

Abbeyfeale Strategic Flood Risk Assessment

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Limerick City and County Council

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This report describes work commissioned by Limerick County Council.

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Purpose

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Abbreviations

1D	One Dimensional (modelling)
2D	Two Dimensional (modelling)
AEP	Annual Exceedance Probability
AFA	Area for Further Assessment
CFRAM	Catchment Flood Risk Assessment and Management
DTM	Digital Terrain Model
EPA	Environmental Protection Agency
FEH	Flood Estimation Handbook
FFL	Finished Floor Level
FRA	Flood Risk Assessment
FRMP	Flood Risk Management Plan
FRR	Flood Risk Review
FSU	Flood Studies Update
GIS	Geographical Information System
HEFS	High End Future Scenario
HPW	High Priority Watercourse
JFLOW	2-D hydraulic modelling package developed by JBA
JT	Justification Test
LA	Local Authority
LCCC	Limerick City and County Council
LDP	Limerick Development Plan
MPW	Medium Priority Watercourse
MRFS	Medium Range Future Scenario
OPW	Office of Public Works
OSi	Ordnance Survey Ireland
PFRA	Preliminary Flood Risk Assessment
RSES	Regional Spatial and Economic Strategy
SEA	Strategic Environmental Assessment
SFRA	Strategic Flood Risk Assessment
SuDS	Sustainable Urban Drainage Systems

1 Introduction

JBA Consulting was appointed by Limerick City and County Council to carry out the Strategic Flood Risk Assessment to support the preparation of the Draft Abbeyfeale Local Area 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 Management¹; these guidelines were issued under the Planning and Development Act 2000 and recognise the significance of proper planning to manage flood risk.

1.1 Terms of Reference

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 Draft Local Area Plan 2023-2029 (DLAP) will be the key document for setting out a vision for the development of Abbeyfeale during the plan period.

It is important that the proposed LAP complies with 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 draft DLAP the main requirements of the SFRA are to:

- Produce Flood Zone Mapping for the 2023-2029 plan;
- Prepare a Stage 2 - Flood Risk Assessment of Abbeyfeale 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)";
- Take cognizance of the Limerick Climate Adaptation Strategy 2019-2024, the National Climate Adaptation Framework and the various environmental and visual designations applicable to Abbeyfeale;
- 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 Local Area Plan for Abbeyfeale for 2023 - 2029. The context of flood risk in Abbeyfeale is considered with specific reference to a range of flood sources, including fluvial, pluvial, groundwater, sewer and artificial reservoirs and canals.

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

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 Local Area Plan. The first stage is to review historical flooding and flood extents and make updates based on new datasets and updated land use zoning.

Historical records and recent events demonstrate that Abbeyfeale has a history of flooding and confirms that a proportion of zoned lands are at flood risk. The SFRA must protect lands for any potential future flood risk management infrastructure and ensure that development within Flood Zones A/B is sustainably managed.

The second stage and the main purpose of this SFRA report is to appraise the adequacy of existing information, to prepare a Flood Zone map, based on available data, and to highlight potential development areas that require application of the Justification Test and/or 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 a number of key sites in Abbeyfeale.

Section 2 of this report provides an introduction to the study area and Section 3 discusses the concepts of flooding, Flood Zones and flood risk as they are incorporated into the Planning System and Flood Risk Management.

In Section 4 the available data related to flooding is summarised and appraised and outlines the sources of flooding to be considered, based on the review of available data. This section also considers the flood management assets that are in place. Section 5 summarises the key sources of flooding.

Following this, Section 6 outlines the flood risk management policy and Section 7 provides guidance and suggested approaches to managing flood risk to development; the contents of this section will be of particular use in informing the policies and objectives within the Local Area Plan.

Section 8 contains the review of land use zoning objectives across the settlement, it also summarises the application of the Justification Test to which specific responses are included in the Appendix.

2 Abbeyfeale Study Area

2.1 Introduction

The plan area comprises the full extent of Abbeyfeale, an area of 205.1 ha within the Draft LAP boundary. Abbeyfeale is located in the Feale catchment, which is within the Tralee Bay-Feale Catchment. The convergence of the Allaghaun River with the River Feale is located to the north of the town, and to the west lies the border between Limerick and Kerry. Lands within the LAP contain a mix of agricultural, residential, and commercial lands.

2.2 Watercourses

The primary watercourse in the Abbeyfeale area is the River Feale, which has a catchment area of approximately 202.7km² upstream of Abbeyfeale town. The River Feale rises in the Mullaghareirk Mountains in Cork, where it flows in a north westerly direction for 75kms, through Abbeyfeale and Listowel in Co. Kerry to its outfall where it drains into Cashen Bay, north of Ballyduff. It then flows out through the Shannon estuary to meet with the Atlantic Ocean. In the latter stages it is known as the Cashen River.

The River Feale flows through Abbeyfeale in a rough path along the Limerick\Kerry border with the west of the town located in Kerry and the east in Limerick. Most of the catchment is defined by moderate rainfall and shale, sandstone, siltstone and coal geology.

The River Allaghaun also flows through the town in a westerly direction where it meets the Feale at the north end of the town. It has a catchment area of 17.93km².

The land in the area of Abbeyfeale rises steeply to the south of the town to form the west end of the Mullaghareirk Mountains which overlaps the Limerick, Cork and Kerry borders.

A small tributary of the Feale known locally as the Glórach Stream flows west through the town to the River Feale and is culverted under St. Ita's Road/Pound Lane and again under the N21 at Bridge Street.

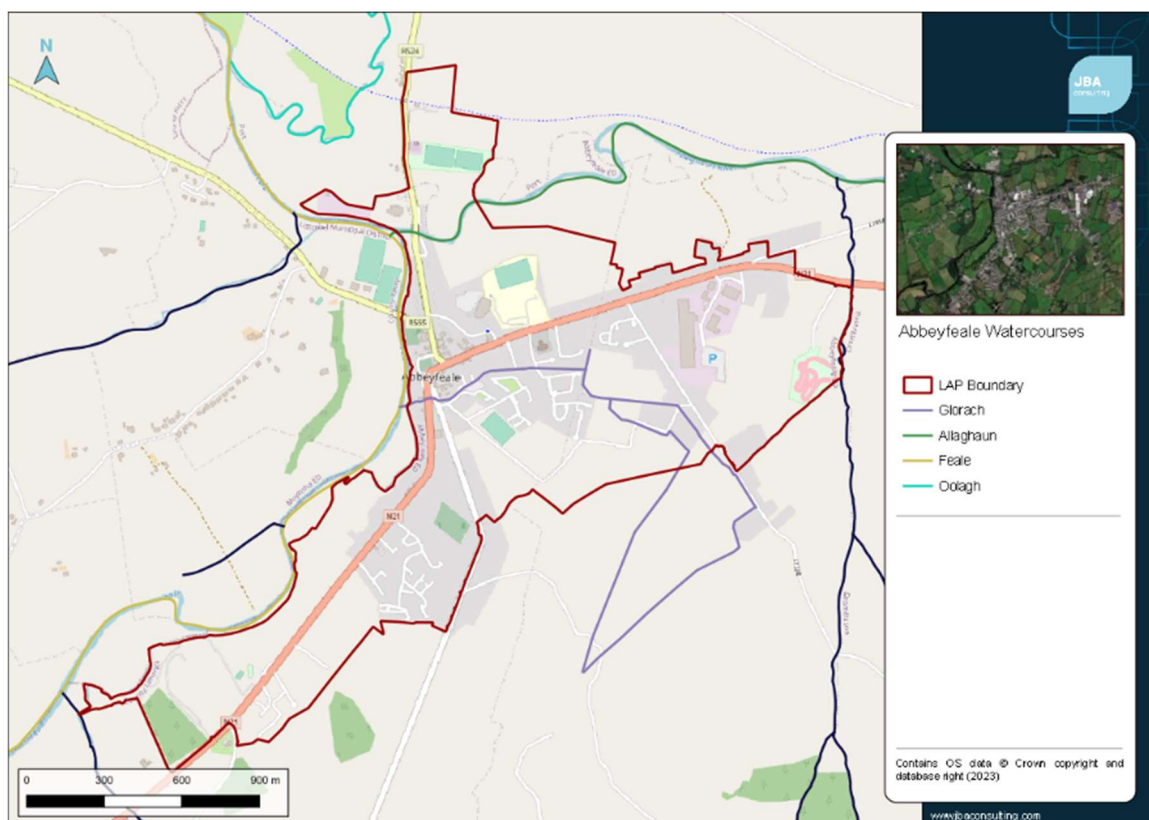


Figure 2-1: Abbeyfeale settlement and rivers

2.3 Current Planning Policy

2.3.1 Ireland 2040 – National Planning Framework

A Strategic Flood Risk Assessment of the National Policy Objectives (NPO) within the Ireland 2040 – National Planning Framework was undertaken with the aim of ensuring that flood risk is a key consideration in delivering the proposed strategic sustainable land-use planning decisions. It sets out how all levels of the planning process, from national level strategic assessments to individual planning applications, should follow the sequential approach set out in the 2009 Guidelines on Planning and Flood Risk Management.

The NPF recognises that it is not always possible to avoid developing in flood risk areas due to spatial, economic, environmental, and physical constraints. Development should be encouraged to continue, and in flood risk areas should follow the sequential approach and application of Justification Test set out in the Department's Guidelines on the Planning System and Flood Risk Management. These guidelines will facilitate the integration of flood risk and land risk planning in the Southern region, at all tiers of the planning hierarchy from national level through regional, city/county and local plans, masterplans and individual planning applications.

2.3.2 Regional Spatial and Economic Strategy (RSES)

The main purpose of the Regional Spatial and Economic Strategy (RSES) is to support the implementation of the NPF and wider Project Ireland 2040 aspirations. The RSES also supports the economic policies and objectives of the Government by providing a detailed strategic planning and economic framework. As Limerick forms part of the Southern Region, the plan must comply with the provisions of the RSES. The RSES provides a framework for the development of the region up to 2032. It focuses on the delivery of housing, job creation, infrastructure, community facilities and ensuring that the region remains attractive for investment.

Abbeyfeale is located approximately 65km south west of Limerick city on the Limerick to Tralee national primary route.

Of relevance to the SFRA is the overarching policy of rationalising the residential land use in Abbeyfeale and providing compact growth and development that accommodates envisaged housing needs and diversity. Since a proportion of the core town centre is at risk of flooding, this presents a challenge when managing flood risk and development.

2.3.3 The Limerick Development Plan 2022-2028

The current Limerick Development Plan covers the period 2022-2028. The plan sets out compliance with the National Planning Framework and the Regional Spatial and Economic Strategy. As part of the Limerick Development Plan 2022-2028 a Strategic Flood Risk Assessment was undertaken in accordance with the Planning System and Flood Risk Management Guidelines for Planning Authorities (2009). The purpose of the SFRA is to identify flooding or surface water management issues related to Limerick to inform strategic land use planning decisions.

The Limerick Development Plan 2022-2028 considered flood risk in reference to people, business, infrastructure, and the environment at risk of flooding. The LDP proposed to minimise the risk of flooding through the identification and management of existing and particularly potential future flood risks. The SFRA proposed this be completed by following the sequential approach and application of the Justification Test set out in the 2009 Guidelines on Planning and Flood Risk Management (DoEHLG) throughout the planning process.

3 The Planning System and Flood Risk Management

3.1 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.

This Section will firstly 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 will follow.

3.2 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:

$$\text{Flood Risk} = \text{Probability of Flooding} \times \text{Consequences of Flooding}$$

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 3-1, illustrates this and is a widely used environmental model to assess and inform the management of risk.

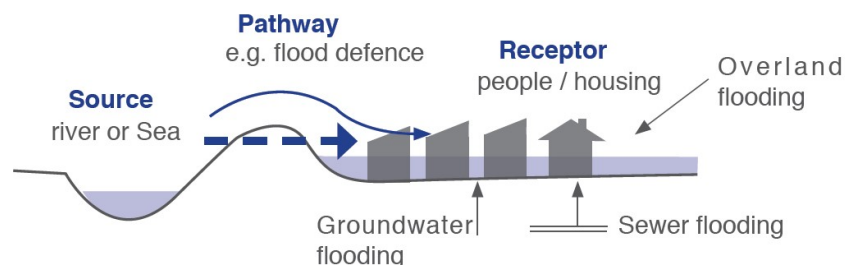


Figure 3-1: Source Pathway Receptor Model

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.

3.3 Likelihood of Flooding

Likelihood or probability of flooding of 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 3-1.

Table 3-1: 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.

3.4 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 guidelines provide 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.

3.5 Definition of Flood Zones

In the Planning System and Flood Risk Management guidelines, Flood Zones are used to indicate the likelihood of a flood occurring. These Zones indicate a high, moderate or low probability of flooding from fluvial or tidal sources and are defined below in Table 3-2.

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 3-2: Definition of Flood Zones

Zone	Description
Zone A 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 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 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).

3.6 Objectives and Principles of the Planning Guidelines

The Planning System and Flood Risk Management Guidelines describe 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 Guidelines 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.

3.7 The Sequential Approach and Justification Test

Each stage of the Flood Risk Assessment (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 development plan. 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.

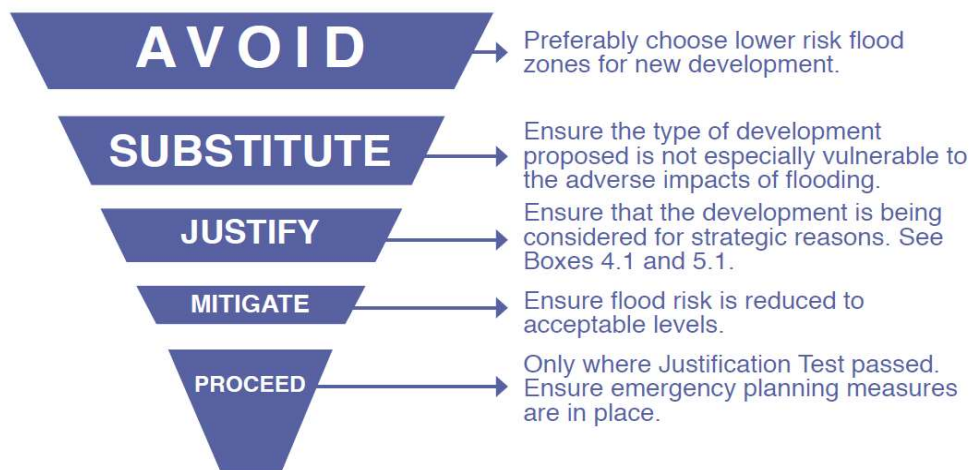


Figure 3-2: Sequential Approach Principles in Flood Risk Management

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 application of the Justification Test. Many towns 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 assess the appropriateness, or otherwise, of such developments. The test is comprised of two processes; the Plan-making Justification Test, 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 3-3 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 3-3: Matrix of Vulnerability versus Flood Zone.

	Flood Zone A High Probability	Flood Zone B Moderate Probability	Flood Zone C Low Probability
Highly Vulnerable Development (Including essential infrastructure)	Justification Test	Justification Test	Appropriate
Less Vulnerable Development	Justification Test	Appropriate	Appropriate
Water-Compatible Development	Appropriate	Appropriate	Appropriate

3.8 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 of:

- **Regional Flood Risk Assessment (RFRA)** – a broad overview of flood risk issues across a region to influence spatial allocations for growth in housing and employment and 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 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.

4 Data Collection and Review

This section reviews the data collection and the flood history for the settlement, so that any additional information on flooding can be included within this SFRA. It will confirm the extent of extreme flooding (through the Flood Zone mapping) and key sources of flood risk.

Table 4-1: Available Flood Data for Flood Zone Development

Description	Coverage	Robustness	Comment on usefulness
Shannon CFRAM Flood Mapping	Covers the River Feale and tributaries	High AFA status	Detailed 1D/2D CFRAM HPW model and is useful. Site verified by walkover and consultation with the Local Authority. In general, CFRAM provides all information needed to apply the Justification Test (JT) for Plan Making under the SFRA.
JBA Flood Mapping	Covers a tributary of the River Feale	High	Detailed 1D/2D HPW model based on site channel survey and LiDAR data. Site verified by walkover and consultation with the Local Authority.
Historical Flood Event Outlines	Coverage of most of LAP area from previous flood event	Moderate	Used indirectly to validate flood zones. Useful background information for flooding in specific areas of the settlement.

Table 4-2 Other Available Data

Description	Coverage	Robustness	Comment on usefulness
GSI Groundwater and Surface Water flood information	Full Study Area	Moderate	Provides both historic and predictive flood extents for groundwater and historic surface water flooding.
Alluvial Soils Maps	Full Study Area	Low	Used to provide indication of risk in areas with no other mapping available.
Groundwater vulnerability maps	Broad scale, County wide	Moderate	Initial assessment of groundwater vulnerability. Provides a screening tool for use in FRA.
Site Walkover	Specific areas of interest	Moderate	Helpful for assessing flood risk in areas where mapping is unavailable. Used to verify existing mapping and flood extents.
Historic Flood Records including photos, aerial photos and reports.	Coverage of most of LAP area from 2009 flood event and spot coverage for other events	Various	Highly useful oversight of historic flooding issues provided by the Local Authority.
LiDAR height model	Abbeyfeale area	High	Aerial survey is used to appraise the topography and identify low spots, floodplain and areas potentially susceptible to flooding.

As set out in the RSES Regional Flood Risk Appraisal Report, and under the Planning Guidelines, the Flood Zone mapping for Abbeyfeale is principally derived from the CFRAM, where possible. However, one watercourse is not covered by the CFRAM and a detailed hydrological study was carried out and has been used to define the Flood Zones.

All sources of available flood mapping were reviewed, and the best available dataset is used.

Specific guidance is provided for each area of Abbeyfeale based on the data review and the site visit is used to confirm the most appropriate dataset and flood extents to define the Flood Zones. During the site visit (attended by Local Authority Engineers and Planners) the flood mapping was appraised on site by an experienced flood risk manager and professional opinion and judgement has been used to develop the recommendations within the Settlement Review of Section 8.

The review of the suite of flood risk data has been developed as a spatial planning tool to guide LCCC in making land-use zoning and development management decisions. The data sets have been deemed appropriate for the planning decisions being made at this stage of the plan making process and where flood risk is identified the following approach has been undertaken;

- Application of the Justification Test and/or;
- Further detailed analysis, or;
- Rezoning to a less vulnerable use, or;
- Further assessment at Development Management stage in limited circumstances, where it has been determined that development should be possible in principle, taking into account a site specific opinion.

