP fulfils the requirements of the document "The Planning System and Flood Risk Management Guidelines for Planning Authorities" (OPW/DoEHLG, 2009) which states that flood risk management should be integrated into spatial planning policies at all levels to enhance certainty and clarity in the overall planning process.

In order to ensure that flood risk is integrated into the CCDP, the main requirements of this document are to:

- Update the Flood Zone Mapping produced under the 2017-2023 plan
- Prepare a Strategic Flood Risk Assessment of County Clare, in particular in relation to location and type of zoning and land-use proposals, with a focus on new or changed zoning compared with the current plan.
- Review and update the policy guidance within the SFRA in compliance with OPW/DoEHLG – "The Planning System and Flood Risk Management –Guidelines for Planning Authorities (OPW/DoEHLG, 2009)".
- Advise on zonings/land use-proposals and appropriate mitigation measures, assess and report on any submissions received as part of both the preparation and the public consultation stage of the plan, as they relate to flood risk.

## 1.2 Report Structure

This study considers the development strategy that will form part of the Development Plan for County Clare. The context of flood risk in Clare is considered with specific reference to a range of flood sources, including fluvial, tidal, pluvial, groundwater, sewer and artificial reservoirs and canals.

A two-stage assessment of flood risk was undertaken, as recommended in 'The Planning System and Flood Risk Management' guidelines, for the area that lies within the development boundary of the Development Plan. The first stage is to identify flood risk and is based on a variety of data sources, which are detailed in Section 4. There are numerous settlements which have an extremely limited risk of flooding and land use zoning can be progressed without regard to flooding. However, historical records and recent events demonstrate that parts of the county have a risk of flooding and confirms that a proportion of zoned lands are at flood risk.

The second stage, and the main purpose of this SFRA report, is to appraise the adequacy of existing information, to prepare an indicative flood zone map, based on available data, and to highlight potential development areas that require more detailed assessment on a site specific level. The SFRA also provides guidelines for development within areas at potential risk of flooding, and specifically looks at flood risk and the potential for development within the county settlements.

[1] DoHELG and OPW (2009) The Planning System and Flood Risk Management: Guidelines for Planning Authorities

# 2 The Planning System and Flood Risk Management

## 2.1 Introduction

Prior to discussing the management of flood risk, it is helpful to understand what is meant by the term. It is also important to define the components of flood risk in order to apply the principles of the Planning System and Flood Risk Management in a consistent manner.

*The Planning System and Flood Risk Management: Guidelines for Planning Authorities*, published in November 2009, describe flooding as a natural process that can occur at any time and in a wide variety of locations. Flooding can often be beneficial, and many habitats rely on periodic inundation. However, when flooding interacts with human development, it can threaten people, their property and the environment.

The following paragraphs will outline the definitions of flood risk and the Flood Zones used as a planning tool; a discussion of the principles of the Planning Guidelines and the management of flood risk in the planning system follows.

## 2.2 Definition of Flood Risk

Flood risk is generally accepted to be a combination of the likelihood (or probability) of flooding and the potential consequences arising. Flood risk can be expressed in terms of the following relationship:

**Flood Risk = Probability of Flooding x Consequences of Flooding**

The assessment of flood risk requires an understanding of the sources, the flow path of floodwater and the people and property that can be affected. The *source - pathway - receptor model, shown below in* Figure 2-1*,* illustrates this and is a widely used environmental model to assess and inform the management of risk.

Figure 2-1: Source Pathway Receptor Model

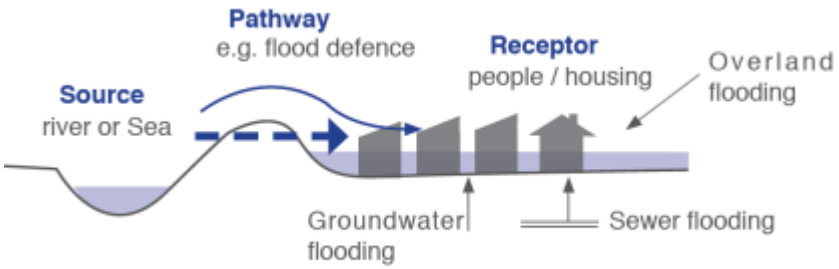



Fig. A1: Sources, pathways and receptors of flooding

Source: Figure A1 The Planning System and Flood Risk Management Guidelines Technical Appendices

Principal sources of flooding are rainfall or higher than normal sea levels while the most common pathways are rivers, drains, sewers, overland flow and river and coastal floodplains and their defence assets. Receptors can include people, their property and the environment. All three elements must be present for flood risk to arise. Mitigation measures, such as defences or flood resilient construction, have little or no effect on sources of flooding but they can block or impede pathways or remove receptors.

The planning process is primarily concerned with the location of receptors, taking appropriate account of potential sources and pathways that might put those receptors at risk.

### 2.2.1 Likelihood of Flooding

Likelihood or probability of flooding or a particular flood event is classified by its annual exceedance probability (AEP) or return period (in years). A 1% AEP flood indicates the flood

event that will occur or be exceeded on average once every 100 years and has a 1 in 100 chance of occurring in any given year.

Return period is often misunderstood to be the period between large flood events rather than an average recurrence interval. Annual exceedance probability is the inverse of return period as shown in Table 2-1.

Table 2-1: Probability of Flooding

| Return Period (Years) | Annual Exceedance Probability (%) |
|---|---|
| 2 | 50 |
| 100 | 1 |
| 200 | 0.5 |
| 1000 | 0.1 |

Considered over the lifetime of development, an apparently low-frequency or rare flood has a significant probability of occurring. For example:

- A 1% flood has a 22% (1 in 5) chance of occurring at least once in a 25-year period - the period of a typical residential mortgage;
- And a 53% (1 in 2) chance of occurring in a 75-year period - a typical human lifetime.

### 2.2.2 Consequences of Flooding

Consequences of flooding depend on the hazards caused by flooding (depth of water, speed of flow, rate of onset, duration, wave-action effects, water quality) and the vulnerability of receptors (type of development, nature, e.g. age-structure, of the population, presence and reliability of mitigation measures etc.).

The 'Planning System and Flood Risk Management' provides three vulnerability categories, based on the type of development, which are detailed in Table 3.1 of the Guidelines, and are summarised as:

- **Highly vulnerable**, including residential properties, essential infrastructure and emergency service facilities;
- **Less vulnerable**, such as retail and commercial and local transport infrastructure;
- **Water compatible**, including open space, outdoor recreation and associated essential infrastructure, such as changing rooms.

## 2.3 Definition of Flood Zones

In the 'Planning System and Flood Risk Management', Flood Zones are used to indicate the likelihood of a flood occurring. These Zones indicate a high, moderate or low risk of flooding from fluvial or tidal sources and are defined below in Table 2-2.

It is important to note that the definition of the Flood Zones is based on an **undefended scenario** and does not take into account the presence of flood protection structures such as flood walls or embankments. This is to allow for the fact that there is a residual risk of flooding behind the defences due to overtopping or breach and that there may be no guarantee that the defences will be maintained in perpetuity.

It is also important to note that the Flood Zones indicate flooding from fluvial and tidal sources and do not take other sources, such as groundwater or pluvial, into account, so an assessment of risk arising from such sources should also be made.

Table 2-2: Definition of Flood Zones

| Zone | Description |
|---|---|

| | |
|---|---|
| **Zone A**<br>High probability of flooding. | This zone defines areas with the highest risk of flooding from rivers (i.e. more than 1% probability or more than 1 in 100) and the coast (i.e. more than 0.5% probability or more than 1 in 200). |
| **Zone B**<br>Moderate probability of flooding. | This zone defines areas with a moderate risk of flooding from rivers (i.e. 0.1% to 1% probability or between 1 in 100 and 1 in 1000) and the coast (i.e. 0.1% to 0.5% probability or between 1 in 200 and 1 in 1000). |
| **Zone C**<br>Low probability of flooding. | This zone defines areas with a low risk of flooding from rivers and the coast (i.e. less than 0.1% probability or less than 1 in 1000). |

## 2.4 Objectives and Principles of the Planning Guidelines

The 'Planning System and Flood Risk Management' describes good flood risk practice in planning and development management. Planning authorities are directed to have regard to the guidelines in the preparation of Development Plans and Local Area Plans, and for development control purposes.

The objective of the 'Planning System and Flood Risk Management' is to integrate flood risk management into the planning process, thereby assisting in the delivery of sustainable development. For this to be achieved, flood risk must be assessed as early as possible in the planning process. Paragraph 1.6 of the Guidelines states that the core objectives 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 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 aim to facilitate '*the transparent consideration of flood risk at all levels of the planning process, ensuring a consistency of approach throughout the country.*' SFRAs therefore become a key evidence base in meeting these objectives.

The 'Planning System and Flood Risk Management' works on a number of key principles, including:

- Adopting a staged and hierarchical approach to the assessment of flood risk;
- Adopting a sequential approach to the management of flood risk, based on the frequency of flooding (identified through Flood Zones) and the vulnerability of the proposed land use.

## 2.5 The Sequential Approach and Justification Test

Each stage of the FRA process aims to adopt a sequential approach to management of flood risk in the planning process.

Where possible, development in areas identified as being at flood risk should be avoided; this may necessitate de-zoning lands within the plan boundary. If de-zoning is not possible, then rezoning from a higher vulnerability land use, such as residential, to a less vulnerable use, such as open space may be required.

Figure 2-2: Sequential Approach Principles in Flood Risk Management


Source: The Planning System and Flood Risk Management (Figure 3.1)

Where rezoning is not possible, exceptions to the development restrictions are provided for through the Justification Test. Many towns and cities have central areas that are affected by flood risk and have been targeted for growth. To allow the sustainable and compact development of these urban centres, development in areas of flood risk may be considered necessary. For development in such areas to be allowed, the Justification Test must be passed.

The Justification Test has been designed to rigorously asses the appropriateness, or otherwise, of such developments. The test is comprised of two processes; the Plan-making Justification Test, which is undertaken for a number of development opportunity sites with the various settlements of this SFRA, and the Development Management Justification Test. The latter is used at the planning application stage where it is intended to develop land that is at moderate or high risk of flooding for uses or development vulnerable to flooding that would generally be considered inappropriate for that land.

Table 2-3 shows which types of development, based on vulnerability to flood risk, are appropriate land uses for each of the Flood Zones. The aim of the SFRA is to guide development zonings to those which are 'appropriate' and thereby avoid the need to apply the Justification Test.

Table 2-3: Matrix of Vulnerability versus Flood Zone

| | Flood Zone A | Flood Zone B | Flood Zone C |
|---|---|---|---|
| Highly vulnerable development (Including essential infrastructure) | Justification Test | Justification Test | Appropriate |
| Less vulnerable development | Justification Test | Appropriate | Appropriate |
| Water-compatible development | Appropriate | Appropriate | Appropriate |

Source: Table 3.2 of The Planning System and Flood Risk Management

## 2.6 Scales and Stages of Flood Risk Assessment

Within the hierarchy of regional, strategic and site-specific flood-risk assessments, a tiered 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. The stages and scales of flood risk assessment comprise:

- **Regional Flood Risk Appraisal (RFRA)** – a broad overview of flood risk issues across a region to influence spatial allocations for growth in housing and employment as well as to identify where flood risk management measures may be required at a regional

level to support the proposed growth. This should be based on readily derivable information and undertaken to inform the Regional Planning Guidelines.

- **Strategic Flood Risk Assessment (SFRA)** – an assessment of all types of flood risk informing land use planning decisions. This will enable the Planning Authority to allocate appropriate sites for development, whilst identifying opportunities for reducing flood risk. This SFRA will revisit and develop the flood risk identification undertaken in the RFRA, and give consideration to a range of potential sources of flooding. An initial flood risk assessment, based on the identification of Flood Zones, will also be carried out for those areas which will be zoned for development. Where the initial flood risk assessment highlights the potential for a significant level of flood risk, or there is conflict with the proposed vulnerability of development, then a site specific FRA will be recommended, which will necessitate a detailed flood risk assessment.
- **Site Specific Flood Risk Assessment (FRA)** – site or project specific flood risk assessment to consider all types of flood risk associated with the site and propose appropriate site management and mitigation measures to reduce flood risk to and from the site to an acceptable level. If the previous tiers of study have been undertaken to appropriate levels of detail, it is highly likely that the site specific FRA will require detailed channel and site survey, and hydraulic modelling.

# 3 Clare County Study Area

## 3.1 Study area

The study area is the whole of County Clare, with a focus on key settlements, which are identified in Table 3-1. .

Table 3-1 - Settlements within County Clare

| Classification | Settlements |
|---|---|
| Key Town | Ennis |
| Metropolitan Area (Key component of the Limerick-Shannon Metropolitan Area Strategic Plan) | Shannon<br>SDZ<br>Sixmilebridge (Small Town)<br>Athlunkard, Bunratty, Clonlara, Parteen, Ballycannon North, Meelick (Large Villages)<br>Ardnacrusha, Cratloe, O'Briensbridge (Small Villages) |
| Service Towns | Ennistymon/Lahinch, Kilrush/Cappa, Scarriff/Tuamgraney |
| Small Towns | Kilkee, Killaloe, Lisdoonvarna, Miltown Malbay, Newmarket-on-Fergus, Tulla |
| Large Villages | Tier 1<br>Ballyvaughan, Clarecastle, Corofin, Crusheen, Doonbeg, Feakle, Inagh, Kilkishen, Mountshannon, Mullagh, Quilty, Quin, Whitegate, Liscannor, Kilfenora and Killimer<br>Tier 2<br>Kiladysert, Kilmihil |
| Small Villages | Barefield, Bridgetown, Broadford, Carrigaholt, Cooraclare, Doolin, Kilmaley, Kilmurry, Labasheeda, Lissycasey, Ballinruan, Ballyea, Ballynacally, Bellharbour, Bodyke, Boston, Caher, Carron, Clooney, Connolly, Cranny, Creegh, Cross, Doonaha, Fanore, Flagmount, Inch, Kilbaha, Kilbane, Killaneana, Kilmurry McMahon, Kilnaboy, Kilnamona, Kilshanny, Knock, Knockerra, Moy, Moyasta, O'Callaghans Mills, Ogonelloe, Querrin, Ruan, Spanish Point, Toonagh, Tubber |
| Clusters | Ardkyle, Ballaghboy No.1, Ballaghboy No.2, Ballinooskey/Lisconner, Ballintlea South, Ballintlea South 2, Ballycar, Ballycorick, Ballyduff, Ballyea South, Ballyfaudeen, Ballyhannon North, Ballyhannon South No.1, Ballyhannon South No.2, Ballygireen, Ballymacahill, Ballymorris, Ballynagun West, Ballyveskil/Tiermaclane, Ballyvonnavaun/Deerpark, Ballyvrislaun, Barntick, Barloughra, Bartra, Bealaha, Bearnafunshin/Ballyogan, Beevrack, Behagh, Buncraggy, Caherea, Caherush, Cappa, Sixmilebridge, Carrowmeer, Castlecrine, Castlequarter, Castlequarter Kilkeedy, Cloonadrum, Cloonanaha, Cloonoughter, Coogyulla Cross, Coolisteige, Cratloekeel, Crosses of Annagh, Deerpark/Corlack, Doonass, Drumandoora, Drumdrehid, Drumeen, Drumline 1, Drumline 2, Drummina, Drumquin, Finvarra, Garraun, Garraunboy, Gilloge, Kildorus, Killeenan, Killow/Knockanimana, Kilmaley Lower, Kilmore, Kineilty, Knockfin, Knockloskeraun, Leamaneigh More, Lisduff, Lisheen, Luogh South, Manusmore, Maurices Mills, Meelick, Monaskeha, Mooghaun North, Mortyclough, Mountrivers Cluster, Murrooghkilly, Murroughtoohy South, New Quay, Newtown Cloonlara, Noughaval, Portdrine, Poulawillin, Rockforest/Aughrim, Roo East, Sooreeny, South of Rossmanagher Bridge, Spancil Hill, Streamstown, The Wells, Tromra, Urlan More/Bellsfort, Williamstown, Woodpark |
| Countryside | The countryside are those parts of County Clare outside of |

| Classification | Settlements |
|---|---|
| | recognised settlements |

## 3.2 Flood Management Infrastructure

Within County Clare there are a number of settlements where flood relief schemes are either completed, under design and development or proposed for the future. Although the Flood Zones do not include the benefit of defences, it is important to know where a flood relief scheme is in place, and how the scheme moderates flood risk, both in 'normal' circumstances when the defence is functioning as designed, and also for the less frequent situations when the defence may breach or be overtopped. This is discussed further in Section 4.4.3.

Flood relief schemes include embankments on the Shannon estuary, walls and embankments in Ennis, Shannon and Bunratty and a pier / weir which acts as a tidal flood defence in Kilrush. Ennis also has a tidal barrage. The defences have been examined in more detail through the Shannon CFRAM, which has included an assessment of physical condition, height and the standard of protection provided. The CFRAM has also looked at the impacts of a defence failing.

A site is considered to be defended if the standard of protection is 1% AEP (fluvial) or 0.5% AEP (tidal), within which a freeboard of at least 300mm is included. The FFL of the proposed development needs to include for the impacts of climate change and other residual risks, including overtopping in the 0.1% event, unless this has also been incorporated into the defence design. This may be assessed through breach analysis, overtopping analysis or projection of water levels across the floodplain.

A summary of the schemes in progress or design in progress or in design across the county is provided in Table 3-2.

Table 3-2: Flood defence infrastructure

| Works Package | Scheme | Target SOP | Status |
|---|---|---|---|
| Pre-CFRAM Scheme | Ennis South Flood Relief Scheme | 1% AEP | Under Construction |
| CFRAM Schemes | Shannon Town and Environs FRS | 1% AEP / 0.5% AEP (recommended) | Stage 1 – Options Assessment Scheme Development and Design |
| | Kilkee FRS | 1% AEP / 0.5% AEP (recommended) | Stage 1 – Options Assessment Scheme Development and Design |
| | Bunratty FRS | 1% AEP / 0.5% AEP (recommended) | Stage 1 – Options Assessment Scheme Development and Design |
| | Kilrush FRS | 1% AEP / 0.5% AEP (recommended) | Stage 1 – Options Assessment Scheme Development and Design |
| | Springfield FRS | 1% AEP (recommended) | Stage 3 – Detained Design, Construction & Tender |
| Minor Works Schemes | Miltown Malbay FRS | 1% AEP | Stage 3 – Detained Design, Construction & Tender |
| | Murtyclogh FRS | 1% AEP (expected) | Stage 3 – Detained Design, Construction & Tender |
| | Ballyvaughan FRS | 1% AEP (expected) | Stage 1 – Options |

| Works Package | Scheme | Target SOP | Status |
|---|---|---|---|
| | | | Assessment Scheme Development and Design |
| | Ballyryan FRS | SOP not determined | Feasibility Study Stage |
| | Thomond Villas FRS | 0.5% AEP (Coastal) | Stage 1 – Options Assessment Scheme Development and Design |
| | Gordon Drive /Victoria Court FRS | SOP not determined | Feasibility Study Stage |
| | Quin FRS | 1% AEP | Stage 1 – Options Assessment Scheme Development and Design |
| | Gort na nUll, Sixmilebridge | Not to specific design standard | Completed |
| | Ballycorrick | Not to specific design standard | Completed |
| Coastal Erosion and Flooding Schemes | Cloughaninchy, Quilty | Not to specific design standard | Stage 3 – Detained Design, Construction & Tender |
| | Whitestrand, Miltown Malbay | 0.5% AEP (Coastal) | Stage 2 – Planning, Development Consent Process |
| | Spanish Point | 0.5% AEP (Coastal) | Completed |
| | Lough Donnell | Not to specific design standard | Stage 2 – Planning, Development Consent Process |
| | Shannon Estuary Embankments | Not to specific design standard | Ongoing |
| | Lahinch | Managed wave overtopping to 1 in 50 year AEP on prom / carpark and 0.5% for town centre | Complete |
| Coastal Erosion and Flood Risk Management Studies | Mal Bay including Quilty, Spanish Point and Whitestrand, Miltown Malbay. | Desktop study | Ongoing |
| | Liscannor Bay including Lahinch, Liscannor and Clahane | Desktop study | Ongoing |
| | Doolin | Desktop study | Complete |
| | Flaggy Shore | Desktop study | Complete |
| | Kilbaha | Desktop study | Complete |

## 3.3 Planning Policy

### 3.3.1 Southern Region Regional Spatial & Economic Strategy

The Regional Spatial & Economic Strategy (RSES) for the Southern Region includes a significant focus on sustainability and flood management, encapsulated in Water Resource and Flooding National Policy Objective (NPO) 57, which "*seeks to enhance water quality and resource management by:*

*Ensuring flood risk management informs placemaking by avoiding inappropriate development in areas at risk of flooding in accordance with The Planning System and Flood Risk Management Guidelines for Planning Authorities*".

This policy objective is underpinned by a range of objectives which include implementation of the Flood's Directive and the Planning System and Flood Risk Management as well supporting capital investment in flood relied schemes and measures for managing flooding and coastal erosion.

The RSES is supported by a Regional Flood Risk Appraisal Report, which has a number of observations on flood risk in the county, with a specific focus on Ennis:

*"Recommendations for Flood Risk Management: Ennis has in place flood defences protecting their identified areas of future growth and regeneration, including the Town Centre and Parnell Street. These areas are protected from Zone A flooding but do not eliminate the risk to Zone B flooding. […] Ennis has a number of schemes due to be completed. Completion of these schemes will aid Local Authorities to review the land zones adjacent to theses defences in accordance with the Guidelines to make informed strategic development decisions. The planning authorities should also review and implement where appropriate the suggested CFRAM flood risk management policy measures as outlined in Appendix B and the FRMP. SFRAs should be undertaken for all development plans and existing SFRAs should be updated and reviewed in line with statutory timelines for development plans. Existing schemes, proposed schemes and currently on going schemes (at various stages of the planning and construction process) will influence the ability to develop land and this should be considered in accordance with The Guidelines at SFRA stage."*[2]

The RSES includes the Limerick and Shannon MASP, and a review of flood risk within the MASP was also included in the RFRA. However, the focus of this review was Limerick City and Environs. The MASP does provide support for climate resilience measures.

### 3.3.2 Clare County Development Plan 2023-2029

County Clare falls within the planning context of the Clare County Development Plan (CCDP) and the plan period relevant to this SFRA is 2023-2029.

The Clare County Development Plan 2023-2029 sets out the strategy and hierarchy for settlement in the County, in accordance with the Core Strategy. The Core Strategy, population and housing supply targets are in compliance with the designated populations and housing for the County as set out in the National Planning Framework Roadmap and in accordance with the Housing Supply Target Methodology for Development Planning Guidelines for Planning Authorities. All of the settlements identified are established settlements of various sizes, from the Key Town of Ennis to designated clusters. The Development Plan states that The Planning System and Flood Risk Management (and Technical Appendices) Guidelines for Planning Authorities (DoEHLG, OPW, 2009) will need to be applied at a more strategic level to reflect the more strategic nature of the Clare County Development Plan 2023-2029.

A number of Flood Risk Management policies have been included in the CCDP. These cover:

- Coastal erosion and flooding
- Strategic flood risk assessment
- Catchment Flood Risk Assessment and Management Studies
- Storm water management

[2] Draft Regional Spatial and Economic Strategy: Regional Flood Risk Appraisal Report for the Southern Region, Southern Regional Assembly

- Green infrastructure and flood management
- Maintenance of rivers
- Nature based solutions

## 3.4 Local Area Plans

### 3.4.1 Shannon Town and Environs LAP 2012-2018 (as amended

The Clare County Development Plan 2011-2017 was the 'parent' document which underpinned the Shannon Town and Environs Local Area Plan 2012-2018. As such, objectives and policies contained in the CDP informed the preparation and operation of the LAP. The 2023-2029 CDP is now the parent document for the LAP.

Shannon Town has been subject to a number of flood risk assessments, both through the County Development Plan 2017-2023 SFRA, an overtopping study and the Shannon CFRAM. These studies, and the implications for the next LAP cycle are discussed in Section 8.

A detailed appraisal of flood risks within Shannon has not been carried out as part of this SFRA, but an outline of the scope of works to be included in the next LAP review cycle has been included in this report.

# 4 Identification of Flood Risk

## 4.1 Data Collection and Review

This section of the SFRA reviews the availability of data relating to flood risk in County Clare. There are a number of datasets which record historical and / or predicated flood extents. The aim of the review is to identify flood risk based on the data available, including historical records, considering all sources of flooding, and to appraise the quality and usefulness of the data. Table 4-1 summarises the data available and its quality, includes an assessment of confidence in its accuracy (when attempting to incorporate it into the flood zone map) and gives an indication of how it was used in the SFRA study.

Table 4-1: Dataset review

| Dataset | Description / coverage | Robustness | Comment on usefulness |
|---|---|---|---|
| County Development Plan Flood Map (2017-2023) | Based largely on the on the CFRAM and PFRA with some adjustment following walkover and local knowledge.<br>Covers nearly all rivers (including non-CFRAM) and included validation so used for development of base Flood Zones with validation for SFRA. | Low to Moderate | Not used as PFRA based data has been superseded. |
| Shannon CFRAM study, OPW | Areas for further assessment (AFAs), or settlements falling along modelled lengths, in County Clare are:<br>- Ardnacrusha<br>- Athlunkard<br>- Bunratty<br>- Clonlara<br>- Ennis<br>- Kilkee<br>- Killaloe<br>- Kilrush<br>- O'Briensbridge<br>- Parteen<br>- Quin<br>- Shannon<br>- Sixmilebridge | Modelling is 'best of breed' and outputs will allow informed decisions to be made on zoning objectives. Design water levels will inform decisions relating to raising land and setting finished floor levels. | This data was reviewed on site to verify its quality.<br>Site specific FRAs will still be required for planning applications, but information on water levels can form the basis of decision in relation to finished floor levels.<br>Accuracy of mapping in Sixmilebridge was very low and has been superseded. |
| Sixmilebridge mapping study of the Owengraney River and tributary (JBA, 2021) | Owengraney River and tributary | High | Used as the basis for Flood Zones in Sixmilebridge |
| Ballyvaughan | Historical flood records and feasibility report for a flood relief scheme | Low-Moderate | Used to indicated flood extents in the absence of other modelled data. |
| National Indicative Fluvial Mapping (NIFM) | Produced by the OPW, these maps are 'predictive' flood maps for watercourse with a catchment area greater than 5km$^2$. | Moderate | Used for all watercourses not covered by CFRAM / ICPSS / Sixmilebridge Study and replaces the County DP mapping discussed above. |
| Irish Coastal Protection | Still water tidal extents for 200 year and 1000 | High, but does not include | Used to define the tidal risk element of Flood Zone A and B in |

| Dataset | Description / coverage | Robustness | Comment on usefulness |
|---|---|---|---|
| Strategy Study (ICPSS): Flood extent maps | year events for the whole coastline | wave overtopping / breaking so does not represent storm damage. | non CFRAM settlements. The ICPSS data is incorporated within CFRAM mapping discussed above. Where direct translation of tide levels inshore is appropriate (i.e. where the town is on the coast, not up an estuary) these levels can be used to set finished floor levels. |
| Irish Coastal Protection Strategy Study (ICPSS): Coastal erosion maps | Predicted line of the coast in 2030 and 2050. | Low | Used to provide an indication of areas where erosion may be a future risk. This is usually coupled with an element of tidal flood risk. |
| OPW Preliminary Flood Risk Assessment (PFRA) flood maps – Fluvial | The PFRA was a national screening exercise that was undertaken by OPW to identify areas at potential risk of flooding. Fluvial, coastal, pluvial and groundwater risks were identified at an indicative scale. | Low | Superseded by the National Indicative Fluvial Mapping |
| PFRA Maps - Coastal | | Moderate | This was based on ICPSS flood extents |
| PFRA Maps – Pluvial and groundwater | | Low | Not used as withdrawn by OPW. See GSI mapping. |
| Clare County Development Plan Flood Map (2011-2017) | Broadscale Flood Zone maps (fluvial and tidal) produced for the whole county, including all watercourses with a catchment area greater than 3km$^2$. | Low | Superseded by the data sources listed above. |
| Ennis 2040 SFRA | SFRA for the economic strategy focused on a number of key development sites. Based on the CFRAM outputs. | Low-moderate | SFRA undertaken to review of flood risk to transformation sites. Superseded by County Development Plan and SFRA. |
| Historical event outlines and point observations and reports | Various. Includes records from CCC sources, damage report for the 2014 coastal storms and www.floodmaps.ie. | Indicative | Can be indirectly used to validate flood zones and identify non-fluvial and tidal flooding, and particularly sections of coast vulnerable to storm damage. |
| Arterial Drainage Benefiting land maps | Shows land which would (or has) benefit from a drainage scheme. This is not based on a 'design flood' (i.e. the events do not have a return period), but indicate low-lying, poorly drained land. It is not the same as lands which are protected by a flood relief scheme. | Low | Superseded by the data sources listed above. |
| Flood relief scheme details, including locations and lengths, standard of protection and | There are defences in Ennis, Shannon, Bunratty and Kilrush, all of which are included in the CFRAM. | High (outputs from the CFRAM will provide this information). | Flood Zones are defined without the benefit of defences, but the benefits should be considered when establishing the specific risk to a site, and in informing the site specific FRA.<br>It is essential that the analysis of the defended area is carried out by |

| Dataset | Description / coverage | Robustness | Comment on usefulness |
|---|---|---|---|
| areas which are protected | | | someone who fully understands the approach taken in the CFRAM, as it is not straightforward. |

## 4.2 Flood Zone Map Development

As can be seen from Table 4-1, a range of data, including hydraulic modelling and historical reports was used to inform this SFRA.

The OPW CFRAM maps were reviewed as part of the data collection exercise and have been used to inform the land use zonings contained in the Development Plan. Settlements covered with detailed mapping (termed High Priority Watercourses, or HPW) and used in the Flood Zone development are: Ardnacrusha, Bunratty, Clonlara, Ennis, Kilkee, Killaloe, Kilrush, O'Briensbridge, Parteen, Quin and Shannon. In Sixmilebridge a specific modelling study was carried out to inform the development of the Flood Zone maps which supersedes the CFRAM flood extents.

Medium Priority Watercourse (MPW) mapping also provided flood information for a number of other settlements within the county, and for the watercourse lengths between the urban settlements. Where HPW outputs were not available, MPW was used as next preference. NIFM has also been used for non-CFRAM watercourses.

In general, where HPW modelling has been carried out, flood levels and flows are available at selected node points along the watercourse through the CFRAM outputs. . Once an appropriate level of validation has been undertaken as part of the site specific FRA, these flood levels may be used to form the basis of the development design. The exception is in Sixmilebridge, where the CFRAM is known to under report flood risk so the CFRAM flows and levels should not be relied upon for site specific FRAs

For Sixmilebridge, MPW and NIFM map outputs, water levels are not available. For the MPW and NIFM it should also be noted that the mapping provides an indicative extent only. Additional assessment through a Stage 3 FRA may be needed to demonstrate the level of flood risk, including provision of flood levels.

Regardless of the origin of the background data, the Flood Zone Maps have been developed as a spatial planning tool to guide CCC in making land zoning and development management decisions and it is recognised that site specific information may contradict the Flood Zones, either to demonstrate a greater or lesser level of flood risk. However, the data has been deemed appropriate for the planning decisions being made at this stage of the plan making process.

## 4.3 Unmapped Fluvial Risk

The Flood Zones have been derived for watercourse with a catchment area greater than 5km$^2$, which captures the majority of sources of fluvial flood risk in the Clare settlements. However, there may be cases where a watercourse is been identified, either through mapping or through site visit and local knowledge, but due to the size of the catchment, the Flood Zone has not been delineated. In these cases, it is the responsibility of the applicant to undertake an appropriately detailed FRA and to then apply the sequential approach as the Plan Making Justification Test has not been satisfied in these cases.

## 4.4 Sources of Flooding

This SFRA has reviewed flood risk from fluvial, tidal, pluvial and groundwater sources. It also considers flooding from drainage systems, reservoirs and canals and other artificial or man-made systems.

### 4.4.1 Fluvial Flooding

Flooding of watercourses is associated with the exceedance of channel capacity during higher flows. The process of flooding on watercourses depends on a number of characteristics associated with the catchment including; geographical location and variation in rainfall, steepness of the channel and surrounding floodplain and infiltration and rate of runoff associated with urban and rural catchments. Generally, there are two main types of catchments; large and relatively flat or small and steep, both giving two very different responses during large rainfall events.

In a large, relatively flat catchment, flood levels will rise slowly and natural floodplains may remain flooded for several days or even weeks, acting as the natural regulator of the flow. This is typical of the River Shannon and the Fergus upstream and downstream of Ennis. In small, steep catchments local intense rainfall can result in the rapid onset of deep and fast-flowing flooding with little warning. Such "flash" flooding, which may only last a few hours, can cause considerable damage and possible threat to life. Such flooding was experienced in Kilkee in April 2014.

The form of the floodplain, either natural or urbanised, can influence flooding along watercourses. The location of buildings and roads can significantly influence flood depths and velocities by altering flow directions and reducing the volume of storage within the floodplain. Critical structures such as bridge and culverts can also significantly reduce capacity creating pinch points within the floodplain. These structures are also vulnerable to blockage by natural debris within the channel or by fly tipping and waste.

Flood risk to specific potential development sites is discussed in Sections 8 to 8 and has been used to inform the zoning objectives for the Clare County Development Plan. Where zoning for development is proposed within Flood Zones A or B, the Justification Test must be applied, and passed.

### 4.4.2 Tidal and Coastal Flooding

County Clare is bounded to the west by the Atlantic Ocean and to the south by the tidal River Shannon estuary. There are numerous settlements along these coastal margins which are vulnerable to tidal inundation, particularly when coupled with westerly winds and a storm surge. This was demonstrated over the winter of 2013/2014 when many coastal towns and villages experienced severe storm damage. Kilkee and Kilrush are both included in the Shannon CFRAM, but many of the smaller settlements to be impacted, such as Doolin and Lahinch, are not within the scope of the CFRAM.

Clare County Council is currently running a programme of works to undertake emergency repairs along the coastline, but these works generally consist of returning the coastline to its previous condition rather than providing an additional level of protection. Additionally, a number of Coastal Flood and Erosion Risk Management Plans are being completed for key locations along the coast. These studies could trigger works to provide additional coastal flood protection, however the plans are yet to be constructed/implemented and do not currently influence coastal flood risk.

In addition, sections of the coastline have been found to be vulnerable to coastal erosion and this has been mapped through the ICPSS. Such sections include the coast to the north of Lahinch, but not within the town, Quilty, both through the town and to the north and the southern coastline of the Spanish Point settlement. There are other lengths of coastline which are also indicated to be at risk of coastal erosion, but they are located outside the settlements.

### 4.4.3 Flooding from Flood Defence Overtopping or Breach

As discussed in Section 3.2, there are a number of flood defences that have been constructed, are nearly completion or are in the design and planning stages. Whilst existing development clearly benefits from the construction of defences, it is against sustainability objectives, and the general approach of the OPW, to construct defences with the intension of releasing land for development. It is also not appropriate to consider the benefits of schemes which have not been constructed, and which may only be at pre-feasibility or design stage.

Residual risk is the risk that remains after measures to control flood risk have been carried out. Residual risk can arise from overtopping of flood defences and / or from the breach from structural failure of the defences.

The concept of residual risk is explained in 'The Planning System and Flood Risk Management Guidelines for Planning Authorities and Technical Appendices, 2009' as follows:

"*Although flood defences may reduce the risk of flooding, they cannot eliminate it. A flood defence may be overtopped by a flood that is higher than that for which it was designed, or be breached and allow flood water to rapidly inundate the area behind the defence. In addition, no guarantee can be given that flood defence will be maintained in perpetuity. As well as the actual risk, which may be reduced as a result of the flood defence, there will remain a residual risk that must be considered in determining the appropriateness of particular land uses and*

*development. For these reasons, flooding will still remain a consideration behind flood defences and the flood zones deliberately ignore the presence of flood defences*."

Overtopping of flood defences will occur during flood events greater than the design level of the defences. Overtopping is likely to cause more limited inundation of the floodplain than if defences had not been built, but the impact will depend on the duration, severity and volume of floodwater. However, and more critically, overtopping can destabilise a flood defence, cause erosion and make it more susceptible to breach or fail. Recovery time and drainage of overtopping quantities should also be considered. Overtopping may become more likely in future years due to the impacts of climate change and it is important that any assessment of defences includes an appraisal of climate change risks.