Where CFRAM modelling has been carried out (on the River Feale), flood levels are available at selected node points along the watercourse. 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.

4.1 Historic Flooding

A number of areas in Abbeyfeale have been affected by flooding historically. Several sources were consulted to identify previous flood events including the OPW floodinfo.ie website, newspaper articles and previous flood studies. Floodinfo.ie provides information on historical flood events across the country and formed the basis of the Regional Flood Risk Assessment. Information is provided in the form of reports and newspaper articles which generally relate to rare and extreme events.

Table 4-3 Flood History

Location	Start Date	Description
Ballaugh, Abbeyfeale	Recurring	On the Allaghaun River, near Abbeyfeale flooding occurs roughly twice a year.
Allaghaun Bridge	Recurring	Recurring incidents of flooding.
Abbeyfeale	Recurring	Likely due to pluvial flooding.
Abbeyfeale, Feale Bridge	1973	Flood waters reached a height 1-2 feet below the soffit of the bridge. Although this is outside the area under review, such an event at Abbeyfeale could pose a significant risk.

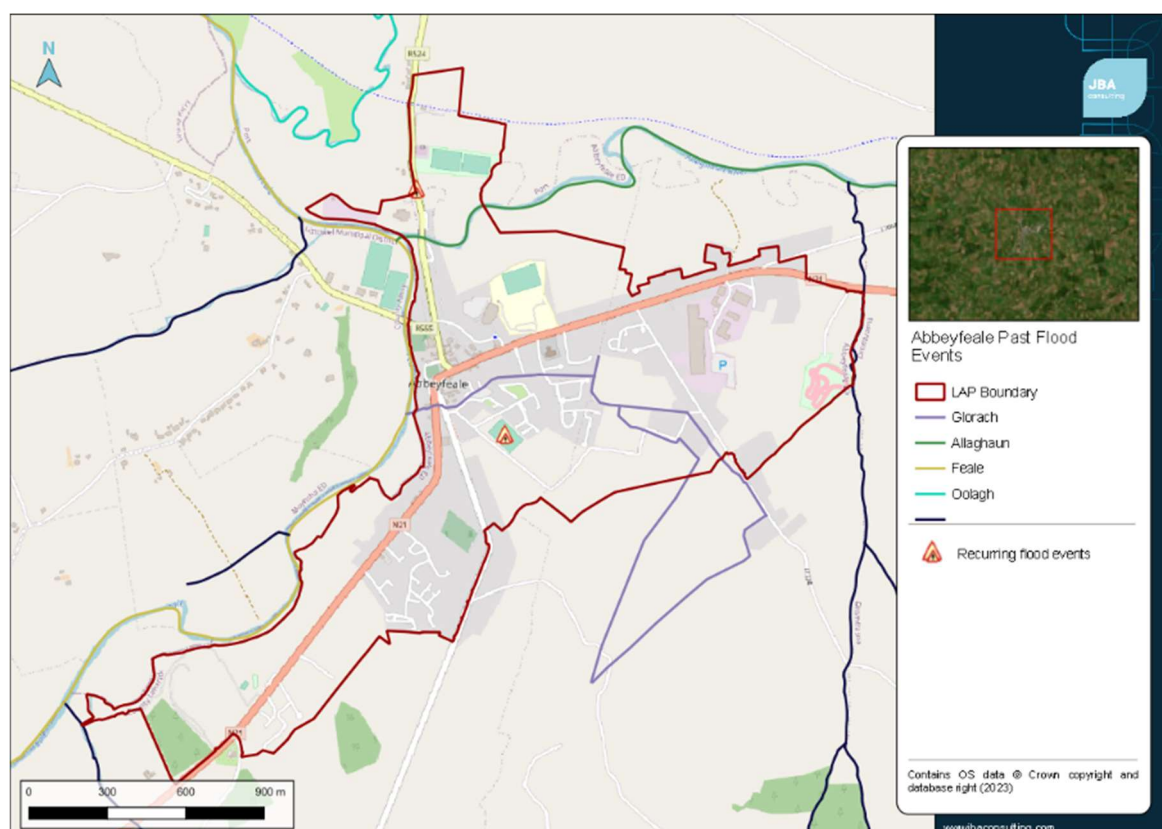


Figure 4-1 Historic flood events Abbeyfeale

4.2 Site Walkover

As part of the SFRA process a site walkover and consultation was undertaken in Abbeyfeale by an experienced Flood Risk Manager alongside the Local Authority Engineer. The site walkover took place on 25/10/2022 and aimed to assess risks presented by potentially unmapped watercourses and to verify CFRAM mapping.

The walkover took place at specific locations throughout Abbeyfeale based on CFRAM and OSI mapping. During the walkover an unmapped watercourse and its associated structures were identified. The CFRAM mapping was also found to be in agreement with observations made during the walkover.

4.3 GSI Groundwater Flood

The winter of 2015/2016 saw the most extensive groundwater flooding ever witnessed in Ireland. The lack of data on groundwater flooding and fit-for-purpose flood hazard maps were identified as serious impediments to managing groundwater flood risk in

vulnerable communities. Geological Survey Ireland - in collaboration with Trinity College Dublin and Institute of Technology Carlow - initiated the groundwater flood project GWflood to address these deficits. Data available as a result of the project, including national-scale flood maps for both historic and predictive groundwater flooding.

The historic groundwater flood map is primarily based on the winter 2015/2016 flood event, which in most areas represented the largest groundwater flood event on record. The map was produced based on the SAR imagery of the 2015/2016 event as well as any available supplementary evidence.

The predictive groundwater flood map presents the probabilistic flood extents for locations of recurrent karst groundwater flooding. It consists of a series of stacked polygons at each site representing the flood extent for specific AEP's mapping floods that are expected to occur every 10, 100 and 1000 years (AEP of 0.1, 0.01, and 0.001 respectively). The map is focussed primarily (but not entirely) on flooding at seasonally inundated wetlands, known as turloughs. Sites were chosen for inclusion in the predictive map based on existing turlough databases as well as manual interpretation of SAR imagery.

The mapping process tied together the observed and SAR-derived hydrograph data, hydrological modelling, stochastic weather generation and extreme value analysis to generate predictive groundwater flood maps for over 400 qualifying sites. It should be noted that not all turloughs are included in the predictive map as some sites could not be successfully monitored with SAR and/or modelled.

The predictive mapping is displayed over page in Figure 4-2 and Figure 4-3 and confirms that there is no predicted groundwater flooding within the LAP boundary. The closest incidents of recorded historic groundwater flooding or predicted groundwater flooding are c. 27km to the northeast at Rathkeale.

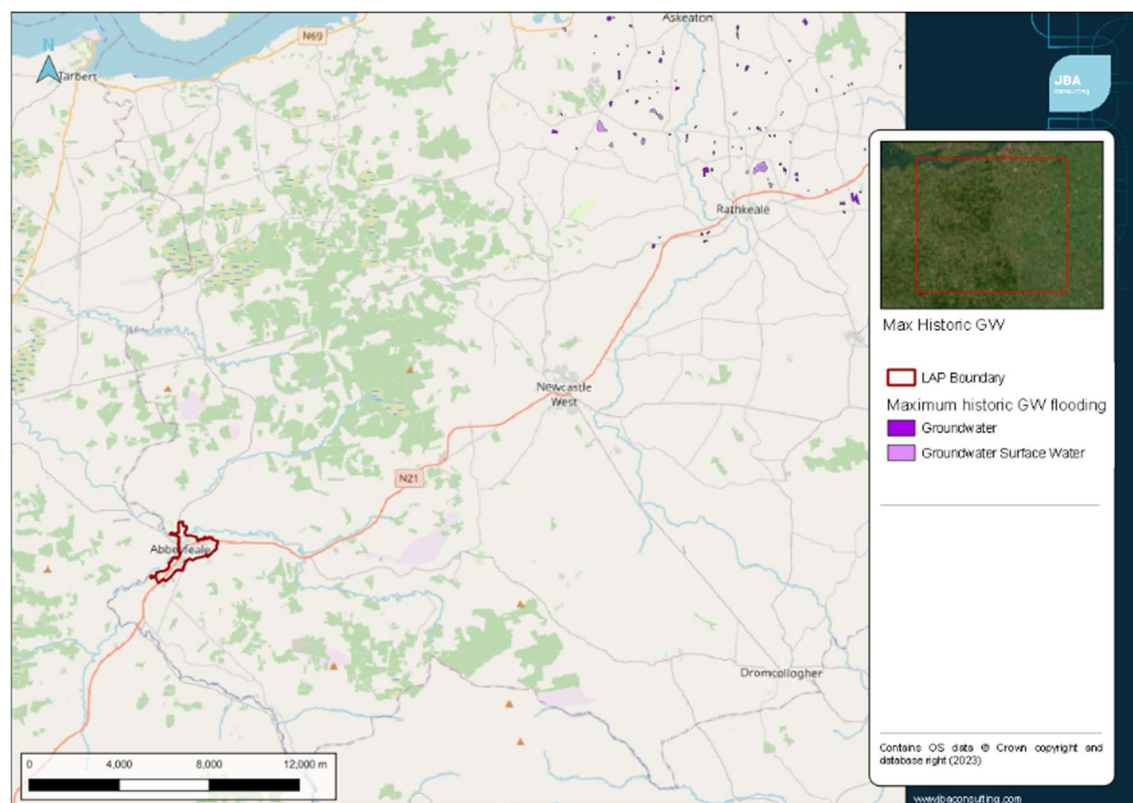


Figure 4-2 Maximum Historic Groundwater Flooding

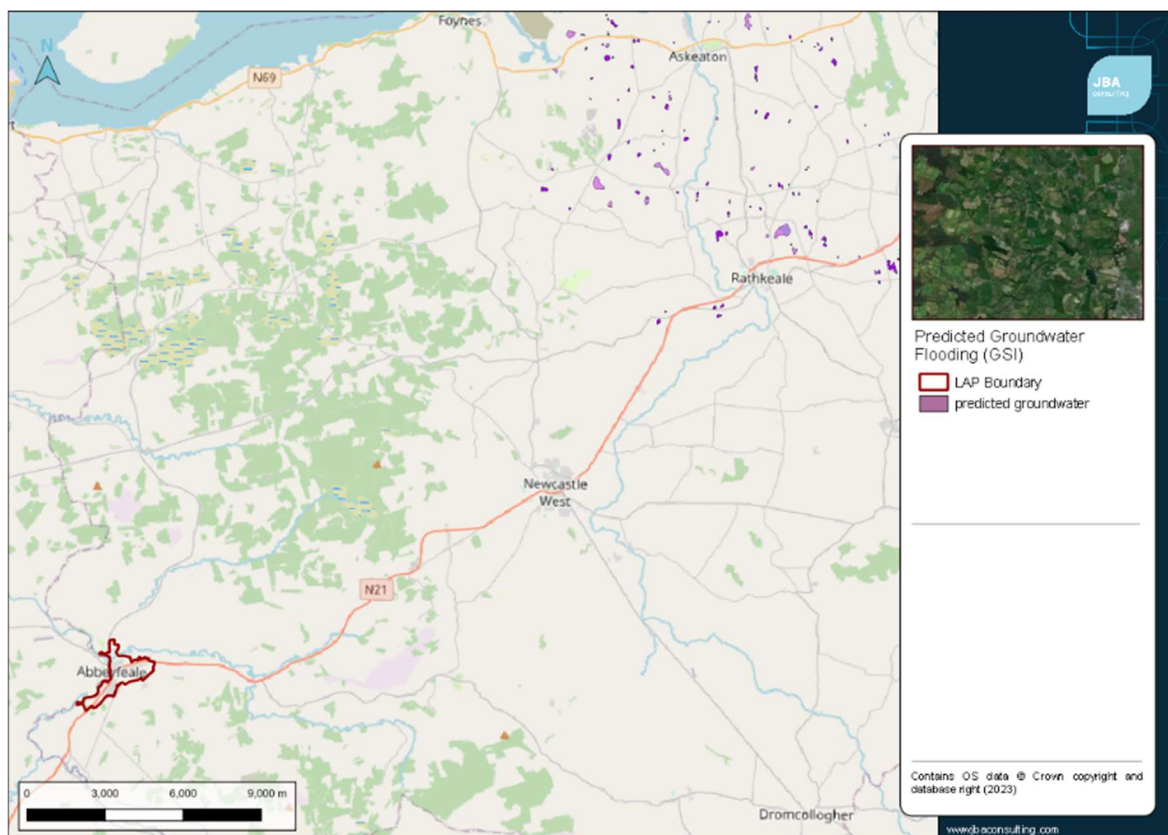


Figure 4-3 Groundwater Flooding Medium Probability

4.4 GSI Surface Water Flooding

Geological Survey Ireland - in collaboration with Trinity College Dublin and Institute of Technology Carlow - initiated the groundwater flood project GWflood to address deficits in groundwater flooding and fit-for-purpose flood hazard maps.

In addition to the historic groundwater flood map, the flood mapping methodology was also adapted to produce a surface water flood map of the 2015/2016 flood event. This flood map encompasses fluvial and pluvial flooding in non-urban areas and has been developed as a separate product. The historic surface water flood map is displayed within Figure 4-1 and was reviewed on site during the walkover in October 2022.

4.5 CFRAM

In 2011, the OPW commenced appointment of consultants to carry out a more detailed flood risk assessment on key flood risk areas. This work was undertaken under the CFRAM programme across seven river basin districts in Ireland. The Shannon RBD includes the entire catchment of the River Shannon and its estuary, covering some 17,800km² and 20% of the island of Ireland. The RBD covers parts of 17 counties: Limerick, Clare, Tipperary, Offaly, Westmeath, Longford, Roscommon, Kerry, Limerick, Leitrim, Cavan, Sligo, Mayo, Cork, Laois, Meath and Fermanagh.

The initial Flood Risk Review (FRR) stage of the Shannon CFRAM, included a site-based review of the PFRA flood outlines at a number of settlements. Several communities were identified through this process as being at potentially significant flood risk in the Shannon Upper and Lower River Basin, which included Abbeyfeale. Following this review, any sites recommended as an Area for Further Assessment (AFA) were included in the subsequent detailed assessment stage of each CFRAM study.

A set of flood maps, indicating the areas prone to flooding, has been developed and published for each of the communities. The Plan builds on and supplements the national programme of flood protection works completed previously, that are under design and construction at this time or that have been set out through other projects or plans, and the ongoing maintenance of existing drainage and flood relief schemes.

4.6 Detailed Hydraulic Modelling – Glórach Stream

A small tributary of the Feale known locally as the Glórach Stream flows west through the town to the River Feale and is culverted under St. Ita's Road/Pound Lane and again under the N21. The watercourse was not formally modelled under the CFRAM programme or covered by the NIFM mapping. JBA undertook a detailed 1D-2D hydraulic model of the watercourse using the ESTRY-TuFLOW software package. The model was supported by channel survey undertaken by a specialist survey contractor and hydrological estimation/assessment. Results were used to create Flood Zone A/B and have been amalgamated with the wider Flood Zones for Abbeyfeale.



Figure 4-4 Glórach Stream Flood Zones

4.7 Climate Change

Climate change is likely to have a considerable impact on flood risk in Ireland, such as through rising mean sea levels, increased wave action and the potential increases in winter rainfall and intense rainfall events. Land use change, for example, through new housing and other developments, can also increase potential future flood risk. In order to assess this risk, the Shannon CFRAM study and the Glórach Stream modelling for the LAP also included detailed assessments of flooding and impacts for potential future climate change scenarios.

The 1% AEP and 1% AEP + climate change (HEFS) outlines are displayed over page in Figure 4-5. Results confirm a generally low impact of climate change across the settlement.

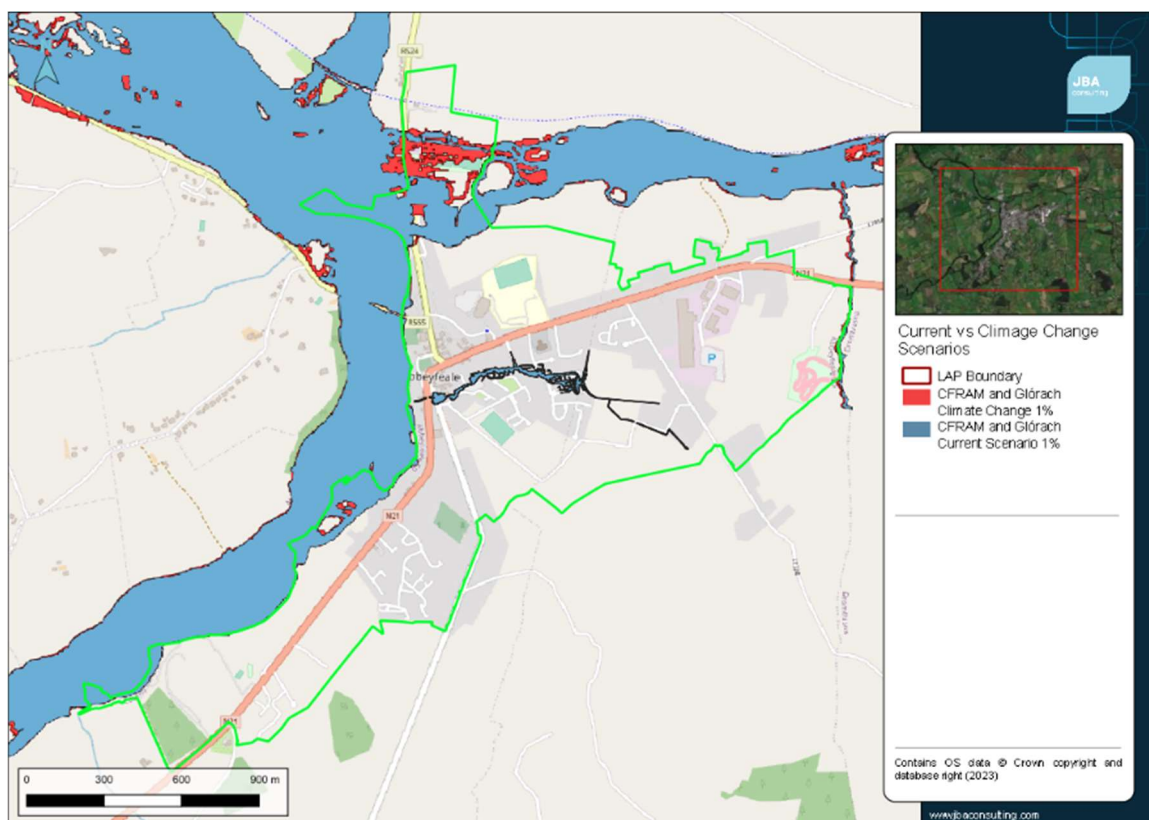


Figure 4-5 Current Scenario and 1% + Climate Change (HEFS) AEP outlines

5 Sources of Flooding

This SFRA has reviewed flood risk from fluvial, pluvial and groundwater sources. Flooding events have become more pronounced in Ireland, and County Limerick, in recent years. Climate change risks also need to be considered at a strategic and site-specific scale. Climate change is discussed in Section 4.5 in relation to incorporation of climate change into the SFRA. A comment on the likely impacts of climate change, on a settlement basis, has been provided in Section 8.

5.1 Fluvial Flooding

This is the principal source of flood risk to Abbeyfeale. Flooding from rivers and streams is associated with the exceedance of channel capacity during times of heavy rainfall resulting in higher flows. The process of flooding from watercourses depends on numerous 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 catchment such as the River Feale, where the upper reaches are steep, local intense rainfall can result in the rapid onset of deep and fast-flowing flooding with little warning, such as was experienced in Newcastle West and Athea in 2008. Such “flash” flooding, which may only last a few hours, can cause considerable damage and possible threat to life.

The Allaghaun river confluences with the River Feale in the north part of Abbeyfeale, which then flows west and north. River tributaries are also located within the town’s boundary.

Many areas in Abbeyfeale are relatively low lying and prone to flooding. There are records of 3 recurring flood events in the vicinity of the town. The River Feale and River Allaghaun are the primary causes of flooding in Abbeyfeale; with most events attributed to fluvial sources. The Glórach Stream is also a source of historic risk in the vicinity of the Funeral Home.

Flood risk relating to specific areas of Abbeyfeale is discussed in Section 8 and has been used to inform the zoning objectives for the Development Plan.

5.2 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 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.

5.3 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 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. The potential for pluvial flooding will be managed by the application of the specific policies on surface water, as displayed in Section 6.

5.4 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. Flood risk relating to groundwater has been screened under Section 5.4 and confirmed that Abbeyfeale is not at risk from predicted or historic groundwater flooding.

6 Flood Risk Management Policy

The implementation of the Planning Guidelines throughout the County is achieved through the application of the policies and objectives contained within the Draft Abbeyfeale LAP.

The specific management of risk is discussed for each area of Abbeyfeale in Section 8.

6.1 Flood Risk Policy

IU 05	<p>Flood Risk Management: It is an objective of the Council to:</p> <p>a) Manage flood risk in accordance with the requirements of "The Planning System and Flood Risk Management Guidelines for Planning Authorities", DECLG and OPW (2009) and any revisions thereof and consider the potential impacts of climate change in the application of these guidelines.</p>
	<p>b) Ensure development proposals within the areas outlined as being at risk of flooding are subject to Site Specific Flood Risk Assessment as outlined in "The Planning System and Flood Risk Management Guidelines", DECLG and OPW (2009). These Flood Risk Assessments shall consider climate change impacts and adaptation measures including details of structural and non-structural flood risk management measures, such as those relating to floor levels, internal layout, flood-resistant construction, flood-resilient construction, emergency response planning and access and egress during flood events.</p>
	<p>c) Ensure that future developments in flood prone areas is generally limited to minor developments in line with the Circular PL 2/2014 and the Flood Risk Management Guidelines for Planning Authorities and ensure future development of lands within Flood Risk Zone A/B is in accordance with the plan-making Justification Tests in the SFRA.</p>
	<p>d) Developments on lands benefitting from Arterial Drainage Schemes shall preserve the maintenance and access to these drainage channels. Land identified as benefitting from these systems may be prone to flooding, as such site specific flood risk assessments will be required as appropriate, at planning application stage.</p>
	<p>e) Seek to upgrade the culvert serving the Glórach stream to minimise the risk of flooding, subject to resources.</p>
	<p>f) Ensure the protection of a 20m riparian buffer on greenfield sites and the buffer to be maintained free from development, and in particular the lands zoned New Residential by the Glórach stream east of the Clash Road and west of Cedarville. Proposals shall be advised by the Planning for Watercourses in Urban Environments, Inland Fisheries, 2020.</p>

6.2 CFRAM Recommendations

Following the publication of the final Flood Risk Management Plans for the CFRAM Study in May 2018 a 10 year €1billion programme of works (for 118 schemes) was announced by the OPW.

The OPW's Shannon Catchment Flood Risk Assessment and Management (CFRAM) Study identified Abbeyfeale as an AFA and concluded that a flood relief scheme would be viable and effective for the community. The Shannon CFRAM FRMP identified there be no action taken in relation to Abbeyfeale.

7 Development Management and Flood Risk

In order to guide both applicants and relevant council staff 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 begins from the point that all land zoned for development has passed the Justification Test for Development Plans, and therefore passes Part 1 of the Justification Test for Development Management – which states that the land has in the first instance been zoned accordingly in a development plan (that underwent an SFRA). In addition to the general recommendations in the following sections, Section 8 should be reviewed for specific recommendations for individual areas of Abbeyfeale, including details of the application of the Justification Test and the specific requirements within each area of the settlement.

In order to determine the appropriate design standards for a development it may be necessary to undertake a site-specific flood risk assessment. This may be a qualitative appraisal of risks, including drainage design. Alternatively, the findings of the CFRAM, or other detailed study, may be drawn upon to inform finished floor levels. In other circumstances a detailed modelling study and flood risk assessment may need to be undertaken. Further details of each of these scenarios, including considerations for the flood risk assessment are provided in the following sections.

7.1 Requirements for a Flood Risk Assessment

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

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

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

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

If any unmodelled watercourses are detected on a site and flood risk has consequently not been mapped under the SFRA, it does not mean there is no flood risk present. Instead, a site specific flood risk assessment of appropriate level of detail should be carried out to delineate the Flood Zones and/or suitable mitigation measures (such as finished floor levels). In such locations the Justification Test has not been applied, so development must progress in accordance with the sequential approach and avoid Flood Zone A and B.

7.2 Development in Flood Zones A or B

7.2.1 Minor Developments

Section 5.28 of the Planning Guidelines on Flood Risk Management identifies certain types of development as being 'minor works'. In such cases, the sequential approach cannot be used to locate such development in lower-risk areas and the Justification Test will not apply.

Generally, the approach to deal with flood protection would involve raising the ground floor levels above extreme flood levels. 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 flood 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 placed at higher levels. For high risk areas it would also be necessary to impose planning restrictions in these areas.

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

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

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

7.2.2 Highly vulnerable development in Flood Zone A or B

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

New development

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

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

Existing developed areas

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

In cases where specific development proposals have passed the Justification Test for Development Plans, the outline requirements for a flood risk assessment and flood management measures are detailed in this SFRA in the following sections and the site specific assessments in Section 8, which also detail where such development has been justified. Of prime importance is the requirement to manage risk to the development site and not to increase flood risk elsewhere. It should also be noted that for residential buildings within Flood Zone A or B, bedroom accommodation shall not be permitted at basement or ground floor.

7.2.3 Less vulnerable development in Flood Zone A or B

This section applies to less vulnerable development in Flood Zone A which has passed the Justification Test for development plans, and less vulnerable development in Flood Zone B, where this form of development is appropriate, and the Justification Test is not required. Development which is less vulnerable to flooding, as defined in The Planning Guidelines, includes (but is not limited to) retail, leisure and warehousing and buildings used for agriculture and forestry (see Table 3.3 for further information). This category includes less vulnerable development in all forms, including refurbishment or infill development, and new development both in defended and undefended situations.

The design and assessment of less vulnerable development should begin with 1% AEP fluvial or 0.5% tidal events (depending on dominant flood source) 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 and show an appropriate response to the flood risk present and to be agreed with Limerick City and County Council engineers and planners. However, in County Limerick there are limited locations where formal (non-agricultural) flood defences are present.

7.3 Development in Flood Zone C

Where a site is within Flood Zone C, but adjoining or in close proximity of a watercourse, there could be a risk of flooding associated with factors such as future scenarios (climate change), blocking of a bridge or culvert or other residual risk. Risk from sources other than fluvial and coastal must also be addressed for all development in Flood Zone C, including groundwater flooding and/or flooding associated with storm water deficiencies, restrictions or blockages. As a minimum in such a scenario, an assessment of flood risk should be undertaken which will screen out possible 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% AEP fluvial event level, with an allowance for climate change and freeboard, or to ensure a step up from road level to prevent surface water ingress. Design elements such as channel maintenance or trash screens may also be required. Evacuation routes in the event of inundation of surrounding land should also be detailed.

Guidance for the assessment of surface water risk is provided in Section 7.5.

The impacts of climate change should be considered for all proposed developments. A development which is currently in Flood Zone C may be shown to be at risk when an allowance for climate change is applied. Details of the approach to incorporating climate change impacts into the assessment and design are provided in Section 7.7.

7.4 Water compatible uses in Flood Zone A or B

Water compatible uses can include the non-built environment, such as open space, agriculture and green corridors which are appropriate for Flood Zone A and B and are unlikely to require a flood risk assessment. 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. In other situations, works to an area of open space may result in changes to the topography which could lead to loss in flood plain storage and/or impacts on flood conveyance. 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. In line with other highly vulnerable development, sleeping accommodation at basement or ground floor level will not be permitted. Climate change and other residual risks should also be considered within the SSFRA.

7.5 Drainage Impact Assessment

All proposed development, including that in Flood Zone C, must consider the impact of surface water flood risks on drainage design.

There are extensive networks of surface water runoff routes across the settlement, with areas vulnerable to ponding indicated on the Flood Zone Maps. Particular attention should be given to development in low-lying areas which may act as natural ponds for collection of runoff. The Council are currently undertaking a review of the surface water systems and the results of this assessment should inform site drainage design as they are available.

The drainage design shall ensure no increase in flood risk to the site, or the downstream catchment. Reference should be made to the relevant policies in the Development Plan and any forthcoming Surface Water Strategy for details of the assessment process.

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

7.6 Requirements for a Flood Risk Assessment

An appropriately detailed flood risk assessment will be required in support of all planning applications within areas identified as being at risk of flooding. 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.

For sites within Flood Zone A or B, a site specific "Stage 2 - Initial FRA" will be required and subject to the outcome 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) and proposed

variations to the Flood Zones should be discussed with Limerick City and County Council.

An assessment of the risks of flooding should accompany applications to demonstrate that they would not have adverse impacts or impede access to a watercourse, floodplain or flood protection and management facilities, particularly for operation and maintenance activities by Limerick City and County Council and OPW. Where possible, the design of built elements in these applications should demonstrate principles of flood resilient design (See Section 4 - Designing for Residual Flood Risk of the Technical Appendices to the DoECLG Flooding Guidelines). Emergency access must be considered, as in many cases flood resistance (such as raised finished floor levels and flood barriers) and retrofitting flood resilience features may be challenging in an existing building. Within the FRA the impacts of climate change and residual risk (including culvert/structure blockage) should be considered and remodelled where necessary, using an appropriate level of detail, in the design of FFL. Further information on the required content of the FRA is provided in the Planning 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 for Development Management (where required), the proposal will demonstrate that appropriate mitigation and management measures are put in place.

7.6.1 Development in Defended Areas

Although no sites are currently formally defended in Abbeyfeale, this situation could change in the future. In this case it should be noted that where a site or area is referred to as being defended for the purposes of determining flood mitigation it is assumed that the defences provide a minimum of the 1% AEP (fluvial) or 0.5% AEP (tidal) standard of protection, and have been through a formal detailed design process and approved by OPW or Limerick City and County Council. Informal defences, which may only be at an agricultural standard like many of those around Limerick City, or those developed under the minor works scheme which may provide a lesser standard of protection, are not considered to provide a robust enough standard of protection to allow a moderation in the flood risk mitigation required at a site. The understanding of risks of developing behind defences needs to be explored in the site specific FRA.

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

There are a number of ways in which breach and overtopping of defences can be investigated, depending on the scale of risk and the nature of the development. Prior to undertaking breach analysis, Limerick City and County Council should be consulted to agree the approach taken.

- As the various flood relief schemes progress across the county, breach modelling may also become available which can be used for the purposes of site specific flood risk assessment. As with the CFRAM outputs though, this may not represent the most appropriate location to the site in question.
- Projection of instream water levels across the floodplain – this approach provides a conservative (worst case) estimate of flood risk in the event of defence breach or overtopping as, in reality, water levels across the flood plain would be lower than in the channel. This means the resulting mitigation may be more significant (for example, in terms of ground levels proposed) than if a more detailed

modelling approach was taken, particularly if the proposed development site is on the edge of the inundation area. However, in some locations, particularly where a site is partially or fully within Flood Zone A, and /or close to the defence, this conservative approach may be more appropriate.

- Breach modelling – for more complex and higher value developments, bespoke breach modelling can be undertaken in which the overtopping or breach of a flood defence can be investigated with specific reference to a development site. The breach modelling may need to be informed by a detailed understanding of the structural condition of the defence. Breach modelling will also allow a site-specific assessment of finished floor levels to be developed, which may be lower than the default standard. The OPW's Guidance on breach modelling, or other best practice guide, should be referenced and an approach agreed with Limerick City and County Council.

The decision as to which approach is most appropriate to the development, and how this information should be used to inform the development design should be made in conjunction with the Limerick City and County Council.

7.6.2 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
- Have passed the Justification Test for Development Plans and be able to pass the 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 with the Limerick City and County Council SFRA and the Planning Guidelines.
- Demonstration that the specific objectives or requirements for managing flood risk set out in Section 6 of this SFRA have been complied with, including an assessment of residual risks.
- Preparation of access, egress and emergency plans which are appropriate to the source of flooding and lead time to issue a warning, 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.

7.7 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.

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 Climate Change

Sectoral Adaptation Plan² 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 recommends that two climate change scenarios are considered. These are the Mid-Range Future Scenario (MRFS) and the High-End Future Scenario (HEFS). In all cases, the allowances should be applied to the 1% AEP fluvial flows. Where a development is critical or extremely vulnerable the impact of climate change on 0.1% AEP flows should also be tested.

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

Further work on the impacts of climate change on flood levels was undertaken as part of the Shannon CFRAM Study and the ICPSS/ICWWS/NCFHM. 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 Shannon 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 0.5m for MRFS or 1m for HEFS plus allowance for land movement, increase to the 0.5% AEP sea level can be assessed based on topographic levels.

Table 7-1: 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) + 50mm for land movement	The Surface water management plan including details of climate change allowances is under preparation
Highly vulnerable	20%	0.5m (MRFS) + 50mm for land movement	
Critical or extremely vulnerable (e.g. hospitals, major sub-stations, blue light services)	30%	1.0m (HEFS) + 50mm for land movement	
Note: There will be no discounting of climate change allowances for shorter lifespan developments.			

7.8 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, it must be demonstrated that appropriate mitigation measures can be put in place and that residual risks can be managed to acceptable

levels. Guidance on what might be considered 'acceptable' has been given in a number of sections in this document.

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

Various mitigation measures are outlined below and further detail on flood resilience and flood resistance are included in the Technical Appendices of the Planning Guidelines, The Planning System and Flood Risk Management³.

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

7.8.1 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. recreational space, can be located in higher flood risk areas. Highly vulnerable land uses (i.e. residential housing) should be substituted with less vulnerable development (i.e. retail unit).

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

7.8.2 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 particular site in question. However, in most areas of fluvial flood risk, conveyance or flood storage would be reduced locally and could have an adverse effect on flood risk off site. There are a number of criteria which must all be met before this is considered a valid approach:

- Development at the site must have been justified through this SFRA based on the existing (unmodified) ground levels.
- The FRA should establish the function provided by the floodplain. Where conveyance is a prime function then a hydraulic model will be required to show the impact of its alteration.
- Compensatory storage should be provided on a level for level basis to balance the total volume that will be lost through infilling where the floodplain provides static storage. There should be no overall loss of floodplain storage volume as a result of the development in the 1% AEP event and impacts of the amended storage should be tested for the 0.1% AEP event to ascertain no significant increase in risks associated with the extreme event.
- The provision of the compensatory storage should be in close proximity to the area that storage is being lost from (i.e. within the same flood cell).

- The land proposed to provide the compensatory storage area must be within the ownership/control of the developer.
- The land being given over to storage must be land which does not flood in the 1% AEP event (i.e. Flood Zone B or C).
- The compensatory storage area should be constructed before land is raised to facilitate development. This is to ensure no temporary loss of flood storage volume during construction.

In some sites it is possible that ground levels can be re-landscaped to provide a sufficiently large development footprint within Flood Zone C. However, it is likely that in other potential development locations there is insufficient land available to fully compensate for the loss of floodplain. In such cases it will be necessary to reconsider the layout or reduce the scale of development, or propose an alternative and less vulnerable type of development. In other cases, it is possible that the lack of availability of suitable areas of compensatory storage means 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 7-2 should apply. It should be noted that in certain locations it may be appropriate to adopt a more precautionary approach to setting finished floor levels, for example where residual risks associated with bridge blockage occur, and this should be specifically assessed in the FRA. In other locates detailed modelling may demonstrate a lower finished floor level is acceptable; this should be discussed with Limerick City and County Council on a case by case basis. 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 7-2: Recommended minimum finished floor levels

Scenario	Finished floor level to be based on
Fluvial, undefended	1% AEP flood + climate change (as Figure 4-5) + 300mm freeboard.
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. Where a breach model has been developed to further understand risks, FFL may be set based on model outputs.

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

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

7.8.3 Raised Defences

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

7.8.4 Flood Resilient and Resistant Development

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

Design can include for wet-proofing of a building to make it flood resilient and reduce the impact of flooding. For example, use of water-resistant materials such as tiles on floors and walls that can be easily washed down and sanitised after a flood event, and the installation of electrical sockets and other circuits at higher levels, with power wires running down from ceiling level rather than up from floor level.

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

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

Demountable or temporary barriers are not an appropriate means of managing climate change risks, which should be addressed through either site or building design, or as part of a completed Flood Relief Scheme, which provides flood protection to the proposed development.

7.8.5 Emergency Flood Response Plans

In some instances, and only when all parts of 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 an emergency plan does not mean this is advisable or appropriate for the nature and vulnerability of development and Limerick City and County Council will not accept an emergency response plan as part of a residential development in isolation or in lieu of appropriate mitigation measures to reduce flood risk to an acceptable standard.