Breach or structural failure of flood defences is hard to predict and is largely related to the structural condition and type of flood defence. 'Hard' flood defences such as solid concrete walls are less likely to breach than 'soft' defence such as earth embankments. Breach will usually result in sudden flooding with little or no warning and presents a significant hazard and danger to life. There is likely to be deeper flooding in the event of a breach than due to overtopping.

The assessment of breach should be proportionate to the likelihood of the defence failing, taking into account the age, maintenance regime, construction type and the presence of any demountable or mechanically operated components.

Whilst it is important that residual risks are recognised and appropriate management measures put in place, it is also important to acknowledge the benefits that a flood relief scheme provides to those living and working behind it. In this regard, although 'The Planning System and Flood Risk Management Guidelines for Planning Authorities and Technical Appendices, 2009' requires flood zones to be undefended, consideration should be given to the benefit provided by flood defences, but only once the Justification Test has been applied and passed.

### 4.4.4 Pluvial Flooding

Flooding of land from surface water runoff is usually caused by intense rainfall that may only last a few hours. The resulting water follows along natural valley lines, creating flow paths along roads and through and around developments and ponding in low spots, which often coincide with fluvial floodplains. Any areas at risk from fluvial flooding will almost certainly be at risk from surface water flooding.

The PFRA study considered pluvial flood risk and produced a national set of pluvial flood maps[3]. This dataset was reviewed and used to identify development areas at particular risk of surface water and pluvial flooding. However, the level of detail contained in the PFRA map, and the wide spread distribution of areas at risk did not allow a commentary relating to pluvial flood risk to be developed, or for particularly high risk areas to be identified. Instead, an overall strategy for the management of pluvial risk is presented, and should be implemented across all development proposals.

SFRAs require a strategic assessment of the likelihood of surface water flooding, which includes consideration of the following:

- Are there zoned lands which may need to accommodate and retain surface water flow routes?
- Are there zoned lands which might discharge upstream of an area vulnerable to surface water flooding?

Recommendations for the assessment of surface water risks are provided in Section 0.

### 4.4.5 Flooding from Drainage Systems

Flooding from artificial drainage systems occurs when flow entering a system, such as an urban storm water drainage system, exceeds its discharge capacity, it becomes blocked or it cannot discharge due to a high water level in the receiving watercourse.

Flooding in urban areas can also be attributed to sewers. Sewers have a finite capacity which, during certain load conditions, will be exceeded. In addition, design standards vary and

[3] http://www.cfram.ie/pfra/

changes within the catchment areas draining to the system, in particular planned growth and urban creep, will reduce the level of service provided by the asset. Sewer flooding problems will often be associated with regularly occurring storm events during which sewers and associated infrastructure can become blocked or fail. This problem is exacerbated in areas with under-capacity systems. In the larger events that are less frequent but have a higher consequence, surface water will exceed the sewer system and flow across the surface of the land, often following the same flow paths and ponding in the same areas as overland flow.

Foul sewers and surface water drainage systems are spread extensively across the urban areas with various interconnected systems discharging to treatment works and into local watercourses.

### 4.4.6 Groundwater Flooding

Groundwater flooding is caused by the emergence of water originating from underground, and is particularly common in karst landscapes. This can emerge from either point or diffuse locations. The occurrence of groundwater flooding is usually very local and unlike flooding from rivers and the sea, does not generally pose a significant risk to life due to the slow rate at which the water level rises. However, groundwater flooding can cause significant damage to property, especially in urban areas and pose further risks to the environment and ground stability.

Groundwater flooding can persist over a number of weeks and poses a significant but localised issue that has attracted an increasing amount of public concern in recent years. In most cases groundwater flooding cannot be easily managed or lasting solutions engineered, although the impact on buildings can be mitigated against through various measures.

Large parts of County Clare are particularly vulnerable to groundwater flooding, especially in the northern half of the county. However, records of groundwater flooding are sparse and this source of flooding does not form part of the Flood Zone Maps. Where groundwater flooding is known, or suspected, to be a risk the flood risk assessment should assess and propose mitigation for these risks. In most cases, the most appropriate approach will be to avoid areas which are vulnerable to groundwater flooding.

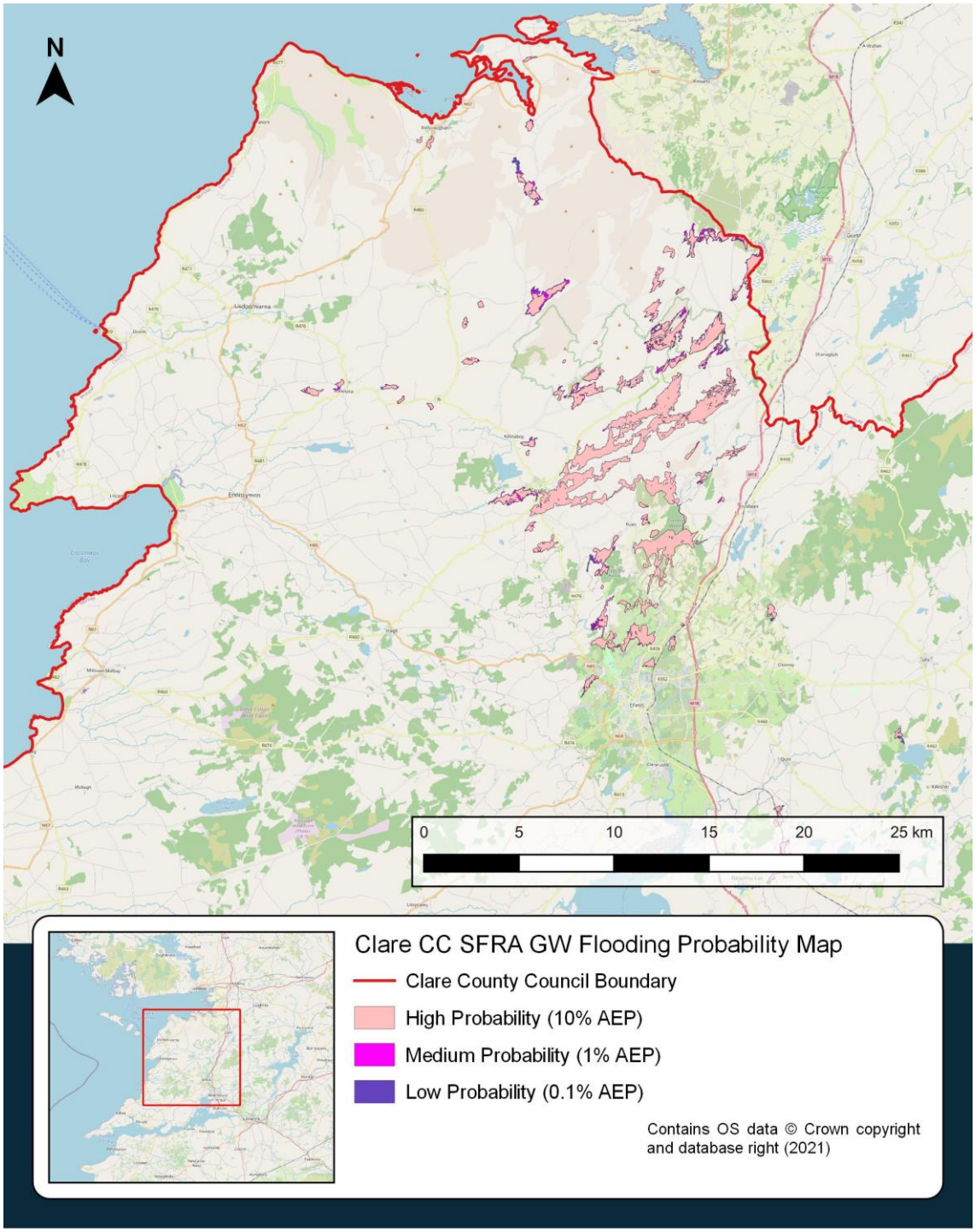



Figure 4-1 - Groundwater flooding probability map - North Clare

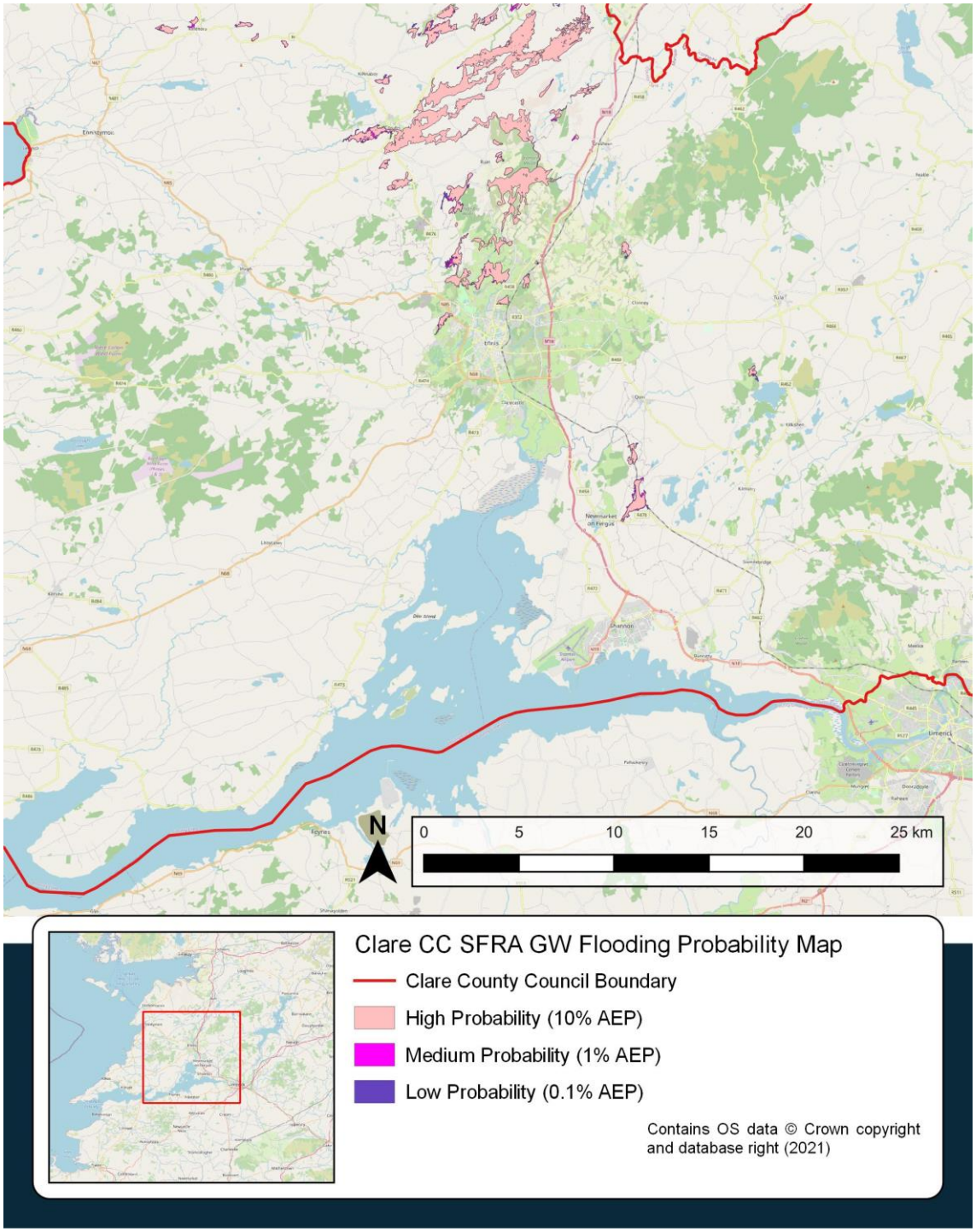



Figure 4-2 - Groundwater flooding probability map - South Clare

## 4.5 Climate Change

In addition to the current level of flood risk (either fluvial or coastal), the SFRA has identified a number of settlements which could be at significantly greater risk when future (climate change) scenarios are considered. These settlements are mainly located along the coast or Shannon estuary, where between a 0.5m (medium range future scenario) and 1m (high end future scenario) rise in sea level should be allowed for, based on current OPW guidance. This appraisal has not included storm damage which occurs currently or may occur in the future; it is based on still sea levels only.

Where land is to be zoned for development, it is important that the long term viability of the area is understood and can be managed. In the main, this will involve moving zoning objectives inland, rather than targeting new development along the areas at high future risk of flooding.

Ennis 2040, and its supporting SFRA, has been particularly useful in this regard as there was undertaken a review of the Plan Making Justification Test under climate change scenarios with a view to informing the long term spatial strategy for Ennis.

As with the other areas of risk, the CFRAM and IPCSS both provided future flood extents for its AFAs and coastal margins. As sea level rise will have potentially damaging consequences, the impact of this for both the MRFS and HEFS should be understood for coastal settlements.

Where the OPW and CCC are designing flood relief schemes for an area consideration will be given to the management of climate change risks within the scheme design. However, this may follow an adaptive approach whereby the defence height is based on current design levels but the foundations of the walls and embankments are designed to take additional loading should the defences be raised in the future.

# 5 Approach to Flood Management

## 5.1 The Strategic Approach

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

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

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

A summary of flood risks associated with each of the zoning objectives has been provided in Table 5-1, below. It should be noted that this table is intended as a guide only and should be read in conjunction with the detailed assessment of risks for the Killaloe, Shannon, Ennis and West Clare Municipal Districts, provided in 8 to 8.

When applications are being considered it is important to remember that not all uses will be appropriate on flood risk grounds, hence the need to work through the Justification Test for Development Management on a site by site basis and with reference to Sections 8, 9, 11 and 8. For example, the community zoning objective could include a highly vulnerable crèche, less vulnerable shops and water compatible car parking / sports facilities but they would not be equally acceptable on the ground floor within Flood Zone A or B.

Table 5-1: Zoning objective vulnerability

| Zoning Objective / Designation | Indicative Primary Vulnerability | Flood Risk Commentary |
|---|---|---|
| Agriculture | Water compatible | JT not needed. Land use appropriate and should be retained. |
| Airport | Highly vulnerable | JT required for all development within Flood Zone A and B. |
| Buffer | Water compatible | JT not needed. Land use appropriate and should be retained. |
| Commercial | Less vulnerable | JT not needed within Flood Zone B. |
| Community | Less vulnerable | JT not needed within Flood Zone B. |
| Enterprise | Less vulnerable | JT not needed within Flood Zone B. |
| Existing residential | Highly vulnerable | JT required for all development within Flood Zone A and B in accordance with PL2014/02. |
| Industrial | Less vulnerable | JT not needed within Flood Zone B. |
| Infrastructure safeguard | Less / highly vulnerable | JT required for highly vulnearble developmetn in Flood Zone A. |
| Light industry | Less vulnerable | JT not needed within Flood Zone B. |
| Low density residential (new) | Highly vulnerable | JT required for all development within Flood Zone A and B. |
| Maritime / Harbour | Water compatible / Less vulnerable | JT required for less vulnerable development in Zone B. |
| Mixed use | Less / highly vulnerable | Consideration to be given to flood risks and sequential use of land to ensure highly vulnerable uses are located within areas at lowest risk of flooding. |
| Neighbourhood centre | Less / highly vulnerable | Consideration to be given to flood risks and sequential use of land to ensure highly vulnerable uses are located within areas at lowest risk of flooding. |
| Open space | Water compatible | JT not needed. Land use appropriate and should be retained. |
| Recreation | Water compatible / Less vulnerable | Consideration to be given to flood risks and sequential use of land. |
| Residential (new) | Highly vulnerable | JT required for all development within Flood |

| Zoning Objective / Designation | Indicative Primary Vulnerability | Flood Risk Commentary |
|---|---|---|
| | | Zone A and B. |
| Strategic Residential Reserve | Highly vulnerable | JT required for all development within Flood Zone A and B. |
| Tourism | Water compatible / Less vulnerable / Highly vulnerable | JT required for all highly vulnerable development within Flood Zone A and B, or less vulnerable development in Zone B. |
| Transport utilities | Less vulnerable / Highly vulnerable | JT may not be required, but flood mitigation may be required. |
| University zone | Less / highly vulnerable | Consideration to be given to flood risks and sequential use of land to ensure highly vulnerable uses are located within areas at lowest risk of flooding. |
| Utilities | Less vulnerable / Highly vulnerable | JT may not be required, but flood mitigation may be required. |
| Village growth area | Less / highly vulnerable | Consideration to be given to flood risks and sequential use of land to ensure highly vulnerable uses are located within areas at lowest risk of flooding. |

## 5.2 Requirements for a Flood Risk Assessment

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

It should be noted that this section of the SFRA applies only to lands which have passed the Justification Test for Development Plans, and therefore Part 1 of the Justification Test for Development Management. Where this is not the case then further guidance will be issued by Clare County Council. In addition to the general recommendations in the following sections, Sections 8 to 8 should be reviewed for specific recommendations for the watercourses within Clare County, including details of the application of the Justification Test.

Assessment of flood risk is required in support of any planning application. The level of detail will vary depending on the risks identified and the proposed land use. As a minimum, all proposed development, including that in Flood Zone C, must consider the impact of surface water flood risks on drainage design. In addition, flood risk from sources other than fluvial and tidal should be reviewed. The assessment may be a qualitative appraisal of risks, including drainage design. Alternatively, the findings of the CFRAM, or other detailed study, may be drawn upon to inform finished floor levels. In other circumstances a detailed modelling study and flood risk assessment may need to be undertaken. Further details of each of these scenarios, including considerations for the flood risk assessment are provided in the following sections.

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

Within the SSFRA the impacts of climate change and residual risk (including culvert/structure blockage) and more extreme scenarios (such as the 0.1% AEP fluvial and tidal event) should be considered and modelled or remodelled where necessary. Further information on the required content of the SSFRA is provided in the Planning System and Flood Risk Management Guidelines.

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

Although there are many locations where development may, in the future, benefit from a flood relief scheme, the assessment must progress on the basis of the current level of protection and

any risks to the development itself or third party land must be managed as part of the development design.

## 5.3 Drainage impact assessment

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

Areas vulnerable to ponding are indicated on the OPW's PFRA mapping. However, this mapping is not exhaustive and more general consideration should be given to surface water management for development in low-lying areas which may act as natural ponds for collection of runoff.

The drainage design should ensure no increase in flood risk to the site, or the downstream catchment. Considerable detail on the process and design of SUDS is provided in the Greater Dublin Strategic Drainage Study (which in the absence of other guidance may be applied in County Clare), and more details and guidance are available on the 'Irish SuDS: Guidance and Tools' website.

For larger sites (i.e. multiple dwellings or commercial units) master planning should ensure that existing flow routes are maintained, through the use of green infrastructure. Where possible, and particularly in areas of new development, floor levels should at a minimum be 300mm above adjacent roads and hard standing areas to reduce the consequences of any localised flooding. Where this is not possible, an alternative design appropriate to the location may be prepared.

## 5.4 Development in Flood Zone C

Where a site is within Flood Zone C, but adjoining or in close proximity to Flood Zone A or B there could be a risk of flooding associated with factors such as future scenarios (climate change) or in the event of failure of a defence, blocking of a bridge or culvert. Risk from sources other than fluvial and coastal must also be addressed for all development in Flood Zone C. As a minimum in such a scenario, a flood risk assessment should be undertaken which will screen out possible indirect sources of flood risk and where they cannot be screened out it should present mitigation measures. The most likely mitigation measure will involve setting finished floor levels to a height that is above the 1 in 100 year fluvial or 1 in 200 year tidal flood level, with an allowance for climate change and freeboard, or to ensure a step up from road level to prevent surface water ingress. Design elements such as channel maintenance or trash screens may also be required. Evacuation routes in the event of inundation of surrounding land should also be detailed.

The impacts of climate change should be considered for all proposed developments. This is particularly important for development near areas at risk of tidal flooding. A development which is currently in Flood Zone C may be shown to be at risk when 0.5m is added to the extreme (1 in 200 year) tide. Details of the approach to incorporating climate change impacts into the assessment and design are provided in Section 5.6.

## 5.5 Development in Flood Zone A and B

### 5.5.1 Minor Developments

Section 5.28 of the Planning Guidelines on Flood Risk Management identifies certain types of development as being 'minor works' and therefore exempt from the Justification Test. Such development relates to works associated with existing developments, such as extensions, renovations and rebuilding of the existing development, small scale infill and changes of use.

Despite the ‘Sequential Approach’ and ‘Justification Test’ not applying, as they relate to existing buildings, an assessment of the risks of flooding should accompany such applications. This must demonstrate that the development would not increase flood risks, by introducing significant numbers of additional people into the flood plain and/or putting additional pressure on emergency services or existing flood management infrastructure. The development must not have adverse impacts or impede access to a watercourse, floodplain or flood protection and management facilities. Where possible, the design of built elements in these applications

should demonstrate principles of flood resilient design (See 'The Planning System and Flood Risk Management Guidelines for Planning Authorities Technical Appendices, 2009', Section 4 - Designing for Residual Flood Risk).

Generally, the approach to deal with flood protection would involve raising the ground floor levels above the level of extreme high tides. However, in some parts of the plan area, which are already developed, ground floor levels for flood protection could lead to floor levels being much higher than adjacent streets, thus creating a hostile streetscape for pedestrians. This would cause problems for infill development sites if floor levels were required to be significantly higher than those of neighbouring properties. In this regard, for the key sites in the plan area it has been recognised that ground floor levels below predicted high tide levels could be allowed, in limited circumstances, on a site by site basis, for commercial and business developments. However, if this is the case, then these would be required to be flood resistant construction using water resistant materials and electrical fittings places at higher levels. For high risk areas it would also be necessary to impose planning restrictions in these areas. Residential Uses would not be permitted at ground flood levels in high risk zones.

It should be noted that for residential buildings within Flood Zone A or B, bedroom accommodation is more appropriate at upper floor levels.

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

### 5.5.2 Highly vulnerable development

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

#### 5.5.2.1 New development

It is not appropriate for new, highly vulnerable development to be located on greenfield land in Flood Zones A or B, particularly outside the core of a settlement and where there are no flood defences. Such proposals do not pass the Justification Test. Instead, a less vulnerable use should be considered.

In some cases, land use objectives which include for a highly vulnerable use have been justified in the Development Plan. In the main, this would be town centre zonings, which allow for a mix of residential, commercial and other uses. In such cases, a sequential approach to land use within the site must be taken and must consider the presence or absence of defences, land raising and provision of compensatory storage, safe access and egress in a flood and the wider development area.

#### 5.5.2.2 Existing developed areas

In cases where development has been Justified through the Plan Making process, the outline requirements for a flood risk assessment and flood management measures have been detailed in this SFRA in both the following sections and the site specific assessments in Sections 8 to 8, which also details where such development has been justified. Of prime importance are the requirement to manage risk to the development site and not to increase flood risk elsewhere, and to ensure the long term sustainability of that development by considering climate change impacts. There should be due consideration to safe evacuation routes and access for emergency services during a flood event.

### 5.5.3 Less vulnerable development

This applies to less vulnerable development in Flood Zone A which has passed the Justification test for development plans, and less vulnerable development in Flood Zone B, where this form of development is appropriate, and the Justification Test is not required.

Less vulnerable development includes retail, leisure and warehousing and buildings used for agriculture and forestry. This category includes less vulnerable development in all forms, including refurbishment or infill development, and new development both in defended and undefended situations.

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

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

### 5.5.4 Water compatible uses

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

## 5.6 Checklist for Applications for Development in Areas at Risk of Flooding

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

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

The following checklist is required for all development proposals:

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

## 5.7 Climate Change

Ireland's climate is changing and analysis of the potential impacts of future climate change is essential for understanding and planning. Climate change should be considered when assessing flood risk and in particular residual flood risk. Areas of residual risk are highly sensitive to climate change impacts as an increase in flood levels will increase the likelihood of defence failure. As laid out in the Climate Adaptation Strategy, new development should include consideration of climate change impacts on fluvial, pluvial and tidal source of flooding.

The Planning Guidelines recommend that a precautionary approach to climate change is adopted due to the level of uncertainty involved in the potential effects. Specific advice on the expected impacts of climate change and the allowances to be provided for future flood risk management in Ireland is given in the OPW draft guidance[4]. However, this guidance is over 10

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

years old now and climate science, particularly in relation to sea level rise, has developed rapidly. There are many coastal related climate change impacts, these include:

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

The OPW guidance recommended two climate change scenarios are considered. These are the Mid-Range Future Scenario (MRFS) and the High-End Future Scenario (HEFS). The allowances should be applied to the 1% AEP fluvial or 0.5% AEP tidal levels. Where a development is critical or extremely vulnerable (see Table 5-2) the impact of climate change on 0.1% AEP flows should also be applied, and greater climate change allowances tested for resilience purposes.

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

Table 5-2: Climate change allowances by vulnerability and flood source

| Development vulnerability | Fluvial climate change allowance (increase in flows) | Tidal climate change allowance (increase in sea level) | Storm water / surface water |
|---|---|---|---|
| Less vulnerable | 20% | 0.5m (MRFS) | 20% increase in rainfall |
| Highly vulnerable | 20% | 0.5m (MRFS) | |
| Critical or extremely vulnerable (e.g. hospitals, major sub-stations, blue light services) | 30% | 1.0m (HEFS) | |
| Note: there will be no discounting of climate change allowances for shorter lifespan developments. | | | |

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

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

## 5.8 Flood Mitigation Measures at Site Design

For any development proposal in an area at moderate or high risk of flooding that is considered acceptable in principle (i.e. has passed the Plan Making Justification Test), the site specific FRA must demonstrate that appropriate mitigation measures can be put in place and that residual risks can be managed to acceptable levels. This may include the use of flood-resistant construction measures that are aimed at preventing water from entering a building and that mitigate the damage floodwater causes to buildings. Alternatively, designs for flood resilient construction may be adopted where it can be demonstrated that entry of floodwater into buildings is preferable to limit damage caused by floodwater and allow relatively quick recovery.

Various mitigation measures are outlined below and further detail on flood resilience and flood resistance are included in the Technical Appendices of the Planning Guidelines, The Planning System and Flood Risk Management[5].

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

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

### 5.8.1 Site Layout and Design

To address flood risk in the design of new development, a risk-based approach should be adopted to locate more vulnerable land use to higher ground while water compatible development i.e. car parking (with appropriate flood management plan) and recreational space can be located in higher flood risk areas.

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

At an individual building level, assigning a water compatible use, such as open public realm, or less vulnerable use to the ground floor level, along with suitable flood resilient construction, is an effective way of raising vulnerable living space above design flood levels. It can however have an impact on the streetscape. The provision of safe access and egress is a critical consideration in allocating ground floor uses.

### 5.8.2 Ground levels, floor levels and building use

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

- Development at the site must have been justified through this SFRA based on the existing (unmodified) ground levels.
- The FRA should establish the function provided by the floodplain. Where conveyance is a prime function then a hydraulic model will be required to show the impact of its alteration.
- The land being given over to storage must be land which does not flood in the 1% AEP fluvial event (i.e. Flood Zone B or C).
- Compensatory storage should be provided on a level for level basis to balance the total area that will be lost through infilling where the floodplain provides static storage.
- The provision of the compensatory storage should be in close proximity to the area that storage is being lost from (i.e. within the same flood cell).
- The land proposed to provide the compensatory storage area must be within the ownership / control of the developer.
- The compensatory storage area should be constructed before land is raised to facilitate development.
- Compensatory storage is generally not required for loss of floodplain in a tidal scenario, or in locations behind defences.

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

Raising finished floor levels within a development is an effective way of avoiding damage to the interior of buildings (i.e. furniture and fittings) in times of flood. Finished floor levels should be assessed in relation to the specific development, but the minimum levels set out in Table 5-3 should apply. It should be noted that in certain locations it may be appropriate to adopt a more

precautionary approach to setting finished floor levels, for example where residual risks associated with bridge blockage occur or the 0.1% AEP event is more extreme, and this should be specifically assessed in the SSFRA. It is also noted that typically finished floor levels should be set a minimum of 300mm above surrounding ground levels to prevent ingress of surface water.

Table 5-3: Recommended minimum finished floor levels

| Scenario | Finished floor level to be based on |
|---|---|
| Fluvial, undefended | 1% AEP flood + climate change (as Table 5-2) + 300mm freeboard |
| Tidal, undefended | 0.5% AEP flood + climate change (as Table 5-2) + 300mm freeboard (or +500mm where wave overtopping and surge is an additional risk). |
| Fluvial, defended | 1% AEP flood + 300mm freeboard. Climate change does not need to be included, provided it is included in the defence height or adaption plan for the scheme. |
| Tidal, defended | 0.5% AEP flood + 300mm freeboard (or +500mm where wave overtopping and surge is an additional risk). Climate change does not need to be included, provided it is included in the defence height or adaption plan for the scheme. |

### 5.8.3 Raised Defences

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

### 5.8.4 Emergency Flood Response Plans

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

The emergency plan will need to detail triggers for activation, including receipt of a timely flood warning, a staged response and to set out the management and operational roles and responsibilities. The plan will also need to set out arrangements for access and egress, both for pedestrians, vehicles and emergency services. The details of the plan should be based on an appropriately detailed assessment of flood risk, including speed of onset of flooding, depths and duration of inundation.

However, just because it is possible to prepare and emergency plan does not mean this is advisable or appropriate for the nature and vulnerability of development.

### 5.8.5 Nature based solutions / Green Infrastructure

Measures can be taken that aim to retain water on the landscape during periods of high rainfall and flood by mimicking the functioning of a natural landscape, thereby reducing the magnitude of flood events and providing complimentary ecosystem services. In general, nature-based measures aim to:

- Reduce the rate of runoff during periods of high rainfall;
- Provide flood storage in upper catchment areas; and
- Use natural materials and “soft” engineering techniques to managing flooding in place of “hard” engineering in river corridors.

Nature-based measures to control flooding typically focus on the use of porous surfaces in developments (Sustainable Urban Drainage Systems or SUDS), planting of native vegetation communities/assemblages that are tolerant of both wet and dry conditions, and reversing the impacts of over-engineered river corridors (river restoration) to reduce the peak of flood events by mimicking the function of a natural catchment landscape. In addition to providing flood relief benefits, nature-based solutions can provide an array of ecosystem services including silt and pollution control for runoff entering the river system, improved riparian and in-river habitats, localised temperature reduction during periods of extreme heat, reduced maintenance requirements in engineered systems, groundwater recharge, and carbon sequestration.

These measures can be implemented across an array of scales, for instance across a catchment as part of a wider flood relief scheme, or on a site-specific basis as part of a landscaping or green infrastructure plan. Nature-based solutions can provide flood mitigation benefits and ecosystem services across all scales if given adequate planning, and should be considered during the site layout and design stages of a development.

### 5.8.6 'Green Corridor'

It is recommended that, where possible, and particularly where there is greenfield land adjacent to the river, a 'green corridor', is retained on all rivers and streams. This will have a number of benefits, including:

- Retention of all, or some, of the natural floodplain;
- Opportunities to undertake works to restore natural in-river processes and habitats;
- Potential opportunities for amenity, including better views, riverside walks and public open spaces;
- Maintenance of the connectivity between the river and its floodplain, encouraging the development of a full range of riparian and floodplain habitats;
- Natural attenuation of flows in the immediate floodplain will help ensure no increase in flood risk downstream;
- Allows access to the river for maintenance works;
- Helping to achieve “Good” Ecological Status for river waterbodies under the EU Water Framework Directive (WFD); and
- Retention of clearly demarcated areas where development is not appropriate on flood risk grounds, and in accordance with the Planning System and Flood Risk Management.

The width of this corridor should be determined through undertaking of a river restoration strategy, but can also be indicated by the available land, and topographical constraints, such as raised land and flood defences. It would ideally span the full width of the floodplain (i.e. all of Flood Zone A).

# 6 Application of the Justification Test

Having reviewed the level of flood risk within the County and determined appropriate measures for assessing and managing risks to high and low vulnerability development in Flood Zones A, B and C, a more detailed assessment of sites and areas was carried out. The aim of this assessment was to work through the Sequential Approach, and where necessary apply the Plan Making Justification Test, taking into account circular PL02/2014 in relation to existing development. The tables in the following sections detail the assessment of risk in relation to all zoned land. The recommendations and observations have been adopted by Clare County Council and used to inform the settlement zoning objectives which are detailed in the Development Plan.

## 6.1 Risk to existing, highly vulnerable, development

Circular PL02/2014 states that "*In some instances, particularly in older parts of cities and towns, an existing land use may be categorised as a "highly vulnerable development" such as housing, be zoned for residential purposes and also be located in flood zone A/B. Additional development such as small scale infill housing, extension or changes of use that could increase the risk or number of people in the flood-prone area can be expected in such a zone into the future. In these instances, where the residential/vulnerable use zoning has been considered as part of development plan preparation, including uses of the Justification Test as appropriate, and it is considered that the existing use zoning is still appropriate, the development plan must specify the nature and design of structural or non-structural flood risk management measures prior to future development in such areas in order to ensure that flood hazard and risk to the area and to other adjoining locations will not be increased or, if practicable, will be reduced".*

There are a number of such areas in the County identified on the Flood Zone maps. It is considered that it would be unrealistic to down zone these lands as they are fully developed and constitute core areas of the settlements.

In applying the Justification Test Part 3, consideration has been given to structural and non-structural measures which may be required prior to further development taking place. In many cases, the area of existing residential within Flood Zones A and B is relatively small and risks can be managed through the Sequential Approach. In other cases it has been determined that future development should be limited to Minor Developments, as laid out in Section 5.28 of the Planning Guidelines, and Section 5.5.1 of this SFRA. As such, in most areas flood risk can be addressed through non-structural responses, such as requiring a site specific flood risk assessment which will identify appropriate mitigation measures such as retaining flow paths, flood resilient construction and emergency planning.

In other locations, including Kilkee, parts of Shannon, Bunratty, Kilrush and Springfield, flood risk is greater and non-structural (planning based) responses to major new development are not appropriate to the scale of risks. In these locations, structural measures, generally in the form of flood defences, will be required prior to future development occurring within Flood Zone A and B. Further detail on the specifics of the flood management measures in these locations are available in the Shannon CFRAM Study reports.

The following sections provide more detail on flood risk to settlements within County Clare and gives details of the outcome of the Justification Test where this is required.

# 7 Settlement Based Flood Risk Assessment

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

## 7.1 Settlements in Flood Zone C

The settlements in Table 7-1 were found to be at low risk of flooding and located in Flood Zone C and development proposals should proceed following the approach laid out in Sections 5.3 and 5.4 to ensure all other sources of flood risk, including surface water, groundwater and unmapped drains, have been appropriately assessed and, where required mitigated.

As detailed above, pluvial flooding can generally be managed / mitigated through site design and should be addressed at the planning application stage through a Drainage Impact Assessment.

It should also be noted that there was no particular increased risk (in terms of flood extent) presented in any settlement when climate change was considered, with the exception of Doonaha. The impact of climate change on groundwater has not been examined, so a precautionary approach to zoning land in areas at risk of groundwater flooding is recommended.

Table 7-1: Settlements wholly within Flood Zone C

- Ballinruan
- Ballycannon North(meelick)
- Barefield
- Bellharbour
- Bodyke
- Boston
- Carron
- Clooney
- Connolly
- Cratloe
- Cross
- Crusheen
- Doonaha
- Ennis
- Inch
- Kilbane
- Kilfenora
- Kilkishen
- Killanena
- Killimer
- Killmurry McMahon
- Kilmihil
- Kilmurry
- Kilnaboy
- Kilnamoma
- Kilshanny
- Knockerra
- Moy
- Mullagh
- Ogonelloe
- Parteen* (inlcuded in CFRAM study)
- Ruan
- Toonagh
- Tubber
- Tulla

## 7.2 Settlements in Flood Zone A and B

The settlements below were identified as lying partly within Flood Zones A, B and C, and have zoning objectives detailed within the Development Plan. The following sections provide further detail of the risks within each of the listed settlements, including consideration of the need for the Plan Making and Development Management Justification Tests for both undeveloped land and for areas where redevelopment or refurbishment may take place.

Storm damage in the vicinity of some of the settlements was reported following the winter of 2013/14. Although this risk was not identified as being a constraint to currently undeveloped land, the management of such risk to existing development, including the policies in relation to Section 5.28 of the Planning Guidelines (Minor developments) should be addressed. The ICPSS coastal erosion maps should also be consulted in this regard as climate change will impact on both sea levels and coastal processes.

There is an increased risk arising from climate change in a number of settlements. Where development is proposed this risk should be considered and addressed through the site specific FRA.