7.8.6 Nature based solutions / Green Infrastructure / SUDS

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 complementary 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 manage 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. The Nature-based Solutions to the Management of Rainwater and Surface Water Runoff in Urban Areas – Best Practice Interim Guidance Document (2022) provides guidance in making appropriate planning and design decisions to incorporate nature based solutions and climate change adaptation to urban spatial planning.

The drainage design shall ensure no increase in flood risk to the site, or the downstream catchment. Reference should be made to the Limerick Development Plan objectives, these include EH O14, CAF O11 and the stormwater objectives that overlap with the LAP under IN O12.

7.9 '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;
- Potential opportunities for amenity, including riverside walks and public open spaces;
- Maintenance of the connectivity between the river and its floodplain, encouraging the development of a full range of habitats;
- Natural attenuation of flows will help ensure no increase in flood risk downstream;
- Allows access to the river for maintenance works;
- Provides benefit to the ecological functioning of the river system;
- Retention of clearly demarcated areas where development is not appropriate on flood risk grounds, and in accordance with the Planning System and Flood Risk Management.
- The width of this corridor should be determined by the available land and topographical constraints, such as raised land and flood defences.

8 Settlement Zoning Review

The purpose of land use zoning objectives is to indicate to property owners and members of the public the types of development the Planning Authority considers most appropriate in each land use category. Zoning is designed to reduce conflicting uses within areas, to protect resources and, in association with phasing, to ensure that land suitable for development is used to the best advantage of the community as a whole.

This section of the SFRA will:

- Outline the strategic approach to flood risk management.
- Consider the land use zoning objectives utilised within Abbeyfeale and assess their potential vulnerability to flooding.
- Based on the associated vulnerability of the particular use, a clarification on the requirement of the application of the Justification Test is provided.
- The consideration of the specific land use zoning objectives and flood risk will be presented for the settlements. Comment will be provided on the use of the sequential approach and justification test. Conclusions will be drawn on how flood risk is proposed to be managed in the settlement.

8.1 A Strategic Approach to Flood Risk Management

A strategic approach to the management of flood risk is important in Abbeyfeale, as the risks are varied, with scales of risk and vulnerability varying across the settlement.

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 the following settlement reviews. The Flood Risk commentary indicates whether a certain land zoning, in Flood Zone A or B, will need to have the Plan Making Justification Test (JT) applied and passed.

When carrying out a site-specific FRA, or when planning 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 Table 8-1. For example, a Town Centre zoning objective can include for an integrated mix of residential, commercial, community and social uses which have varying vulnerabilities and would not be equally permissible within Flood Zone A and B. An overview of the settlement, land use zoning and Flood Zones is presented in Figure 8-1.

Table 8-1: Zoning Objective Vulnerability

Zoning Objective	Indicative Primary Vulnerability	Flood Risk Commentary
Agriculture	Water compatible / highly vulnerable	JT not needed, but for new farm housing the sequential approach must apply.
Enterprise & Employment	Less / highly vulnerable	For highly vulnerable development in Flood Zone A or B. For less vulnerable development in Flood Zone A.
Education and Community Facilities	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. For highly vulnerable development in Flood Zone A or B. For less vulnerable development in Flood Zone A.
Existing Residential	Highly Vulnerable	JT required for within Flood Zone A and B.
Residential Development area	Less/Highly Vulnerable	JT required for within Flood Zone A and B.
Residential Services sites	Highly Vulnerable	JT required for within Flood Zone A and B.
Open Space and Recreation	Water compatible	For Water Compatible, JT not required. For less vulnerable development in Flood Zone A.
Semi Natural Open Space	Water compatible	For Water Compatible, JT not required. For less vulnerable development in Flood Zone A.
Tourism Related Development	Less / highly vulnerable	For highly vulnerable development in Flood Zone A or B. For less vulnerable development in Flood Zone A.
Utilities	Less / highly vulnerable	For highly vulnerable development in Flood Zone A or B. For less vulnerable development in Flood Zone A.
Town Centre	Less / Highly Vulnerable	For highly vulnerable development in Flood Zone A or B. For less vulnerable development in Flood Zone A.

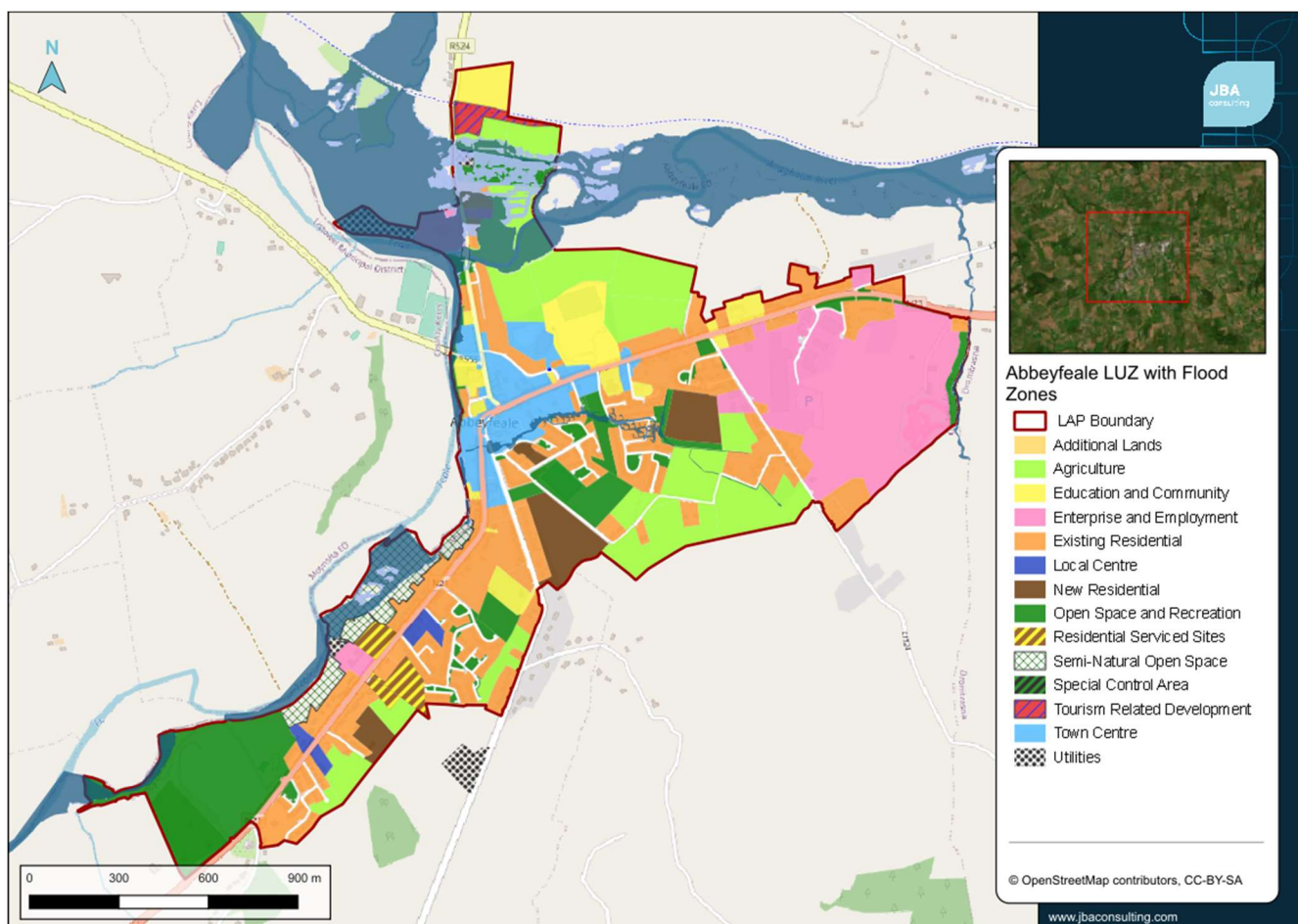
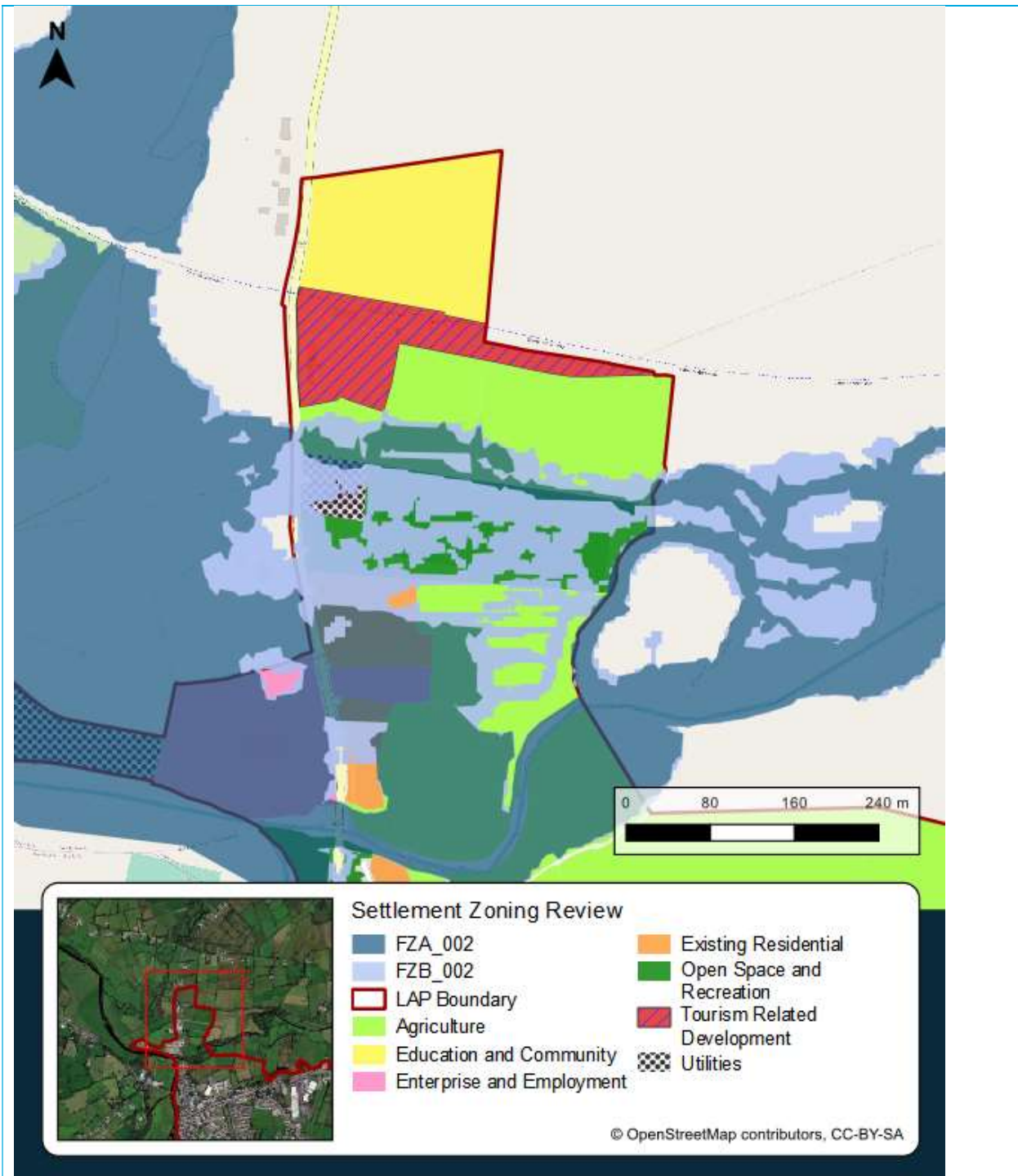


Figure 8-1: Overview Map – Land Use Zoning and Flood Zones

The following sections review the land use zoning objectives for each specific area within the Local Area Plan and provide a comprehensive summary of flood risk and justification where necessary.

8.2 Knockbrack West



The flood mapping has been produced in accordance with the Planning Guidelines and therefore ignores the impact of flood protection structures. Areas protected by flood defences still carry a residual risk of flooding due to overtopping or breach, there may also be no guarantee of maintenance in perpetuity. Areas that benefit from defences are annotated separately.

Flood Zone Data	CFRAM
Historic Flooding	Recurring flooding at Allaghaun Bridge.

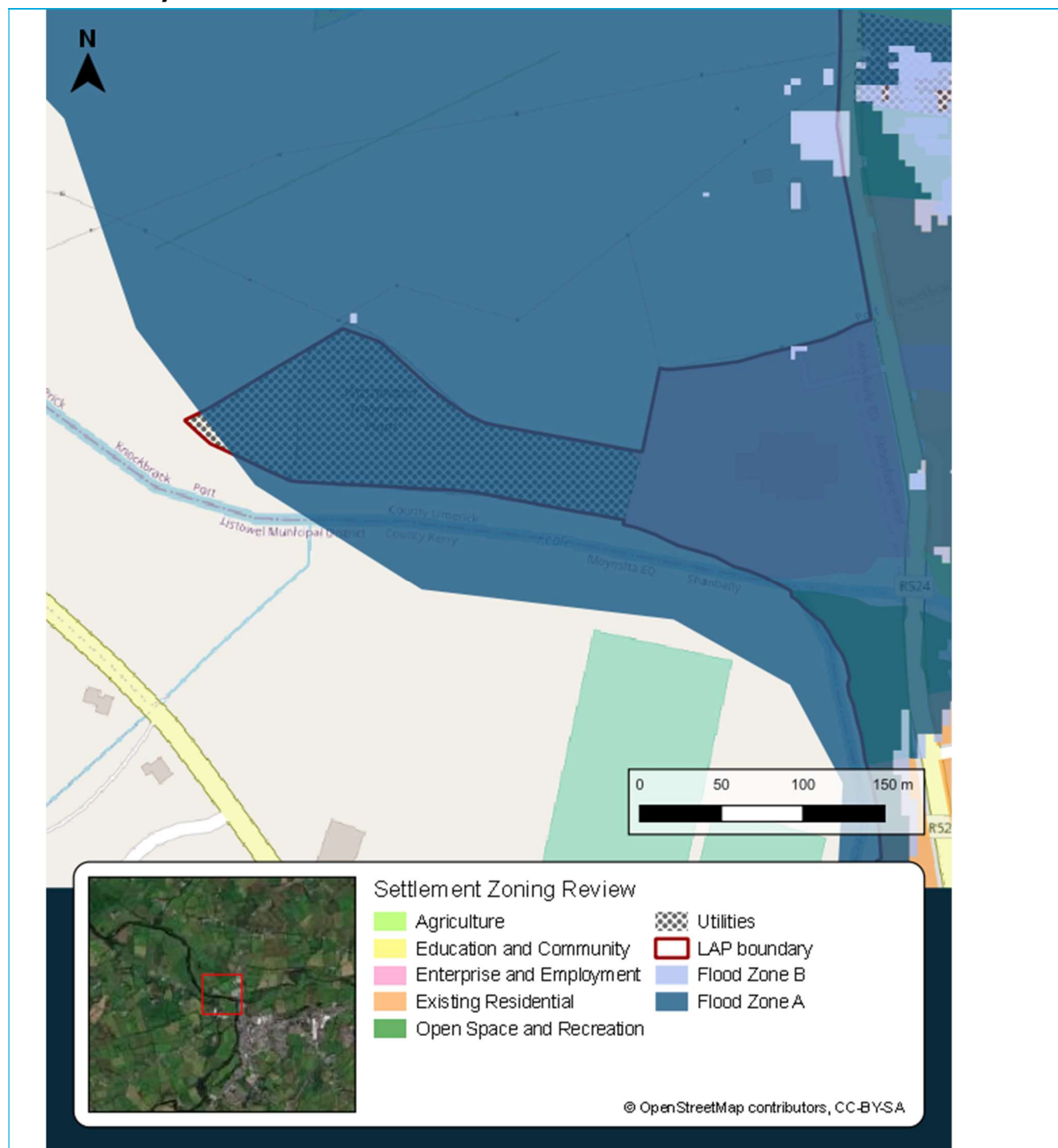
Comment	<p>Allaghaun river flows through the area and is bordered by existing residential zoning close to the bridge and its confluence with the Feale river. CFRAM flood zones show existing residential, Enterprise and Employment and Utilities zoning are within flood zone A and B. Open space and recreation comprises an existing football club with buildings and playing fields. Agriculture also lies within flood zones A and B.</p> <p>There is limited encroachment of flood zone B on to tourism related development.</p>
Climate Change	Low sensitivity to climate change.
Conclusion	<p>Most of the risk is limited to existing development. The ESB substation within the Utilities zoning is considered a highly vulnerable structure.</p> <p>Risk to existing utilities lands can be managed by following the sequential approach and avoiding less or highly vulnerable development in Flood Zone A or B and according to the recommendations contained in section 7. It is not clear as to the extent of the current protection to the site, although it appears there is some raising of the building level and concrete bunding place. Key points are:</p> <ul style="list-style-type: none"> Any future development of the land should be subject to an FRA, which should follow the general guidance provided in the SFRA and must specifically address the following: The sequential approach should be applied and highly vulnerable elements of the site should be located in Flood Zone C, or raised/bunded/protected; FRA should address climate change scenarios in relation to operational levels and potential mitigation measures; Proposals should not impede existing flow paths or cause flood risk impacts to the surrounding areas, and; Any development shall also be required to be built in accordance with LCCC SuDS Policy. <p>Risk to existing residential lands can be managed by following the sequential approach and avoiding less or highly vulnerable development in Flood Zone A or B and according to the recommendations contained in section 7 and on the basis that development is;</p> <ul style="list-style-type: none"> Limited to extensions, renovations and change of use. Bedrooms should be located in the upstairs of two-story buildings when extending existing property. Demolition/reconstruction consisting of infill residential development on the ground floor can only take place in Flood Zone C. Existing flood data does provide flood levels and applicants should contact LCC to discuss further. An appropriately detailed FRA will be required which should follow the general guidance provided in Section 7 of the SFRA. <p>The risk to Enterprise and Employment lands by following the sequential approach and avoiding less or highly vulnerable development in Flood Zone A or B. Any future development of the land should be subject to an FRA which should follow the general guidance provided in Section 7 of the SFRA and must specifically address the following:</p> <ul style="list-style-type: none"> FRA should address climate change scenarios in relation to operational levels and potential mitigation measures; Proposals should not impede existing flow paths or cause flood risk impacts to the surrounding areas, and; Any development shall also be required to be built in accordance with LCCC SuDS Policy. <p>The risk to existing Tourism related development can be managed by</p>

following the sequential approach and avoiding less or highly vulnerable development in Flood Zone A and B and according to recommendations contained in section 7, include:

- Flood Zone B would principally be suitable for water compatible use only;
- FRA should address climate change scenarios in relation to operational levels and potential mitigation measures.

Elsewhere in the Knockbrack West area, risk can be managed in line with approved Policy and the guidance provided within Section 7 of this SFRA.

8.3 Abbeyfeale Mart



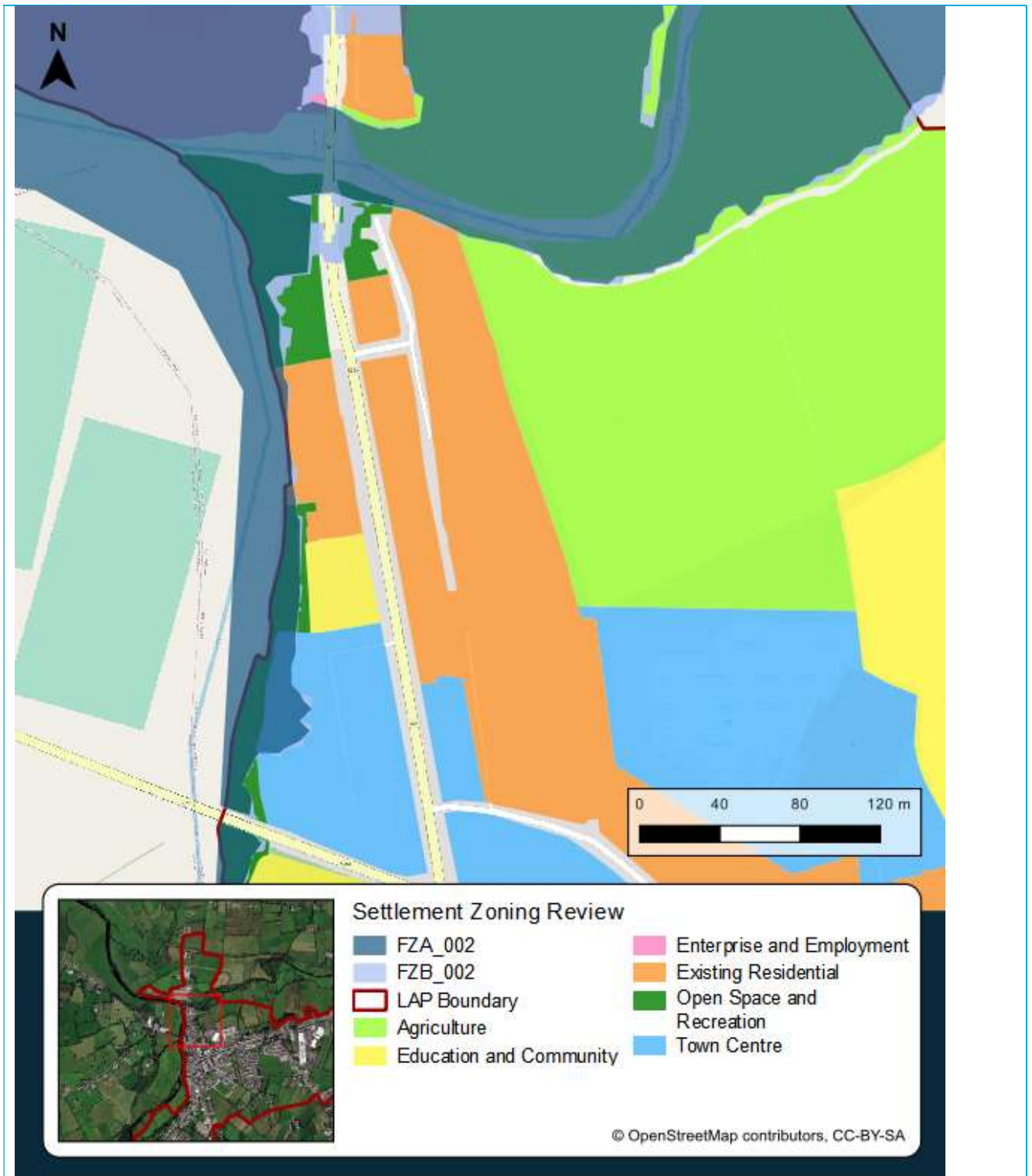
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The flood mapping has been produced in accordance with the Planning Guidelines and therefore ignores the impact of flood protection structures. Areas protected by flood defences still carry a residual risk of flooding due to overtopping or breach, there may also be no guarantee of maintenance in perpetuity. Areas that benefit from defences are annotated separately.

Flood Zone Data	CFRAM (verified by a site visit)
Historic Flooding	Recurring flooding at Allaghaun Bridge
Comment	Utilities and Enterprise and Employment lands are within Flood Zone A/B. Utilities comprises an existing water treatment plant, while Enterprise and Employment is the existing Abbeyfeale Mart.

Climate Change	Low sensitivity to climate change
Conclusion	<p>The Justification Test has been applied and passed for Utilities and Enterprise and Employment.</p> <p>Risk to existing utilities lands comprising of a water treatment plant, can be managed on the basis that any future development of the land should be subject to an FRA which should follow the general guidance provided in Section 7 of the SFRA, and must specifically address the following:</p> <ul style="list-style-type: none"> • The sequential approach should be applied and Highly vulnerable elements of the site should be located in Flood Zone C, or raised/bunded/protected; • FRA should address climate change scenarios in relation to operational levels and potential mitigation measures; • Proposals should not impede existing flow paths or cause flood risk impacts to the surrounding areas, and; • Any development shall also be required to be built in accordance with LCCC SuDS Policy. <p>Risk to the Enterprise and Employment lands can be managed on the basis that any future development of the land should be subject to an FRA which should follow the general guidance provided in section 7 of the SFRA and must specifically address the following:</p> <ul style="list-style-type: none"> • FRA should address climate change scenarios in relation to operational levels and potential mitigation measures; • Proposals should not impede existing flow paths or cause flood risk impacts to the surrounding areas, and; • Any development shall also be required to be built in accordance with LCCC SuDS Policy. <p>Elsewhere in the area, risk can be managed in line with approved Policy and the guidance provided within Section 7 of this SFRA.</p>

8.4 Abbeyfeale West



The flood mapping has been produced in accordance with the Planning Guidelines and therefore ignores the impact of flood protection structures. Areas protected by flood defences still carry a residual risk of flooding due to overtopping or breach, there may also be no guarantee of maintenance in perpetuity. Areas that benefit from defences are annotated separately.

Flood Zone Data

CFRAM (verified by a site visit)

Historic Flooding	Abbeyfeale town has reportedly flooded in the past due to surface water and fluvial flooding.
Comment	The Feale river flows to the west in a northerly direction to the rear of properties on the west side of the street. CFRAM flood zones show existing residential, open space and recreation, education and community facilities lands within flood zone A and B.
Climate Change	Low sensitivity to climate change.
Conclusion	<p>Most of the risk is limited to existing developments and the Justification Test has been applied and passed for Existing Residential and Education and Community.</p> <p>The Justification Test for Existing Residential (see Appendix A.3.1) is passed on the basis that development is;</p> <ul style="list-style-type: none"> • Limited to extensions, renovations and change of use. • Bedrooms should be located in the upstairs of two-story buildings when extending existing property. • Demolition/reconstruction consisting of infill residential development on the ground floor can only take place in Flood Zone C. • Existing flood data does provide flood levels and applicants should contact LCCC to discuss further. An appropriately detailed FRA will be required which should follow the general guidance provided in Section of the SFRA and must specifically address the points detailed in Part 3 of the JT under Appendix A.3.1. <p>The Justification Test for Education and Community zoning (see Appendix A.3.2) is passed on the basis that that the points detailed in Part 3 of the JT under Appendix are adhered to, key points include:</p> <ul style="list-style-type: none"> • Within Flood Zone A/B is limited to extensions, renovations, change of use and water compatible development. • Demolition/reconstruction consisting of infill residential development on the ground floor can only take place in Flood Zone C. • Development is constructed in accordance with the site specific FRAs. • Additional development in Flood Zones A/B should be limited to extensions and renovations. <p>Elsewhere in the area, risk can be managed in line with approved Policy and the guidance provided within Section 7 of this SFRA.</p>

8.5 Town Centre

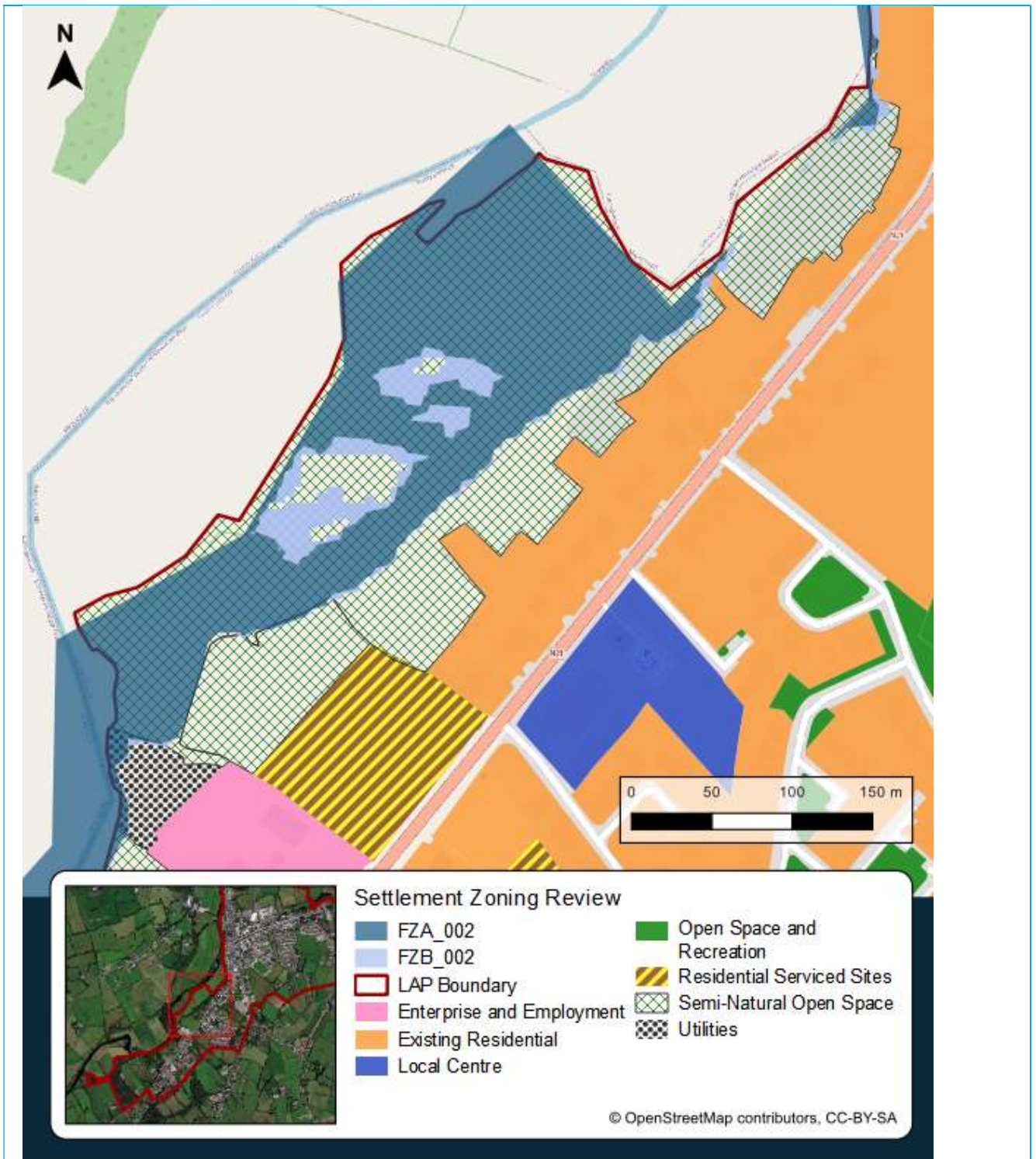


The flood mapping has been produced in accordance with the Planning Guidelines and therefore ignores the impact of flood protection structures. Areas protected by flood defences still carry a residual risk of flooding due to overtopping or breach, there may also be no guarantee of maintenance in perpetuity. Areas that benefit from defences are annotated separately.

Flood Zone Data	CFRAM (verified by a site visit), and JBA modelling
Historic Flooding	The town centre of Abbeyfeale was reported to have flooded in the past due to surface water and fluvial flooding.
Comment	The Feale river flows to the west in a northerly direction to the rear of properties on the west side of the street. CFRAM flood zones show existing residential, open space and recreation, education and community facilities and town centre lands partially within

	<p>flood zone A and B.</p> <p>In 2023 JBA Consulting carried out a flood risk study on the Glórach Stream that flows in a westerly direction through the centre of Abbeyfeale. This flood study shows existing residential and town centre lands to be at potential risk of flooding.</p>
Climate Change	Low Sensitivity to climate change
Conclusion	<p>The Feale river flows to the west in a northerly direction to the rear of properties on the west side of the street. The Glórach Stream flows west towards the Feale through the town centre.</p> <p>The Flood Zones show existing residential, open space and recreation, education and community facilities and town centre lands partially within flood zone A and B.</p> <p>The Justification Test has applied and passed for the Town Centre (see Appendix A.4.1) on the basis that development;</p> <ul style="list-style-type: none"> • Within Flood Zone A/B is limited to extensions, renovations and change of use. • Demolition/reconstruction consisting of infill residential development on the ground floor can only take place in Flood Zone C. • Provision should be made for any potential future flood relief measures. • Any future development should be subject to an FRA which should follow the general guidance provided in Section 7 of the SFRA and must specifically address points listed in Appendix A.4.1. <p>The Justification Test for Education and Community zoning is passed on the basis that that the points detailed in Part 3 of the JT under Appendix A.4.2 are adhered to, key points include:</p> <ul style="list-style-type: none"> • Within Flood Zone A/B development should be water compatible development. • Highly vulnerable development and demolition and reconstruction can only take place in Flood Zone C. • Development is constructed in accordance with the site specific FRAs. <p>The Justification Test for existing residential (see Appendix A.4.3) is passed on the basis that development is:</p> <ul style="list-style-type: none"> • Limited to extensions, renovations and change of use. • Demolition/reconstruction consisting of infill residential development on the ground floor can only take place in Flood Zone C. • There are to be no bedrooms on the ground floor when extending existing residential property in Flood Zone A/B. • Provision should be made for any potential future flood relief measures. • Any future development should be subject to an FRA which should follow the general guidance provided in Section 7 of the SFRA and must specifically address the points detailed in Part 3 of the JT under Appendix A.4.3. <p>The Glórach Stream presents a potential flood risk to Town Centre lands and it is recommended that options are investigated to manage flood risk as a Policy in the Written Statement.</p> <p>Elsewhere in the area, risk can be managed in line with approved Policy and the guidance provided within Section 7 of this SFRA.</p>

8.6 Killarney Road North



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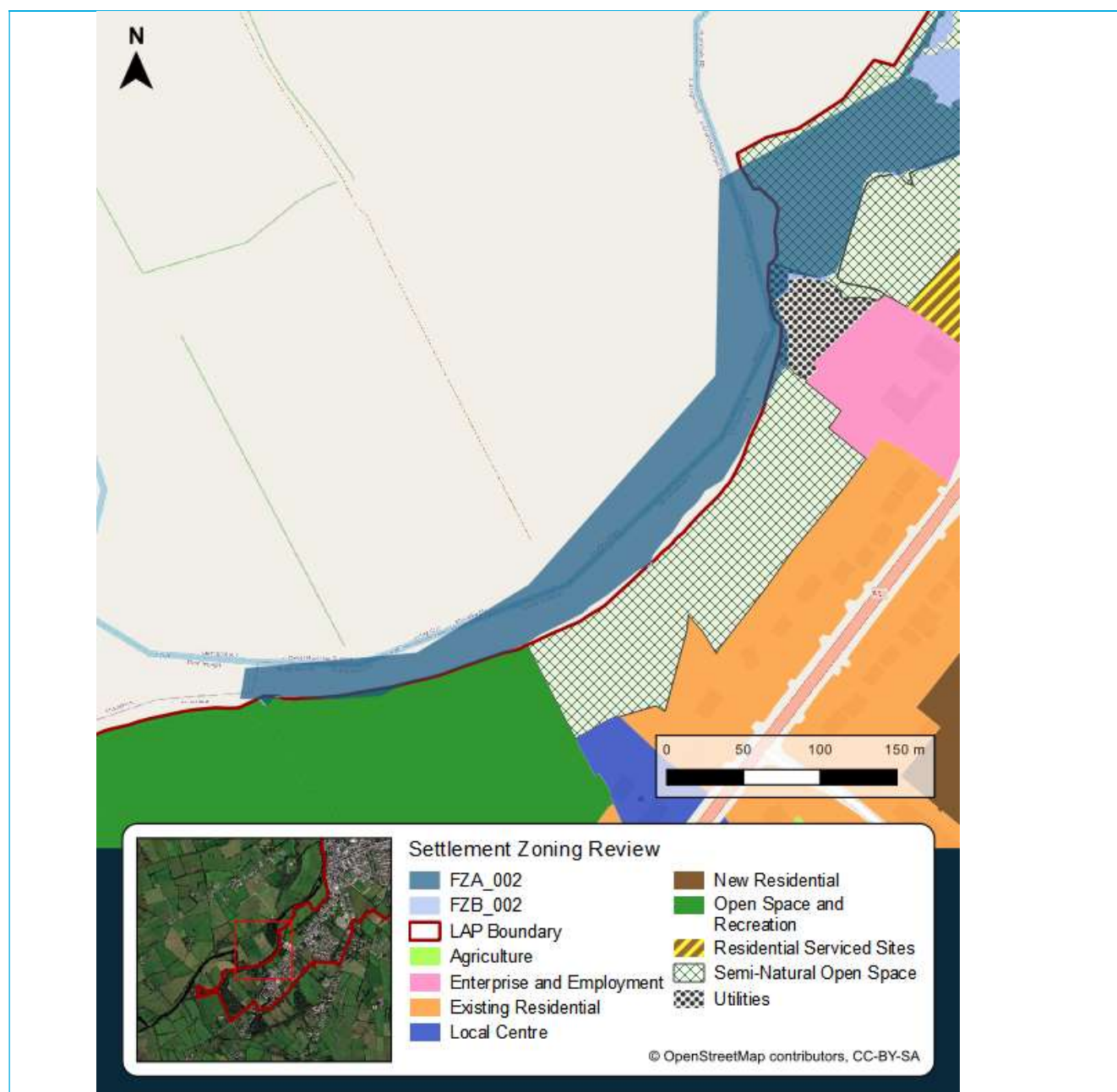
The flood mapping has been produced in accordance with the Planning Guidelines and therefore ignores the impact of flood protection structures. Areas protected by flood defences still carry a residual risk of flooding due to overtopping or breach, there may also be no guarantee of maintenance in perpetuity. Areas that benefit from defences are annotated separately.