A number of settlements within this group are subject to detailed examination under the Shannon CFRAM Study. They have been included in this grouping as the CFRAM will provide sufficient information to make informed decisions with regard to managing flood risk. The CFRAM AFAs are indicated with an asterisk (*) in the list below.

- Ardnacrusha*
- Athlunkard*
- Ballyea
- Ballynacally
- Ballyvaughan
- Bridgetown
- Broadford
- Bunratty*
- Caher
- Carrigaholt
- Clarecastle
- Clonlara*
- Cooraclare
- Corofin
- Cranny
- Creegh
- Doolin
- Doonbeg
- Ennis*
- Ennistymon/ Lahinch
- Fanore
- Feakle
- Flagmount
- Inagh
- Kiladysert
- Kilbaha
- Kilkee*
- Killaloe
- Kilmaley
- Kilrush/ Cappa*
- Knock
- Labasheeda
- Lahinch
- Liscannor
- Lisdoonvarna
- Lissycasey
- MiltownMalbay
- Mountshannon
- Moyasta
- Newmarket-on-Fergus
- O'Briensbridge*
- O'Callaghans Mills
- Querrin
- Quilty
- Quin*
- Scariff/ Tuamgraney
- Shannon*
- Sixmilebridge*
- Spanish Point
- Whitegate

## 7.3 Climate Change Risk

In addition to the current level of flood risk (either fluvial or coastal), this screening has identified a number of settlements which could be at significantly greater risk when future (climate change) scenarios are considered. These settlements are mainly located along the coast, where between a 0.5m (medium range future scenario) and 1m (high end future scenario) rise in sea level should be allowed for, based on current OPW guidance. This appraisal has not included storm damage which occurs currently, or may occur in the future. It is based on still sea levels only.

Where land is to be zoned for development, it is important that the long term viability of the area is understood and can be managed. In the main, this will involve moving zoning objectives inland, rather than targeting new development along the coastline.

As with the other areas of risk, the CFRAM has provided future flood extents for its AFAs and include an assessment of the impacts of defence breach in applicable settlements (i.e. AFAs with formal defences). As sea level rise will have potentially damaging consequences, the impact of this for both the mid range future scenario (MRFS) and high end future scenario (HEFS) should be quantified / mapped for coastal settlements. For inland towns, an appropriate appraisal of climate change impacts should be made for all settlements.

Where the impact of climate change is likely to be significant a comment has been provided in the relevant settlement review table in Sections 8 to 8, which are divided into Municipal Districts.

# 8 Ennis Municipal District

## 8.1 Overview

Within the Ennis Municipal District are a number of settlements with differing levels of flood risk. A summary of the risks is provided in Table 8-1, with further details of the approach to managing flood risk, and the application of the Justification Test, provided in Section 8.2 and 8.3.

Table 8-1: Ennis Municipal District Settlement Overview

| Settlement | Flood Comment | Development Comment |
|---|---|---|
| Barefield | No fluvial or tidal flood risk indicated within the settlement. | See Sections 5.3 and 5.4 for details of assessment needed. |
| Clooney | Limited risk within the settlement, largely within the open space riverside buffer. Some potential for risk to the existing residential land. | Open space is appropriate and should be retained.<br>Residential development in the village growth areas bordering the river will need a site specific FRA to confirm flood levels and residual risks.<br>Redevelopment of existing residential should follow Section 5.28 of the Planning Guidelines and new development should avoid Flood Zone A and B. JT not needed. |
| Ennis and Clarecastle | Several areas at risk of pluvial flooding within the site. Risk of coastal and fluvial also. | A detailed strategic flood risk assessment was undertaken for Ennis and Clarecastle as part of the Clare County Development Plan 2017-2023. See following tables for details of specific development sites. |
| Toonagh | There is a watercourse that passes through the corner of an area of existing residential development to the south of the settlement but the Flood Zones arising are modest. | Sequential approach should be applied, and new development restricted to Flood Zone C. |

## 8.2 Justification Test Part 2

### 8.2.1 Ennis Justification Test

| Justification test for sites within Flood Zone A and / or B | OP1 – Former Ennis National School and adjoining lands | OP3 Ennis Community Centre / Lysaght's car park and former Moran's premises | OP4 Analogue Building and a portion of the infill site at the Post Office Field. |
|---|---|---|---|
| *The urban settlement is targeted for growth* | Yes, Ennis is an NPF Key Town. The site predominantly in FRZ C but is shown partially within CFRAMS Study Modelled extents of Flood Zoned A and B. | Yes, Ennis is an NPF Key Town. The site is in Flood Zones A, B and C. | Yes, Ennis is an NPF Key Town. The site is in Flood Zone A but makes a limited contribution to the flow conveyance of the river and miniscule contribution to flood storage and flood peak attenuation. |
| *The zoning or designation of the lands for the particular use or development type is required to achieve the proper planning and sustainable development of the urban settlement* | The site is designated for mixed use including retail, leisure, commercial offices residential, open space and car parking , as well as Commercial to the south. | It is proposed to zone the site mixed use having regard to its key location on the main shopping street. Appropriate uses may include the creation of a modern retail format premises, restaurant, craft and design centre, artists quarter and tourism uses and the creation of a pedestrian public place / play area and pedestrian links to adjoining network of laneways. | It is proposed to zone the site mixed use. Appropriate uses may include commercial, civic and restaurant. |
| *Is essential to facilitate regeneration and / or expansion of the centre of the urban settlement.* | This is a significant brownfield site strategically located and ideally positioned within and directly adjoining the town centre to accommodate the need for additional convenience and non-bulky comparison goods flood space. | Yes. Redevelopment of this opportunity site and creation of pedestrian links to existing network of lane ways will facilitate the regeneration and consolidation of the core of the town. | This infill site is essential to town centre regeneration and to opening up of access to post office field. |
| *Comprises significant previously developed and/ or under-utilised lands* | The site contains previously developed land and under-utilised land. | Yes. The site accommodates a retail premises and car park. | Site is underutilised in its current form. |
| *Is within or adjoining the core of an established or designated urban settlement* | The site is within and adjoining the town centre. | Yes. The site is situated in the centre of the town. | Site is centrally located in town centre. |
| *Will be essential in achieving compact* | Development of site will contribute | Yes. See comments above. | Site is essential to achieving compact growth |

| Justification test for sites within Flood Zone A and / or B | OP1 – Former Ennis National School and adjoining lands | OP3<br>Ennis Community Centre / Lysaght's car park and former Moran's premises | OP4<br>Analogue Building and a portion of the infill site at the Post Office Field. |
|---|---|---|---|
| *and sustainable urban growth* | significantly to achieving compact growth in town centre. | | given its town centre location. |
| *There are no suitable alternative lands for the particular use or development type, in areas at lower risk of flooding within or adjoining the core of the urban settlement.* | There are no suitable alternative lands. | The town centre is predominantly in flood zone A, so there are no alternative sites at lower risk of flooding. | There are no other alternative sites where by a dual frontage development will open up access to the post office field. Such access can only be accommodated at this location. |
| *A flood risk assessment to an appropriate level of detail has been carried out* | See Section 12.3.20 | See Section 8.3.3 | See section 8.3.1 |
| *Result* | Pass | **Pass** | **Pass** |
| *Recommendation for zoning* | Zone Mixed Use and Commercial. | Zone Mixed Use. | Zone Mixed Use. |

| Justification test for sites within Flood Zone A and / or B | OP7<br>Woodquay | OP8<br>Waterville Hs and adjoining site Cornmarket St. | OP9<br>River side site Harmony Row and Bank Place |
|---|---|---|---|
| *The urban settlement is targeted for growth* | Yes, Ennis is an NPF Key Town. The site is in Flood Zone A benefitting lands. | Yes, Ennis is an NPF Key Town. The site is in Flood Zone A behind flood defences. | Yes, Ennis is an NPF Key Town. The site is within flood zone A. |
| *The zoning or designation of the lands for the particular use or development type is required to achieve the proper planning and sustainable development of the urban settlement.* | The site is zoned mixed use. The mixed use zoning allows for a variety of uses normally found in the town centre. Appropriate uses may include- trail head facilities, bike hire and repair shops, public convenience, trail head information office, café, low vulnerability uses. | It is proposed to zone the site mixed use where a variety of uses normally associated with the town centre are permitted. Appropriate uses identified for this site include offices, hotel, guest accommodation. | The site is zoned mixed use and open space (along by river). Appropriate uses are amenity area and flood defence uses, car park, retail, mixed use, civic, community and commercial uses in order to realise a comprehensive redevelopment of this block with less vulnerable uses at lower levels and other uses at higher levels. |
| *Is essential to facilitate regeneration and / or expansion of the centre of the urban settlement.* | Site is essential for provision of West Clare Railway Greenway trial head facilities and regeneration of the western side of the town. | Essential to facilitate regeneration in the western area of the town centre. | This site is essential to regeneration of the town centre- strengthening pedestrian links to the town centre and providing a central amenity space. |
| *Comprises significant previously developed and/ or under-utilised lands.* | Yes- Existing development on site considered an underutilisation of lands. | The site accommodates two dwellings, associated out buildings, tennis & badminton club house, courts and car parking. | Site is considered underutilised having regard to its town centre location. |
| *Is within or adjoining the core of an established or designated urban settlement.* | Site is within core. | The site is within the core of the urban settlement | The site is a key central site in the core of the town. |
| *Will be essential in achieving compact and sustainable urban growth* | Site is essential for sustainable growth and encourage more sustainable means of transport. | Yes. Redevelopment of this site will achieve compact and sustainable growth in the town centre. | Redevelopment of the site is essential and will contribute significantly to compact development of the town centre. |
| *There are no suitable alternative lands for the particular use or development type, in areas at lower risk of flooding within or adjoining the core of the urban settlement* | The site provides a unique location for trail head facilities which must be located at the starting/ finishing point of the cycle route. | Proposals for this site could not be achieved elsewhere having regard to the site size and location. | Other sites could accommodate similar uses but they are also in Flood Zone A /B. |
| *A flood risk assessment to an appropriate level of detail has been carried out* | See Section 8.3.3. | See Section 8.3.3. | See Section 8.3.3. |
| **Result** | **Pass** | **Pass** | **Pass** |
| *Recommendation for zoning* | Zone Mixed Use. | Zone Mixed Use. | Zone Mixed Use and zone Open Space adjacent to river. |

| Justification test for sites within Flood Zone A and / or B | OP10 Waterpark House and Aras Ui Chochlain | OP11 The Colaiste Grounds, Harmony Row | OP12 Francis St / The Causeway |
|---|---|---|---|
| *The urban settlement is targeted for growth* | Yes, Ennis is an NPF Key Town. The site is Flood Zones A, B and C. | Yes, Ennis is an NPF Key Town The site is partly within defended and undefended Flood Zone A. | Yes, Ennis is an NPF Key Town. The site is situated in Flood Zone A on lands benefitting from defences. |
| *The zoning or designation of the lands for the particular use or development type is required to achieve the proper planning and sustainable development of the urban settlement* | It is proposed to zone the site mixed use. It is proximate to the town centre expansion area. Appropriate uses may include high quality office/ commercial with pedestrian access to Buttermarket St. | It is proposed to zone the site for Mixed Use. Appropriate uses include a mix of town centre uses including car parking. | The site is zoned Mixed Use. Appropriate uses include commercial office, residential on upper floors, retail, apartments, restaurant, café, community cultural and arts facility, cinema. |
| *Is essential to facilitate regeneration and / or expansion of the centre of the urban settlement.* | This site is proximate to the town centre expansion area on the western side of the town centre where the principle aim of the plan is to regenerate and revitalise this area of the town centre. | Gate way site with pedestrian linkages to main shopping streets. Essential to facilitate regeneration/ expansion in the town centre and improve parking provision for the retail core. | This is a key site for regeneration and consolidation of the town centre |
| *Comprises significant previously developed and/ or under utilised lands* | Yes. The site accommodates two office buildings, out building car park and park. | The site includes an area of under-utilised private car park serving the school. | Existing buildings on site including Clare FM, vacant offices and TESCO in addition to a green field section at the Causeway. The site is underutilised having regard to its central location. |
| *Is within or adjoining the core of an established or designated urban settlement* | Yes. The site is situated within the core. | The site lies within the town core. | Site is within the town core. |
| *Will be essential in achieving compact and sustainable urban growth* | Yes. It is considered that the site could accommodate further development thereby achieving more compact urban growth. | Yes. The proposed mixed use will achieve compact growth. | Yes. Appropriate that town centre sites be developed prior to peripheral sites. |
| *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.* | Alternative lands within and adjoining the core are located on lands with higher risk of flooding. | This site offers unique pedestrian connectivity within the town centre, unlike other sites adjoining the core. | There are other sites which could accommodate a suite of uses appropriate to the town centre but they are also in Flood Zone A/B. |
| *A flood risk assessment to an appropriate level of detail has been* | See Section 8.3.3. | See Section 8.3.3. | See Section 8.3.3. |

| Justification test for sites within Flood Zone A and / or B | OP10 Waterpark House and Aras Ui Chochlain | OP11 The Colaiste Grounds, Harmony Row | OP12 Francis St / The Causeway |
|---|---|---|---|
| *carried out* | | | |
| *Result* | **Pass** | **Pass** | **Pass** |
| *Recommendation for zoning* | Zone Mixed Use. | Zone Mixed Use. | Zone Mixed Use. |

| Justification test for sites within Flood Zone A and / or B | OP13<br>Cusack Park<br>Francis St | OP14<br>The Mart Quin Rd. | OP16<br>Former Western Garages and adjoining old cornstore, Mill Rd. |
|---|---|---|---|
| *The urban settlement is targeted for growth* | Yes, Ennis is an NPF Key Town. The site is in Flood Zone A on lands benefitting from defences. | Yes, Ennis is an NPF Key Town. The site is in Flood Zone A. The site benefits from the protection of flood embankments and does not currently function as an active flood plain. | Yes, Ennis is an NPF Key Town. The site is within Flood Zone A behind defences. |
| *The zoning or designation of the lands for the particular use or development type is required to achieve the proper planning and sustainable development of the urban settlement* | It is proposed to zone the site Mixed Use and open space. Appropriate uses include: riverside amenity space, offices, hotel with conference facilities, cinema, tourist facilities and/or retail use and car parking. Site offers excellent potential to enhance pedestrian links to schools and offices on New Rd. | It is proposed to zone the site Mixed Use in order to bring forward the development of the site and the associated infrastructure safeguard. The zoning is required to maximise the potential of the sites proximity to train/ bus station. Appropriate use is stadium and associated car parking. | It is proposed to zone the site Mixed Use. Appropriate uses may include commercial, retail, crèche, offices, employment uses, cookery school. |
| *Is essential to facilitate regeneration and / or expansion of the centre of the urban settlement.* | Yes. The site is essential to facilitate regeneration on the eastern side of the town centre. | Essential to facilitate the relocation of GAA stadium. | The site is essential to facilitate regeneration of the western part of the town centre. |
| *Comprises significant previously developed and/ or under utilised lands* | Use as GAA stadium is considered an underutilisation of the site having regard to its central location and scale. | Site previously developed as a Mart. | The site was previously developed but in its current form is under-utilised. |
| *Is within or adjoining the core of an established or designated urban settlement* | The site is situated adjacent to the core shopping centre area as defined by the Mid-West Retail strategy 2010- 2016. | The site is adjoining the town core. | The site is within the town core. |
| *Will be essential in achieving compact and sustainable urban growth* | Redevelopment of the site will contribute significantly to achieving compact growth in the town centre. | Yes -relocation of GAA stadium is considered essential to achieving sustainable urban growth. | Regeneration of this site will contribute significantly to achieving compact sustainable urban growth. |
| *There are no suitable alternative lands for the particular use or development type, in areas at lower risk of flooding within or adjoining the core of the urban settlement.* | There are no suitable alternative sites outside Flood Zone A and zoned for Mixed Use. | The site is a unique large site on the edge of town centre suitable for a stadium. There are no other sites adjacent to the town core of sufficient size to facilitate such development. | Alternative sites within or adjoining the town core have the same level of flood risk. |
| *A flood risk assessment to an appropriate level of detail has been carried out* | See Section 8.3.3. | See Section 8.3.4. | See Section 8.3.3. |

| Justification test for sites within Flood Zone A and / or B | OP13<br>Cusack Park<br>Francis St | OP14<br>The Mart Quin Rd. | OP16<br>Former Western Garages and adjoining old cornstore, Mill Rd. |
|---|---|---|---|
| *Result* | **Pass** | **Pass** | **Pass** |
| *Recommendation for zoning* | Zone Mixed Use and zone Open Space adjacent to river. | Zone Mixed use and Utilities. | Zone Mixed Use. |

| Justification test for sites within Flood Zone A and / or B | C2 Friar's Walk | MU6 Tobarteascain | MU1 New Rd. |
|---|---|---|---|
| *The urban settlement is targeted for growth* | Yes, Ennis is an NPF Key Town. Site is entirely within defended Flood Zone A based on new CFRAM mapping. | Yes, Ennis is an NPF Key Town. The site is in Flood Zones A/B and C. | Yes, Ennis is an NPF Key Town. The southern half of the site nearest the public road is within Flood Zone A/B and the northern half in Flood Zone C. As Mixed Use on Flood Zone C does not require justification, comments below relate only to the extent of the site in Flood Zone A/B. |
| *The zoning or designation of the lands for the particular use or development type is required to achieve the proper planning and sustainable development of the urban settlement* | It is proposed to change the zoning on the site from Open Space to Community. | It is proposed to zone the western/central half of the site commercial for a neighbourhood centre on part of the lands. This is a central site in Clonroadmore neighbourhood.<br>It is proposed to zone the eastern side of the site Open Space. | The entire site is zoned for Mixed Use development having regard to its central location adjoining the town core. |
| *Is essential to facilitate regeneration and / or expansion of the centre of the urban settlement.* | No, the lands are already in beneficial use and perform a useful and amenity function which facilitates regeneration of the town centre. | The site is centrally located having regard to the overall settlement boundary. | Site is essential to facilitating a mix of development uses to contribute to regeneration of the town centre. |
| *Comprises significant previously developed and/ or under utilised lands* | The lands are currently in use as a public park which is widely used as a pedestrian circulation route from the Town Centre to Glor. It is attractively landscaped with willow trees. It has acquired a secondary function as a 'Peace Park' and houses a number of memorials. | The western/central portion of the site was previously developed as a joinery and the remainder is underutilised having regard to its central location in the neighbourhood and the town. | Land is considered underutilised having regard to their location near schools and offices. |
| *Is within or adjoining the core of an established or designated urban settlement* | The site is within the core Town Centre area and already performs a public function. | The site is within short walking distance of the core of the town and the neighbourhood of Clonroadmore. | This infill site adjoins the town core. |
| *Will be essential in achieving compact and sustainable urban growth* | Depends on the intended use. Broadly Open Space use is appropriate here within the urban space. | The site is a large block of land close to the town centre and within easy walking distance of the neighbourhood of Clonroadmore. | In sequential terms the development of this infill site would achieve compact and sustainable growth. |
| *There are no suitable alternative lands for the particular use or development type, in areas at lower* | There are no suitable alternatives of similar size. | There are no other suitable lands in the vicinity to serve as a centre to the neighbourhood and Clonroadmore. | There are no suitable alternatives of similar size. Other sites zoned for Mixed Use at Cusack Park is identified for larger |

| Justification test for sites within Flood Zone A and / or B | C2 Friar's Walk | MU6 Tobarteascain | MU1 New Rd. |
|---|---|---|---|
| *risk of flooding within or adjoining the core of the urban settlement.* | | | scale development to accommodate town centre uses. |
| *A flood risk assessment to an appropriate level of detail has been carried out* | See section 8.3.9 of SFRA report. | See Section 8.3.7. | See section 8.3.8 for details of development management within this site. |
| *Result* | Pass | **Pass** | **Pass** |
| *Recommendation for zoning* | Community Zoning acceptable provided uses are water compatible. | Zone Commercial on western/central side of site and zone Open Space on eastern side of site. See Vol 3(a) for objectives relating to these sites. | Zone Mixed Use. |

| Justification test for sites within Flood Zone A and / or B | LDR2 | R 17 |
|---|---|---|
| *The urban settlement is targeted for growth* | Yes, Ennis is an NPF Key Town. | Yes, Ennis is an NPF Key Town. |
| *The zoning or designation of the lands for the particular use or development type is required to achieve the proper planning and sustainable development of the urban settlement* | The site is centrally located having regard to the overall settlement boundary | The site is centrally located having regard to the overall settlement boundary |
| *Is essential to facilitate regeneration and / or expansion of the centre of the urban settlement.* | The site is in close proximity to the core and is a progression of existing residential development. | This is an infill site within the existing built-up footprint of the town which promotes sequential and compact growth |
| *Comprises significant previously developed and/ or under utilised lands* | The site is currently greenfield and undeveloped. | The site is within the built-up footprint of the town and is currently under utilised. |
| *Is within or adjoining the core of an established or designated urban settlement* | The site is within short walking distance of the core of the town. | The site is some distance removed from the centre of Ennis. |
| *Will be essential in achieving compact and sustainable urban growth* | The site is a large block of land close to the town centre | The site is some distance removed from the centre of Ennis. |
| *There are no* | There are no other suitable lands in | There are no other suitable lands in |

| Justification test for sites within Flood Zone A and / or B | LDR2 | R 17 |
|---|---|---|
| *suitable alternative lands for the particular use or development type, in areas at lower risk of flooding within or adjoining the core of the urban settlement.* | the vicinity. | the vicinity. |
| *A flood risk assessment to an appropriate level of detail has been carried out* | See section 8.3.10 of SFRA report. | See section 8.3.11 of SFRA report. |
| *Result* | **Fail** | **Fail** |
| *Recommendation for zoning* | Zoning may be retained but the sequential approach must be applied to ensure only water compatible parts of the development are within Flood Zones A and B | Zoning may be retained but the sequential approach must be applied to ensure only water compatible parts of the development are within Flood Zones A and B. |

### 8.2.2 Clarecastle Justification Tests

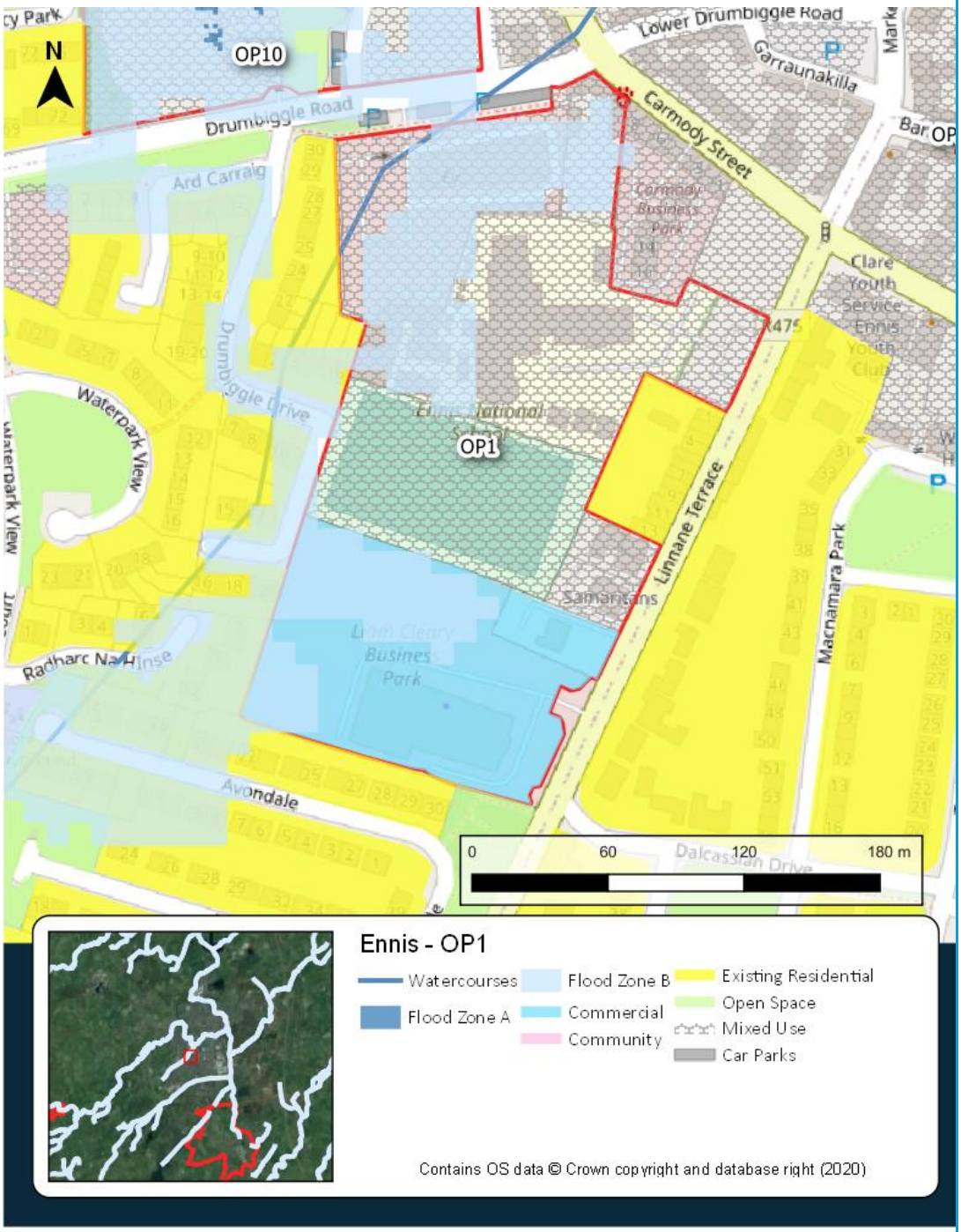
| Justification test for sites in Clarecastle within Flood Zone A and / or B | Site R37 Abbey view/ Madden's Tce | Village centre | MU4 Partially developed site adjacent to river bridge at R458- Cois Fearguis. |
|---|---|---|---|
| *The urban settlement is targeted for growth.* | Yes Clarecastle is an NPF Hub town. The site is in Flood Zone A and is located behind flood earthen embankments. (Tidal) | Yes Clarecastle is an NPF Hub town. The site is in Flood Zone A and is located behind flood earthen embankments. (Tidal) | Yes Clarecastle is an NPF Hub town. Site is within Flood Zone A and is located behind earthen embankments. (Tidal) |
| *The zoning or designation of the lands for the particular use or development type is required to achieve the proper planning and sustainable development of the urban settlement.* | It is proposed to zone the site Residential. The plan aims to consolidate development in the village focusing on the area around the town core and opening up access to the river which is considered appropriate to achieve the proper planning and sustainable development of the urban settlement. | It is proposed to zone the site residential. The plan aims to consolidate development in the town focusing on the area around core and opening up access to the river which is considered appropriate to achieve the proper planning and sustainable development of the urban settlement. | It is proposed to zone the site Mixed Use in order to allow for a mix of uses appropriate to achieve the proper planning and sustainable development of the urban settlement and to enable unfinished development with extant permission (April 2016) to be completed. |
| *Is essential to facilitate regeneration and / or expansion of the centre of the urban settlement.* | Yes, the site is in the centre of the village opposite school. | Yes. The site is in the centre of the village and will be essential to facilitate regeneration. | Yes. The site occupies a prominent position in the heart of Clarecastle. |
| *Comprises significant previously developed and/ or under utilised lands.* | The site is considered underutilised having regard to its central position. | The site is considered underutilised. There are currently two houses on the site. The site could be more intensively developed. | The site is partially developed. |
| *Is within or adjoining the core of an established or designated urban settlement.* | Yes. The site is in village core. | Yes- is in village centre. | Yes. The site occupies a prominent position in the heart of Clarecastle. |
| *Will be essential in achieving compact and sustainable urban growth* | Development of this site will contribute positively to compact sustainable growth. | Development of site will contribute significantly to achieving compact growth in centre. | Yes- Development will contribute significantly to achieving compact growth. |
| *There are no suitable alternative lands for the particular use or development type, in areas at lower risk of flooding within or adjoining the core of the urban settlement.* | There are alternative sites outside Flood Zones A and B where residential development could be accommodated but they are outside of the core and would not result in compact sustainable development. Other | There are alternative sites outside Flood Zones A and B where residential development could be accommodated but they are outside of the core and would not result in compact sustainable development. Other | There are no suitable alternative sites in the core zoned Mixed Use. It would not be in the interest of proper planning to zone land outside the core as Mixed Use. |

| Justification test for sites in Clarecastle within Flood Zone A and / or B | Site R37 Abbey view/ Madden's Tce | Village centre | MU4 Partially developed site adjacent to river bridge at R458- Cois Fearguis. |
|---|---|---|---|
| | available sites within the core are on Flood Zone A/B and therefore are not lower risk sites. | available sites within the core are on Flood Zone A/B and therefore are not lower risk sites. | |
| *A flood risk assessment to an appropriate level of detail has been carried out* | See section 8.3.8. | See section 8.3.8. | See section 8.3.8. |
| *Result* | **Pass** | **Pass** | **Pass** |
| *Recommendation for zoning* | Zone Residential | Zone Residential | Zone Mixed Use with development guidance to have less vulnerable uses on basement/ ground floor and more vulnerable uses on upper floors. |

## 8.3 Flood Risk Review

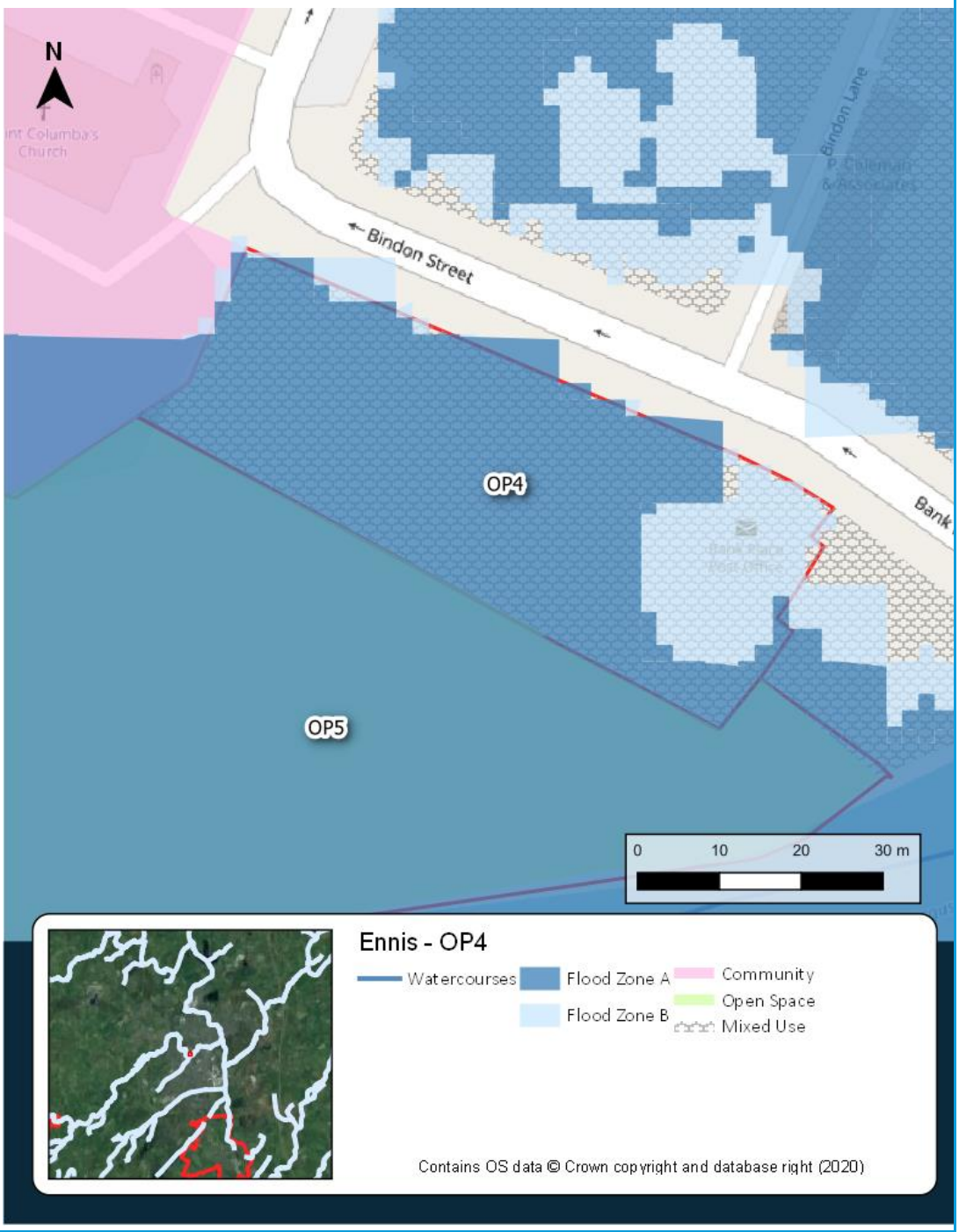
No settlements within the Ennis Municipal District require a detailed assessment, with the exception of Ennis and Clarecastle. The review of development lands within Ennis is more detailed than the other settlements in the county. This is partly due to the level and complexity of flood risk within the town, and partly due to the importance of developing Ennis as a hub within the county.