Flood Zone Data

CFRAM (verified by a site visit)

Historic Flooding	None reported.
Comment	The Feale river flows to the west in a north easterly direction. CFRAM flood zones show existing residential and semi-natural open space partially within flood zone A and B.
Climate Change	Low to moderate sensitivity to climate change.
Conclusion	<p>The Justification Test has been applied and passed for Existing Residential.</p> <p>Risk to existing residential lands can be managed by following the sequential approach and avoiding less or highly vulnerable development in Flood Zone A or B and according to the recommendations contained in section 7 and on the basis that development is;</p> <ul style="list-style-type: none"> • Limited to extensions, renovations and change of use. • Bedrooms should be located in the upstairs of two-story buildings when extending existing property. • Demolition/reconstruction consisting of infill residential development on the ground floor can only take place in Flood Zone C. • An appropriately detailed FRA will be required which should follow the general guidance provided in Section 7 of the SFRA. <p>Elsewhere in the area, risk can be managed in line with approved Policy and the guidance provided within Section 7 of this SFRA.</p>

8.7 Killarney Road South

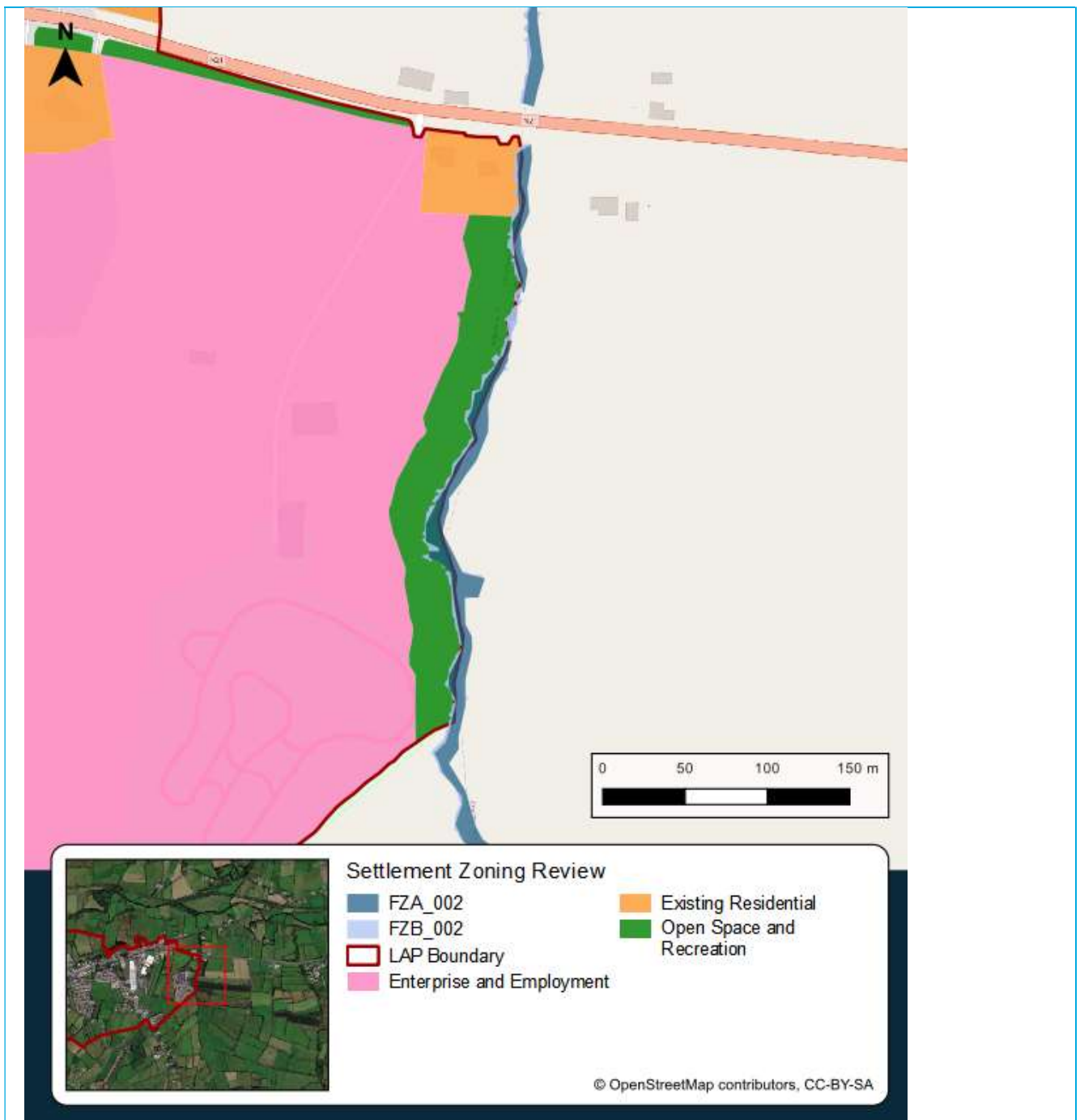


The flood mapping has been produced in accordance with the Planning Guidelines and therefore ignores the impact of flood protection structures. Areas protected by flood defences still carry a residual risk of flooding due to overtopping or breach, there may also be no guarantee of maintenance in perpetuity. Areas that benefit from defences are annotated separately.

Flood Zone Data	CFRAM (verified by a site visit)
Historic Flooding	No historic flooding reported in this area.
Comment	The Feale river flows to the west in a north easterly direction. CFRAM flood zones show utilities, semi natural open space and open space and recreation partially within flood zone A and B.
Climate Change	Low sensitivity to climate change.
Conclusion	Risk to existing utilities lands comprising of a water treatment plant, can be managed on the basis that any future development of the land should be subject to an FRA which should follow the general guidance provided in

	<p>Section 7 of the SFRA, and must specifically address the following:</p> <ul style="list-style-type: none"> • The sequential approach should be applied and Highly vulnerable elements of the site should be located in Flood Zone C, or raised/bunded/protected; • FRA should address climate change scenarios in relation to operational levels and potential mitigation measures; • Proposals should not impede existing flow paths or cause flood risk impacts to the surrounding areas, and; • Any development shall also be required to be built in accordance with LCCC SuDS Policy. <p>Elsewhere in the area, risk can be managed in line with approved Policy and the guidance provided Section 7 of this SFRA.</p>
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8.8 Dromtrasna



The flood mapping has been produced in accordance with the Planning Guidelines and therefore ignores the impact of flood protection structures. Areas protected by flood defences still carry a residual risk of flooding due to overtopping or breach, there may also be no guarantee of maintenance in perpetuity. Areas that benefit from defences are annotated separately.

Flood Zone Data	CFRAM (verified by a site visit)
Historic Flooding	No historic flooding reported in this area.
Comment	The un-named stream flows in a northerly direction, small narrow floodplain overlaps with neighbouring lands.
Climate Change	Low sensitivity to climate change.

Conclusion	<p>The Justification Test has been applied to the Existing Residential lands which interact with Flood Zone A/B.</p> <p>Risk to existing residential lands can be managed by following the sequential approach and avoiding less or highly vulnerable development in Flood Zone A or B and according to the recommendations contained in section 7 and on the basis that development is;</p> <ul style="list-style-type: none"> • Limited to extensions, renovations and change of use. • Bedrooms should be located in the upstairs of two-story buildings when extending existing property. • Demolition/reconstruction consisting of infill residential development on the ground floor can only take place in Flood Zone C. <p>An appropriately detailed FRA will be required which should include an assessment of culvert blockage and follow the general guidance provided in Section 7 of the SFRA.</p> <p>Elsewhere in the area, risk can be managed in line with approved Policy and the guidance provided within Section 7 of this SFRA.</p>
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8.9 Clash



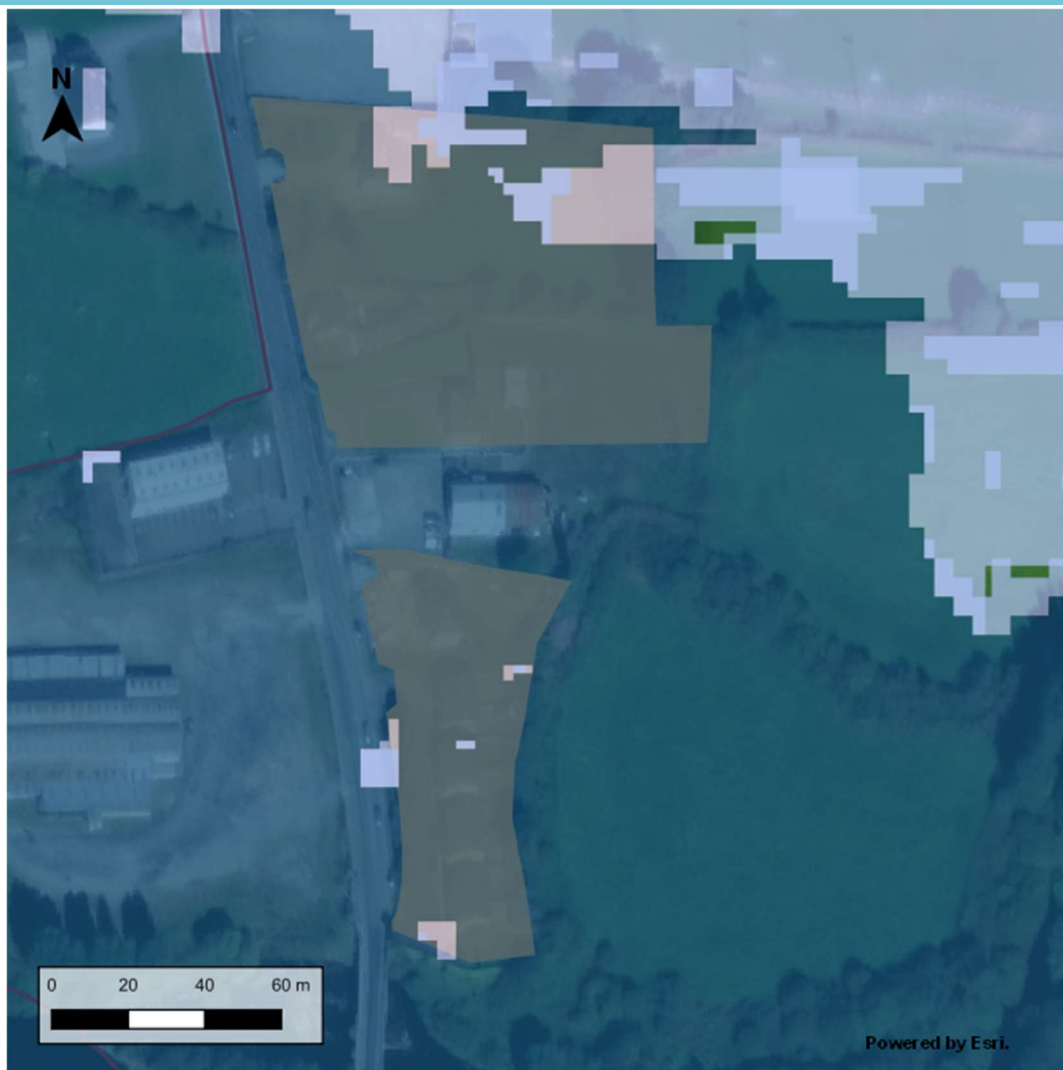
The flood mapping has been produced in accordance with the Planning Guidelines and therefore ignores the impact of flood protection structures. Areas protected by flood defences still carry a residual risk of flooding due to overtopping or breach, there may also be no guarantee of maintenance in perpetuity. Areas that benefit from defences are annotated separately.

Flood Zone Data	JBA modelling
Historic Flooding	No historic flooding has been reported here.

Comment	The Glórach Stream flows in a north westerly direction. JBA modelling shows Existing Residential, Residential Development Area, Agricultural and Open Space and Recreation at risk.
Climate Change	Low sensitivity to climate change.
Conclusion	<p>Much of the risk is limited to Open Space and a small margin of existing development.</p> <p>Risk to existing residential lands can be managed by following the sequential approach and avoiding less or highly vulnerable development in Flood Zone A or B and according to the recommendations contained in section 7 and on the basis that development is;</p> <ul style="list-style-type: none"> • Limited to extensions, renovations and change of use. • Bedrooms should be located in the upstairs of two-story buildings when extending existing property. • Demolition/reconstruction consisting of infill residential development on the ground floor can only take place in Flood Zone C. • An appropriately detailed FRA will be required which should follow the general guidance provided in Section 7 of the SFRA. <p>For other sites within the area manage risk in line with approved Policy and the guidance provided within Section 7 of this SFRA.</p>

Appendix A - Justification Tests

A.1.1 Existing Residential



1. The urban settlement is targeted for growth under the National Spatial Strategy, regional planning guidelines, statutory plans or under the Planning Guidelines or Planning Directives provisions of the Planning and Development Act 2000, as amended.

Abbeyfeale is a Level 3 Settlement in the Settlement Hierarchy, identified in the Limerick Development Plan 2022 – 2028. The Limerick Development Plan promotes Level 3 towns as settlements capable of population and employment growth sustaining a wide range of functions, services and employment opportunities supporting Abbeyfeale's hinterland.

Abbeyfeale requires investment in services, infrastructure, transport, employment and housing. In line with National Policy 3c 30% of all new homes targeted within Level 3 settlements shall be within the existing built-up area of the town.

2. The zoning or designation of the lands for the particular use or development type is required to achieve the proper planning

Lands are located within 700 metres from the town centre and lands are zoned for Existing Residential development

and sustainable development of the urban settlement and, in particular:	and is occupied with exiting dwelling houses on the lands.
i. Is essential to facilitate regeneration and/or expansion of the centre of the urban settlement:	Lands are located within 700 metres of the town centre, occupied with existing dwelling houses and form an integral part of the urban settlement.
ii. Comprises significant previously developed and/or under-utilised lands:	Lands are currently developed and occupied and zoning reflects land use on site.
iii. Is within or adjoining the core of an established or designated urban settlement:	Lands are located within 700 metres of the town centre, occupied with existing dwelling houses and form an integral part of the urban settlement.
iv. Will be essential in achieving compact and sustainable urban growth;	Lands are currently developed and occupied and zoning reflects land use on site.
v. There are no suitable alternative lands for the particular use or development type, in areas at lower risk of flooding within or adjoining the core of the urban settlement.	Lands are currently developed and occupied and zoning reflects land use on site.
3. A flood risk assessment to an appropriate level of detail has been carried out as part of the Strategic Environmental Assessment as part of the development plan preparation process, which demonstrates that flood risk to the development can be adequately managed and the use or development of the lands will not cause unacceptable adverse impacts elsewhere. N.B. The acceptability or otherwise of levels of any residual risk should be made with consideration for the proposed development and the local context and should be described in the relevant flood risk assessment	<p>A significant proportion of the land here is within Flood Zone B.</p> <p>Parts 1 and 2 of the test found that it is considered appropriate to retain the existing zoning. This is on the basis that;</p> <ul style="list-style-type: none"> • Additional development in Flood Zones A/B should be limited to extensions, renovations and change of use. • Demolition/reconstruction consisting of infill residential development on the ground floor can only take place in Flood Zone C. <p>Any future development should be subject to an FRA which should follow the general guidance provided in Section 7 of the SFRA and must specifically address the following:</p> <ul style="list-style-type: none"> • FRA should address climate change and FFL requirements in relation to Table 7-1 and Table 7-2; • Bedrooms should be located in the upstairs of two-story buildings when extending existing property; • Flood resilient construction materials and fittings should be considered if in Flood Zone A/B; • Proposals should not impede existing flow paths or cause flood risk impacts to the surrounding areas, and; • Any development shall also be required to be built in accordance with LCCC SuDS Policy.

A.1.2 Enterprise and Employment at Railway Road



1. The urban settlement is targeted for growth under the National Spatial Strategy, regional planning guidelines, statutory plans or under the Planning Guidelines or Planning Directives provisions of the Planning and Development Act 2000, as amended.	Abbeyfeale is a Level 3 Settlement in the Settlement Hierarchy, identified in the Limerick Development Plan 2022 – 2028. The Limerick Development Plan promotes Level 3 towns as settlements capable of population and employment growth sustaining a wide range of functions, services and employment opportunities supporting Abbeyfeale's hinterland. Abbeyfeale requires investment in services, infrastructure, transport, employment and housing. In line with National Policy 3c 30% of all new homes targeted within Level 3 settlements shall be within the existing built-up area of the town.
2. 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 and, in particular:	Lands are zoned for Enterprise and Employment purposes to reflect the existing uses on the lands including a car repair garage, which is currently in operation on the lands.
i. Is essential to facilitate regeneration and/or expansion of the centre of the urban settlement:	Lands are developed and occupied. Reflecting existing uses with the land use zoning.
ii. Comprises significant previously developed and/or under-utilised lands:	Lands are developed and occupied. Reflecting existing uses with the land use zoning.
iii. Is within or adjoining the core of an established or designated urban settlement:	Lands are developed and occupied. Reflecting existing uses with the land use zoning.

iv. Will be essential in achieving compact and sustainable urban growth;	Lands zoned Enterprise and Employment reflecting existing uses with the land use zoning.
v. There are no suitable alternative lands for the particular use or development type, in areas at lower risk of flooding within or adjoining the core of the urban settlement.	Lands zoned Enterprise and Employment reflecting existing uses with the land use zoning.
3. A flood risk assessment to an appropriate level of detail has been carried out as part of the Strategic Environmental Assessment as part of the development plan preparation process, which demonstrates that flood risk to the development can be adequately managed and the use or development of the lands will not cause unacceptable adverse impacts elsewhere. N.B. The acceptability or otherwise of levels of any residual risk should be made with consideration for the proposed development and the local context and should be described in the relevant flood risk assessment	<p>The existing Enterprise and Employment lands are within Flood Zone A\B.</p> <p>Parts 1 and 2 of the test found that it is considered appropriate to retain the existing zoning.</p> <p>Any further development of the lands should be subject to an appropriately detailed FRA which should follow the general guidance provided in Section 7 of the SFRA and must specifically address the following:</p> <ul style="list-style-type: none"> • The sequential approach should be applied and Less/Highly vulnerable elements of the site, including roads/access/infrastructure should preferentially be located in Flood Zone C; • Less or highly vulnerable development would only be suitable in Flood Zone C. • FRA should address climate change and FFL requirements in relation to Table 7-1 and Table 7-2; • Proposals should not impede existing flow paths or cause flood risk impacts to the surrounding areas. • Any development shall also be required to be built in accordance with LCCC SuDS Policy.

A.1.3 Tourism related development



1. The urban settlement is targeted for growth under the National Planning Framework, Regional Spatial and Economic Strategy (RSES), statutory plans as defined above or under the Planning Guidelines or Planning Directives provisions of the Planning and Development Act, 2000, as amended.

Abbeyfeale is a Level 3 Settlement in the Settlement Hierarchy, identified in the Limerick Development Plan 2022 – 2028. The Limerick Development Plan promotes Level 3 towns as settlements capable of population and employment growth sustaining a wide range of functions, services and employment opportunities supporting Abbeyfeale's hinterland.

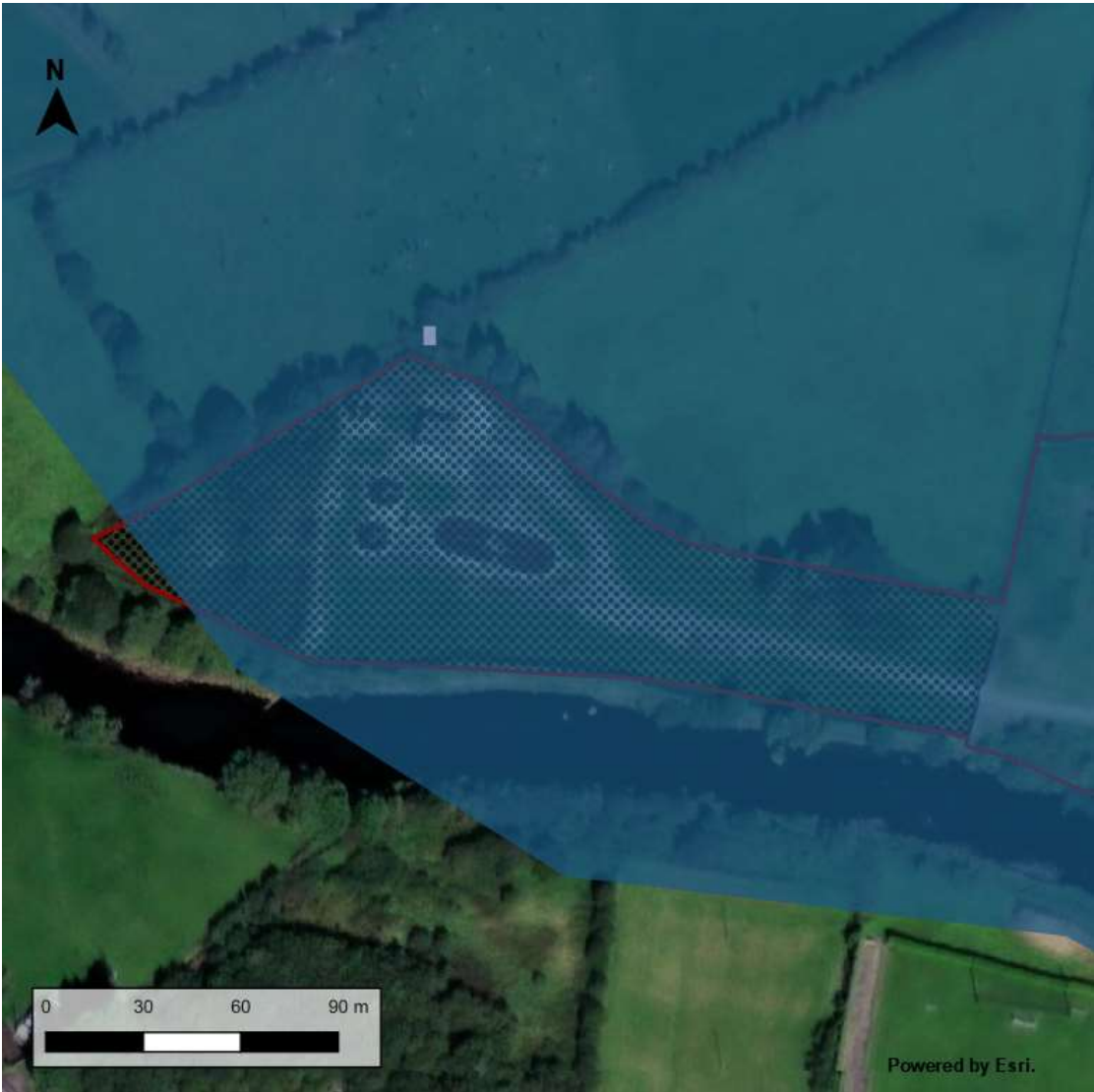
Abbeyfeale requires investment in services, infrastructure, transport, employment and housing. In line with National Policy 3c 30% of all new homes targeted within Level 3 settlements shall be within the existing built-up area of the town. The lands are located immediately adjacent to the Limerick Greenway and a very limited area is at flood risk.

2. 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 and in particular:	The lands are zoned to support the development of the Limerick Greenway, an important sustainable mobility link and tourism asset for West Limerick. The lands are strategically located adjacent to the Greenway and offer opportunity for development of tourism related development.
i. Is essential to facilitate regeneration and/or expansion of the centre of the urban settlement	The lands are strategically located adjacent to the Greenway and offer opportunity for development of tourism related development. Only a very limited area of the lands are identified as being at flood risk.
ii. Comprises significant previously developed and/or underutilised lands,	The lands are brownfield and are occupied by the former Railway Goods Shed, which is identified for redevelopment to support the development of the Limerick Greenway.
iii. Is within or adjoining the core of an established or designated urban settlement,	The lands are located approximately 1km from the town centre of Abbeyfeale.
iv. Will be essential in achieving compact and sustainable urban growth, and	The lands are brownfield and are occupied by the former Railway Goods Shed, which is identified for redevelopment to support the development of the Limerick Greenway.
v. There are no suitable alternative lands for the particular use or development type, in areas at lower risk of flooding within or adjoining the core of the urban settlement.	The lands are brownfield and are occupied by the former Railway Goods Shed, which is identified for redevelopment to support the development of the Limerick Greenway.
3. A flood risk assessment to an appropriate level of detail has been carried out as part of the Strategic Environmental Assessment as part of the development plan preparation process, which demonstrates that flood risk to the development can be adequately managed and the use or development of the lands will not cause unacceptable adverse impacts elsewhere. N.B. The acceptability or otherwise of levels of any residual risk should be made with consideration for the proposed development and the local context and should be described in the relevant flood risk assessment	<p>A tourist site relating to the Limerick Greenway is within Flood Zone B. Any buildings at the site are located in Flood Zone C.</p> <p>Parts 1 and 2 of the test found that it is considered appropriate to retain the existing zoning for this site.</p> <p>Any further development of the lands should be subject to an appropriately detailed FRA which should follow the general guidance provided in Section 7 of the SFRA and must specifically address the following:</p> <ul style="list-style-type: none"> • Flood Zone B would principally be suitable for water compatible use only; • FRA should address climate change and FFL requirements in

	<p>relation to Table 7-1 and Table 7-2;</p> <ul style="list-style-type: none"> • Proposals should not impede existing flow paths or cause flood risk impacts to the surrounding areas, and; • Any development shall also be required to be built in accordance with LCCC SuDS Policy.
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A.2 Abbeyfeale Water Treatment Plant

A.2.1 Utilities

	
<p>1. The urban settlement is targeted for growth under the National Spatial Strategy, regional planning guidelines, statutory plans or under the Planning Guidelines or Planning Directives provisions of the Planning and Development Act 2000, as amended.</p>	<p>Abbeyfeale is a Level 3 Settlement in the Settlement Hierarchy, identified in the Limerick Development Plan 2022 – 2028. The Limerick Development Plan promotes Level 3 towns as settlements capable of population and employment growth sustaining a wide range of functions, services and employment opportunities supporting Abbeyfeale’s hinterland.</p> <p>Abbeyfeale requires investment in services, infrastructure, transport, employment and housing. In line with National Policy 3c 30% of all new homes targeted within Level 3 settlements shall be within the existing built-up area of the town.</p>
<p>2. The zoning or designation of the lands for the particular use or development type</p>	<p>The lands are zoned Utilities to reflect the existing land use on these lands. The lands are occupied with the water</p>

is required to achieve the proper planning and sustainable development of the urban settlement and, in particular:	treatment plant for Abbeyfeale.
i. Is essential to facilitate regeneration and/or expansion of the centre of the urban settlement:	The lands are zoned Utilities to reflect the existing land use on these lands. The lands are occupied with the water treatment plant for Abbeyfeale.
ii. Comprises significant previously developed and/or under-utilised lands:	The lands are zoned Utilities to reflect the existing land use on these lands. The lands are occupied with the water treatment plant for Abbeyfeale.
iii. Is within or adjoining the core of an established or designated urban settlement:	The lands are zoned Utilities to reflect the existing land use on these lands. The lands are occupied with the water treatment plant for Abbeyfeale.
iv. Will be essential in achieving compact and sustainable urban growth;	The lands are zoned Utilities to reflect the existing land use on these lands. The lands are occupied with the water treatment plant for Abbeyfeale.
v. There are no suitable alternative lands for the particular use or development type, in areas at lower risk of flooding within or adjoining the core of the urban settlement.	Lands are occupied with an existing use and the land use zoning reflects this use.
3. A flood risk assessment to an appropriate level of detail has been carried out as part of the Strategic Environmental Assessment as part of the development plan preparation process, which demonstrates that flood risk to the development can be adequately managed and the use or development of the lands will not cause unacceptable adverse impacts elsewhere. N.B. The acceptability or otherwise of levels of any residual risk should be made with consideration for the proposed development and the local context and should be described in the relevant flood risk assessment	<p>Utility Lands are within Flood Zone A\B.</p> <p>Parts 1 and 2 of the test found that it is considered appropriate to retain the existing zoning.</p> <p>Any future expansion of the existing public utility should be subject to an FRA which should follow the general guidance provided in Section 7 of the SFRA and must specifically address the following:</p> <ul style="list-style-type: none"> • Highly vulnerable elements of the site should be raised/bunded/protected; • FRA should address climate change and FFL requirements in relation to Table 7-1 and Table 7-2; • Proposals should not impede existing flow paths or cause flood risk impacts to the surrounding areas, and; • Any development shall also be required to be built in accordance with LCCC SuDS Policy.

A.3

A.3 Abbeyfeale West

A.3.1 Existing Residential



1. The urban settlement is targeted for growth under the National Spatial Strategy, regional planning guidelines, statutory plans or under the Planning Guidelines or Planning Directives provisions of the Planning and Development Act 2000, as amended.

Abbeyfeale is a Level 3 Settlement in the Settlement Hierarchy, identified in the Limerick Development Plan 2022 – 2028. The Limerick Development Plan promotes Level 3 towns as settlements capable of population and employment growth sustaining a wide range of functions, services and employment opportunities supporting Abbeyfeale's hinterland.

Abbeyfeale requires investment in services, infrastructure, transport, employment and housing. In line with National Policy 3c 30% of all new homes targeted within Level 3 settlements shall be within the existing built-up area of the town.

2. 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 and, in particular:

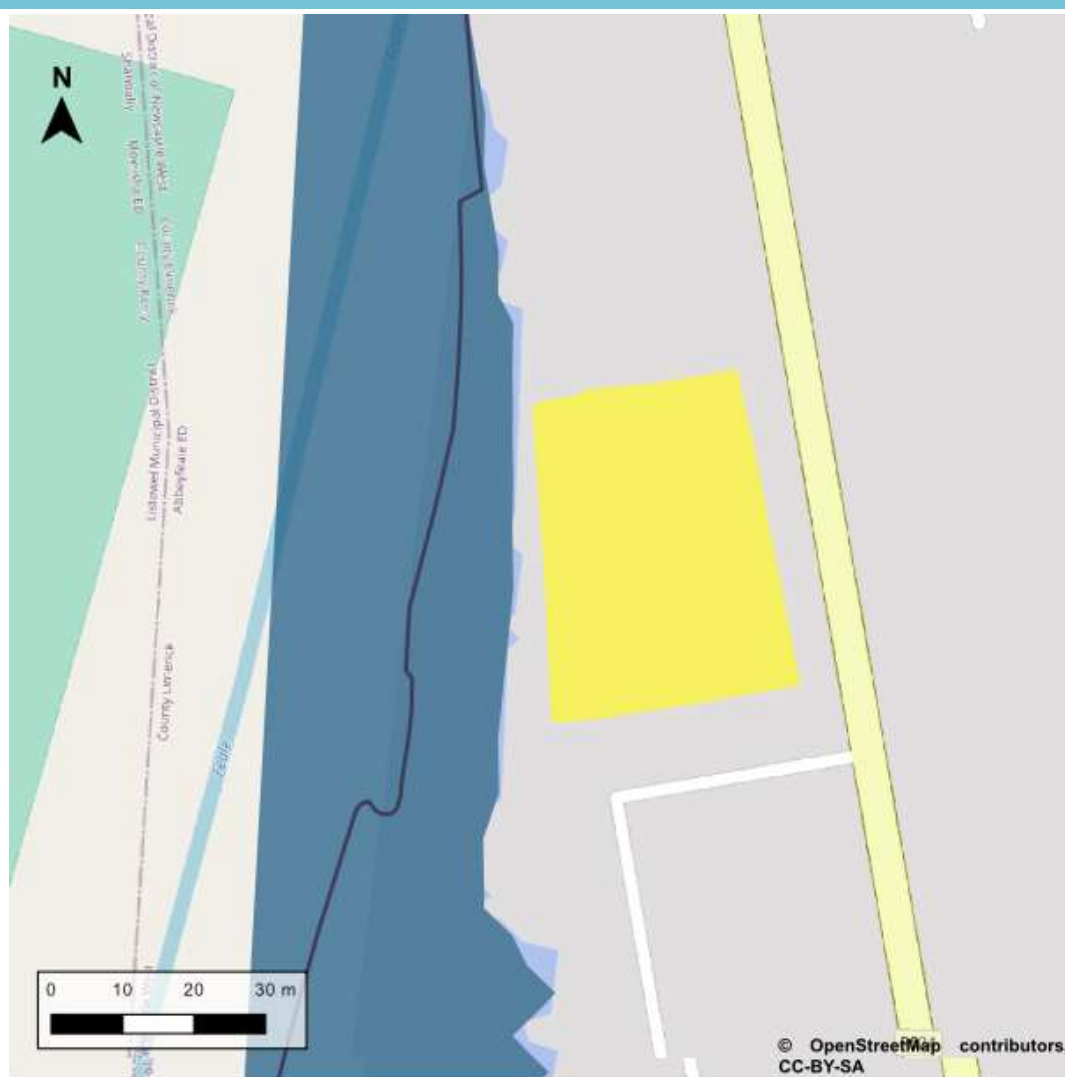
Lands are located within 450 metres from the town centre and lands are zoned for Existing Residential development and is occupied with exiting dwelling houses on the lands.

i. Is essential to facilitate regeneration

Lands are located within 450 metres of the town centre,

and/or expansion of the centre of the urban settlement:	occupied with existing dwelling houses and form an integral part of the urban settlement.
ii. Comprises significant previously developed and/or under-utilised lands:	Lands are currently developed and occupied and zoning reflects land use on site.
iii. Is within or adjoining the core of an established or designated urban settlement:	Lands are located within 450 metres of the town centre, occupied with existing dwelling houses and form an integral part of the urban settlement.
iv. Will be essential in achieving compact and sustainable urban growth;	Lands are currently developed and occupied and zoning reflects land use on site.
v. There are no suitable alternative lands for the particular use or development type, in areas at lower risk of flooding within or adjoining the core of the urban settlement.	Lands are currently developed and occupied and zoning reflects land use on site.
3. A flood risk assessment to an appropriate level of detail has been carried out as part of the Strategic Environmental Assessment as part of the development plan preparation process, which demonstrates that flood risk to the development can be adequately managed and the use or development of the lands will not cause unacceptable adverse impacts elsewhere. N.B. The acceptability or otherwise of levels of any residual risk should be made with consideration for the proposed development and the local context and should be described in the relevant flood risk assessment	<p>A significant proportion of the land here is within Flood Zone B. Parts 1 and 2 of the test found that it is considered appropriate to retain the existing zoning. This is on the basis that;</p> <ul style="list-style-type: none"> • Additional development in Flood Zones A/B should be limited to extensions, renovations and change of use. • Demolition/reconstruction consisting of infill residential development on the ground floor can only take place in Flood Zone C. <p>Any future development should be subject to an FRA which should follow the general guidance provided in Section 7 of the SFRA and must specifically address the following:</p> <ul style="list-style-type: none"> • FRA should address climate change and FFL requirements in relation to Table 7-1 and Table 7-2; • Bedrooms should be located in the upstairs of two-story buildings when extending existing property; • Flood resilient construction materials and fittings should be considered if in Flood Zone A/B; • Proposals should not impede existing flow paths or cause flood risk impacts to the surrounding areas, and; • Any development shall also be required to be built in accordance with LCCC SuDS Policy.

A.3.2 Education and Community Facilities



1. The urban settlement is targeted for growth under the National Spatial Strategy, regional planning guidelines, statutory plans or under the Planning Guidelines or Planning Directives provisions of the Planning and Development Act 2000, as amended.

Abbeyfeale is a Level 3 Settlement in the Settlement Hierarchy, identified in the Limerick Development Plan 2022 – 2028. The Limerick Development Plan promotes Level 3 towns as settlements capable of population and employment growth sustaining a wide range of functions, services and employment opportunities supporting Abbeyfeale's hinterland.

Abbeyfeale requires investment in services, infrastructure, transport, employment and housing. In line with National Policy 3c 30% of all new homes targeted within Level 3 settlements shall be within the existing built-up area of the town.