### 8.3.1 OP1 Former Ennis National School and adjoining lands

| Site: | OP1 Former Ennis National School and adjoining lands |
|---|---|
|  | |
| Site Description | This is a partially developed, centrally located, brownfield site. It is located to the south of the River Fergus and lies downstream of the culverted entrance to the Cloghleagh Stream. |

| Site: | OP1 Former Ennis National School and adjoining lands |
|---|---|
| Benefitting from Defences (flood relief scheme works) | The site does not benefit from defences, being outside the floodplain of the River Fergus. |
| Sensitivity to Climate Change | Low |
| Residual Risk | If the culvert were to block, risks to the site could increase. |
| Historical Flooding | None recorded |
| Surface Water | A Construction Method Statement, drainage plans for surface water run-off and treatment via appropriate SuDS prior to discharge shall accompany any development proposal. |
| Commentary on Flood Risk:<br>The site is predominantly within Flood Zone C, but is shown partially within the CFRAM Study modelled extents of Flood Zone B. The flooding across the site appears to be related to overland flows arising from the open channel section of the Cloghleagh Stream. Depths are shallow and the flow paths will be readily influenced by water movement around buildings.<br>The potential land uses range from convenience / non-bulky comparison goods plus secondary Mixed Use type uses. Such uses are appropriate in this location.<br>Any development masterplan should include a site specific flood risk assessment, which is likely to reduce the extent of mapped flooding. It will be possible to manage any remaining flood risk through site layout (both horizontal and vertical use of space) and finished floor levels. This should be completed following the recommendations in Section 5. | |

### 8.3.2 OP4, Analogue Building and Adjoining Infill site, Bank Place

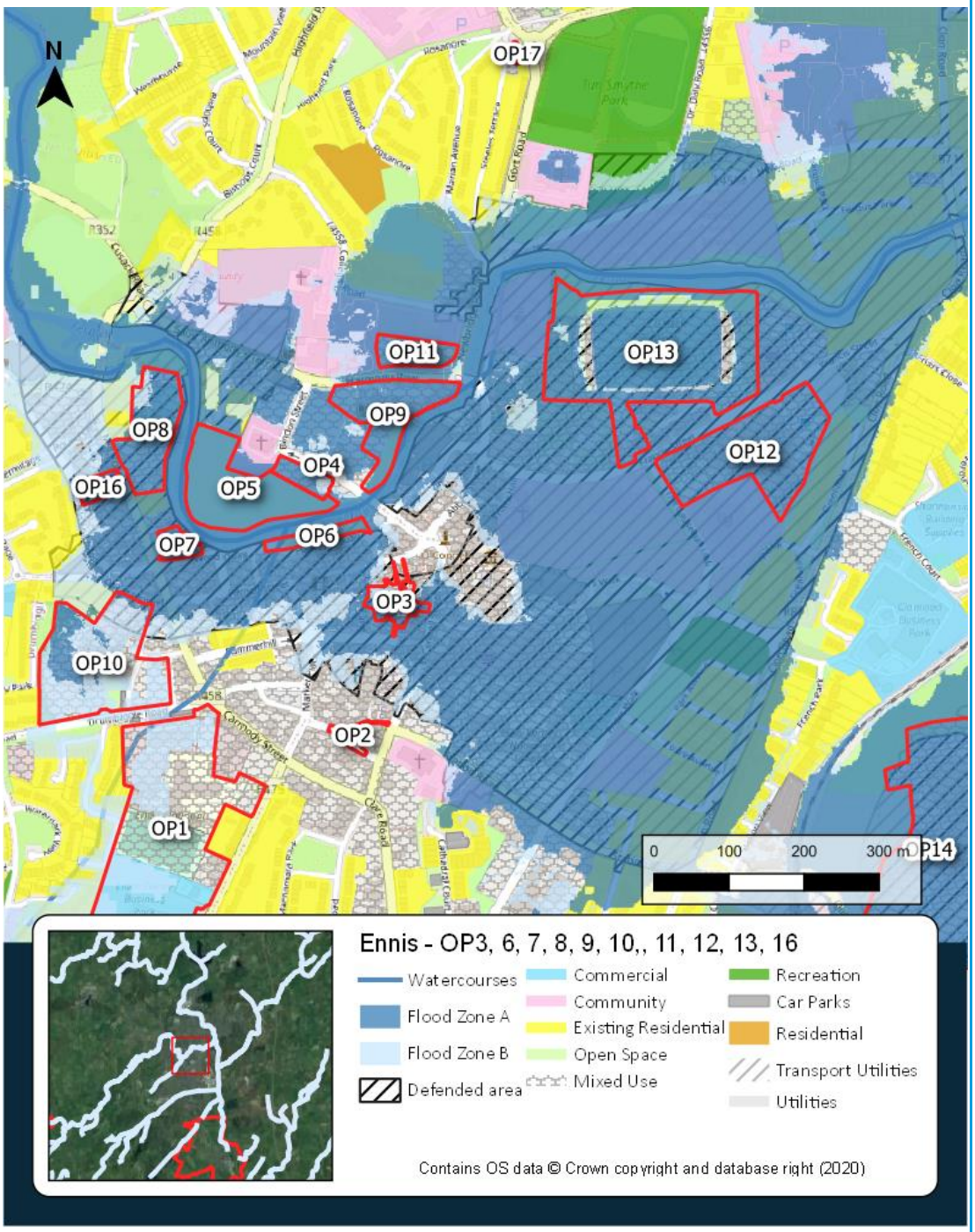
| Site | OP4, Analogue Building and adjoining infill site, Bank Place |
|---|---|
|  | |
| Site Description | This undeveloped green field site is within the core of the town and provided a development footprint which could accommodate a variety of town centre uses. It is immediately adjacent to the post office field which has the potential to provide a unique public amenity.<br>The site elevation is approximately 3.5-4mOD, and the level on Bank Place is in excess of 5mOD (wall is higher) and the defence at Springfield is approximately 4.8mOD. |
| Benefitting from Defences (flood relief scheme | The site does not benefit from flood defences, but is an integral part of the flood relief scheme. The flood walls up |

| | |
|---|---|
| works) | and downstream of the site tie into Bank Place. |
| Sensitivity to Climate Change | Low-moderate. The site is predominantly within Flood Zone A and the extent of flooding will not increase as a result of climate change, although the depth of water on the site will increase. |
| Residual Risk | None |
| Historical Flooding | The site is shown to be almost wholly within the recorded outline for the flood events which occurred in 2009, and is known to partially flood on a regular basis. |
| Surface Water | Should the site be developed, the FRA would be required to consider surface water management and discharge, whether this is to the Fergus directly or into the surface water system, particularly during (but not limited to) flood events. |
| Commentary on Flood Risk:<br>The adjacent Post Office field lies wholly within Flood Zone A and is also a flood storage area (i.e. floods at low return periods, particularly along the riverside portion of the site). This infill site is on the edge of this flood storage area and does not contribute to the active conveyance through the field.<br>The EMD&FS[6] records: "The Fergus Middle has no flood plain area except for the post office field, which makes a very limited contribution to the flow conveyance of the river and miniscule contribution to the flood storage and flood peak attenuation. If development were to ever take place in this field the loss of conveyance should be compensated by appropriate channel works." The proposed development area is a small portion of the whole of the post office field, and represents an extremely modest volume when compared with the Ennis flood hydrograph. | |
| Development Options::<br>The site is located within the core of the town centre, and as such meets Part 2 of the Justification Test (as applied by Clare County Council). To ensure flood risk to the development is managed, finished floor levels should set an appropriate elevation, and the development should be designed with due consideration to the height of the defences in the immediate river reach.<br>It is also important that the development does not increase flood risk elsewhere. The Post Office field plays a part in the conveyance function within the Fergus Middle scheme. However, the site footprint proposed within this zoning is limited to the storage part of the wider field, rather than the conveyance area (which is referred to above). It is considered unlikely that development within this portion of the site would negatively impact on the capacity of the scheme, but this should be demonstrated through a site specific FRA, and may include volumetric calculations and assessment of capacity of the Bank Place bridge immediately downstream. Whilst raising the development on stilts (or similar) would be an option to reduce the loss of storage, the design of such an approach needs to be carefully considered in respect of the visual amenity of the site, particularly when viewed from the opposite bank, and also with regard to access and antisocial behaviour. Following assessment of the impact of the loss of storage, it is possible that raising the building is not considered to be the most sustainable solution. | |

[6] Ennis Main Drainage and Flood Study, Preliminary Report, John B Barry and Partners Ltd (June 2001)

### 8.3.3 OP 3, 6, 7, 8, 9, 10, 11, 12, 13 and 16; Town centre opportunity sites

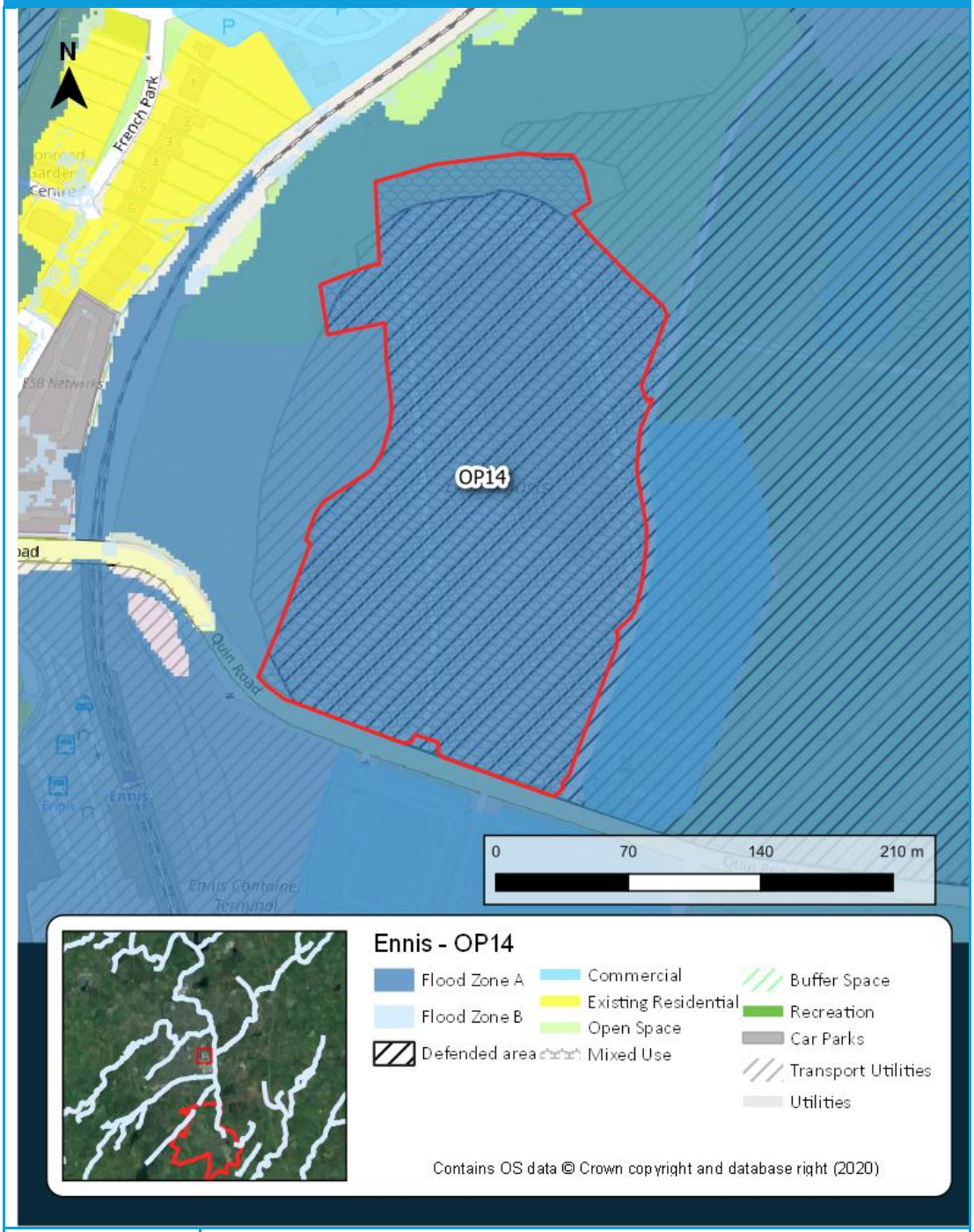
| Site: | Town centre opportunity sites OP3, 6, 7, 8, 9, 10, 11, 12, 13 and 16 |
|---|---|




| | |
|---|---|
| Site Description | There are a number of sites within the town centre of Ennis which have been identified as currently underutilised, or potentially providing development opportunities in the plan period. These sites are illustrated on the maps above. |
| Benefitting from Defences (flood relief scheme works) | Site OP11 is currently undefended, but will benefit from flood defences under future phases of the Ennis Flood Relief Scheme. The other sites are all behind defences constructed or reinforced as |

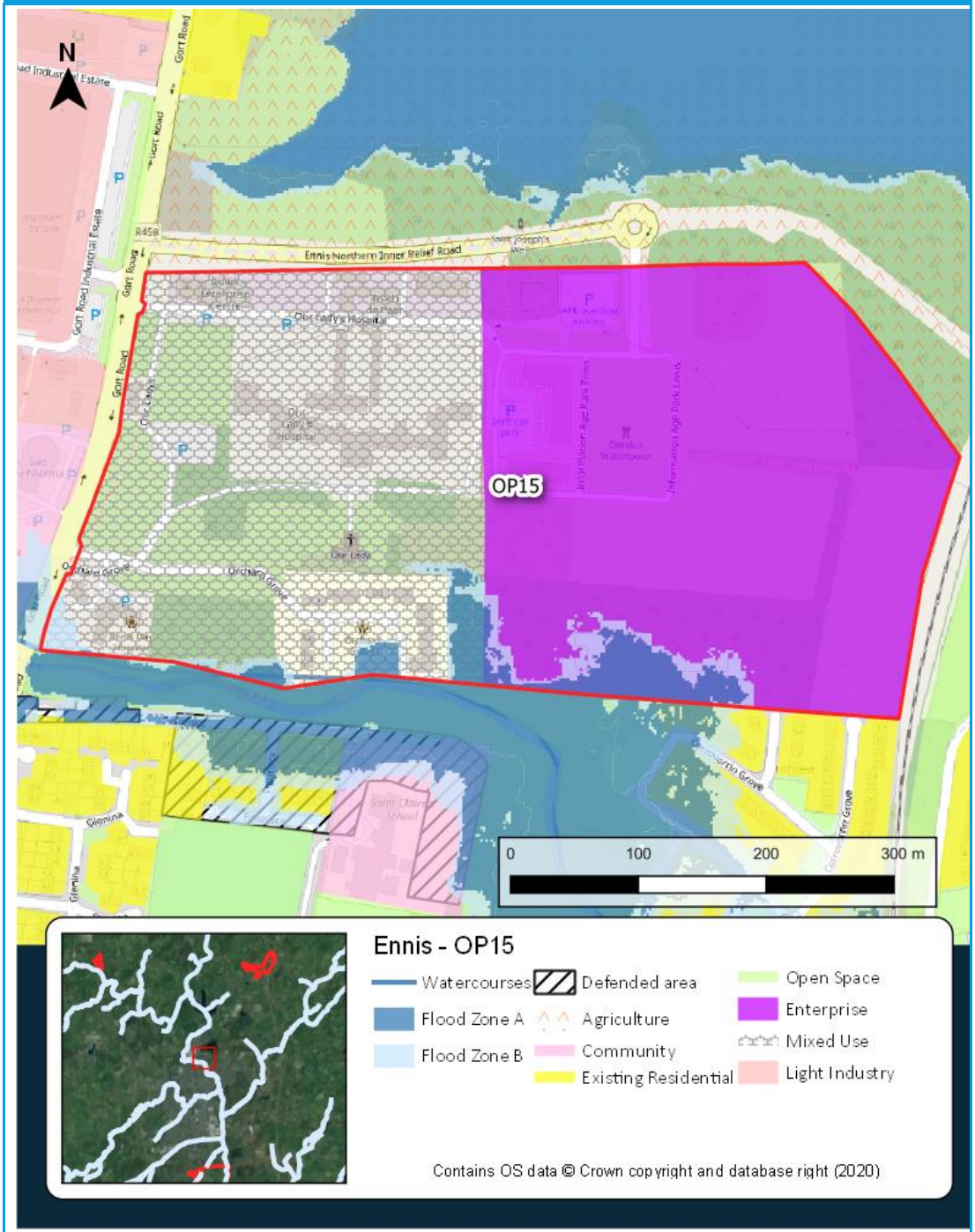
| | |
|---|---|
| | part of the Fergus Flood Relief Schemes. |
| Sensitivity to Climate Change | As all the sites are behind defences (OP11 is partially defended), river level rises in excess of design standards will have a significant impact. |
| Residual Risk | Risk of defence breach is low; new defences have been constructed through most of the scheme, and where defences were already present, repointing and maintenance has been carried out. The risks associated with overtopping in the event of greater than design event scenarios are high. |
| Historical Flooding | The whole of Ennis town centre has flooded repeatedly and to significant extents in the past. However, the immediate risk of flooding has been managed through the flood relief schemes. |
| Commentary on Flood Risk:<br>Most of the sites are shown to be within Flood Zone A in the undefended scenario and will continue to be so positioned, even when the scheme is fully completed. | |
| Development Options:<br>As a town centre location, all the sites have passed part 2 of the Justification Test and are suitable for mixed uses. It should be noted that this zoning objective comprise a variety of specific uses which range from water compatible to highly vulnerable.<br>In all cases, a flood risk assessment should be prepared which will clearly demonstrate the use of the sequential approach within the development site, and should consider residual risk of defence overtopping. Finished floor levels should also be appropriately set, drawing upon the guidance in Section 7. | |

### 8.3.4 OP14, The Mart Site

| Site: | OP14, The Mart Site |
|---|---|
| |  |
| Site Description | The site is low lying and surrounded by marshy land and a network of drainage channels. The land parcel is partly developed, and consists of large industrial and retail units, and barns and buildings associated with the mart. The developed land is contiguous with the undeveloped margins. |
| Benefitting from Defences (flood relief scheme works) | The site benefits from the protection of flood embankments. |
| Sensitivity to Climate Change | As the site is behind defences river level rises in excess of design standards will have a significant impact. |

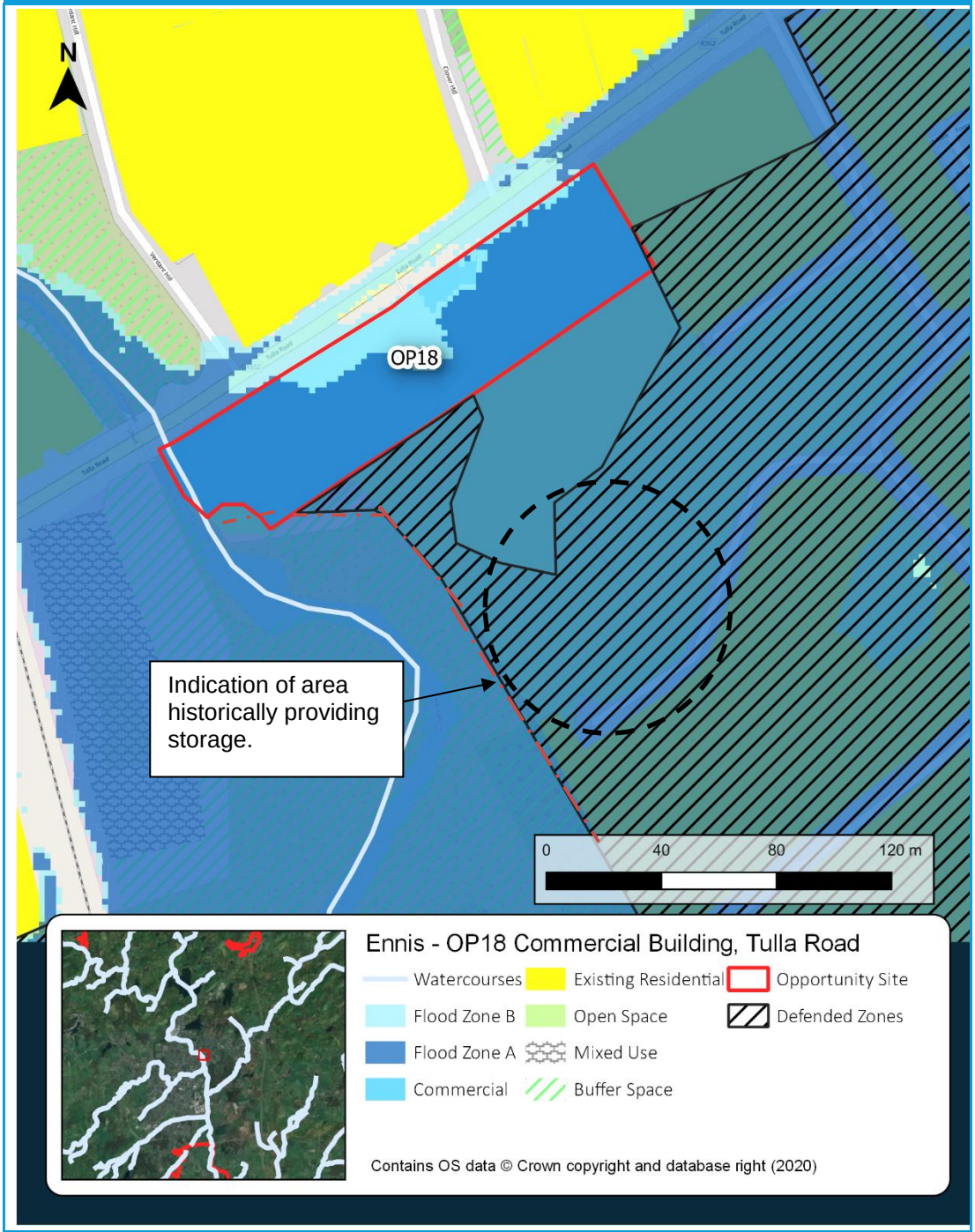
| | |
|---|---|
| Residual Risk | There is a residual risk of flooding in the event the embankments breach or overtop. |
| Historical Flooding | Not known |
| Surface Water | Should further development be permitted, best practice with regards to surface water management should be implemented across the development area, and it is important to ensure that any increase in runoff is managed within the existing systems, or through new drainage networks. |
| Commentary on Flood Risk:<br>The site is within Flood Zone A, but is a previously developed site and does benefit from flood protection in the form of embankments.<br>Redevelopment of the hardstanding and yard area of the site may be possible, but careful consideration would need to be given to finished floor levels, vulnerability of land use and the height of the defences.<br>Residual risks could be reduced by raising ground levels. This could be done without provision of compensatory storage because the site is behind the Ennis South defences and does not currently function as active floodplain. | |
| Development Options:<br>The Justification Test has been passed. Zoning for less vulnerable uses at ground flood level is recommended, and consideration to safe egress in the event of defence breach is required. This recommendation is compatible with a Mixed Use zoning. Adjacent utilities zoning is for a car park and this use is water compatible and appropriate. | |

### 8.3.5 OP15 – Clare Technology Park

| Site: | OP15 Clare Technology Park |
|---|---|
|  | |
| Site Description | There are a number of uses currently on the site but the main building, the former hospital, and vacant land to the rear, are unused. There is substantial scope for regeneration of the site. The site is located to the north of the town centre |
| Benefitting from Defences (flood relief scheme works) | The site does not benefit from flood defences in the form of walls or embankments. Culvert upgrade works have taken place to reduce the risks associated with Lough Girroga. However, this mainly benefits land downstream of the lake, to the west of the Gort Road. |
| Sensitivity to Climate | Low |

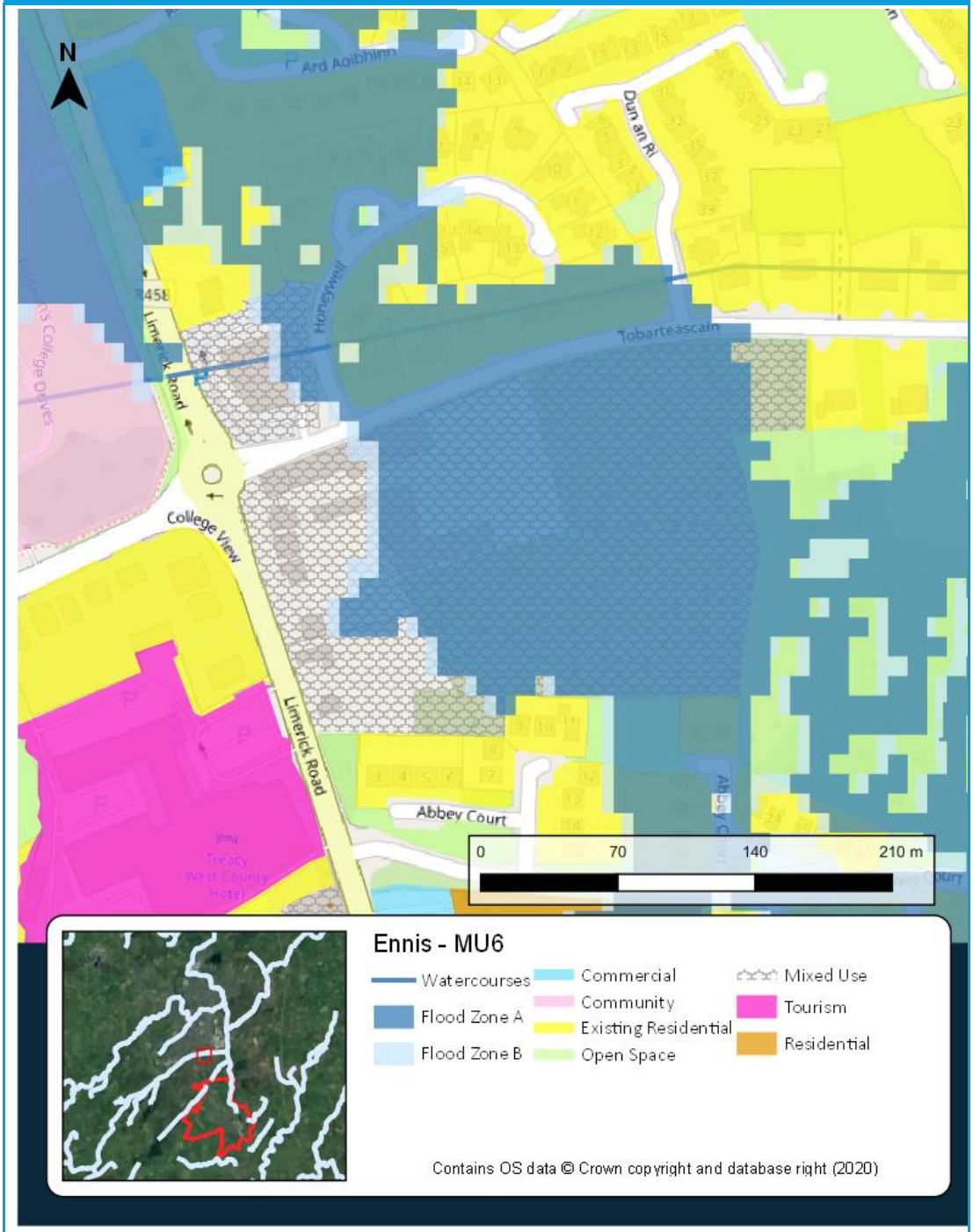
| Site: | OP15 Clare Technology Park |
|---|---|
| Change | |
| Residual Risk | Low |
| Historical Flooding | Lough Girroga has caused flooding across the Gort Road and onto the business park to the west of the hospital site. The site itself was not recorded to have been inundated. |
| Surface Water | A Construction Method Statement, drainage plans for surface water run-off and treatment via appropriate SuDS prior to discharge shall accompany any development proposal. |
| Commentary & Development Options:<br>The site is bordered to the north by Lough Girroga and to the south by the River Fergus. Flood Zone A/B from the River Fergus encroaches onto a limited section of the southern part of the hospital site. Lough Girroga turlough poses a low risk to the enterprise and commercial zoning.<br>The zoning does not substantially alter the permitted uses on site, but does require that Masterplanning of the whole site is carried out as part of the planning application. The Masterplanning must apply the sequential approach and only place water compatible development within Flood Zone A. Less vulnerable development can be considered within Flood Zone B. Suggested uses include: In the front section of the site - residential, hotel, medical care facility and/or a flagship office headquarters. The rear section of the proposal site already accommodates a high quality office complex and future development shall consist of the phased completion of enterprise and employment uses.<br>An FRA must accompany the Masterplanning and any planning application, this should be in line with the recommendations in Section 5. | |

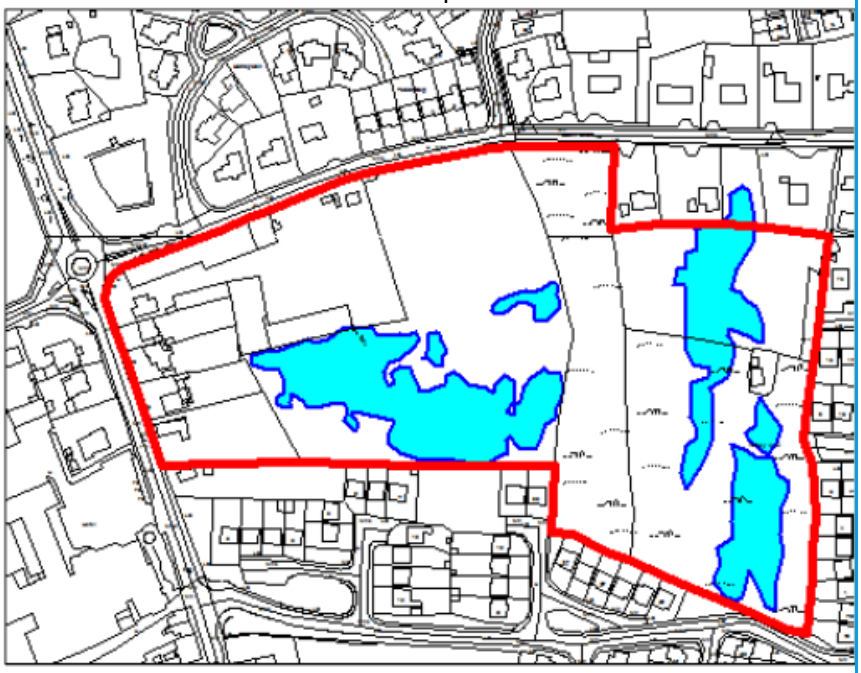
### 8.3.6 OP18, Commercial Building, Tulla Road

| Site: | OP18, Commercial Building, Tulla Road |
|---|---|
|  | |
| | |
| Site Description | The 'site', as referenced within this review is comprised of OP18 (zoned Commercial) parallel to the Tulla Road . Land south of OP18 is zoned Open Space and is undeveloped but has been incrementally filled in recent years to levels generally in excess of 3.5mOD. Historically, the lower lying lands behind the flood defences provided an important role in storing surface water generated from the surrounding residential developments.<br>OP18 itself, consists of existing commercial development along the Tulla Road frontage. Levels across this part of the landholding are |

| Site: | OP18, Commercial Building, Tulla Road |
|---|---|
| | approximately 4.6mOD. |
| Benefitting from Defences (flood relief scheme works) | The line of defence passes along the eastern boundary of the site, the defence is tied into the high ground that forms the western boundary of OP18. As well as being protected by the defence wall, the site also benefits from protection provided by the operation of the tidal barrage downstream in Clarecastle. However, the height of an extreme tide, not considering the protection provided by the tidal barrage, is greater than the height of the defences in this location. The presence of flood protection measures is ignored when compiling Flood Zone maps OP18 is within Flood Zone A and B. |
| Sensitivity to Climate Change | Moderate for fluvial risk, but high in relation to increases in sea level rise. |
| Residual Risk | Although the defences are located alongside the site, the ground is elevated in places and some areas (predominantly within the OP18 land) may not be subject to fluvial or tidal flood risk if the defences fail. |
| Historical Flooding | The lower lying land, behind the defences and within the Open Space area has flooded in the past and acts as an attenuation area. |
| Surface Water | Should the site be developed, the FRA would be required to consider surface water management and discharge and whether this is to the Fergus directly, or into the surface water system during flood events. |
| Commentary on Flood Risk:<br>The majority of OP18 is within Flood Zone A, and the remainder within Flood Zone B, although as discussed above does benefit from flood protection. It should be noted that the Flood Zones included in the 2023-2029 SFRA are based on finalised CFRAM extents, which show a greater area of inundation than previous, draft, iterations. | |
| Development Options:<br>OP18 is subject to Commercial zoning. Development within OP18 is likely to involve redevelopment of existing uses.<br>The zoning has been retained to reflect the current, less vulnerable, uses on the site. New or redvelopment will be limited to that which complies with Section 5.28 of the Planning Guidelines. | |

### 8.3.7 MU6 Toberteascain

| Site: | MU6 Toberteascain |
|---|---|
| |  |
| Site Description | The lands are located to the south-east of St Flannan's college and are undeveloped, and largely scrub covered. Some of the landholding is developed and consists of a joinery, offices and some residential. The western part of the site is higher, with lower lying land in the central section and the east. There is a higher 'saddle' of land running from north to south which divides the two lower lying sections. The central part of the site appears to form a shallow basin which has been shown to collect groundwater runoff. The water ponding on the site gradually infiltrates back into the groundwater table. |
| Benefitting from Defences (flood relief scheme | The site benefits from the Ennis South Flood Relief Scheme, which is currently being completed. Although the scheme is not designed |

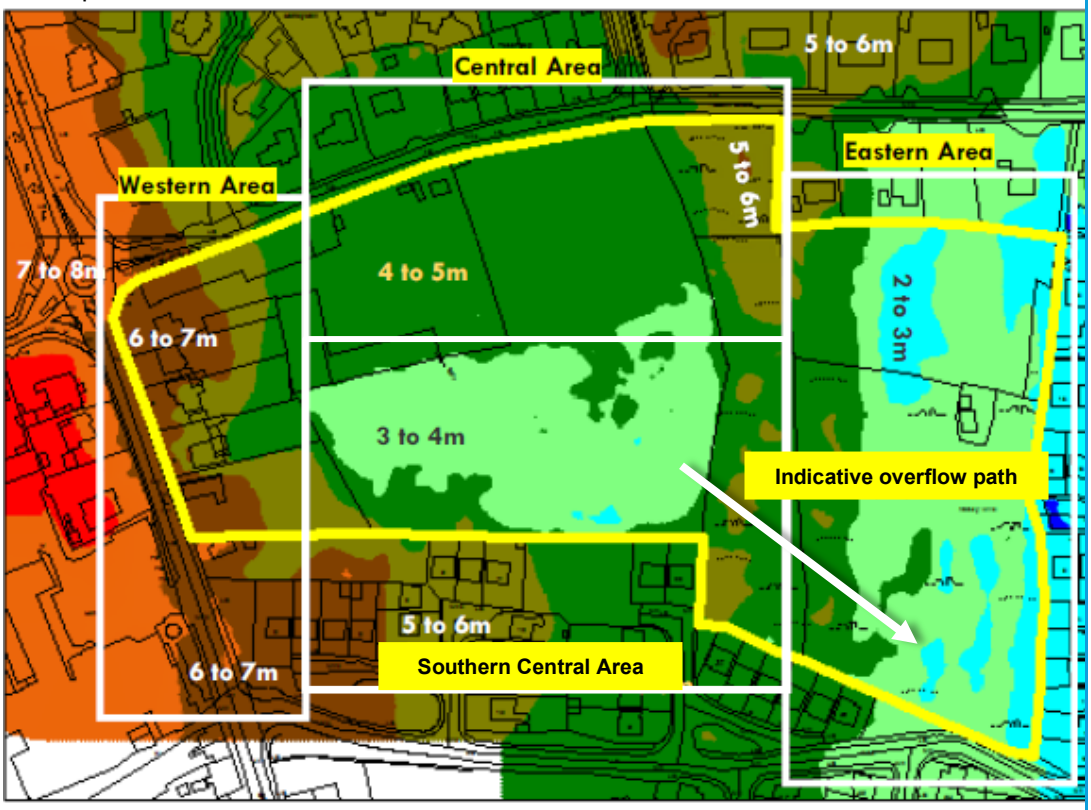
| | |
|---|---|
| works) | specifically to provide protection to the site, it will benefit from an overall reduction in risk to the area. |
| Sensitivity to Climate Change | Low to moderate, with unknown impacts relating to groundwater recharge |
| Residual Risk | None in its current state. A review of the benefits and residual risks to the site has been undertaken by Ryan Hanley Consulting Engineers (November 2014) specifically to inform the Draft Ennis and Environs LAP 2014-2020 (discontinued) SFRA. The review concluded that "The residual flood risk to the central area of subject lands will be reduced to medium following implementation of the flood relief scheme. [However] it is unlikely that the proposed flood relief scheme will significantly reduce the flood risk at the low lying enclosed depression area in the eastern portion of the subject lands. While there may be a reduction in flooding in this enclosed depression due to the alleviation of flooding in the central area (i.e. karst connectivity) and some reduction of groundwater level, the proposed scheme has not been designed to specifically drain this area. The residual flood risk in the low lying eastern portion of the subject lands will be moderate to high".<br>The image below shows Subject Lands at High Flood Risk following implementation of the Ennis South Flood Relief Scheme, and is extracted from the November 2014 report.<br>  |
| Historical Flooding | Part of the site was inundated in 2009 as a result of a combination of groundwater flooding, overland flow from the St. Flannan's swallow hole and pluvial flooding. |
| Surface Water | Should development be permitted, best practice with regards to surface water management should be implemented across the development area. This will include ensuring an overflow route from the depression in the central area is maintained. This will ideally take the form of an overflow from the site into the floodplain of the Fergus. |
| Commentary on Flood Risk:<br>The central and eastern parts of the site were substantially inundated during the 2009 flood event. This was a ground water sourced flood event, resulting in inundation arising from the swallow hole in the vicinity of St Flannan's college.<br>Although a scheme is proposed to alleviate this flooding (under the Ennis South Scheme), the flood zones would remain unchanged as they do not take into account flood defences. Although the proposed defences are engineered culverts rather than a raised wall or | |

embankment, there is still a residual risk of failure through blockage or exceedance of the culvert capacity. In addition, as noted by Ryan Hanley in their Flood Risk Assessment for these lands, the scheme is not designed to provide protection to the site.

Development Options:

The figure below, adapted from Ryan Hanley's 2014 report, shows the site divided into topographically based regions, each of which has a differing level of flood risk and should be treated accordingly when development is being planned.

Western Area - this area is elevated to between 6 and 7mOD and has existing development. Refurbishment of this part of the site would be possible. Residual risks once the scheme is in place are extremely low, and can be further mitigated by ensuring less vulnerable development is focused at ground floor levels, with highly vulnerable development, such as flats, on the first floor.




Central Area -

This part of the site is at a slightly lower elevation (approximately 4 to 5mOD). Once the scheme is in place, risk to this part of the site is reduced. However, in the event of failure of the scheme (through blockage or groundwater capacity exceedance for example) the natural flow route down the road and over this piece of land will be retained. It is therefore essential that a flow route from the road to the Southern Central Area is maintained through landscaping and positioning of buildings. Development of the road frontage to the north of the central portion is possible, and the Justification Test for zoning is passed. The finished floor levels of buildings should also be at minimum of 300mm above ground level to prevent egress of water. Floor levels should also be raised above the level of the overflow spill between the Southern Central Area and the Eastern Area.

Southern Central Area -

A moderate to high residual risk of flooding remains in this part of the site. Given the residual risks and potential remaining flood risk, it is recommended that less vulnerable and water compatible uses are allocated for areas of undeveloped land here, in this respect the Justification Test has been passed. For the existing residential sites to the south the zoning cannot be adjusted and is maintained. Should any of the un-developed sites be developed ground levels should be retained at present levels and it is important that the surface dressing is permeable, allowing water to drain through.

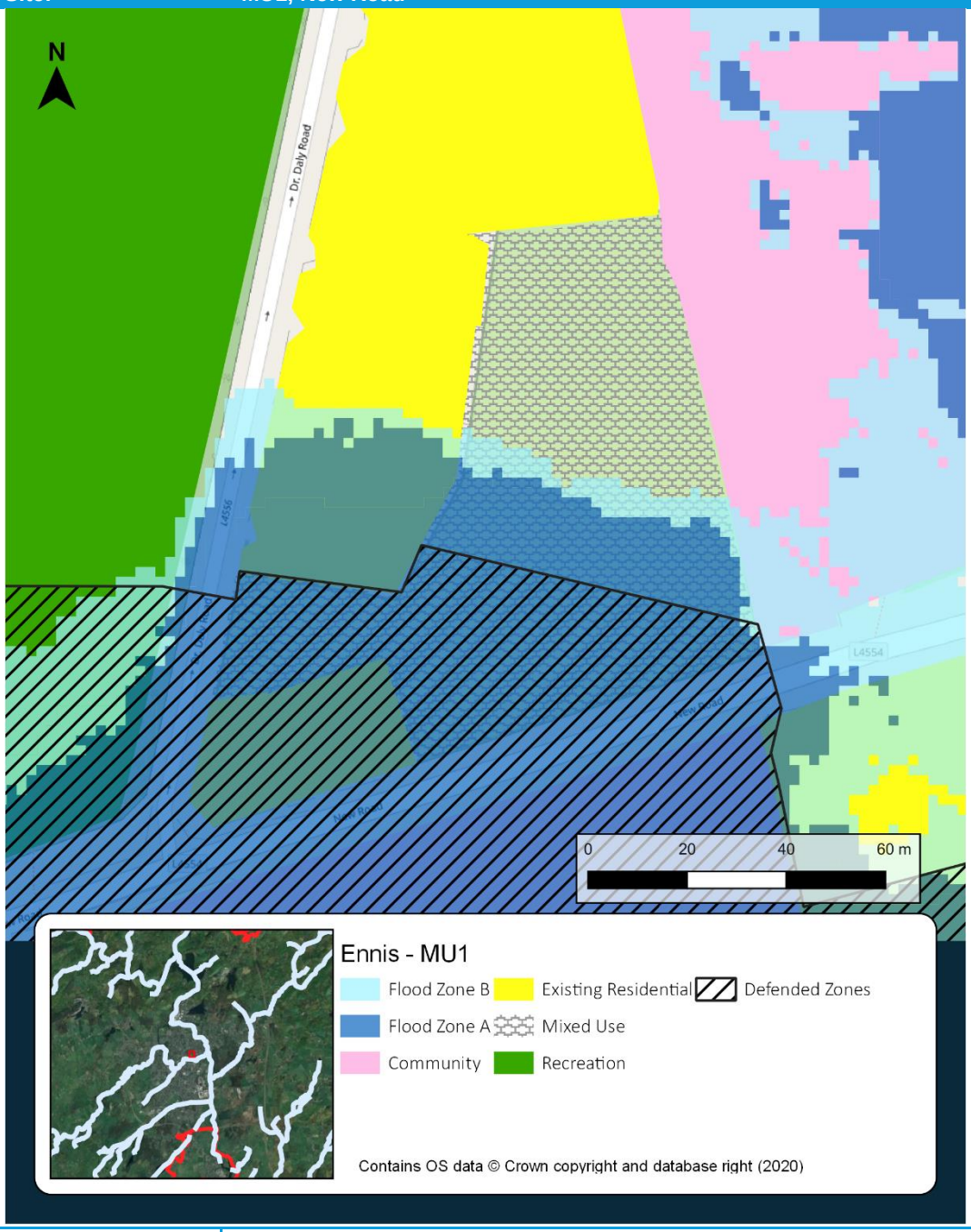
Eastern Area -

This area is not suitable for high or less vulnerable development and the zoning remains water compatible (open space) as a high risk of flooding will remain, even after completion of the flood relief scheme. As the site is at groundwater risk, and is known to operate as a storage basin for this water, any development could be directly at risk, or through blocking the natural infiltration route (such as through hard standing), could increase flood risk elsewhere. Further, it is important that the current overflow route from the Southern Central Area to the east is maintained and enhanced to mitigate risks associated with the operation of the site as an attenuation area.

Any development, even on the Western road frontage, would need to include a flood risk assessment (building on those already completed to inform this report) which would specifically review residual risk to the site, including the development of overflow routes should the scheme fail / block. The results of this residual risk assessment will inform any development that is allowed. Further, any proposal for development on the site should be considered premature until the Ennis South Flood Relief scheme is constructed and fully operational and the foregoing requirements set out above are satisfactorily provided for onsite.

### 8.3.8 MU1, New Road

| Site: | MU1, New Road |
|---|---|

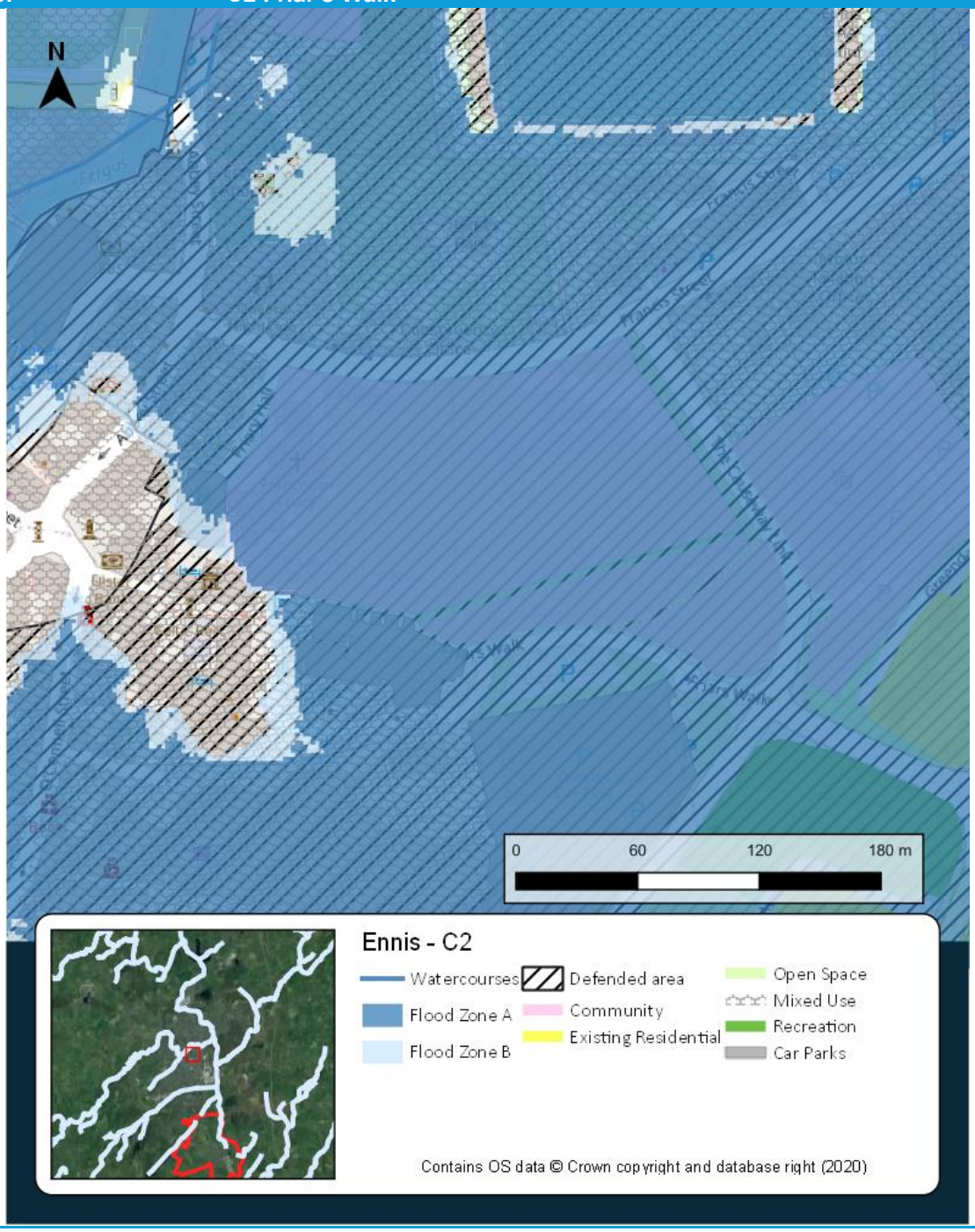



| | |
|---|---|
| Site description | The site is partially developed and located to the north of the River Fergus on the New Road. |
| Existing Flood Risk | The site is within Flood Zones A, B and C. |
| Benefitting from Defences (flood relief scheme works) | The Shannon CFRAM shows the site to be defended by the River Fergus flood relief scheme. |
| Sensitivity to Climate Change | Potentially significant impacts if the defences are not adapted in the future for increases in water levels. |
| Residual Risk | Risk of defence breach is low; new defences have been constructed and where defences were already present, repointing and maintenance has been carried out. |
| Historical Flooding | Unknown |
| Development Options: | |

The site is partially within Flood Zones A, B and C. Development within Flood Zone A has been subject to the Justification Test and subsequently passed (see earlier tables).
Development may progress according to the recommendations contained in this development plan (Section 5). Less vulnerable development should be located at ground floor levels within Flood Zones A and B and residual risks should be considered through the site specific FRA.

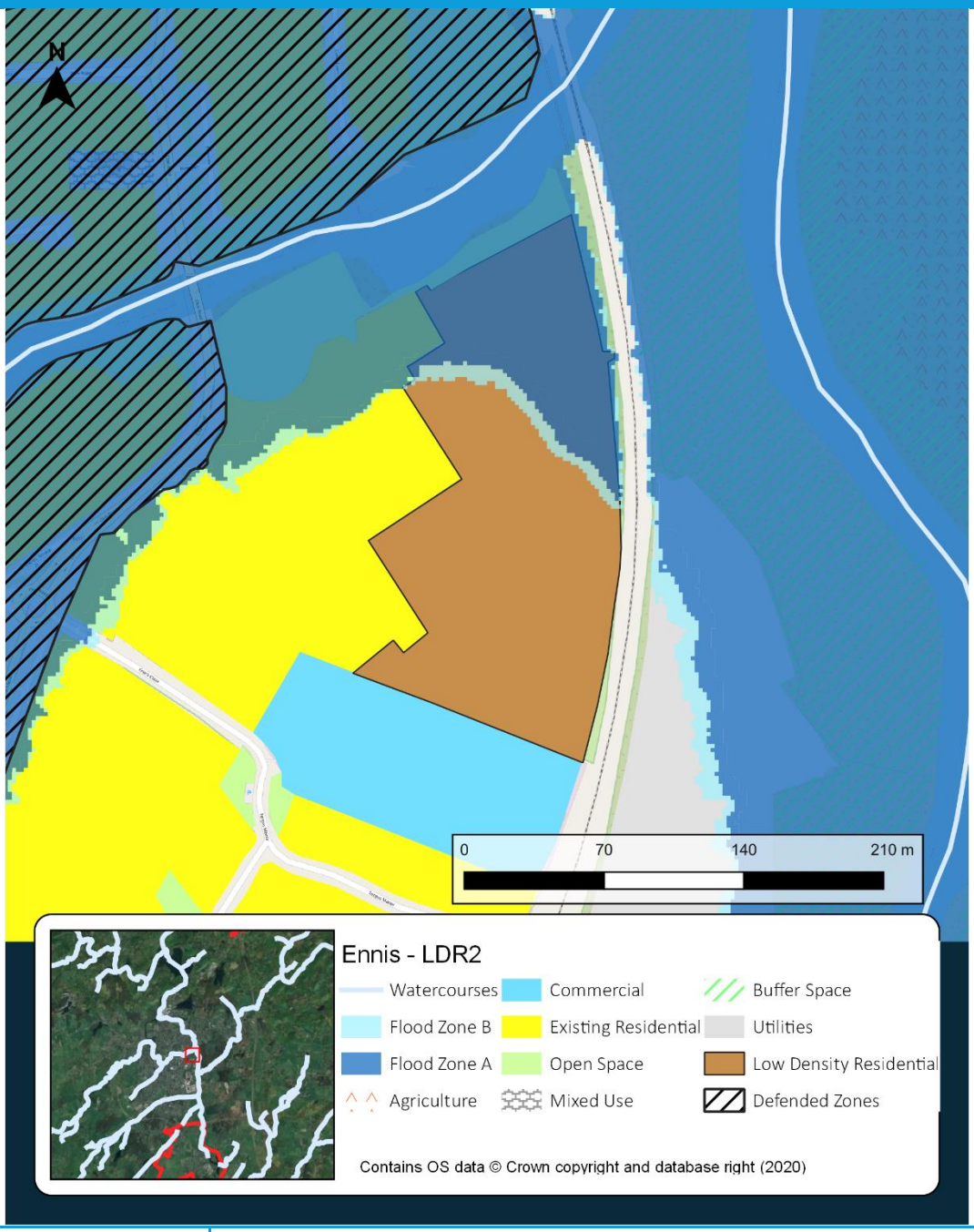
### 8.3.9 C2 Friars Walk

**Site: C2 Friar's Walk**



| | |
|---|---|
| Existing Flood Risk | Within Flood Zone A |
| Benefitting from Defences (flood relief scheme works) | Yes |
| Sensitivity to Climate Change | High |
| Residual Risk | Yes |
| Historical Flooding | Not known |
| Commentary on Flood Risk:<br>The site is within Flood Zone A, is currently undeveloped and is defended by the Ennis flood relief scheme. | |
| Development Options:<br>The site has passed the Justification Test for a Community zoning. As such, any proposed development should be water compatible. A site specific FRA will be required, in line with the recommendations contained in Section 5.<br><br>This site also falls within the Transformational Site T4, which is discussed in Ennis 2040 study and in Section 8.4. | |

### 8.3.10 LDR2

| Site: | LDR2 |
|---|---|
|  | |
| Site description | The site is currently greenfield and undeveloped. It is bounded to the north by the River Fergus, the railway to the east and existing development to the west and south. |
| Existing Flood Risk | The site is partially within Flood Zones A, B and C, with greatest flood risk to the north adjacent to the river. |
| Benefitting from Defences (flood relief scheme works) | The site does not benefit from defences. |
| Sensitivity to Climate Change | There is little difference in extent between Flood zones A and B, indicating climate change risks will be modest. |
| Residual Risk | Residual risks are low. |

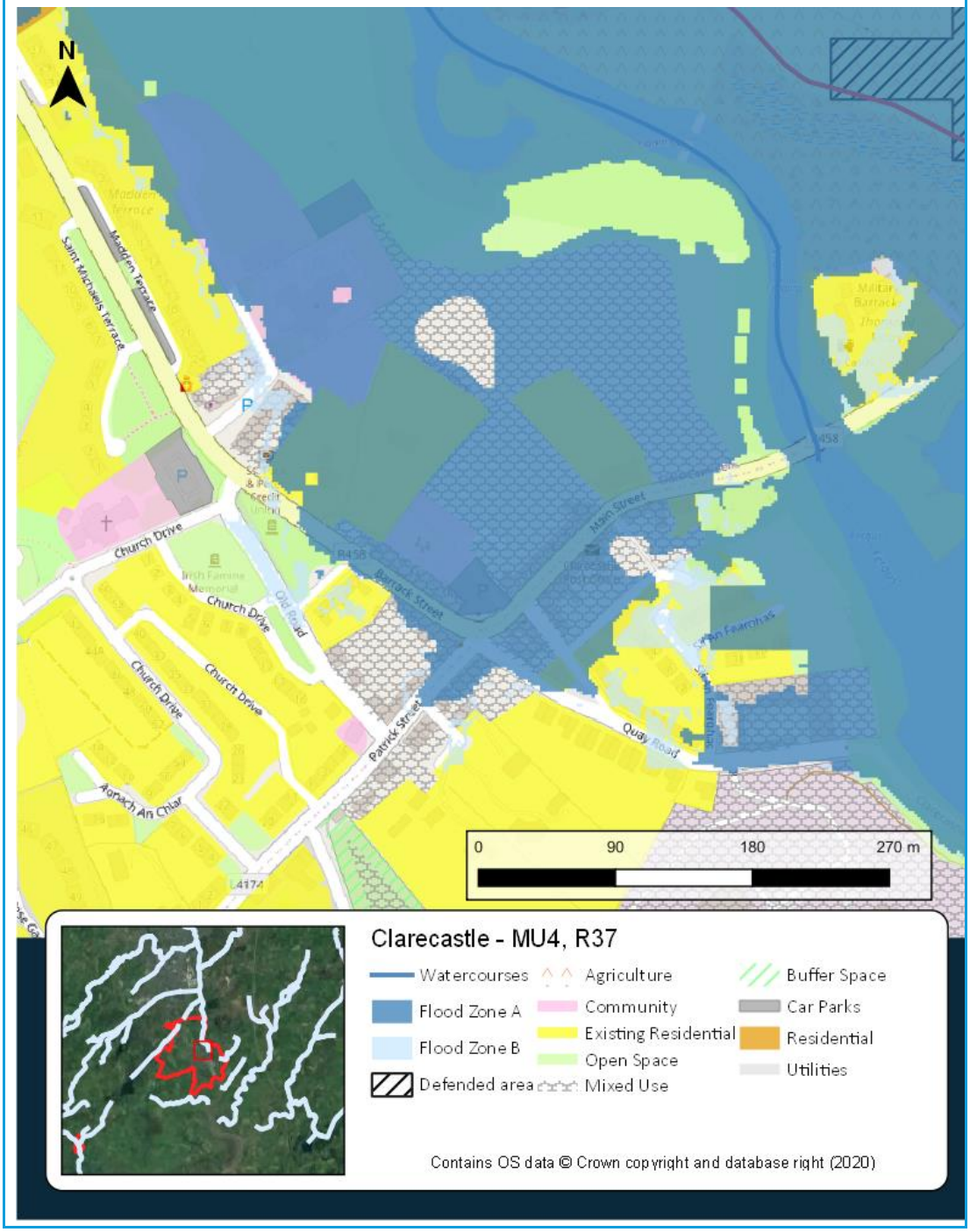
| | |
|---|---|
| Historical Flooding | Unknown |
| Development Options:<br>The site is partially within Flood Zones A, B and C. Development within Flood Zone A has been subject to the Justification Test and subsequently failed (see earlier tables).<br>Development may progress on the site following the sequential approach and avoiding less or highly vulnerable development in Flood Zone A or B and according to the recommendations contained in this development plan (Section 5). | |

### 8.3.11 R17

| Site: | R17 |
|---|---|
| | |
| Site description | The site is within the neighbourhood of Tobarteascain and is surrounded to the east and south by existing residential development. Site is currently undeveloped and overgrown. |
| Existing Flood Risk | The site is within Flood Zones A, B and C. |
| Benefitting from Defences (flood relief scheme works) | The site benefits from the Ennis South Flood Relief Scheme, which is currently being completed. Although the scheme is not designed specifically to provide protection to the site, it will benefit from an overall reduction in risk to the area. |
| Sensitivity to Climate Change | Low to moderate, with unknown impacts relating to groundwater recharge |
| Residual Risk | None in its current state. A review of the benefits and residual risks to the site has been undertaken by Ryan Hanley Consulting Engineers for COM 9 (November 2014) specifically to inform the Draft Ennis and Environs LAP 2014-202 (discontinued) SFRA and is somewhat applicable to this site. The review concluded that "The residual flood risk to the central area of subject lands will be reduced to medium following implementation of the flood relief scheme". |
| Historical Flooding | Unknown |
| Development Options:<br>The site is partially within Flood Zones A, B and C. Development within Flood Zone A has been subject to the Justification Test and subsequently failed due to distance removed from Ennis town centre (see earlier tables).<br>Development may progress on the site following the sequential approach and avoiding less or highly vulnerable development in Flood Zone A or B and according to the recommendations contained in this development plan (Section 5). | |

### 8.3.12 Clarecastle, MU4, R37

Site: Clarecastle, MU4, R37

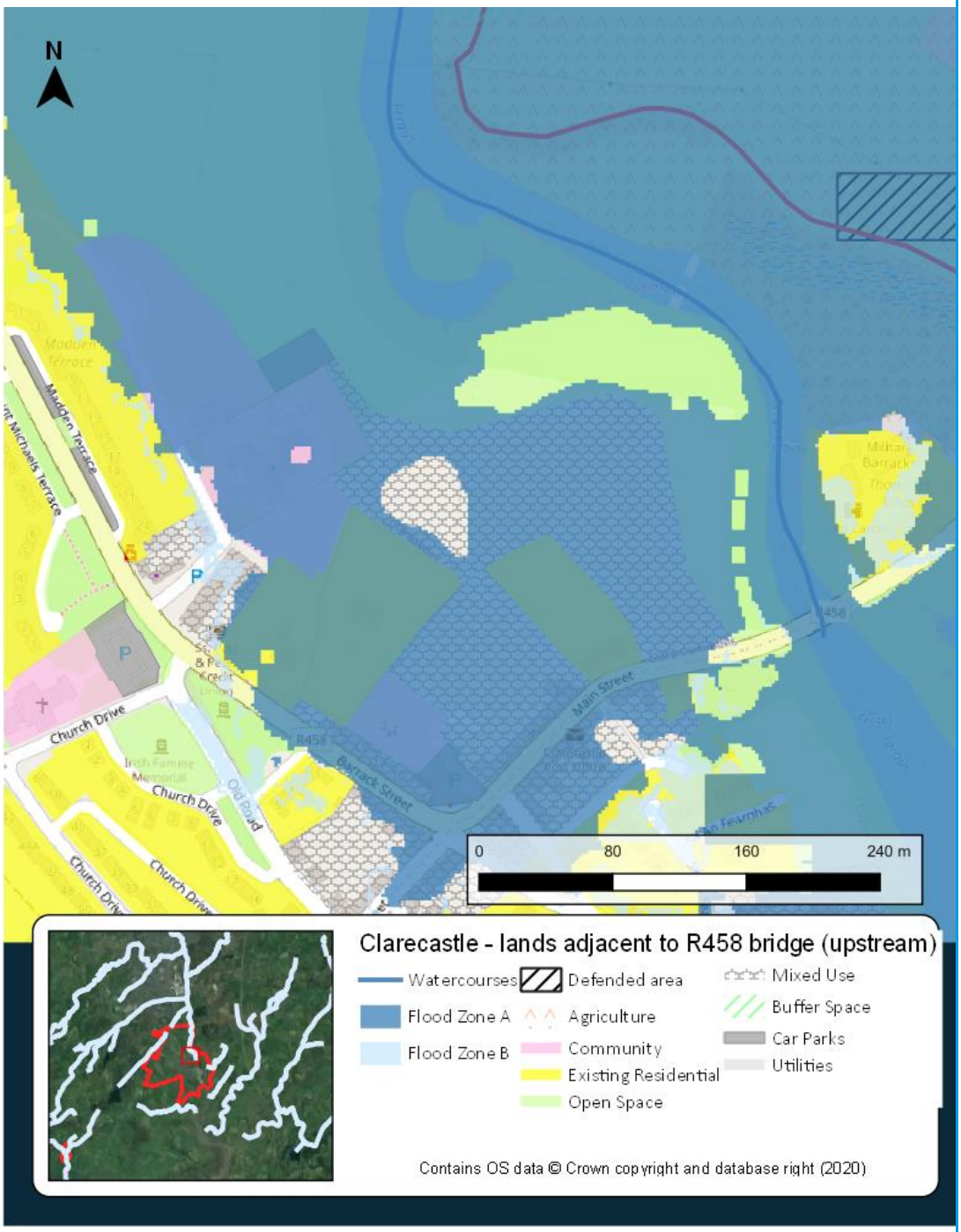


| Site: | Clarecastle, MU4, R37 |
|---|---|
|  | |
| Site Description | Clarecastle is located on the west bank of the River Fergus, downstream of the tidal barrage, but behind flood embankments. The land immediately behind the embankments (between the river and town) is low lying and would be subject to frequent inundation if the embankments were not in place.<br>The Development Plan aims to consolidate development in the town, and refocus the core around the sports / day care facilities, as well as opening up access to the river. |
| Benefitting from Defences (flood relief scheme works) | The town benefits from defences although the operation / level of protection offered by those defences is still being assessed. |
| Sensitivity to Climate Change | Greatest risk will be as a result of increases in sea level, which could see rises of up to 1m in the next 100 years. Given the tidal dominance on the Fergus at Clarecastle, these impacts could be significant and will require long term consideration of the height and integrity of the tidal embankments |
| Residual Risk | The design standard of the embankments is unknown, although likely to be over, rather than under designed. Breach of earth embankments is more likely than walls, and in an extreme tidal event (or with climate change) overtopping is possible. |
| Historical Flooding | Historically Clarecastle was vulnerable to flooding from the River Fergus through both high tides and high fluvial events. However, the risks have been mitigated by the embankments. |
| Surface Water | Should the site be developed, the FRA would be required to consider surface water management and discharge, whether this is to the Fergus directly or into the surface water system, particularly during (but not limited to) flood events. |
| Commentary on Flood Risk:<br>The area is vulnerable to tidal flooding, particularly in the event the embankments were to breach.<br>Enhancing the riverside amenity through walking routes and parkland is a positive aspect of the proposals, and makes good use of the highest vulnerability land.<br>It is recommended that new development is limited to infilling between areas of existing development (such as the plot to the south of the day-care centre). This may be extended to include the proposed road to the rear of the Scouts hut and day care centre, but should not include new land-take which would extend further towards the river.<br>New development, including the road mentioned above, should be at a level which is equal to (or greater than) existing development levels. In addition, the land raising should be contiguous with existing development, rather than filling blocks of land and leaving others low lying.<br>As the flood risk is tidal, there is no requirement to compensate for infilling of land, as | |

| Site: | Clarecastle, MU4, R37 |
|---|---|
| there would be in Ennis, where flood risks are fluvial. | |
| Development Options:<br>Development proposals need to balance the need to redevelop the amenities of Clarecastle with the flood risk. Sustainable long term development must look to the possible impacts of climate change. | |

### 8.3.13 Clarecastle, lands adjacent to R458 bridge (upstream)

| Site: | Clarecastle, lands adjacent to R458 bridge (upstream) |
|---|---|

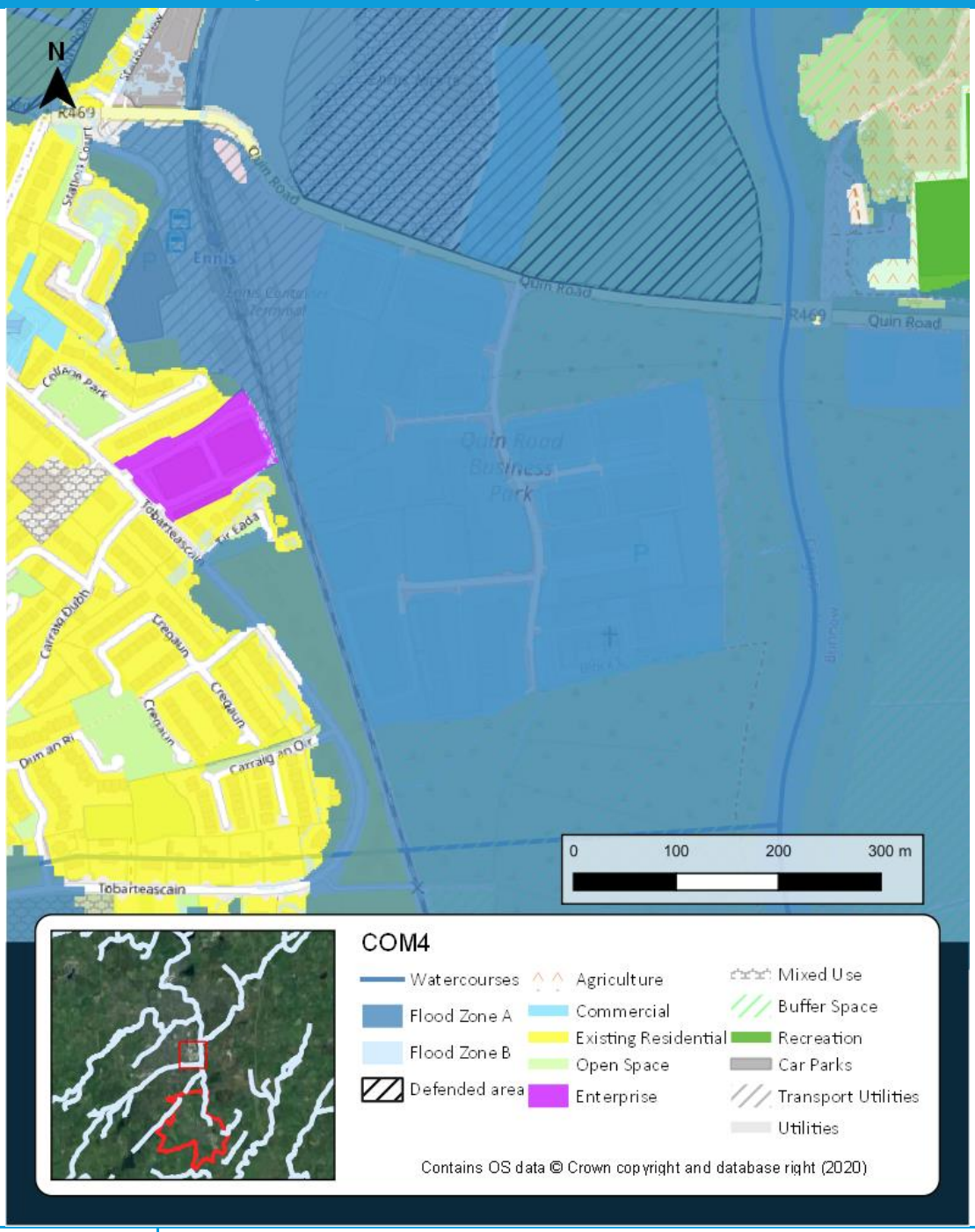



| | |
|---|---|
| Site Description | Clarecastle is located on the west bank of the River Fergus, downstream of the tidal barrage, but behind flood embankments. |

| Site: | Clarecastle, lands adjacent to R458 bridge (upstream) |
|---|---|
| |  Of particular note is the partially constructed development on the west bank, immediately upstream of the R458 bridge. This site is predominantly within Flood Zone B, and is located behind earthen embankments. |
| Benefitting from Defences (flood relief scheme works) | The town benefits from defences although the operation / level of protection offered by those defences is still being assessed. |
| Sensitivity to Climate Change | Greatest risk will be as a result of increases in sea level, which could see rises of up to 1m in the next 100 years. Given the tidal dominance on the Fergus at Clarecastle, these impacts could be significant and will require long term consideration of the height and integrity of the tidal embankments. |
| Residual Risk | The design standard of the embankments is unknown, although likely to be over, rather than under designed. Breach of earth embankments is more likely than walls, and in an extreme tidal event (or with climate change) overtopping is possible. |
| Historical Flooding | The site is located behind the embankments but is noted to have been subject to previous flooding. |
| Surface Water | Should the site be developed, the FRA would be required to consider surface water management and discharge, whether this is to the Fergus directly or into the surface water system, particularly during (but not limited to) flood events. |
| Commentary on Flood Risk:<br>The area is vulnerable to tidal flooding, particularly in the event the embankments were to breach. The development appears to be constructed with a low ground floor level, which is located behind, and therefore protected by, flood embankments. The upper levels of the building are likely to be above flood levels. Surface water flood risk is present and will require mitigation. | |
| Development Options:<br>The demolition and redevelopment of the site are both options. If construction is to be continued, consideration should be given to the spread of uses, with less vulnerable (e.g. retail and car parking) on the ground floor, and more vulnerable (e.g. apartments) on high levels). The site has passed the Justification Test, however given the location of the site in the tidal and fluvial flood zone, it is recommended that if development is continued or the site is redeveloped then the risk to the site is reappraised in line with the recommendations is Section 5, with specific measures designed to manage surface water risk. | |
| | |

### 8.3.14 COM4 Quin Road Business and Retail Park

| Site: | COM4 Quin Road Business and Retail Park |
|---|---|




| | |
|---|---|
| Existing Flood Risk | The Cost Benefit Analysis for the Ennis South Flood Alleviation Scheme gives the 100 year flood level (pre-scheme) as 2.99 mOD and the 1000 year level as 3.18mOD. |
| Benefitting from Defences (flood relief scheme works) | The site benefits from the Ennis South Flood Relief Scheme, which is being completed. The map above does not reflect the defended area relevant to the scheme. |
| Sensitivity to Climate Change | High - climate change will result in an increase in flood depth and extent but the level to which climate change has been incorporated into the scheme design will inform the scope of site specific FRA. |

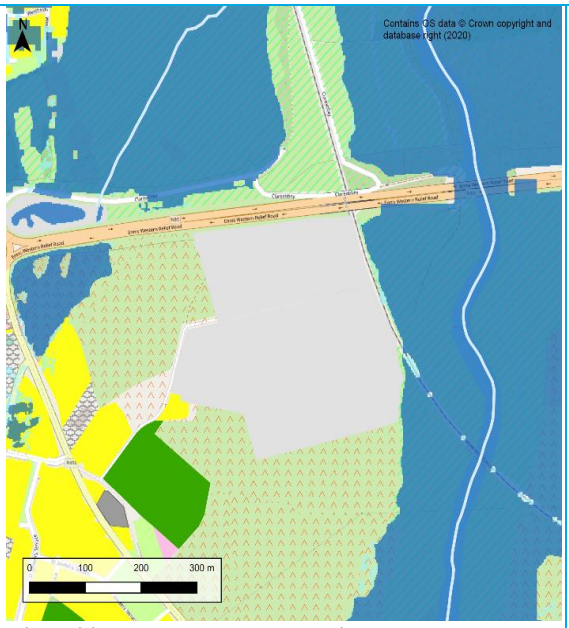
| | |
|---|---|
| Residual Risk | Once the scheme is fully completed, the risk of failure of the defences will be low and the standard of protection they offer will be certified. |
| Historical Flooding | The Cost Benefit Analysis for the Ennis South Flood Alleviation Scheme notes that the flood level at the upstream of the barrage was 2.8mOD, and that the Quin Road Business and Retail Park (amongst other locations) was at risk of flooding. |
| Development Options:<br>Land within the Quin Road Business park is already filled/partially developed. The commercial zoning does not encroach on the back drains to the east (adjacent to the Fergus) and open space to the north, bounding Quin Road, which are within Flood Zone A and at high risk of flooding.<br>Correspondence regarding planning permissions within the estate indicate fill levels of 2.49mOD, which compares with a 1% AEP level of 2.99mOD. Upon completion of the Flood relief scheme all development proposals will require a site specific FRA in line with the recommendations provided under Section 5, special consideration will need to be given to residual risk and particularly the impact of defence overtopping. | |

### 8.3.15 TOU1, Ballaghafadda West, Clarecastle (adjacent to Ballybeg Lake)

| Site: | TOU1 Ballaghafadda West, Clarecastle Lands adjacent to Ballybeg lake |
|---|---|
| | |
| Existing Flood Risk | The northern corner of the site is located in Flood Zone A. |
| Benefitting from Defences (flood relief scheme works) | There are no defences in this area. |
| Sensitivity to Climate Change | The site shows low sensitivity to climate change as the extents of flood zone A and B are similar. |
| Residual Risk | The site is not protected by defences and residual risk is anticipated to be low. |
| Historical Flooding | Not within historic extent. |
| Commentary & Development Options:<br>The northern corner of the site is located within Flood Zone A/B, the area is zoned for Tourism. Only water compatible use will be permitted within Flood Zone A/B. Community zoning exists on the southern half of the site and has a small area of Flood Zone A/B in the north west corner. Only water compatible use is permitted within Zone A/B. A site specific FRA in line with the recommendations in Section 5 will be required for any future development of these sites. | |

### 8.3.16 Essential Infrastructure

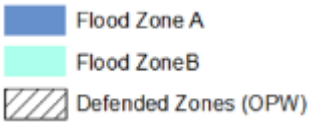
There are two water treatment plants and a pumping station located near the River Fergus as it flows through Ennis. Upgrade to one of the the water treatment plants is complete and the remaining upgrade is planned. Essential infrastructure is specifically discussed in the Planning System and Flood Risk Management Guidelines, and although classed as highly vulnerable, there is also the recognition that some facilities need to be located near watercourses for operational reasons. In addition, expansion or upgrade of existing infrastructure would be considered as a minor development, and not be subject to the Justification Test. Instead, it should be demonstrated that the proposals will not increase risk elsewhere, and the facility should be designed to be flood resilient.



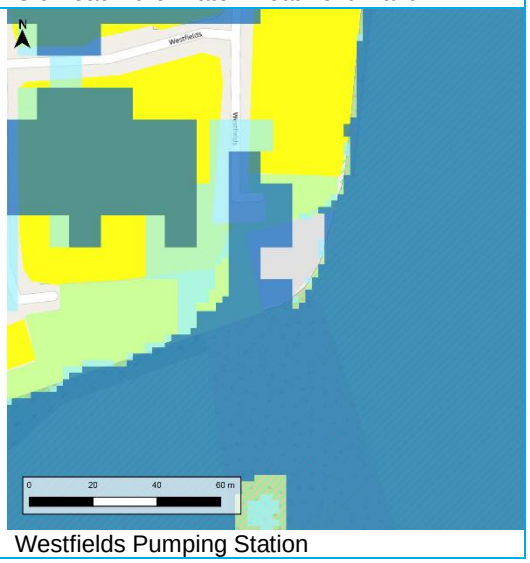

Clareabbey Water Treatment Plant


Clonroadmore Water Treatment Plant

The three sites are all within, or largely within, Flood Zone C. This means they are at low risk of flooding currently, and further development at the sites is also unlikely to be at flood risk. Where possible, the levels of pumps, thresholds and other critical operating elements should be set with a FFL to include up to 600mm of freeboard, dependant on the wider design constraints of the plant.




Includes Ordnance Survey Ireland data reproduced under OSi Licence number 2008-20 CCMA/[ClareCoCo].




Westfields Pumping Station

## 8.4 Transformation Sites - Ennis 2040

Under the Ennis 2040 - Economic and Spatial Strategy, a number of transformation sites within and neighbouring Ennis were identified and an SFRA[7] undertaken in respect of each. The transformation sites have not been directly included in the Development Plan, but there are many overlaps with the Opportunity Sites discussed in the earlier sections of this report. For full

[7] Strategic Flood Risk Assessment Ennis 2040 (2021), HKV EWV-JBAI-XX-XX-RP-HO-0003-Clare_SFRA-A1-P06.docx

details of the assessment undertaken as part of Ennis 2040, the SFRA itself should be reviewed, but the following summary can be provided.

| Transformation Site (code from Ennis 2040) | Review comment through Development Plan SFRA, including most closely aligned zoning objective code |
|---|---|
| T1 - Cornmarket Precinct | OP8 and OP16 |
| T2 - Abbey Riverside | OP9 |
| T3a. Harvey's Quay (commercial) | OP4 and 6 |
| T3b. Harvey's Quay (park) | OP5 |
| T4. Friar's Walk | C2 and small portion of OP12 - noting recommendation for water compatible uses in this SFRA, where Ennis 2040 is suggesting residential zoning. A detailed FRA (including hydraulic modelling) would be required for the site prior to changing the zoning to highly vulnerable uses. This modelling should include residual risk analysis for defence overtopping and detailed consideration of climate change. |
| T5. Former Ennis National School | OP1 |
| T6a. Wetland and Enterprise (Enterprise) | Not specifically reviewed in DP. Flood data used in the Ennis 2040 SFRA appear to be the flood extents, rather than the undefended Flood zones (which exclude the benefit of the tidal barrage). A detailed FRA (including hydraulic modelling) would be required for the site to inform a masterplan for the area. This should be coupled with detailed site investigation to understand ground conditions, ecological and environmental assessments and other studies as appropriate. |
| T6b. Wetland and Enterprise (wetland) | Not specifically reviewed in DP but should be retained for water compatible uses. |
| T7. Clare Technology Park | OP15 |
| T8. Roche Opportunity site | OP19 |
| T9. Data Centre (Toureen) | Flood Zone C |

# 9 Shannon Municipal District

## 9.1 Overview

Within Shannon Municipal District are a number of settlements with differing levels of flood risk. A summary of the risks is provided in Table 9-1, with further details of the approach to managing flood risk, and the application of the Justification Test, provided in Section 9.2.

Table 9-1: Shannon Municipal District Settlement Overview

| Settlement | Flood Comment | Development Comment |
|---|---|---|
| Ardnacrusha | Watercourse flows to the east of the settlement, joining the Tailrace canal to the south. An unmapped tributary also runs through the settlement. | Flood Zones are largely confined to land zoned for open space which is appropriate and should be retained. Zoning also included the Ardnacrusha Hydropower station, which is water compatible. The unmapped watercourse runs through an area of existing residential zoning. Redevelopment in this area should include a site specific flood risk assessment and apply the sequential approach. Applications for minor development should follow Section 5.28 of the Planning Guidelines. |
| Athlunkard | Flood Zone A and B cover parts of the settlement to the west. Fluvial risk more extensive than tidal. History of flooding in the area also noted. Flood Zones cover open space and existing residential lands. | Open space is water compatible and should be retained. No new (major) development within Flood Zone A or B and Justification Test cannot be passed. Applications for minor development should follow Section 5.28 of the Planning Guidelines. |
| Ballycannon North (Meelick) | Two streams pass through the settlement. Land is mainly zoned for buffer space, with some encroachment and some existing residential. | Open space is water compatible and should be retained. Applications for minor development in the existing residential areas within Flood Zone C should follow Section 5.28 of the Planning Guidelines. |
| Bunratty | Several areas at risk of pluvial flooding. Some risk of fluvial and extensive tidal flooding. | See Justification Test below. |
| Cratloe | No fluvial or tidal flood risk indicated within the settlement. | See Sections 5.3 and 5.4 for details of assessment needed. |
| Newmarket on Fergus | Unmapped flood risk associated with Lough Gash, inlet Mill Race and outfall stream. Lough Gash and most of the inlet and outfall streams are within open space. The Mill Race also passes alongside an area of existing residential. | Open space is water compatible and should be retained. Although risk is unmapped, the land on the opposite bank to the existing residential is significantly lower and indicates the residential area is in Flood Zone C. |
| Parteen | Fluvial risk to the south of the settlement boundary but no risk to proposed or existing development. | See Sections 5.3 and 5.4 for details of assessment needed. |
| Shannon | Coastal, tidal and fluvial risk, as well as risk of defence overtopping or breach. | Much of Shannon consists of low-lying coastal flatlands which are within a Flood Zone protected from tidal flooding by embankments. The Shannon Flood Relief Scheme is currently at design stage and should be used to inform the SFRA of the Local Area Plan. It should take into account the detail of this SFRA and also consider the potential for development in certain areas to be premature until the Flood Relief Scheme has been completed. No |

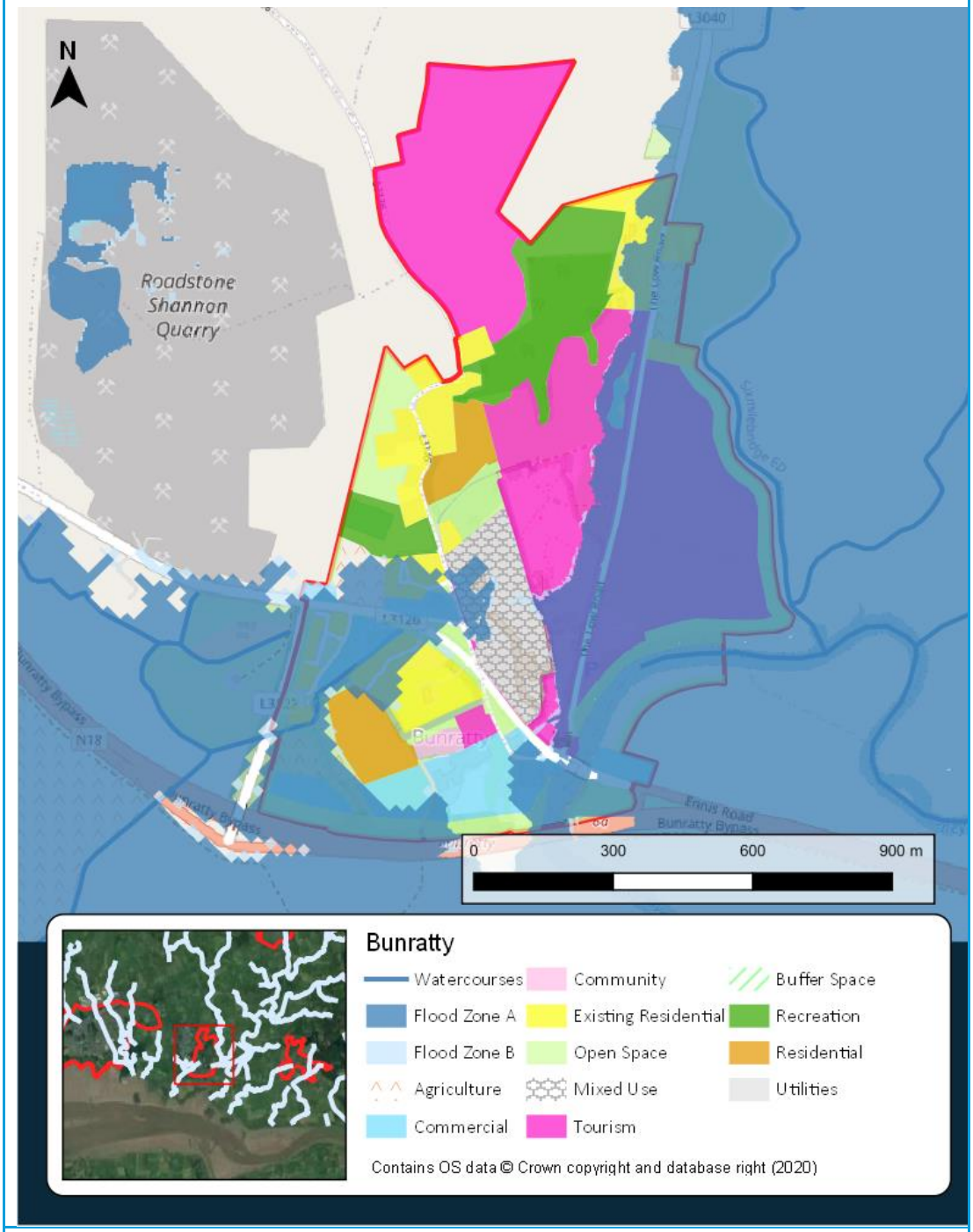
| Settlement | Flood Comment | Development Comment |
|---|---|---|
| | | further assessment of flood risks in Shannon has been included in this SFRA. |
| Sixmilebridge | Several areas at risk of pluvial flooding within the site. Risk of fluvial flooding to the settlement, some defences in place. | See Justification Test below. |

## 9.2 Justification Tests

### 9.2.1 Bunratty

| Justification test for sites within Flood Zone A and / or B | TOU 1 Bunratty- Tourism lands (east of the Low Rd) | Bunratty – Commercial Development Site COM1 |
|---|---|---|
| *The urban settlement is targeted for growth* | Bunratty is a 'large village'. The aim for large village is to maintain existing population levels and services and to ensure that future growth is balanced and sustainable. Bunratty is also noted as being a tourism hub in the county. | Bunratty is a 'large village'. The aim for large village is to maintain existing population levels and services and to ensure that future growth is balanced and sustainable. Bunratty is also noted as being a tourism hub in the county. |
| *The zoning or designation of the lands for the particular use or development type is required to achieve the proper planning and sustainable development of the urban settlement* | Yes. Bunratty's economic role is primarily based on tourism. Tourism zoning is required to achieve proper planning in this regard. | It is proposed to zone the lands for Commercial development to support the creation of employment opportunities in Bunratty. In terms of flood risk, this is considered to be a less vulnerable land use. |
| *Is essential to facilitate regeneration and / or expansion of the centre of the urban settlement.* | Yes. The development of the site is essential to expansion and regeneration of the settlement. | The zoning of these lands will facilitate the expansion of services currently available in the village centre. |
| *Comprises significant previously developed and/ or under utilised lands* | The lands are considered underutilised having regard to the tourism product available in the village. | The eastern section of lands has been developed. Lands to the west are currently undeveloped and located in Flood Zone A. |
| *Is within or adjoining the core of an established or designated urban settlement* | The lands are situated in the core of Bunratty. | The undeveloped lands directly adjoin the commercial core of the village. |
| *Will be essential in achieving compact and sustainable urban growth* | Development of these lands will be essential to achieving compact and sustainable urban growth. | Commercial development at this location will contribute to the achievement of a compact village core. |
| *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.* | Other tourism lands are identified for other uses. | There are no alternative sites at a lower risk of flooding in the village. |
| *A flood risk assessment to an appropriate level of detail has been carried out* | See below | See below |
| *Result* | **Pass** | **Pass** |
| *Recommendation for zoning* | Retain for tourism but insert into specific objective text for the site that uses should be water compatible. Permanent residential, holiday home accommodation or temporary caravan parks which would include sleeping accommodation are highly vulnerable to flooding and shall not be permitted within Flood Risk Zone A /B. | Zoning can remain Commercial subject to the preparation of a site-specific flood risk assessment and due consideration of residual risk and mitigation measures. |

| Settlement | Bunratty |
|---|---|




There are embankments along the Clovermill Stream and Owenogarney River, but they only offer a low level of protection and would be overtopped in the 0.5% AEP (1 in 200 year) tidal event. On this basis, the settlement must be considered to be undefended.

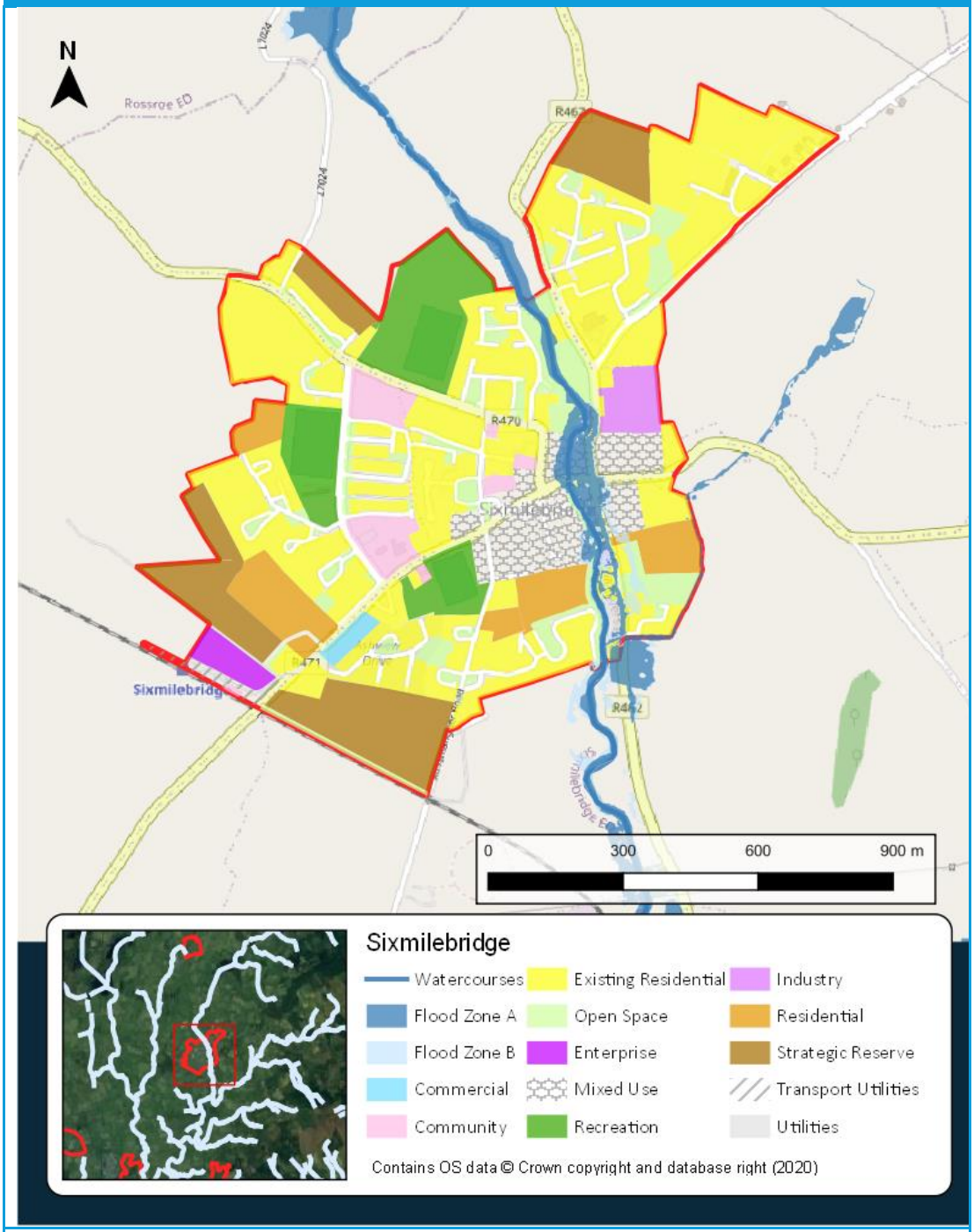
| Land uses within Flood Zone A / B | Development implications |
|---|---|
| Agriculture | Appropriate, as long as does not contain any less or highly vulnerable development within Flood Zones A and B. |
| Tourism | The majority of land zoned for tourism that is at flood risk is the car park of Bunratty Castle. However, there is a large swathe of land to the east of the Low Road which is within |

| | |
|---|---|
| | Flood Zone A. Should this land be developed, uses to be considered should be water compatible in the first instance (excluding any temporary or permanent residential uses). The Part 2 of the Justification Test has only been passed under this condition. Works proposed may include: Do nothing (in which case land use will be limited to water compatible), top up and consolidate the embankment (which would not facilitate highly vulnerable development behind) or land raising (which would need to satisfy the requirements of this SFRA). |
| Residential | A small proportion of the residential land is within defended Flood Zone A. The sequential approach will apply and minor development limited to Section 5.28 of the Planning Guidelines as new less and highly vulnerable development. |
| Open Space | Appropriate land use and should be retained. |
| Existing Residential | No new (major) development within Flood Zone A or B as the Justification Test has not been passed. The sequential approach will apply and minor development limited to Section 5.28 of the Planning Guidelines as new less and highly vulnerable development. |
| Commercial | New, undeveloped lands to the west of the shopping centre have passed the Justification Test and are within a defended area. To develop the site a detailed FRA will be required that investigates the residual risk of defence failure. Water compatible parts of the site could remain at existing levels but any buildings should employ land raising to mitigate risk. FFLs will be driven by the detailed FRA.<br>Part of the commercial zoning and car park is within Flood Zone A. Future development is likely to be limited to changes of use and renovations. Opportunities to seek protection from flooding, particularly taking climate change into account, should be sought if works take place in the future. Continued use for less vulnerable development is justified. |

### 9.2.2 Sixmilebridge

| Justification test for sites within Flood Zone A and / or B | Sixmilebridge – Mixed use in town centre and community | Existing residential |
|---|---|---|
| *The urban settlement is targeted for growth* | Sixmilebridge is an identified as a Small Town located within the Limerick-Shannon Metropolitan Area in the County Settlement hierarchy. | Sixmilebridge is an identified as a Small Town located within the Limerick-Shannon Metropolitan Area in the County Settlement hierarchy. |
| *The zoning or designation of the lands for the particular use or development type is required to achieve the proper planning and sustainable development of the urban settlement* | Yes, Town centre site with established uses, important for compact growth and the vitality and viability of the town centre | Yes – Residential site with established uses. |
| *Is essential to facilitate regeneration and / or expansion of the centre of the urban settlement.* | Yes. Development of the centre is essential to regeneration. | The existing residential and community zoning reflect existing uses on site. |
| *Comprises significant previously developed and/ or under utilised lands* | Much of the land is previously developed and the rear portions of many sites are considered underutilised given their central location. | Yes this is largely developed. |
| *Is within or adjoining the core of an established or designated urban settlement* | Yes. The lands are in the centre of Sixmilebridge. | Yes adjacent to the town centre. |
| *Will be essential in achieving compact and sustainable urban growth* | Development of these lands will be essential to achieving compact and sustainable urban growth. | Yes – essential for compact growth and achievement of permeability between the town centre and lands to the south. |
| *There are no suitable alternative lands for the particular use or development type, in areas at lower risk of flooding within or adjoining the core of the urban settlement.* | There are no suitable alternative lands for the particular use or development type, in areas at lower risk of flooding within or adjoining the core | No - This area is largely developed, and is adjacent to the town centre and critical to the compact development of the settlement. |
| *A flood risk assessment to an appropriate level of detail has been carried out* | See below | See below |
| *Result* | **Pass** | **Pass** |
| *Recommendation for zoning* | Retain Mixed use zoning. | No change to proposed zoning. |

| Settlement | Sixmilebridge |
|---|---|




CFRAM maps show limited flood risk to the town but take into account a length of defence which provides protection to the left bank at a very low return period. The benefit of the defence should be further assessed at site risk assessment stage, but has not been taken into account in defining the Flood Zones.

| Land uses within Flood Zone A / B | Development implications |
|---|---|
| Open Space | Appropriate land use and should be retained. |
| Mixed use (within conservation area) | Any development within the flood zones should be redevelopment / renovation. Consideration should be given to a reduction in flood risk as a result of the development, including consideration of site and building |

| | |
|---|---|
| | layouts to ensure the Sequential Approach is applied and to include flood mitigation measures. |
| Existing residential | There are a number of existing residential sites which encroach into Flood Zone A / B. Development in these areas should be in accordance with Section 5.28 of the Planning Guidelines. |

# 10 Killaloe Municipal District

## 10.1 Overview

Within Killaloe Municipal District are a number of settlements with differing levels of flood risk. A summary of the risks is provided in Table 10-1, with further details of the approach to managing flood risk, and the application of the Justification Test, provided in Section 10.2.

Table 10-1: Killaloe Municipal District Settlement Overview

| Settlement | Flood Comment | Development Comment |
|---|---|---|
| Ballinruan | No fluvial or tidal flood risk indicated within the settlement. | See Sections 5.3 and 5.4 for details of assessment needed. |
| Bodyke | No fluvial or tidal flood risk indicated within the settlement. | See Sections 5.3 and 5.4 for details of assessment needed. |
| Bridgetown | Pluvial risk to two areas in southern half of the settlement. Fluvial risk along the centre of the town, including land zoned for future residential. | See Justification Test below. |
| Broadford | Pluvial risk present in the settlement. Primarily fluvial risk to the settlement which has been reviewed through site visit. | See Justification Test below. |
| Caher | Fluvial risk along its boundary with the lake to the north and associated with a stream to the east which is outside settlement boundary. | Flood zones covering open space and tourism, which is currently a park and moorings. These uses are water compatible and should be retained. It is important that permitted uses within the tourism zoning are limited to water compatible in the future. JT not needed. |
| Clonlara | Potential risk arising from the headrace and canal were reviewed in CFRAM outputs and the risk level is low due to the fact that the levels the headrace are closely managed by ESB. Based on current Flood Zones, the settlement is in Flood Zone C. There some low lying and boggy land adjacent to the old canal, which is zoned for open space. This is appropriate and should be retained. | See Sections 5.3 and 5.4 for details of assessment needed. |
| Crusheen | Watercourse runs along the south-eastern boundary, within open space lands, but risk is unmapped. | Open space is water compatible and should be retained. |
| Feakle | Risk of fluvial flooding along the eastern boundary of the settlement. Flood Zones have been reviewed through site visit. Unmapped tributary flows through the middle of the settlement. Risk mainly to open space / buffer land. One industrial zoning within Flood Zone A and Flood Zones unmapped through the mixed use area. | Open space / buffer is appropriate and should be retained.<br>Section 5.28 applies to the industrial area within Flood Zone A.<br>Any development in proximity to the unmapped stream should include an appropriately detailed FRA and following the Sequential Approach. |
| Flagmount | Small area at west of site which is maritime / harbour zoning at risk of fluvial flooding. Area at south of settlement at risk of pluvial flooding. | Land use zonings are appropriate but sequential approach to be applied within the maritime / harbour area. JT not needed. |
| Kilbane | Limited flood risk primarily focused on open space lands. Some risk to commercial area (currently used as car park) and limited existing residential area to the west of the settlement. | Redevelopment of the carpark should be limited to less vulnerable uses.<br>Development in the residential zoning should be in accordance with Section 5.28 of the Planning |

| Settlement | Flood Comment | Development Comment |
|---|---|---|
| | | Guidelines. |
| Kilkishen | Past flood event recorded encroaching on the settlement to the south. Cause seems to have been surface water. Unmapped watercourses runs along the south-western boundary towards the lake, but is next to open space zoning. | See Sections 5.3 and 5.4 for details of assessment needed. |
| Killaloe | Several areas at risk of pluvial flooding within the settlement. Area in the south west of the settlement is at risk of flooding, so too is area to the north around Kincora. Both areas zoned tourism and un-developed. | Open space zonings are appropriate and should be retained.<br>Un-developed lands zoned for Tourism are located within Flood Zone A & B along both northern and southern boundary of the settlement. Development of these zoned lands must apply the sequential approach and only water compatible development will be permitted in Flood Zone A/B. Other lands within Zone A/B are already developed and include water compatible marina uses. |
| Killanena | Two watercourses, one flows through church and graveyard and small area of agricultural land. The other flows alongside the settlement boundary, bordering agricultural and existing residential with an open space buffer. | Limited risk to the margins of existing development which can be addressed through development management. |
| Kilmurry | Lake present at south west of settlement watercourse leads from this, alongside open space. | See Sections 5.3 and 5.4 for details of assessment needed. |
| Mountshannon | Risk of fluvial flooding along the eastern and western boundaries of the settlement. West covers land zoned residential. East includes residential and tourism. Flood extents have been reviewed through site visit. | See Justification Test below. |
| O'Briensbridge | Having reviewed CFRAM data, risk arising from the headrace is low as the levels in the headrace are closely managed. Fluvial risk to land in the north of the settlement with a small section in the south affected also. | Open space zonings are appropriate and should be retained. Limited risk to existing residential which can be addressed through development management and application of the sequential approach. |
| O'Callaghan's Mills | Flood extents are constrained within the village centre, with some open space at risk and small encroachment onto existing residential lands. | Flood extents across the residential area are limited and can be addressed within the development management process and through the use of the sequential approach.. |
| Ogonnelloe | Unmodelled watercourses passes through settlement, adjacent to an area zoned residential. | Site visit has shown the watercourse to be a small, deep drainage channel with lands on both sides at a much higher level. Extreme water levels would be retained in bank. In the event of culvert blockage water could spill onto the road and flow to the south. Surface water to be managed from new development to ensure discharge to the ditch does not increase. |
| Quin | Fluvial risk up and downstream of settlement, but limited through the town and restricted to open space | Open space is a water compatible use and should be retained. |

| Settlement | Flood Comment | Development Comment |
|---|---|---|
| | lands. | |
| Scarriff / Tuamgraney | Primarily fluvial risk to the settlement and extents through the settlement centre are reasonably constrained. | Open Space, agricultural and recreation are water compatible uses which should be retained. Maritime and Community are also water compatible, although development ancillary to the marina berths should follow the sequential approach within Flood Zones A and B. Some encroachment of Flood Zone A and B into the industrial lands and across existing buildings. Section 5.28 of the Planning Guidelines is applicable here. |
| Tulla | No fluvial or tidal flood risk indicated within the settlement. | See Sections 5.3 and 5.4 for details of assessment needed. |
| Whitegate | No fluvial or tidal flood risk indicated within the settlement but residential zoning fronts onto a lake. | Redevelopment within the lake fronting residential zoning will require a FRA to confirm extent and height of extreme lake levels and sequential approach then to be applied. |

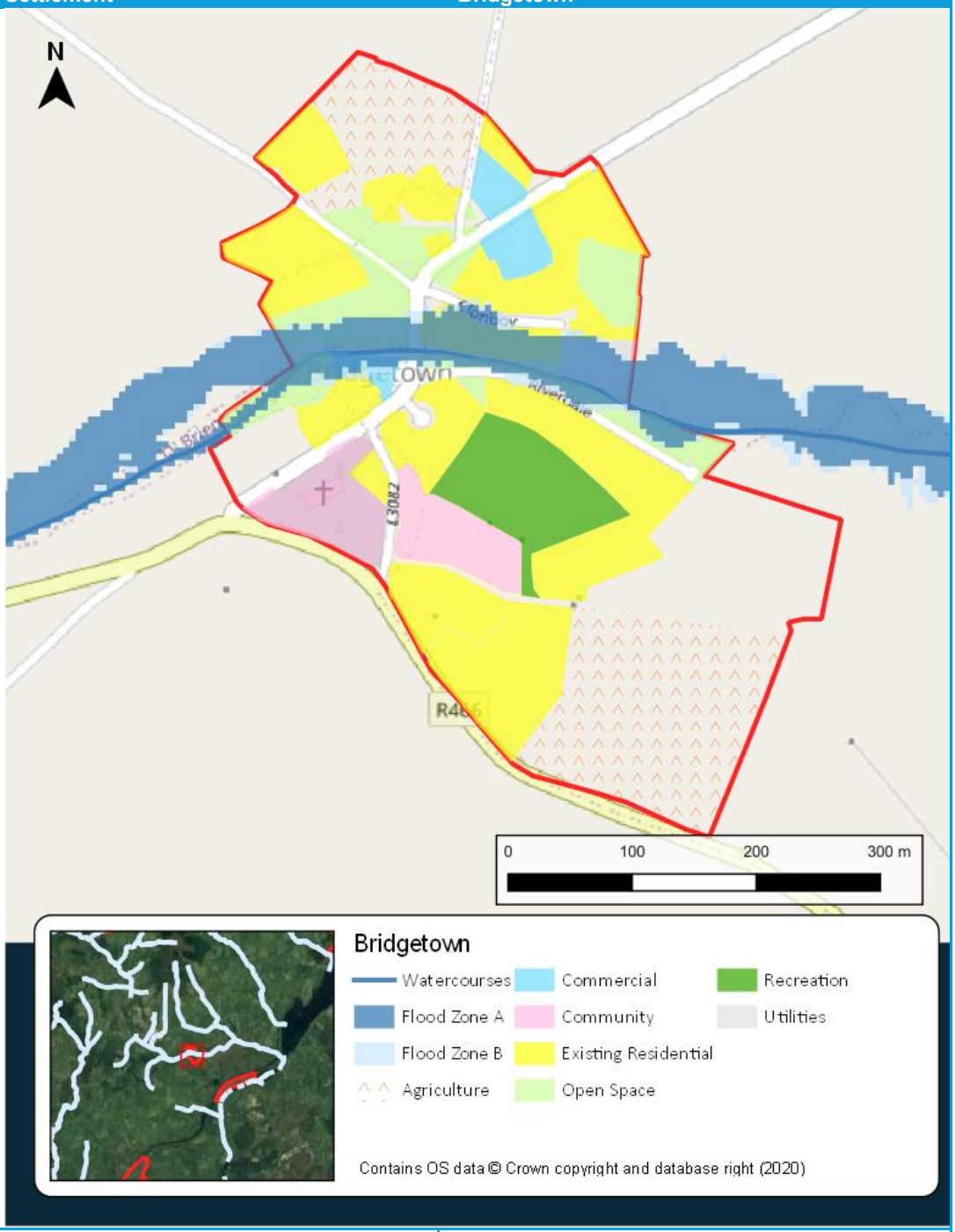
## 10.2 Justification Tests

### 10.2.1 Bridgetown

| Justification test for sites within Flood Zone A and / or B | Bridgetown- Existing residential lands |
|---|---|
| *The urban settlement is targeted for growth* | Bridgetown is designated for growth in the Clare Co. Development Plan 2023-2029 (CDP). |
| *The zoning or designation of the lands for the particular use or development type is required to achieve the proper planning and sustainable development of the urban settlement* | The zoning reflects where housing has been provided in the centre of the village which contributes to the continued sustainable development of the settlement. |
| *Is essential to facilitate regeneration and / or expansion of the centre of the urban settlement.* | Retention of existing residential zoning is essential to regeneration and vitality of the settlement and to retaining a strong and cohesive village centre. The type of developments envisaged to occur would include small scale developments such as domestic extensions and changes of use which do not increase risk of flooding. Change of use to a more vulnerable class would not be permitted. (Table 3.1 Classification of vulnerability of different types of development). The Planning System and Flood Risk Management Guidelines refers. |
| *Comprises significant previously developed and/ or under utilised lands* | The lands are previously developed. |
| *Is within or adjoining the core of an established or designated urban settlement* | Existing residential lands are predominantly located in the centre of the village. |
| *Will be essential in achieving compact and sustainable urban growth* | The development of housing has achieved compact and sustainable growth. Retention of existing residential lands will maintain a strong and cohesive settlement. Any growth in this zoning will be limited to uses which do not increase flood risk. |
| *There are no suitable alternative lands for the particular use or development type, in areas at lower risk of flooding within or adjoining the core of the urban settlement.* | The zoning classification 'existing residential' is a unique category of zoning which reflects existing rather than proposed use. There are no alternative zoning categories on lands in lower risk of flooding within or adjoining the core that fulfils the same role as 'existing residential'. |
| *A flood risk assessment to an appropriate* | See below |

| | |
|---|---|
| *level of detail has been carried out* | |
| *Result* | **Pass** |
| *Recommendation for zoning* | Retain Existing Residential zoning. |

| **Settlement** | **Bridgetown** |
|---|---|

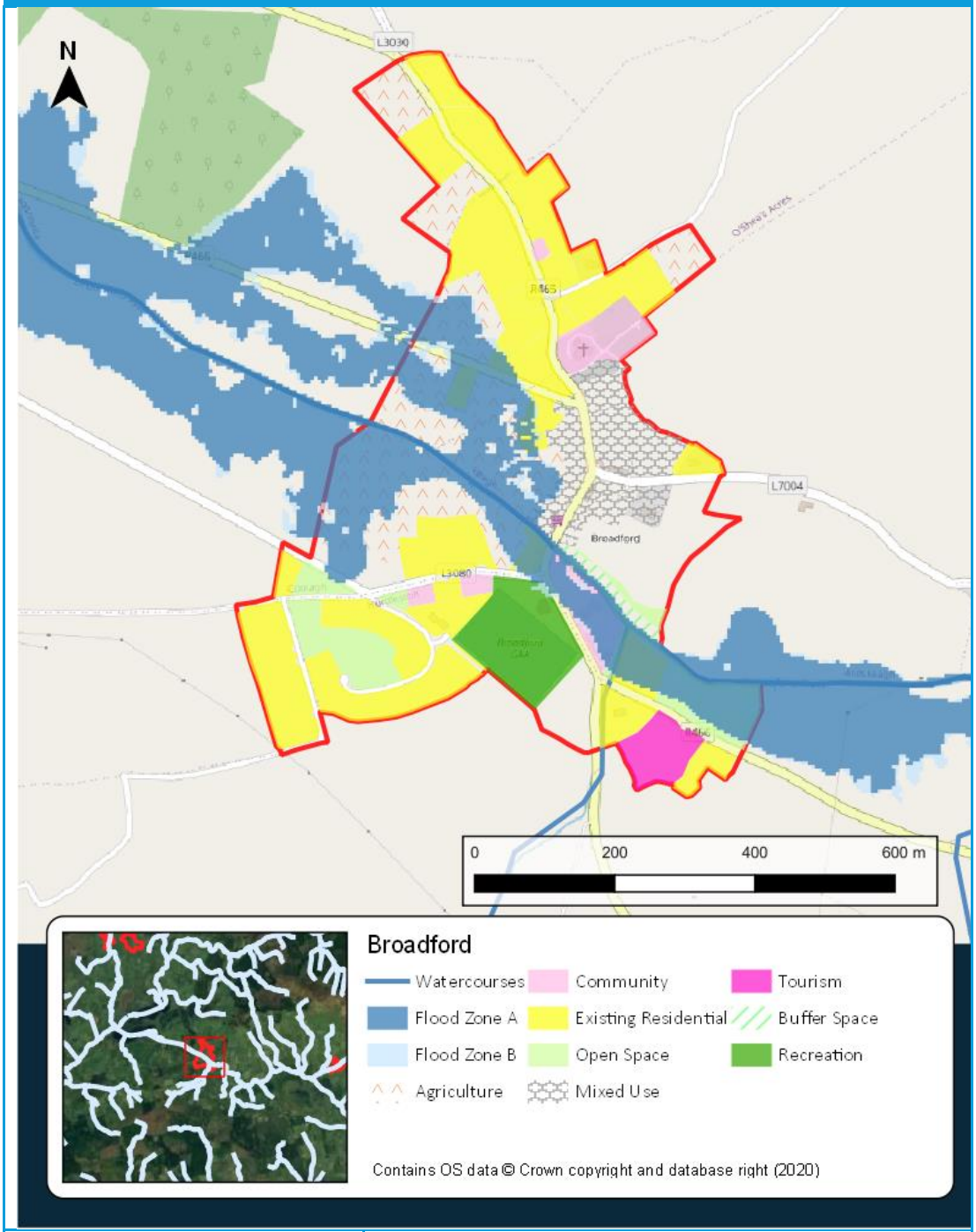



| **Land uses within Flood Zone A / B** | **Development implications** |
|---|---|
| Existing residential | JT passed for existing land use, but Section 5.28 of the Planning Guidelines applies. No new highly or less vulnerable development within Flood Zones A or B. |
| Open space | Water compatible and should be retained. |

### 10.2.2 Broadford

| Justification test for sites within Flood Zone A and / or B | Existing residential lands | Community |
|---|---|---|
| *The urban settlement is targeted for growth* | Broadford is designated for growth in the Clare Co. Development Plan 2023-2029 (CDP). | Broadford is designated for growth in the Clare Co. Development Plan 2023-2029 (CDP). |
| *The zoning or designation of the lands for the particular use or development type is required to achieve the proper planning and sustainable development of the urban settlement* | The existing residential lands are located at a number of areas in the village including the centre and reflect where housing has been provided. | The designation reflects the existing nature of use; a school site and riverside park. |
| *Is essential to facilitate regeneration and / or expansion of the centre of the urban settlement.* | Retention of existing residential zoning is essential to regeneration and vitality of the settlement and to retaining a strong and cohesive village centre. The type of developments envisaged to occur would include small scale developments such as domestic extensions and changes of use which do not increase risk of flooding. Change of use to a more vulnerable class would not be permitted. (Table 3.1 Classification of vulnerability of different types of development) The Planning System and Flood Risk Management Guidelines refers. | The school is at the centre of the community and is already developed. |
| *Comprises significant previously developed and/ or under utilised lands* | The lands are previously developed. | The lands are previously developed. |
| *Is within or adjoining the core of an established or designated urban settlement* | The lands are situated at a number of locations including the centre of the village. | The school is at the centre of the community and is already developed. |
| *Will be essential in achieving compact and sustainable urban growth* | The development of housing has achieved compact and sustainable growth. Retention of existing residential lands will maintain a strong and cohesive settlement. Any growth in this zoning will be limited to uses which do not increase flood risk. | The school is at the centre of the community and is already developed. |
| *There are no suitable alternative lands for the particular use or development type, in areas at lower risk of flooding within or adjoining the core of the urban settlement.* | The zoning classification 'existing residential' is a unique category of zoning which reflects existing rather than proposed use. There are no alternative zoning categories on lands in lower risk of flooding within or adjoining the core that fulfils the same role as 'existing residential'. | The school is at the centre of the community and is already developed. |
| *A flood risk assessment to an appropriate level of detail has been carried out* | See below | See below |
| *Result* | **Pass** | **Pass** |
| *Recommendation for zoning* | Retain Existing Residential zoning. | Retain community zoning |

| Settlement | Broadford |
|---|---|

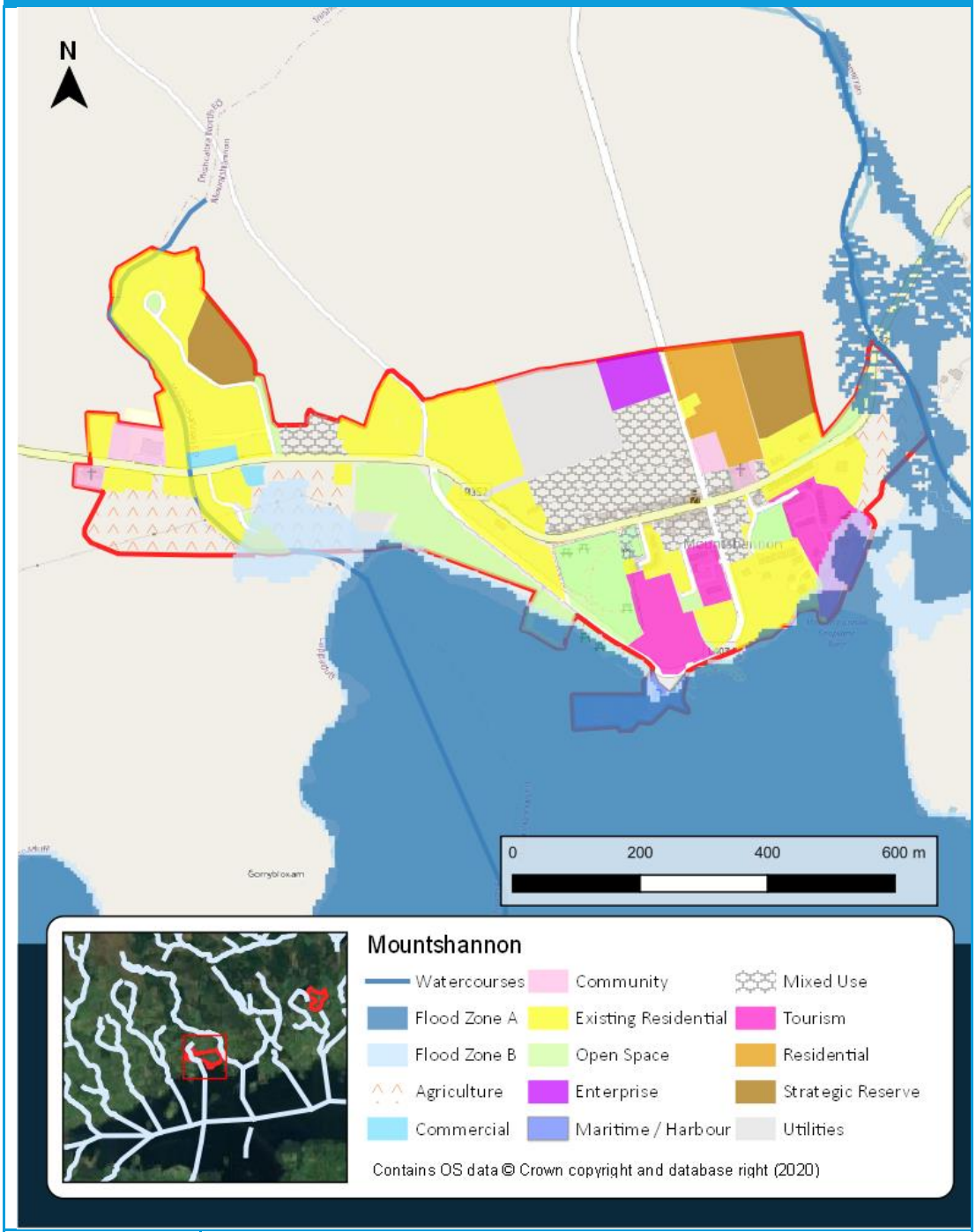



| Land uses within Flood Zone A / B | Development implications |
|---|---|
| Agriculture | Appropriate, no JT needed, but buildings (such as farmhouses) should not be permitted in Flood Zone A / B. |
| Existing residential | JT has been applied and passed to reflect the existing land use. Development within Flood Zones A and B should be according to Section 5.28 of the Planning Guidelines. |
| Community (school and public riverside park) | Within Flood Zone A and with history of flooding. Continued development of the school site needs FRA to set floor levels and emergency plan to deal with risks.<br>Riverside park is appropriate and should be maintained. |

### 10.2.3 Mountshannon

| Justification test for sites within Flood Zone A and / or B | Existing Residential | Tourism |
|---|---|---|
| *The urban settlement is targeted for growth* | Mountshannon is designated for growth in the Clare Co. Development Plan 2023-2029 (CDP) | Mountshannon is designated for growth in the Clare Co. Development Plan 2023-2029 (CDP) |
| *The zoning or designation of the lands for the particular use or development type is required to achieve the proper planning and sustainable development of the urban settlement* | Existing residential lands zoning reflect where housing has been provided which contributes to the continued sustainable development of the settlement. | Tourism zoning reflects an existing holiday house complex which contributes to the continued sustainable development of the settlement |
| *Is essential to facilitate regeneration and / or expansion of the centre of the urban settlement.* | Retention of existing residential zoning is essential to regeneration and vitality of the settlement and to retaining a strong and cohesive village centre. The type of developments envisaged to occur would include small scale developments such as domestic extensions and changes of use which do not increase risk of flooding. Change of use to a more vulnerable class would not be permitted. (Table 3.1 Classification of vulnerability of different types of development) The Planning System and Flood Risk Management Guidelines refers. | Retention of tourism zoning reflects the current use and is essential to the economy of the settlement. The type of developments envisaged to occur would include small scale developments such as domestic extensions and changes of use which do not increase risk of flooding. Change of use to a more vulnerable class, or intensification of use, would not be permitted. (Table 3.1 Classification of vulnerability of different types of development) The Planning System and Flood Risk Management Guidelines refers. |
| *Comprises significant previously developed and/ or under utilised lands* | The lands are previously developed. | The lands are previously developed. |
| *Is within or adjoining the core of an established or designated urban settlement* | Existing residential lands are located adjoining the core. | Tourism lands are located adjoining the core. |
| *Will be essential in achieving compact and sustainable urban growth* | The development of housing has achieved compact and sustainable growth. Retention of existing residential lands will maintain a strong and cohesive settlement. Any growth in this zoning will be limited to uses which do not increase flood risk. | Zoning reflects the existing land use. |
| *There are no suitable alternative lands for the particular use or development type, in areas at lower risk of flooding within or adjoining the core of the urban settlement.* | The zoning classification 'existing residential' is a unique category of zoning which reflects existing rather than proposed use. There are no alternative zoning categories on lands in lower risk of flooding within or adjoining the core that fulfils the same role as 'existing residential'. | Zoning reflects the existing land use. |
| *A flood risk assessment to an appropriate level of detail has been carried out* | See below | See below. |
| *Result* | **Pass** | **Pass** |
| *Recommendation for zoning* | Retain Existing Residential zoning. | Retain Tourism zoning |

| Settlement | Mountshannon |
|---|---|




| Land uses within Flood Zone A / B | Development implications |
|---|---|
| Tourism | Flood Zones A and B next to marina and within holiday village. Marina is water compatible, but the sequential approach should be applied to ancillary uses.<br>In relation to the holiday village, this should be treated as highly vulnerable residential and development in Flood Zone A and B to be in accordance with Section 5.28 of the Planning Guidelines. |
| Existing residential | JT passed. Management of the encroaching water from the lake is possible through land raising and given the volumes of water in the lake is unlikely to impact on flood risk elsewhere. |
| Agriculture / open space | Appropriate provided buildings are located outside Flood Zone A and B. |

# 11 West Clare Municipal District

## 11.1 Overview

Within the West Clare Municipal District are a number of settlements with differing levels of flood risk. A summary of the risks is provided in Table 11-1, with further details of the approach to managing flood risk, and the application of the Justification Test, provided in Section 11.2.

Table 11-1: West Clare Municipal District Settlement Overview

| Settlement | Flood Comment | Development Comment |
|---|---|---|
| Bellharbour | Coastal and surface water risk to settlement, with overland flow path between turlough and sea, with ground water risk associated with turlough to the west of the settlement. | Coastal flood risk to open space and maritime zone, both of which are appropriate. Development in the maritime zone should follow the sequential approach as far as possible to reduce risks to new development.<br>The flow path between the turlough cross areas of existing development outside the settlement boundary and mixed use and existing residential areas within the village. Flood Zones are based on indicative datasets so site specific FRA may offer refinement of risks. Sequential approach should then be applied, avoiding highly and less vulnerable development in Flood Zone A and B as the Justification test has not been applied or passed. |
| Ballyea | Fluvial risk to the settlement, although mainly to open space alongside the river bank. There is some encroachment of Flood Zone A onto the Community, agricultural, existing and low density residential lands. Extensive floodplain immediately to the south of the settlement. | Open space and agriculture are appropriate uses and should be retained. Risk to the existing and proposed development lands can be managed by applying the sequential approach and through appropriate site and building layouts, with highly and less vulnerable development limited to Flood Zone C. |
| Ballynacally | Flood risk along the river banks is indicated with open space, existing residential. Flood risk slightly encroaches on community and enterprise lands in Flood Zone A and B. | Open space is appropriate and should be retained. Risk related to redevelopment of lands within Flood Zone A and B can be managed through the sequential approach and through appropriate site and building layouts. |
| Ballyvaughan | Coastal risk to the settlement, with storm damage reported following the winter 2013/14 event. Areas at risk are commercial, existing residential, and open space. Some groundwater risk also exists. | Risk is limited to existing development. Given the history of flooding and known incidents of wave exacerbated storm damage, it is recommended that redevelopment of sites along the coastline is limited to less vulnerable uses, and sufficient measures are included in the design to ensure flood resilience. This should include consideration of the adequacy of the main drainage and presence of sea wall in retaining flood water. If this is not possible, then consideration should be given to |

| Settlement | Flood Comment | Development Comment |
|---|---|---|
| | | relocating properties as they need to be redeveloped. Groundwater risk must be investigated as part of an FRA for development in this settlement. |
| Boston | No fluvial or tidal flood risk indicated within the settlement. | See Sections 5.3 and 5.4 for details of assessment needed. |
| Carrigaholt | Coastal, fluvial and tidal risk within the settlement, mainly impacting land zoned for open space. There is also some encroachment into existing development within, mixed use, maritime / harbour and residential zoned areas. Storm damage was also reported following the 2013/14 winter floods. | Open spaces uses are appropriate and should be retained. Maritime at the pier is also appropriate. Within the Mixed use zoning, there should be no new development within Flood Zone A and B. Along the coastline, to the west of the L2002 road, given the history of flooding and known incidents of wave exacerbated storm damage, it is recommended that redevelopment is limited to less vulnerable uses even in Flood Zone C, and sufficient measures are included in the design to ensure flood resilience. If this is not possible, then consideration should be given to relocating properties as they need to be redeveloped. |
| Carron | No fluvial or tidal flood risk indicated within the settlement. | See Sections 5.3 and 5.4 for details of assessment needed. |
| Connolly | River flows to the south of the village. No fluvial or tidal risk within the settlement boundary. | See Sections 5.3 and 5.4 for details of assessment needed. |
| Cooraclare | Fluvial risk to area in southern part of the settlement along the river. Some open space (river side park) and a small area of Mixed Use land is within Flood Zone A / B, along with a small area of existing residential. | As there is limited encroachment of Flood Zone A and B, redevelopment within these areas is likely to be low impact and risks can be managed through application of the sequential approach, with appropriate site and building layouts, and with new highly or less vulnerable development limited to Flood Zone C. |
| Corofin | Groundwater and pluvial risk present in Corofin which is not reflected in the Flood Zones. Fluvial risk to the south of the settlement, which includes lands zoned for utilities, agriculture, open space, existing residential and buffer zones. | Open space, buffer zones and agriculture are appropriate uses and should be retained. Risk to the other lands is limited to the margins and can be managed by restricting development / redevelopment to Flood Zone C. |
| Cranny | Some fluvial risk to area in the southwest of the settlement with Flood Zone A and B partially encroaching on areas zoned for open space and enterprise. | Open space land use is appropriate and should be retained. As there is limited encroachment of Flood Zone A and B, development within the Enterprise zoned area is likely to be low impact and risks can be managed through the sequential approach with appropriate site layouts and building layouts, with development limited to Flood Zone C. |

| Settlement | Flood Comment | Development Comment |
|---|---|---|
| Creegh | Fluvial risk present in the south of the settlement across land currently zoned Open Space, Existing Residential and a limited area of Mixed Use. | Land use is appropriate - retain. As there is limited encroachment of Flood Zone A and B in existing residential and mixed use zones, risks can be managed at DM stage of any redevelopment proposals. |
| Cross | No fluvial or tidal flood risk indicated within the settlement. | See Sections 5.3 and 5.4 for details of assessment needed. |
| Doolin | The river runs through the centre of Doolin, presenting a limited flood extent which is largely contained within open space zoning with minor encroachment on lands zoned for agriculture, tourism and mixed use. | Open space and agriculture are both appropriate uses and should be retained. The encroachment of Flood Zone A on other zoned land is limited to the riverside margins. Planning applications can address flood risk by limiting buildings to Flood Zone C. |
| Doonaha | No flood risk indicated in this settlement besides a small section of beach at risk of coastal flooding. Climate change is not indicated to increase risks greatly, although storm and wave action may impact the area zoned for tourism. | Drainage impact assessment required to manage surface water. Emergency plan recommended for development within the tourism zone. |
| Doonbeg | Risk of tidal and fluvial flooding to the settlement, with storm damage reported along the coast following winter 2013/14. Flood extents mainly limited to Open Space, with minor encroachment to existing residential. | Open space is water compatible and should be retained. Risk related to redevelopment of existing residential lands within Flood Zone A and B can be managed by following the sequential approach and through appropriate site and building layouts, with a site specific flood risk assessment to determine appropriate finished floor levels. |
| Ennistymon | Primarily fluvial risk to the settlement, backwater effect of tidal and coastal experienced at north west of the settlement. Risk limited to the open space buffer, with slight encroachment onto mixed use development and some existing commercial development, such as the grounds of the hotel. Flood Risk is also present in lands zoned as strategic reserve. | Retain open space and strategic reserve zoning as appropriate use. Redevelopment of low-lying properties along the river bank should include flood resilience measures. |
| Fanore | Preliminary storm damage report within the catchment showing coastal risk from 2013/14 storms. Coastal and tidal risk along the western boundary with a fluvial risk present in the north west of the settlement. All FZ land zoned for buffer / open space. | See Sections 5.3 and 5.4 for details of assessment needed. |
| Inagh | Fluvial risk along the river bank in the east of the river. Majority of flood risk is on land zoned as open space with limited encroachment on lands zoned for commercial, community and mixed use. | Open space is water compatible and should be retained. The encroachment of Flood Zone A on other zoned land is limited and can be managed through the Sequential Approach. |

| Settlement | Flood Comment | Development Comment |
|---|---|---|
| Inch | Small stream runs through the settlement which present some risk to surrounding lands which are existing residential and agriculture. | Agricultural zoning is appropriate and should be maintained. Redevelopment with the existing residential areas should be in accordance with Section 5.28 of the planning guidelines and there should be no new highly or less vulnerable development in Flood Zone A or B. |
| Kilbaha | Coastal risk to the settlement, primarily in open space and maritime with a limited area of existing commercial. Kilbaha experienced damage in the winter 2013/14 storms. | Open space and maritime zoning is appropriate and should be retained. Along the coastline, given the history of flooding and known incidents of wave exacerbated storm damage, it is recommended that redevelopment is limited to less vulnerable uses, and sufficient measures are included in the design to ensure flood resilience. If this is not possible, then consideration should be given to relocating properties as they need to be redeveloped. |
| Kilfenora | No fluvial or tidal flood risk indicated within the settlement | See Sections 5.3 and 5.4 for details of assessment needed. |
| Kilkee | Risk of coastal, tidal and fluvial flooding in the settlement, evidenced through recent flood events. Flood relief scheme is progressing through design stage. | See following tables. |
| Killadysert | Fluvial, tidal and coastal risk to the settlement, including open space lands and a limited encroachment to community lands, maritime and harbour and existing residential. | Open space land use is appropriate and should be retained. Risk to the community lands can be managed through the sequential approach including appropriate site layouts and building layouts, with new development limited to Flood Zone C as the Justification Test has not been applied or passed. |
| Killimer | Tidally influenced fluvial risk to the settlement covers open space, maritime / harbour, utilities and agricultural lands. | Redevelopment of the utilities should seek to minimise flood risk, but development can be located within Flood Zone C on the site. Open space, maritime / harbour and agricultural land zonings are appropriate and should be retained. |
| Kilmaley | Some fluvial risk to this settlement with flooding shown backing up from main river along tributaries and drains. However, risk is mainly limited to agricultural land and open space, with small encroachment in community and existing residential lands. | Open space and agricultural uses are appropriate and should be maintained.<br>Further development with the community zoned land and within Flood Zone A or B should be water compatible, and new development within the existing residential area should be located within Flood Zone C. Where drains and small watercourses do not have a mapped Flood Zone, a site specific FRA will be required to define the risks and the |

| Settlement | Flood Comment | Development Comment |
|---|---|---|
| | | sequential approach with then be followed as the Justification Test has not been applied or passed. |
| Kilmihil | No fluvial or tidal flood risk indicated within the settlement. | Drainage impact assessment required to manage surface water. |
| Kilmurry McMahon | No fluvial or tidal flood risk indicated within the settlement | See Sections 5.3 and 5.4 for details of assessment needed. |
| Kilnamona | Fluvial risk to rear (south) of village growth area lands. | Development with the growth area zoned land should follow the sequential approach, with less or highly vulnerable development Flood Zone C. Redevelopment within the existing residential should be in accordance with Section 5.28 of the Planning Guidelines. |
| Kilrush | Preliminary storm damage report point nearby. Pluvial risk to several areas within the settlement. Fluvial, tidal and coastal risk of flooding to the settlement. | See following tables. |
| Kilshanny | No fluvial or tidal flood risk indicated within the settlement | See Sections 5.3 and 5.4 for details of assessment needed. |
| Knock | Tidal inundation of the pier is indicated. Some flood risk from the stream through the centre of Knock, impacting on an area of existing residential development. | Risk to the community lands, and any further development of the existing residential lands can be managed through appropriate site layouts and building layouts, with development limited to Flood Zone C. |
| Knockerra | No fluvial or tidal flood risk indicated within the settlement | See Sections 5.3 and 5.4 for details of assessment needed. |
| Labasheeda | Tidal flood risk to the settlement, primarily through backing up of the westerly of two small streams. The easterly stream is in a steep valley and has limited flood extents. Risk is indicated to an area zoned enterprise. | See Justification Test below. |
| Lahinch | Although there is little coastal flood risk indicated by the Flood Zones, wave overtopping caused significant damage in the winter 2013/14 storms. The car park and golf course is shown to be at risk from the Inagh River. Climate change does not indicate a significant increase in risk. | A coastal protection scheme was completed in 2020, which will provide some protection to Lahinch, particularly from overtopping waves, although there is no defined standard of protection. A strategic coastal erosion plan is also to be developed. New / extensive redevelopment of the town centre should be considered premature until the findings of this assessment are available. Redevelopment / refurbishment of existing properties should take into account historical flooding and should seek to minimise flood risk through building resilience measures. |
| Liscannor | Flood risk along the coastline is indicated by the Flood Zones limited to open space and maritime zoning. Backing up | New / extensive redevelopment of the town centre should be considered premature until erosion and climate change risks |

| Settlement | Flood Comment | Development Comment |
|---|---|---|
| | along watercourse is possible but not mapped. Flooding was experienced in the winter storms of 2013/14. | are better understood. Redevelopment / refurbishment of existing properties should take into account historical flooding and should seek to minimise flood risk through building resilience measures. |
| Lisdoonvarna | This settlement is at risk of fluvial flooding along the river banks, which are mainly zoned for open space. Some encroachment with other zonings designated for less vulnerable uses. | Risk to the mixed use, tourism lands, community, and any further development of the existing residential lands can be managed through appropriate site layouts and building layouts, with development limited to Flood Zone C. |
| Lissycasey | There is limited flood risk in Lissycasey, with three small streams passing through the settlement. The lands on the banks of the streams may be at some flood risk, which includes commercial, agricultural, existing residential and open space. | Open space and agriculture are appropriate and should be retained. Redevelopment of the commercial and residential sites should be controlled through development management and risks associated with the culvert blocking should be assessed and used to inform finished floor levels. There should be no new development within Flood Zones A and B. |
| Miltown Malbay | No fluvial or tidal flood risk indicated within the settlement | See Sections 5.3 and 5.4 for details of assessment needed. |
| Moy | No flood risk indicated within the settlement. Steep watercourse flows alongside lands zoned for commercial. | Redevelopment of the commercial sites adjacent to the watercourse can be managed by following the sequential approach and through appropriate site and building layouts, with a site specific flood risk assessment to determine appropriate site layout and finished floor levels. |
| Moyasta | Coastal and fluvial risk to the town including existing residential, village growth area, buffer space, open space and tourism. Preliminary storm report available for the area from 2013/14 storms. | Much of the existing development is within Flood Zone A, with risks increasing as sea level rise and climate change take effect. Redevelopment of existing buildings will require careful consideration, and design should take into account flood resilience measures, with raised floor levels being a minimum requirement.<br>Sites related to the West Clare Railway and cannot be relocated. Justification Test does not apply and any further development/redevelopment should be subject to an appropriately detailed FRA. |
| Mullagh | No fluvial or tidal flood risk indicated within the settlement | See Sections 5.3 and 5.4 for details of assessment needed. |
| Querrin | Preliminary storm damage report point present within the settlement indicating part of the settlement flooded in 2002 and | Redevelopment / refurbishment of existing properties should take into account historical flooding and should seek to minimise |

| Settlement | Flood Comment | Development Comment |
|---|---|---|
| | again in 2013/14. Coastal and tidal risk to the settlement with risk to existing residential and maritime. | flood risk through building resilience measures, and where possible should seek to retreat from the shoreline of the settlement. The open space and martime zonings are water compatible and should be retained. |
| Quilty | Coastal and tidal risk present along the west with a fluvial risk to the north. Quilty was damaged by the winter 2013/14 storms. Flood Zones show risk to existing residential. | A coastal protection scheme is underway which will provide some protection to Quilty, although there will be no defined standard of protection. A strategic coastal erosion plan is also to be developed . New / extensive redevelopment of the town centre should be considered premature until the findings of this assessment are available. Redevelopment / refurbishment of existing properties should take into account historical flooding and should seek to minimise flood risk through building resilience measures. |
| Ruan | Several areas at risk of flooding within the settlement. Groundwater risk (turloughs) to the south. | See Sections 5.3 and 5.4 for details of assessment needed. |
| Spanish Point | Although there is little coastal flood risk indicated by the Flood Zones, wave overtopping caused damage in the winter 2013/14 storms, but caused limited damage to property. Climate change does not indicate a significant increase in risk. There is some fluvial risk from the watercourse to the south of Spanish Point, impacting particularly on an area zoned for tourism. | A coastal protection scheme is underway which will provide some protection to Spanish Point, although there will be no defined standard of protection. These works are aimed at protecting the beach and preventing coastal erosion rather than protecting buildings. Development within the town can take place, following the recommendations relating to Flood Zone C. |
| Tubber | No fluvial or tidal flood risk indicated within the settlement. | See Sections 5.3 and 5.4 for details of assessment needed. |

## 11.2 Justification Tests

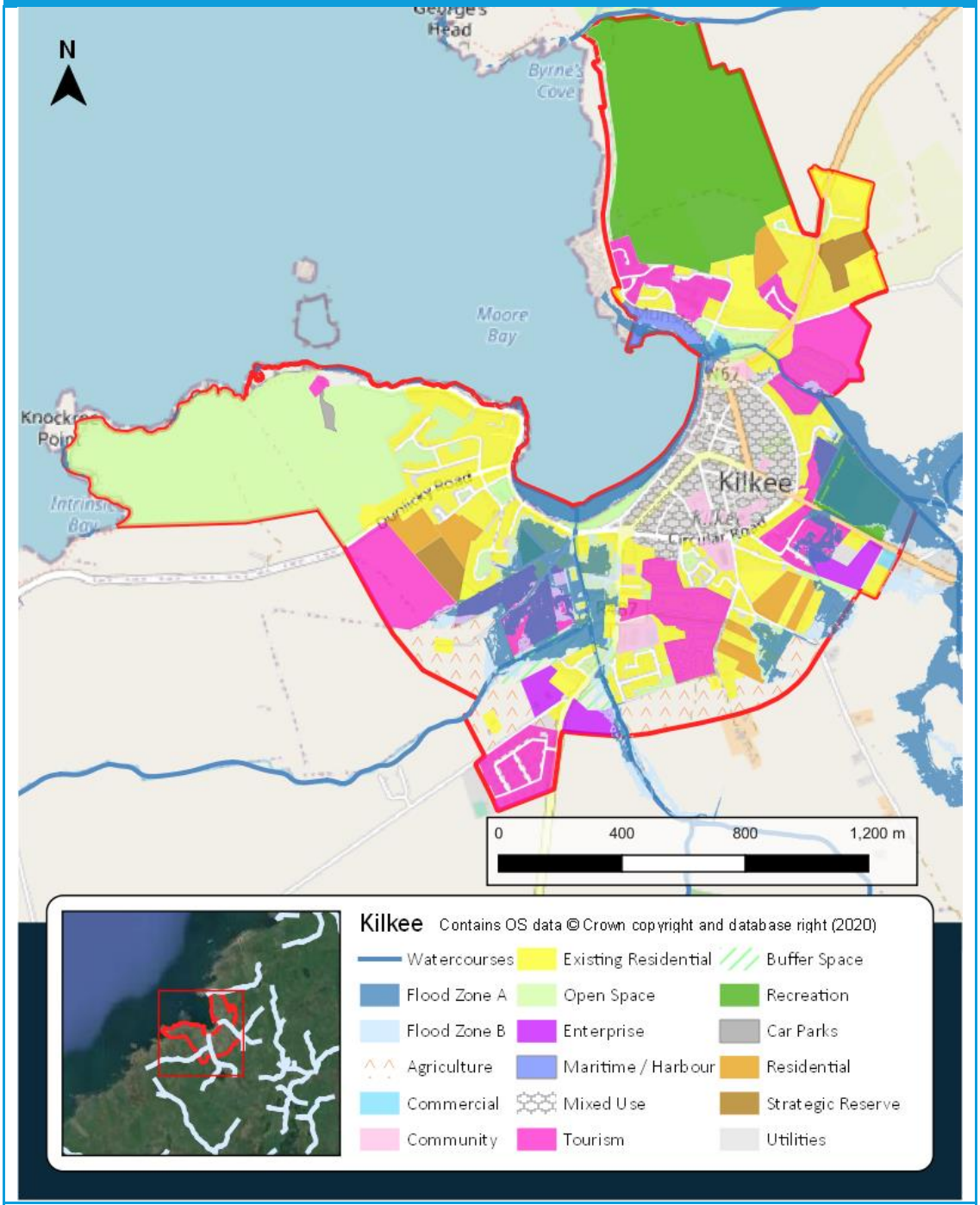
### 11.2.1 Kilkee

| Justification test for sites within Flood Zone A and / or B | COM1 | ENT3 | TOU3 |
|---|---|---|---|
| *The urban settlement is targeted for growth* | Kilkee is a small town and an important employment and tourism centre identified for small scale growth. | Kilkee is a small town and an important employment and tourism centre identified for small scale growth. | Kilkee is a small town and an important employment and tourism centre identified for small scale growth. |
| *The zoning or designation of the lands for the particular use or development type is required to achieve the proper planning and sustainable development of the urban settlement* | It is proposed to zone the site Commercial. It adjoins the town centre and is identified as an area for commercial and business uses. The zoning of this site for Commercial will provide for employment opportunities for residents of the settlement and wider hinterland. | It is proposed to zone the site Enterprise. It is located in proximity to the town centre and is identified for the development of enterprise and employment generating uses to provide employment opportunities for residents of the settlement and wider hinterland. | It is proposed to zone the site Tourism and is located in proximity to the town centre and identified for the expansion of tourist accommodation. The zoning of this site for Tourism will provide for employment opportunities for residents of the settlement and wider hinterland. |
| *Is essential to facilitate regeneration and / or expansion of the centre of the urban settlement.* | Essential to facilitate existing commercial uses adjoining the town centre. | Essential to facilitate enterprise development and the expansion of the town centre. | Essential to facilitate the expansion of existing tourism uses in proximity to the town centre. |
| *Comprises significant previously developed and/ or under utilised lands* | Site comprises an existing commercial enterprise, Kilkee Waterworld. | Lands adjoining the town core, not previously developed. | Majority of lands comprise existing caravan park and an existing area of holiday homes, as well as an infill site, not previously developed. |
| *Is within or adjoining the core of an established or designated urban settlement* | Site is located adjoining the town centre. | Site is located in proximity to the town centre. | Site is located in proximity to the town centre. |
| *Will be essential in achieving compact and sustainable urban growth* | The commercial use on this site is central to the town with direct access to the main street, local services and residential areas. | The Enterprise use on this site is central to the town with direct access to the main street, local services and residential areas. | The tourism use on this site is central to the town with direct access to the main street, local services and residential areas. |
| *There are no suitable alternative lands for the particular use or development type, in areas at lower risk of flooding within or adjoining the core of the urban settlement.* | There is an established commercial use on the site. There are no alternative sites that will enable the expansion of existing facility located on the site. | There is no alternative site within the town for this enterprise use which adjoins the town core and its key services and residential areas. | There are no alternative sites that will enable the expansion of existing tourism facilities located on the site. |
| *A flood risk assessment to an appropriate level of detail has been carried out* | | | |
| *Result* | Pass | Pass | Pass |
| *Recommendation for zoning* | Zone as Commercial | Zone as Enterprise | Zone as Tourism |

| Justification test for sites within Flood Zone A and / or B | TOU7 | TOU8 | TOU9 |
|---|---|---|---|
| *The urban settlement is targeted for growth* | Kilkee is a small town and an important employment and tourism centre identified for small scale growth. | Kilkee is a small town and an important employment and tourism centre identified for small scale growth. | Kilkee is a small town and an important employment and tourism centre identified for small scale growth. |
| *The zoning or designation of the lands for the particular use or development type is required to achieve the proper planning and sustainable development of the urban settlement* | It is proposed to zone the site Tourism. It is located in proximity to the town centre and is identified as an area of established tourist accommodation. The zoning of this site for Tourism will provide for employment opportunities for residents of the settlement and wider hinterland. | It is proposed to zone the site Enterprise. It is located in proximity to the town centre and is identified as an area of established tourist accommodation. The zoning of this site for Tourism will provide for employment opportunities for residents of the settlement and wider hinterland. | It is proposed to zone the site Tourism. It is located in proximity to the town centre and is identified as an area of established tourist accommodation. The zoning of this site for Tourism will provide for employment opportunities for residents of the settlement and wider hinterland. |
| *Is essential to facilitate regeneration and / or expansion of the centre of the urban settlement.* | Essential to facilitate existing tourism uses in proximity to the town centre. | Essential to facilitate existing tourism uses in proximity to the town centre. | Essential to facilitate existing tourism uses in proximity to the town centre. |
| *Comprises significant previously developed and/ or under utilised lands* | Site comprises an existing caravan park. | Site comprises an existing hotel, the Kilkee Bay Hotel, and associated apartments. | Site comprises an existing caravan park. |
| *Is within or adjoining the core of an established or designated urban settlement* | Site is located in proximity to the town centre. | Site is located in proximity to the town centre. | Site is located in proximity to the town centre. |
| *Will be essential in achieving compact and sustainable urban growth* | The tourism use on this site is central to the town with direct access to the main street, local services and residential areas. | The tourism use on this site is central to the town with direct access to the main street, local services and residential areas. | The tourism use on this site is central to the town with direct access to the main street, local services and residential areas. |
| *There are no suitable alternative lands for the particular use or development type, in areas at lower risk of flooding within or adjoining the core of the urban settlement.* | There is an established tourism use on the site. There are no alternative sites that will enable the expansion of existing tourism facilities located on the site. | There is an established tourism use on the site. There are no alternative sites that will enable the expansion of existing tourism facilities located on the site. | There is an established tourism use on the site. There are no alternative sites that will enable the expansion of existing tourism facilities located on the site. |
| *A flood risk assessment to an appropriate level of detail has been carried out* | | | |
| *Result* | Pass | Pass | Pass |
| *Recommendation for zoning* | Zone as Tourism | Zone as Tourism | Zone as Tourism |

| Justification test for sites within Flood Zone A and / or B | MAR1 | R1 |
|---|---|---|
| *The urban settlement is targeted for growth* | Kilkee is a small town and an important employment and tourism centre identified for small scale growth. | Kilkee is a small town and an important employment and tourism centre identified for small scale growth. |
| *The zoning or designation of the lands for the particular use or development type is required to achieve the proper planning and sustainable development of the urban settlement* | It is proposed to zone the site Maritime/Harbour. It adjoins the town centre and is identified for the development of enterprise and employment generating maritime/harbour uses to provide employment opportunities for residents of the settlement and wider hinterland. | It is proposed to zone the site Residential. It is located in proximity to the town centre and is identified for the development of residential uses to provide housing opportunities for residents of the settlement and wider hinterland. |
| *Is essential to facilitate regeneration and / or expansion of the centre of the urban settlement.* | Essential to facilitate maritime/harbour development and the expansion of the town centre. | Essential to facilitate residential development in proximity to the town centre. |
| *Comprises significant previously developed and/ or under utilised lands* | Comprises existing harbour area including existing pier, established car park area, Irish Coastguard Services and harbour shop. | Lands adjoining existing housing estate in established residential area, not previously developed. |
| *Is within or adjoining the core of an established or designated urban settlement* | Site adjoins the town centre. | Site is located in proximity to the town centre. |
| *Will be essential in achieving compact and sustainable urban growth* | The Maritime/Harbour use on this site is central to the town with direct access to the main street, local services and residential areas. | The residential use on this site is central to the town with direct access to the main street, local services and residential areas. |
| *There are no suitable alternative lands for the particular use or development type, in areas at lower risk of flooding within or adjoining the core of the urban settlement.* | There is an established maritime/harbour use on the site. There are no alternative sites that will provide for the existing maritime/harbour facilities located on the site. | There are no alternative sites that will enable the expansion of existing residential development at this location. |
| *A flood risk assessment to an appropriate level of detail has been carried out* | See table below. | See table below. |
| *Result* | Pass | Pass |
| *Recommendation for zoning* | Zone as Maritime/Harbour | Zone as Residential but sequential approach shall be applied to locate highly and less vulnerable parts of the development within Flood Zone C. |

| Settlement | Kilkee |
|---|---|




Kilkee has suffered from fluvial and tidal flooding, although risks are limited to the centre of the Bay, with land to the east and west rising steeply.

A flood relief scheme is ongoing, with the project currently at early optioneering stage. Until the scheme has been completed, development within Flood Zone A and B is considered premature. There is also the potential for the scheme to result in an increase in flood risk to lands which are currently in Flood Zone C, and this has been reflected in the zoning objectives.

| **Land uses within Flood Zone A / B** | Development implications |
|---|---|
| Existing foreshore development (residential, | Along the coastline, given the history of flooding and known incidents of wave exacerbated storm damage, it is recommended that redevelopment is limited to less vulnerable uses, and sufficient |

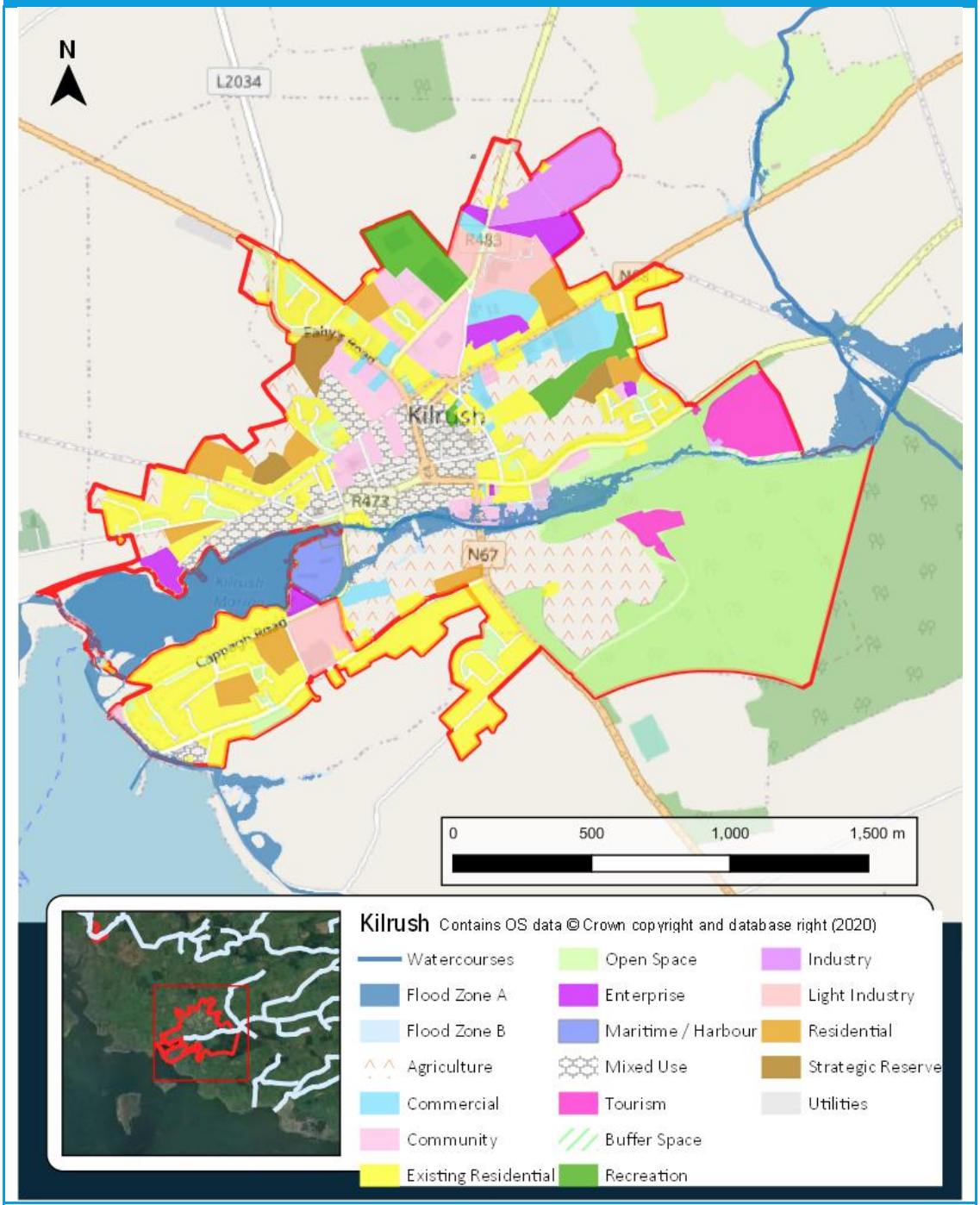
| | |
|---|---|
| commercial and tourism). | measures are included in the design to ensure flood resilience. If this is not possible, then consideration should be given to relocating properties as they need to be redeveloped. |
| Existing residential | There are a number of existing residential areas within Flood Zone A and B. Although the zonings have been retained to reflect the current land use, they have not passed the Justification Test and development should be limited to Section 5.28 of the Planning Guidelines. Until such time as the flood relief scheme is complete, extensive redevelopment of this area is considered premature and not permitted. |
| Residential | There is a new residential site to the south of Kilkee which is partly within Flood Zone A and B. Although the Justification test for the site has been passed, the sequential approach shall be applied to locate highly and less vulnerable parts of the development within Flood Zone C. |
| Tourism | There are a number of existing caravan sites and a hotel / holiday home complex within Flood Zone A and B. Although the zonings have been retained to reflect the current land use, they have not passed the Justification Test and development should be limited to Section 5.28 of the Planning Guidelines. Until such time as the flood relief scheme is complete, extensive redevelopment, of this area is considered premature and not permitted. |
| Existing, less vulnerable, development | Risk related to redevelopment of lands within Flood Zone A and B can be managed through appropriate site layouts and building layouts, with a site specific flood risk assessment to determine appropriate finished floor levels. |
| Open Space/Buffer and agricultural | Appropriate and should be retained |
| Enterprise | Existing sites impacted only. Flood risk to development within these areas can be managed through site specific FRA. |

### 11.2.2 Kilrush

| Justification test for sites within Flood Zone A and / or B | Mixed use, central and west of Kilrush |
|---|---|
| *The urban settlement is targeted for growth* | Kilrush is a Service Town identified as an important service centre and driver of growth in West Clare. |
| *The zoning or designation of the lands for the particular use or development type is required to achieve the proper planning and sustainable development of the urban settlement* | It is proposed to zone the site Mixed Use. It is within the town centre and identified for a range of uses, making provision, where appropriate, for primary and secondary uses e.g. commercial/retail development as the primary use with residential development as a secondary use. The zoning of this site for Mixed Use will facilitate the expansion of town centre services and facilities and provide for employment opportunities for residents of the settlement and wider hinterland. |
| *Is essential to facilitate regeneration and / or expansion of the centre of the urban settlement.* | Essential to facilitate regeneration of existing derelict/vacant units and brownfield sites along Frances Street as well as the expansion of appropriate commercial/retail uses in the town centre. |
| *Comprises significant previously developed and/ or under utilised lands* | Developed lands within the town centre, existing derelict/vacant units and brownfield sites, and adjoining lands at the rear, not previously developed. |
| *Is within or adjoining the core of an established or designated urban settlement* | Site is located within the town centre. |
| *Will be essential in achieving compact and sustainable urban growth* | The commercial/retail mix of uses is central to the town with direct access to the main street, local services and residential areas. Redevelopment of existing derelict/vacant units and brownfield sites is essential to achieving compact and sustainable urban growth within the town. |

| | |
|---|---|
| *There are no suitable alternative lands for the particular use or development type, in areas at lower risk of flooding within or adjoining the core of the urban settlement.* | The site is a natural extension of the town centre to the south. There are no alternative sites that will enable the expansion of existing businesses/services and facilities located on the site. The majority of the site is outside of lands identified as being within Flood Zone A and Flood Zone B. |
| *A flood risk assessment to an appropriate level of detail has been carried out* | See table below. |
| *Result* | Pass |
| *Recommendation for zoning* | Zone as Mixed Use |

| Settlement | Kilrush |
|---|---|




Combined fluvial and tidal risk experienced in Kilrush.

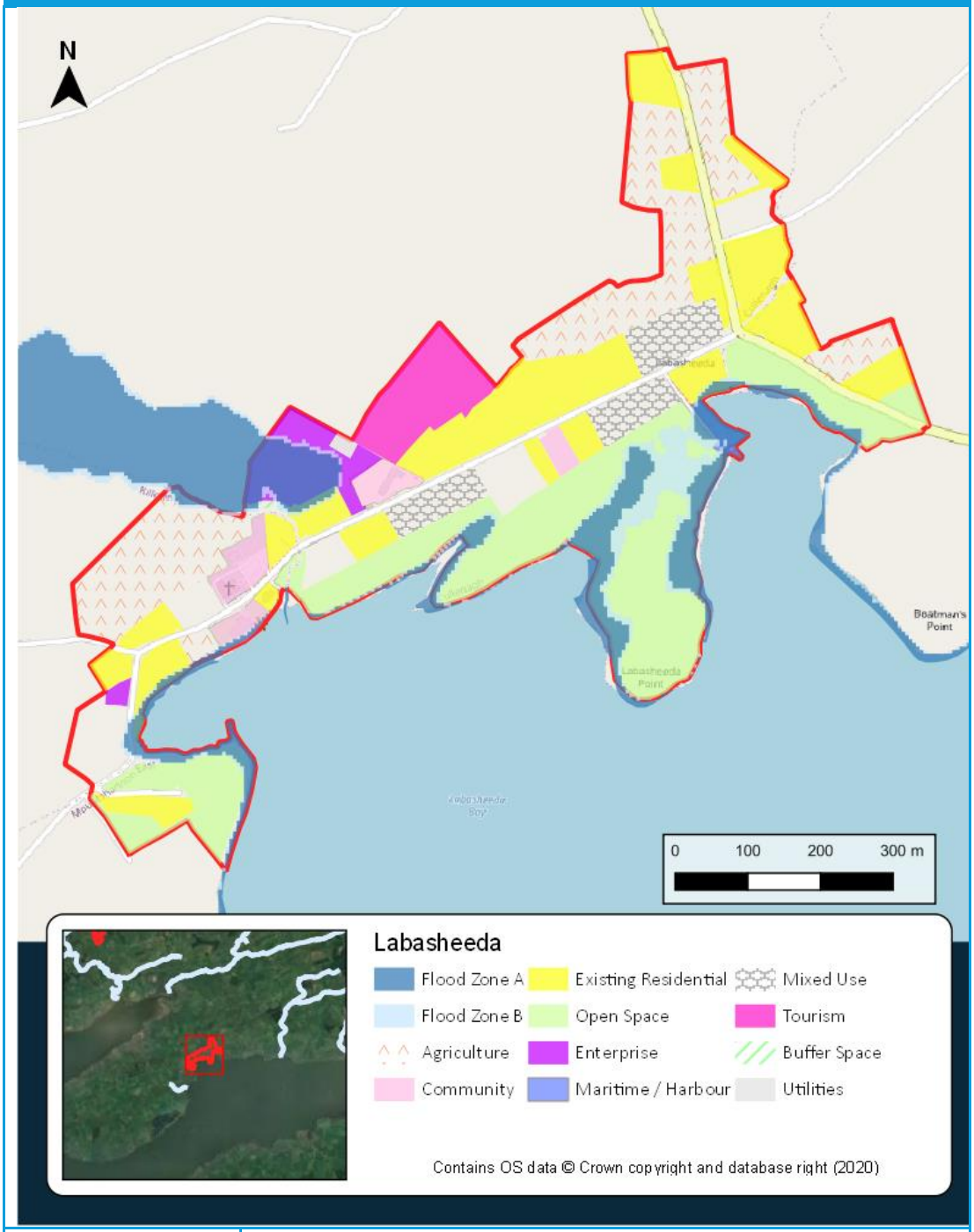
| **Land uses within Flood Zone A / B** | Development implications |
|---|---|
| Open space | Appropriate land use – retain. |
| Agriculture | Appropriate land use – retain. |
| Mixed Use | Mixed use zoning has some encroachment of Flood Zone A in Merchants Quay and Cappagh Road, use here is most likely to be water compatible or less vulnerable and the sequential approach should be applied along with a site specific FRA. Other sites bounding the Flood Zones also require a site specific FRA. Most applications will be redevelopment, refurbishment or change of use. |

| | |
|---|---|
| Community | There is a risk to community lands alongside the river, on the north bank. This area is substantially developed currently. Minor developments (such as changes of use and extensions) are permitted but opportunities to reduce flood risk should be taken.<br>If redevelopment of this area is proposed, the findings of the Shannon CFRAM management report should be reviewed and, depending on the nature of the recommendations, they should be actioned before extensive development takes place. |

### 11.2.3 Labasheeda

| Justification test for sites within Flood Zone A and / or B | Response - Enterprise (ENT1) |
|---|---|
| *The urban settlement is targeted for growth* | Labasheeda is a small village identified for small scale growth |
| *The zoning or designation of the lands for the particular use or development type is required to achieve the proper planning and sustainable development of the urban settlement* | It is proposed to zone the site Enterprise. It is close to the village centre and identified for the development of enterprise and employment generating uses to provide employment opportunities for residents of the settlement and wider hinterland. |
| *Is essential to facilitate regeneration and/or expansion of the centre of the urban centre* | Essential to facilitate enterprise development and the expansion of the village centre. |
| *Comprises significant previously developed and/or under-utilised lands* | Lands adjoining the village core, not previously developed. |
| *Is within or adjoining the core of an established or designated urban settlement* | Site is located within the village core. |
| *Will be essential in achieving compact and sustainable urban growth* | The enterprise use is central to the village with direct access to the main street, local services and residential area. |
| *There are no suitable alternative lands for the particular use or development type, in areas at lower risk of flooding within or adjoining the core of the urban settlement* | There is no alternative site within the village for this enterprise use which adjoins the village core and its key services and residential areas. |
| *A flood risk assessment to an appropriate level of detail has been carried out* | See below. |
| *Result* | Pass |
| *Recommendation for zoning* | Zone as Enterprise |

| Settlement | Labasheeda |
|---|---|




| Land uses within Flood Zone A / B | Development implications |
|---|---|
| Enterprise | Development management should ensure any buildings located on the enterprise site have a minimum threshold of 4.2mOD, which is the 200 year tide plus climate change plus freeboard. Compensatory storage for the enterprise site is not required as risk is tidal. |

# 12 SFRA Review and Monitoring

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

Outputs from future studies and datasets should be incorporated into any update of the SFRA as availability allows. Not all future sources of information should trigger an immediate full update of the SFRA; however, new information should be collected and kept alongside the SFRA until it is updated. Similarly, as flood relief schemes are completed and new pre-scheme outlines developed, along with a post-scheme flood extent and better understanding of residual risk, this information can be used to inform future Development Plans and site specific applications, once sites have passed the Justification Test for Plan Making.

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

Table 12-1: SFRA Review Triggers

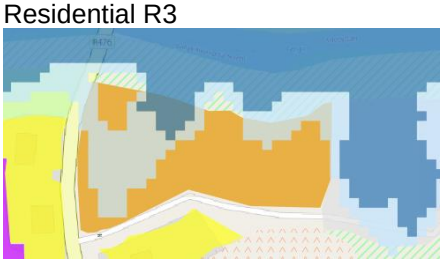
| Trigger | Source | Possible Timescale |
|---|---|---|
| Catchment Flood Risk Assessment and Management (CFRAM)<br>Flood Hazard Mapping - future cycles | OPW under the Floods Directive | 6-year cycle under EU Floods Directive |
| Shannon River Basin Catchment Flood Risk Assessment and Management (SCFRAM) Plan | OPW | 6 yearly reviews |
| Flood maps of other sources, such as drainage networks | Various | Unknown |
| Significant flood events | Various | Unknown |
| Changes to Planning and / or Flood Management Policy | DoEHLG / OPW | Unknown |
| Construction / completion of flood relief schemes | OPW / DLRCC | Unknown |

# Appendices

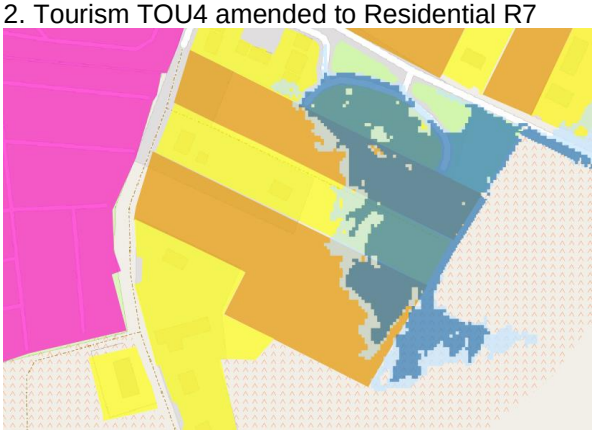
# A Review of Amendments to Pre-draft Clare County Development Plan 2023-2029

## A.1 Changes to Mapping

### A.1.1 West Clare Municipal District

| Settlement | Amendment | Comment in relation to flood risk. |
|---|---|---|
| Carran | 1. Agriculture AG3 amended to Community | No flood risk impacts |
| | 2. Agriculture AG4 amended to VGA3 | No flood risk impacts |
| | 3. Reduce VGA2 lands to east and amend to Agriculture AG2 | No flood risk impacts |
| Doolin | 1. VGA2 amended to Agriculture | No flood risk impacts |
| | 2. Portion of Agriculture AG8 amended to VGA2 & Existing Residential | No flood risk impacts |
| | 3. Agriculture AG9 amended to Existing Residential | No flood risk impacts |
| | 4. Agriculture AG5 amended to VGA7 | No flood risk impacts |
| | 5. MU6 extended to north and southeast | No flood risk impacts |
| | 6. Additional land zoned Car parking (beside VGA 1) | No flood risk impacts |
| | 7. Additional land zoned Car parking (beside Pier) | No flood risk impacts |
| Ennistymon | 1. Agriculture AG2 amended to Residential R5 & Strategic Reserve SR5 | No flood risk impacts |
| | 2. Portion of SR5 amended to Residential R2 (east of SR3 on amended map) | No flood risk impacts |
| | 3. Residential R4 amended to Strategic Reserve SR2 | No flood risk impacts |
| | 4. Residential R2 amended to Agriculture AG2 | No flood risk impacts |
| | 5. Strategic Reserve SR3 amended to Agriculture AG2 | No flood risk impacts |
| | 6. Strategic Reserve SR4 amended to Residential R4 | No flood risk impacts |
| | 7. Amendments to C1, SR3 and adjacent Open Space lands | No flood risk impacts |
| Corrofin | 1. Strategic Reserve SR1 amended to Residential R2 | No flood risk impacts |
| | 2. Residential R3 & R4 amended to Strategic Reserve SR5 & SR6 | No flood risk impacts |
| | 3. Agriculture AG3 & portion of Utilities UT1 amended to Residential R3  | A significant part of the road frontage of the site is within Flood Zone B and partly within Flood Zone B, based on CFRAM mapping. It is recommended that water compatible uses are retained on this site as the Justification Test will not be passed based on the location of the site outside the core of Corrofin. |
| Doonbeg | 1. Portion of Tourism TOU2 amended to Residential R3 and Strategic Reserve SR1 & Strategic Reserve SR1 amended to TOU2 | No flood risk impacts |
| Fanore | 1. Agriculture amended to VGA3 | No flood risk impacts |
| Inagh | 1. Residential R1 amended to Strategic Reserve SR2 | No flood risk impacts |
| | 2. Mixed Use MU1 & adjacent Mixed Use amended to R1 & R2 | No flood risk impacts |
| Kilfenora | 1. Tourism TOU1 amended to Mixed Use MU6 | No flood risk impacts |

| Settlement | Amendment | Comment in relation to flood risk. |
|---|---|---|
| Killnaboy | 1. Extend Settlement boundary amended to include VGA5 | No flood risk impacts |
| | 2. Extend Settlement boundary amended to include additional Community C2 lands | No flood risk impacts |
| Kilshanny | 1. Extend Settlement boundary to include Existing Residential to north | No flood risk impacts |
| | 2. Portion of VGA1 amended to Existing Residential (in current Plan 2017-2023) | No flood risk impacts |
| Liscannor | 1. 2 x Agriculture infill sites amended to Existing Residential | No flood risk impacts |
| Lisdoonvarna | 1. Northern portion of Agriculture AG5 amended to Residential R2 | No flood risk impacts |
| | 2. Residential R2 to be included in Strategic Reserve SR4 | No flood risk impacts |
| | 3. Portion of OS11 amended to Residential R3 | No flood risk impacts |
| | 4. Tourism TOU7 amended to Existing Residential | No flood risk impacts |
| | 5. Recreation REC1 lands extended to west to include portion of TOU1 & Open Space OS12 lands | No flood risk impacts |
| | 6. Enterprise ENT1 lands extended to south to include portion of TOU1 lands | No flood risk impacts |
| | 7. Boundary amended to south in line with ER zoning | No flood risk impacts |
| | 8. Boundary extended to include existing residences to southeast as Existing Residential | No flood risk impacts |
| | 9. Boundary extended to northwest to include Residential R4 lands | No flood risk impacts |
| | 10. Boundary pulled in to East and portion of Open Space removed | No flood risk impacts |
| | 11. Portion of Tourism TOU5 amended to Existing Residential | No flood risk impacts |
| Miltown Malbay | 1. Residential R1 included in Strategic Reserve SR4 | No flood risk impacts |
| | 2. Strategic Reserve SR3 included in Residential R2 | No flood risk impacts |
| | 3. Boundary extended to southwest to include Infrastructural safeguard and zoned Agriculture | No flood risk impacts |
| Spanish Point | 1. VGA2 extended to include portion of Agriculture AG4 to east | No flood risk impacts |
| | 2. Portion of Open Space OS1 amended to VGA3 | No flood risk impacts |
| Doonbeg | 1. Tourism TOU2 extended to east to include Strategic Reserve SR1 | No flood risk impacts |
| | 2. Portion of Tourism TOU2 to west amended to Residential R3 & Strategic Reserve SR1 | No flood risk impacts |
| Kilkee | 1. Strategic Reserve SR1 amended to Existing Residential & Residential R6 | No flood risk impacts |

| Settlement | Amendment | Comment in relation to flood risk. |
|---|---|---|
| | 2. Tourism TOU4 amended to Residential R7  | The rear of the site is within Flood Zone A and B. It is recommended that the zoning objective for R7 extends only within Flood Zone C. |
| | 3. Portion of OS25 amended to Residential R8 | No flood risk impacts |
| Kilrush | 1. Portion of Residential R4 amended to Strategic Reserve SR2 | No flood risk impacts |
| | 2. Portion of Agriculture AG5 to Residential R9 | No flood risk impacts |
| | 3. Strategic Reserve 2 amended to form part of R6 | No flood risk impacts |
| | 4. Agricultural infill site AG9 amended to Existing Residential | No flood risk impacts |
| Lehinch | 1. Open space OS17 within housing estate amended to Existing Residential | No flood risk impacts |
| Moy | 1. Agriculture AG amended to VGA3 | No flood risk impacts |
| Ruan | 1. VGA2 amended to Agriculture | No flood risk impacts |
| | 2. Agriculture AG1 amended to VGA2 | No flood risk impacts |
| | 3. Portion of Commercial COM1 amended to Agriculture | No flood risk impacts |
| Tubber | 1. Community C1 extended to west into Agriculture AG7 | No flood risk impacts |
| Ballyea | 1. Agriculture across from GAA pitch amended to VGA5 | No flood risk impacts |
| Doonaha | 1. No change | No flood risk impacts |
| Inch | 1. Boundary extended to south and VGA1 extended | No flood risk impacts |
| Kilbaha | 1. Portion of Open Space OS1 amended to VGA4 | No flood risk impacts |
| Killadysert | 1. Agricuture AG1 amended to VGA2 | No flood risk impacts |
| | 2. Enterprise ENT1 amended to VGA3 | No flood risk impacts |
| Lissycasey | 1. Boundary extended along main road to amalgamate the two portions of the village including zoning of existing residences as Existing Residential and portion of Agriculture | No flood risk impacts |

| Settlement | Amendment | Comment in relation to flood risk. |
|---|---|---|
| | 2. Agriculture infill site at southwestern end adjacent to Community lands amended to Existing Residential | No flood risk impacts |
| | 3. Portion of Open Space OS7 infill site amended to Existing Residential | No flood risk impacts |
| Ballyvaughan | 1. Portion of Agricultural AG8 amended to Residential R3 | No flood risk impacts |

### A.1.2 Ennis Municipal District

| | | |
|---|---|---|
| Barefield | 1. Inclusion of a VGA5 area at the north of the settlement | No flood risk impacts |
| Clarecastle | 1. Agriculture to strategic reserve | No flood risk impacts |
| Ennis | 1. (north west) Agriculture to Residential | No flood risk impacts |
| | 2. (north east) Agriculture to Residential | Main area of the site is within Flood Zone C and is appropriate for all vulnerabilities of development. The narrow strip extending south passes very close to the lake / turlough and could be at risk so should be limited to water compatible uses. |
| | 3. (South) Agriculture to Residential | No flood risk impacts |
| | 4. (South) Agriculture to Residential | No flood risk impacts |

### A.1.3 Shannon Municipal District

| | | |
|---|---|---|
| Ballycannon North | 1. Agriculture changed to SR2 | No flood risk impacts |
| | 2. Original SR2 changed, reverted to agriculture | No flood risk impacts |
| Clonlara | 1. Open space changed to Existing Residential | No flood risk impacts |
| Newmarket-on-Fergus | 1. SR2 changed to Residential R4 | No flood risk impacts |
| | 2. Change to settlement boundary to south | No flood risk impacts |
| Parteen | 1. Small area of existing residential included | No flood risk impacts |
| Sixmilebridge | 1. Slight increase in MU1 zoning into IND1 | No flood risk impacts |
| | 2. Former SR2 changed to R5 | No flood risk impacts |
| Cratloe | 1. Possibility of extending the settlement boundary of Cratloe to the north to include existing residential zonings, and opposite side of road to include the forestry | No flood risk impacts |

### A.1.4 Killaloe Municipal District

| | | |
|---|---|---|
| Feakle | 1. Former R1 now SR1 | No flood risk impacts |
| | 2. Former SR1 now R3 | No flood risk impacts |
| | 3. Inclusion of R3 in previous Ag | No flood risk impacts |
| Tulla | 1. Former R3 now existing residential | No flood risk impacts |
| | 2. Former SR2 now R3 and to the south the agriculture land is now SR2 | No flood risk impacts |
| Killaloe | 1. Inclusion of SR3 along the canal bank | No flood risk impacts |
| | 2. Former community now R6 | No flood risk impacts |
| | 3. R5 now slightly enlarged | No flood risk impacts |
| | 4. Former R4 now Existing Residential | No flood risk impacts |
| Bodyke | 1. Inclusion of VGA 4 | No flood risk impacts |
| | 2. VGA1 decreased in size | No flood risk impacts |
| Kilmurry | 1. Former agriculture now utilities | No flood risk impacts |
| Scarriff Tuamgraney | 1. Addition of R4 Residential zoning | No flood risk impacts |
| | 2. Addition of R5 residential zoning | No flood risk impacts |
| | 3. Addition of R1 and SR3 | No flood risk impacts |
| | 4. Former R1 changed to Existing Residential | No flood risk impacts |
| Kilbane | 1. Former C2 now Existing Residential | No flood risk impacts |
| Quin | 1. Open space are now Existing Residential | No flood risk impacts |
| | 2. Agriculture added to Open space area | No flood risk impacts |

## A.2 Changes to text

### A.2.5 West Clare Municipal District

#### Doolin

Include Objective: To strongly support the development of Doolin in association with Lisdoonvarna, to assist in collaborative projects and the sharing of assets and strengths including developing its economic and tourism potential as a stopping point on the Wild Atlantic Way. **- No flood risk impacts**

#### Ennistymon

Objective as follows included: R4 - include objective on these lands in relation to the provision of a footpath link to existing residential area to south and town to north **- No flood risk impacts but footpath would be subject to FRA if passing through Flood Zone A or B.**

#### Kilfenora

Additional Text included under 'Housing and Sustainable Communities': Future developments on Residential zoned lands shall provide for an appropriate housing mix and shall have regard to the density, character and form of existing residential development in Kilfenora. **- No flood risk impacts**

#### Lisdoonvarna

Include Objective: To strongly support the development of Lisdoonvarna in association with Doolin, to assist in collaborative projects and the sharing of assets and strengths including developing its economic and tourism potential as a stopping point on the Wild Atlantic Way. **- No flood risk impacts**

Additional Text included under 'Housing and Sustainable Communities': Future developments on Residential Zoned lands shall provide for an appropriate housing mix and shall have regard to the density, character and form of existing residential development in Lisdoonvarna. **- No flood risk impacts**

Additional Objective for inclusion in the Plan: It is an objective that within the lifetime of this plan that a masterplanning exercise would be completed for parts of the town of Lisdoonvarna to include the Spa Wells site. This masterplan will examine opportunities for the development of initiatives in Lisdoonvarna and will incorporate an examination of the potential impact the Spa Well site could have on the wider town. **- Masterplan should include Flood Risk Assessment, including consideration of surface water and groundwater risks.**

Additional Objective included under General Objectives: To support Lisdoonvarna's role as a service centre for the cooperating parishes of the mid-west Clare area in order to maximize the benefit and economic return to the overall area and county. **- No flood risk impacts**

### Doonbeg

Additional Text included under 'Tourism': Future developments on Tourism Zoned lands, including proposals for visitor accommodation, shall have regard to the importance of ensuring balanced growth which contributes to a year round population. **- No flood risk impacts**

### Ruan

Additional Text included under 'Housing and Sustainable Communities': Future developments on Residential Zoned lands shall provide for an appropriate housing mix and shall have regard to the density, character and form of existing residential development in Ruan. **- No flood risk impacts**

### Inch

Text was added to the Inch Settlement Statement under 'Strategy for Growth and Sustainable Communities': VGA 1 Lands to the Southwest - Any future development on VGA1 lands must not prohibit access to lands to the rear of the site. **- No flood risk impacts**

**The following text to be added to the Inch Settlement Statement under 'Strategy for Growth and Sustainable Communities':**

"Residential R3 lands to the southwest - Future proposals for development on this site must provide a mix of housing units to include independent living units for a variety of individuals in order to deliver more inclusive housing solutions within the community." **- No flood risk impacts**

### Moyasta

**The following text to be added to the Moyasta Settlement Statement:**

"Transport, Active Travel and Connectivity - In terms of public transport, Bus Eireann provide a regular bus service to and from Ennis and Kilkee and Clare Local Link also provide a daily service to Ennis and Kilrush. As well as providing a valuable and important connection to other service centres and areas of the County, these services also offer an alternative to the private car and encourages a modal shift to a more sustainable transport option.

In addition, the enhancement of and provision for green infrastructure such as walking and cycling routes would promote active recreation and sustainable travel in the town and its environs. Improved facilities for pedestrians such as footpath linkages between key elements of the village would encourage pedestrian movement and improve amenities in the area. The development of the West Clare Rail Greenway along the line of the old West Clare Railway as a proposed recreational route is supported in this Plan and in particular the provision of enhanced connections to the village centre and community facilities such as the local school."

### Kilrush

**The following text under "Technical Guidance for Specific Sites in Kilrush and Cappa; Sites Facilitating Other Land Uses" amended as follows:**

Remove:

OP10 O Dea's Field, Back Road

This undeveloped site is located opposite St Senan's National School and backs onto development on John's Road. A portion of the site is zoned Community to facilitate additional community or educational facilities in the town. The remaining portion of the sits is zoned Mixed Use which, combined with the unique opportunity of a green field site in the town centre, offers a wide range of potential uses. The Council will facilitate the development of this site in a manner which enhances the existing town centre and contributes to the alleviation of the existing parking/traffic issues on Back Road.

Replace with:

OP10 O Dea's Field, Back Road

This undeveloped site is located opposite St Senan's National School and backs onto development on John's Road. A portion of the site is zoned Community to facilitate additional educational facilities in the town. The remaining portion of the site is zoned Mixed Use which, combined with the unique opportunity of a green field site in the town centre, offers a wide range of potential uses. The site has been purchased by Clare County Council working in association with the Department of Education and it is proposed to develop a new primary level school on the site. Clare County Council is to prepare a masterplan for the site in order to maximise potential on the site in a manner which enhances the existing town centre. Develop proposals shall consider traffic management issues on the Back Road. **- No flood risk impacts**

### A.2.6 Ennis MD

### Ennis

**SR4 Anstand Gaurus/Ballymacahill**

These lands may only be considered for development in accordance with CDP 19.2, Zoning of Lands and the description of Strategic Residential Reserve there under. Any future development of this site should be accompanied by an ecological assessment specifically addressing the habitats present on the site.

This site will accommodate residential development of high quality design and layout. No development shall occur unless a surface water management plan, including actions for its implementation, is submitted and approved as part of the planning application. The management plan shall protect the adjoining open space area which contains an Alkaline Fen and potential turlough habitat. This site is largely within Flood Zone C but there is some minor encroachment onto Flood Zone B as flood water backs up from the southwest (see maps contained in Strategic Flood Risk Assessment in Volume 10(c) of this Plan). Residential development can take place in Flood Zone C provided finished floor levels are above 5mOD. CFRAM must also be consulted for climate change levels. The area of the site which lies within Flood Zone B should be excluded from development and utilised as Open Space within any proposed development. **- the mitigation recommendations are appropriate.**

### A.2.7 Shannon MD

### Newmarket-on-Fergus

**R4 Kilnasoolagh**

Development proposals shall ensure that the residential amenity of adjacent dwellings to the north, east and south are protected. Any proposed development shall consider future links and permeability to SR1 and also ensure that provision is made for pedestrian and cycle connection to the town centre. **- No flood risk impacts**

### Ballycannon North

**SR2 West of Shop and REC2**

These lands may only be considered for development in accordance with CDP 19.2, Zoning of Lands and the description of Strategic Residential Reserve there under. In such circumstances any proposal for the development of this site shall be accompanied by a masterplan for the overall development of the site to include for the following:

Proposals for a new road alignment, which must satisfy traffic safety considerations and evaluations and shall be provided by the developer as part of the development of the land;

A mix of housing types shall be incorporated with high quality open space areas provided;

Proposals shall include for the provision of a children's playground which shall be delivered by the developer as part of the initial stage of development for this site;

Pedestrian and cycle connectivity with the village centre and services;

Detailed proposals for the disposal of foul water for the overall site area, ensuring that there will be no negative impact on the water quality in the area;

A Construction Environmental Management Plan (CEMP) detailing how surface water run-off, especially in relation to release of silt and other pollutants will be controlled during construction (and incorporating key principles of SUDS).

Site layout and design will need to reflect the principles of Sustainable Residential Development in Urban Areas with regard to layout and formation of quality public realm. **- No flood risk impacts**


COMHAIRLE CONTAE AN CHLÁIR | CLARE COUNTY COUNCIL

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