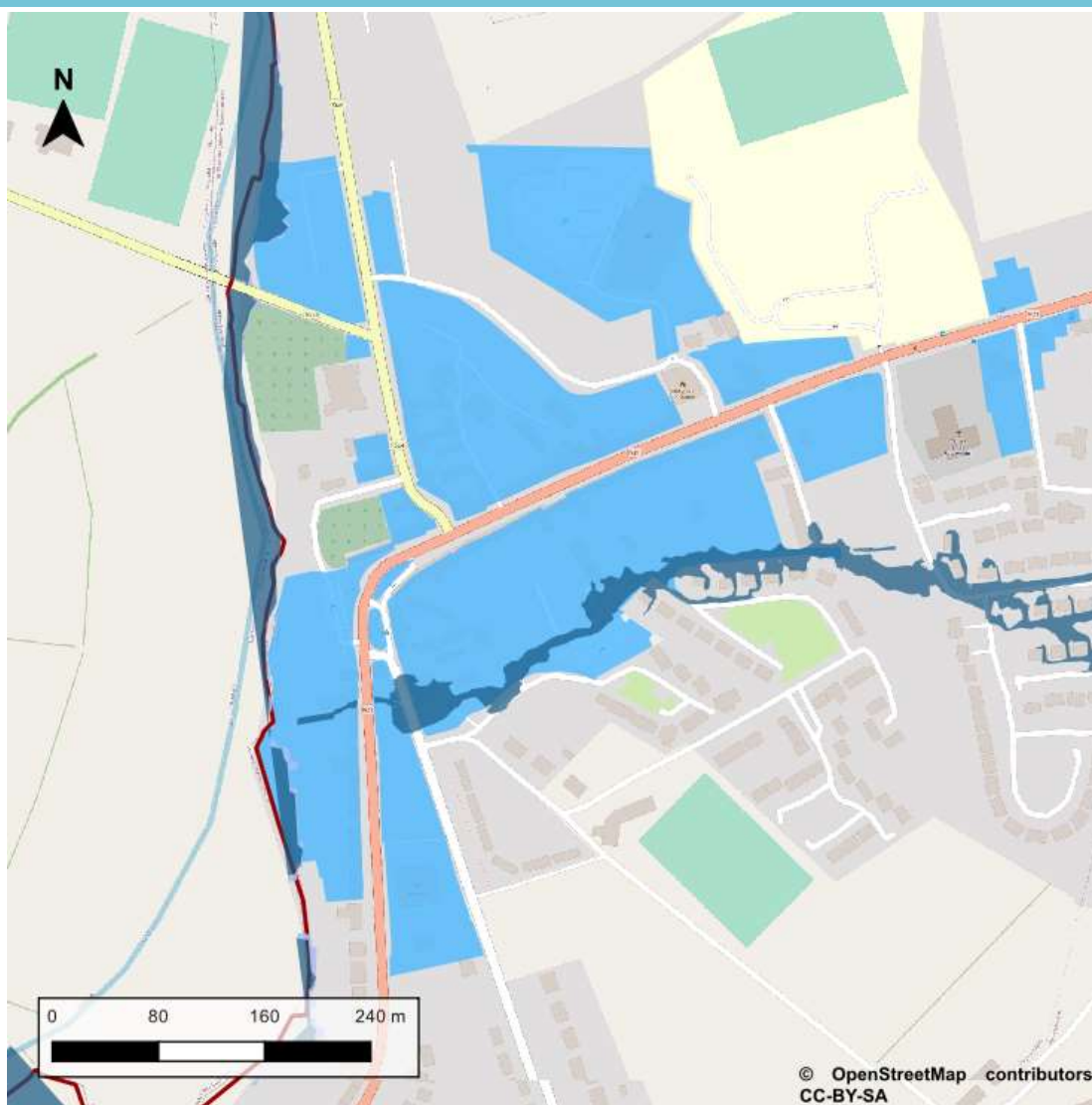
2. The zoning or designation of the lands for the particular use or development type is required to achieve the proper planning and sustainable development of the urban settlement and, in particular:

Lands are located within 500 metres from the town centre and lands are zoned for Community and Education use and is occupied with Community Facilities on the lands.

i. Is essential to facilitate regeneration and/or expansion of the centre of the urban settlement:	Lands are located within 500 metres of the town centre, occupied with existing Community Facilities and form an integral part of the urban settlement.
ii. Comprises significant previously developed and/or under-utilised lands:	Lands are currently developed and occupied and zoning reflects land use on site.
iii. Is within or adjoining the core of an established or designated urban settlement:	Lands are located within 500 metres of the town centre, occupied with existing Community Facilities and form an integral part of the urban settlement.
iv. Will be essential in achieving compact and sustainable urban growth;	Lands are currently developed and occupied and zoning reflects land use on site.
v. There are no suitable alternative lands for the particular use or development type, in areas at lower risk of flooding within or adjoining the core of the urban settlement.	Lands are currently developed and occupied and zoning reflects land use on site.
3. A flood risk assessment to an appropriate level of detail has been carried out as part of the Strategic Environmental Assessment as part of the development plan preparation process, which demonstrates that flood risk to the development can be adequately managed and the use or development of the lands will not cause unacceptable adverse impacts elsewhere. N.B. The acceptability or otherwise of levels of any residual risk should be made with consideration for the proposed development and the local context and should be described in the relevant flood risk assessment	<p>The existing Education and Community Facilities Lands are within Flood Zone A\B.</p> <p>Parts 1 and 2 of the test found that it is considered appropriate to retain the existing zoning.</p> <p>Any future construction should be subject to an FRA which should follow the general guidance provided in Section 7 of the SFRA and must specifically address the following:</p> <ul style="list-style-type: none"> • Only water compatible development should be placed in Flood Zone B; • FRA should address climate change and FFL requirements in relation to Table 7-1 and Table 7-2; • Proposals should not impede existing flow paths or cause flood risk impacts to the surrounding areas, and; • Development is constructed in accordance with the site specific FRAs. • Any development shall also be required to be built in accordance with LCCC SuDS Policy.

A.4 Town Centre

A.4.1 Town Centre



1. The urban settlement is targeted for growth under the National Spatial Strategy, regional planning guidelines, statutory plans or under the Planning Guidelines or Planning Directives provisions of the Planning and Development Act 2000, as amended.

Abbeyfeale is a Level 3 Settlement in the Settlement Hierarchy, identified in the Limerick Development Plan 2022 – 2028. The Limerick Development Plan promotes Level 3 towns as settlements capable of population and employment growth sustaining a wide range of functions, services and employment opportunities supporting Abbeyfeale's hinterland.

Abbeyfeale requires investment in services, infrastructure, transport, employment and housing. In line with National Policy 3c 30% of all new homes targeted within Level 3 settlements shall be within the existing built-up area of the town.

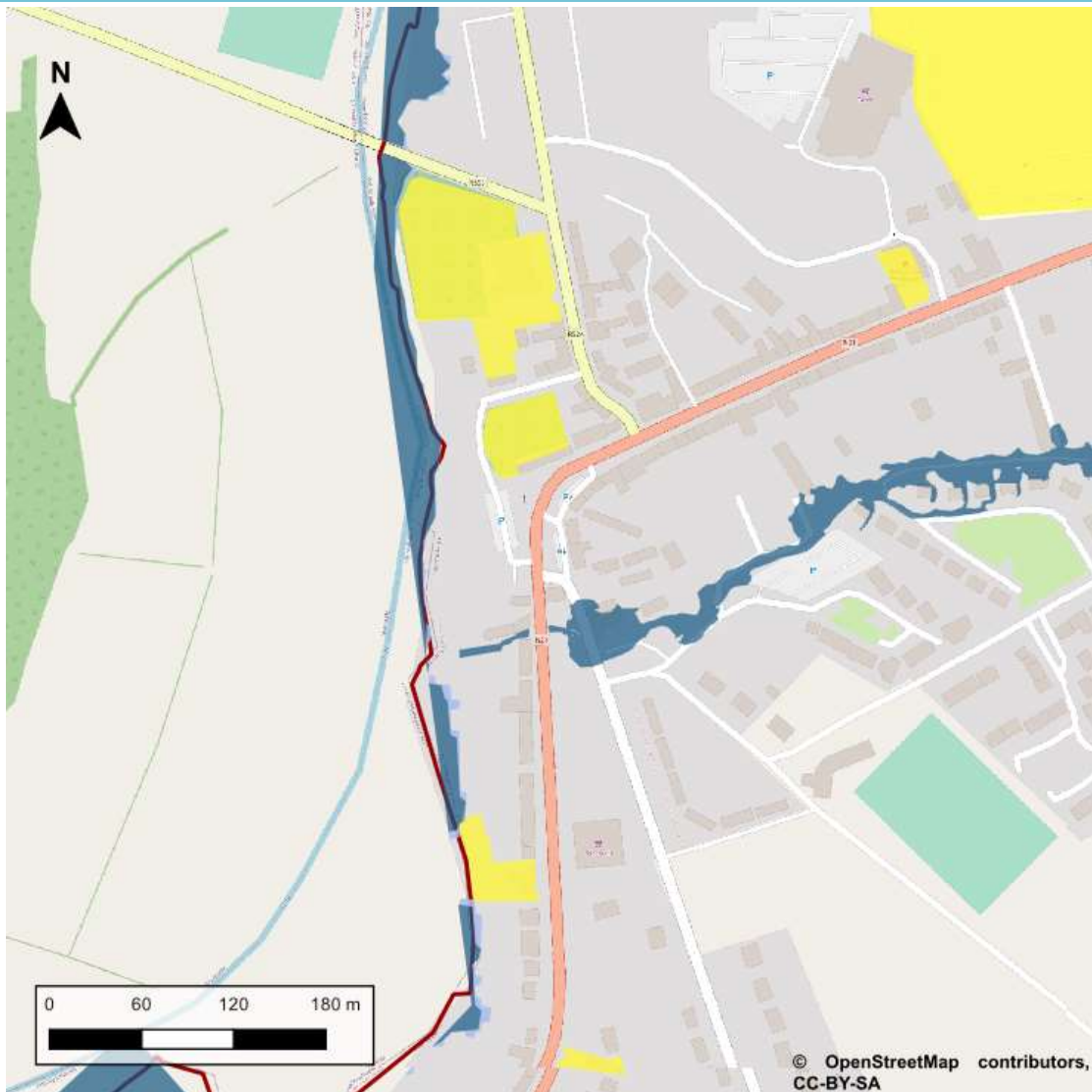
2. The zoning or designation of the lands for the particular use or development type is required to achieve the proper planning

Lands are zoned town centre and make up the historic fabric of Abbeyfeale. The lands are located within the core of the settlement and by in large comprise of developed lands and in

and sustainable development of the urban settlement and, in particular:	accordance with national and regional planning policy are critical to support the town centre first approach to development of the town centre of Abbeyfeale.
i. Is essential to facilitate regeneration and/or expansion of the centre of the urban settlement:	These lands are essential to facilitate regeneration, consolidation and expansion of the centre of the urban settlement
ii. Comprises significant previously developed and/or under-utilised lands:	The lands zoned town centre comprises of significant previously developed and some under-utilised lands to the backlands, which are critical to the enhancements of Abbeyfeale town centre.
iii. Is within or adjoining the core of an established or designated urban settlement:	The lands are located in the core of the established settlement of Abbeyfeale.
iv. Will be essential in achieving compact and sustainable urban growth;	The lands are essential in achieving compact and sustainable urban growth of the town of Abbeyfeale in line with national and regional planning policy.
v. There are no suitable alternative lands for the particular use or development type, in areas at lower risk of flooding within or adjoining the core of the urban settlement.	Having regard to the location of these lands at the centre of Abbeyfeale town centre, there are no other lands as strategically located as these lands to achieve compact sustainable development in line with national and regional planning policy.
3. A flood risk assessment to an appropriate level of detail has been carried out as part of the Strategic Environmental Assessment as part of the development plan preparation process, which demonstrates that flood risk to the development can be adequately managed and the use or development of the lands will not cause unacceptable adverse impacts elsewhere. N.B. The acceptability or otherwise of levels of any residual risk should be made with consideration for the proposed development and the local context and should be described in the relevant flood risk assessment	<p>Parts of the Town Centre are within Flood Zone A/B. While most of the land is under existing development.</p> <p>Parts 1 and 2 of the test found that it is considered appropriate to retain the existing zoning. This is on the basis that;</p> <ul style="list-style-type: none"> • Within Flood Zone A/B development is limited to extensions, renovations and change of use. • Demolition/reconstruction consisting of infill residential development on the ground floor can only take place in Flood Zone C. • Less vulnerable development is appropriate within Flood Zone B. <p>Any future development should be subject to an FRA which should follow the general guidance provided in Section 7 of the SFRA and must specifically address the following:</p> <ul style="list-style-type: none"> • FRA should address climate change and FFL requirements in relation to Table 7-1 and Table 7-2, where practicable; • Bedrooms should be located in the upstairs of two-story buildings when extending existing residential property in Flood Zone A/B; • Flood resilient construction materials and fittings should be considered if in Flood Zone A/B; • Provision should be made for any potential future flood relief measures;

	<ul style="list-style-type: none"> Proposals should not impede existing flow paths or cause flood risk impacts to the surrounding areas, and; Any development shall also be required to be built in accordance with LCCC SuDS Policy.
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A.4.2 Education and Community Facilities



1. The urban settlement is targeted for growth under the National Spatial Strategy, regional planning guidelines, statutory plans or under the Planning Guidelines or Planning Directives provisions of the Planning and Development Act 2000, as amended.

Abbeyfeale is a Level 3 Settlement in the Settlement Hierarchy, identified in the Limerick Development Plan 2022 – 2028. The Limerick Development Plan promotes Level 3 towns as settlements capable of population and employment growth sustaining a wide range of functions, services and employment opportunities supporting Abbeyfeale's hinterland.

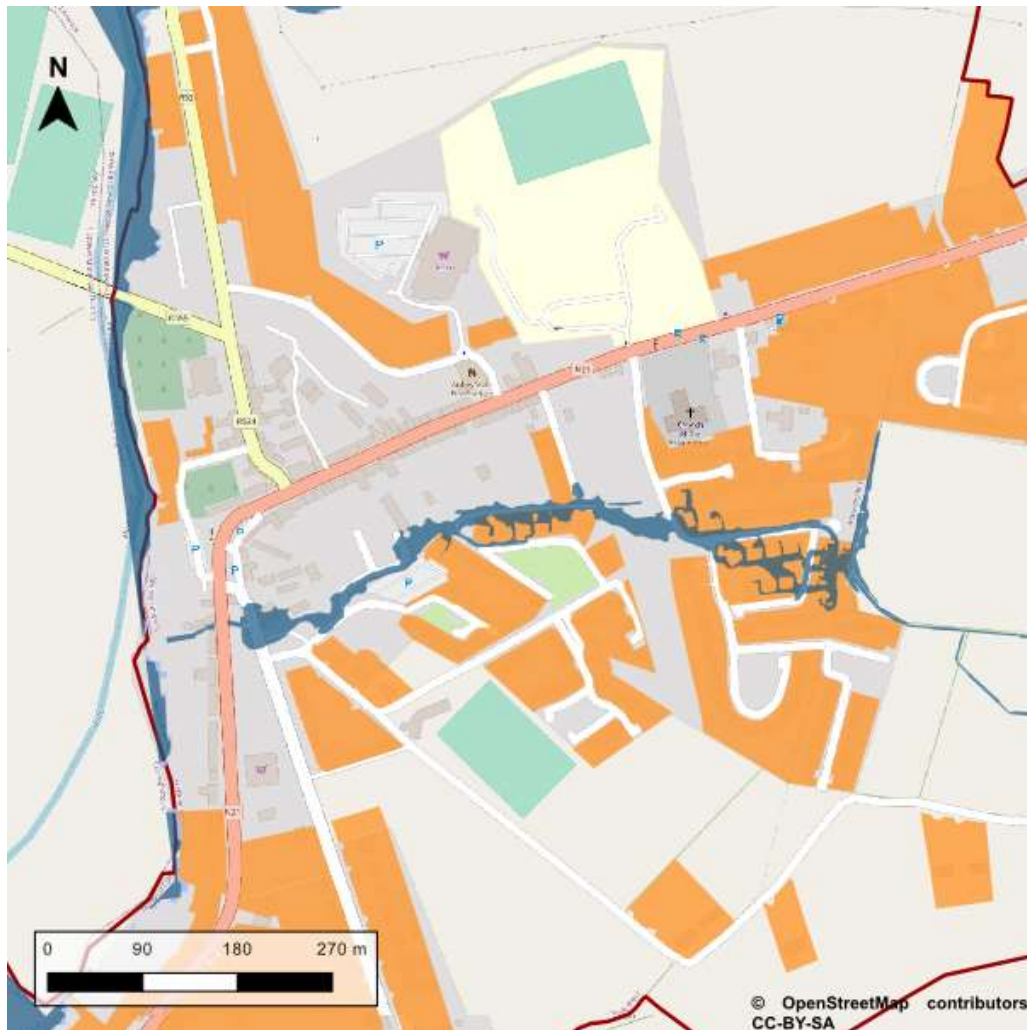
Abbeyfeale requires investment in services, infrastructure, transport, employment and housing. In line with National Policy 3c 30% of all new homes targeted within Level 3 settlements shall be within the existing built-up area of the town.

2. 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

Lands are located within 250 metres from the town centre and lands are zoned for Community and Education use and is occupied with Community Facilities on the lands, namely St. Mary's Boys National School.

settlement and, in particular:	
i. Is essential to facilitate regeneration and/or expansion of the centre of the urban settlement:	Lands are located within 250 metres of the town centre, occupied with existing Community Facilities and form an integral part of the urban settlement.
ii. Comprises significant previously developed and/or under-utilised lands:	Lands are currently developed and occupied and zoning reflects land use on site.
iii. Is within or adjoining the core of an established or designated urban settlement:	Lands are located within 250 metres of the town centre, occupied with existing Community Facilities and form an integral part of the urban settlement.
iv. Will be essential in achieving compact and sustainable urban growth;	Lands are currently developed and occupied and zoning reflects land use on site.
v. There are no suitable alternative lands for the particular use or development type, in areas at lower risk of flooding within or adjoining the core of the urban settlement.	Lands are currently developed and occupied and zoning reflects land use on site.
3. A flood risk assessment to an appropriate level of detail has been carried out as part of the Strategic Environmental Assessment as part of the development plan preparation process, which demonstrates that flood risk to the development can be adequately managed and the use or development of the lands will not cause unacceptable adverse impacts elsewhere. N.B. The acceptability or otherwise of levels of any residual risk should be made with consideration for the proposed development and the local context and should be described in the relevant flood risk assessment	<p>A limited area of existing Education and Community Facilities lands are within Flood Zone A\B.</p> <p>Parts 1 and 2 of the test found that it is considered appropriate to retain the existing zoning.</p> <p>Any future construction should be subject to an FRA which should follow the general guidance provided in Section 7 of the SFRA and must specifically address the following:</p> <ul style="list-style-type: none"> • Only water compatible development should be placed in Flood Zone A or B; • FRA should address climate change and FFL requirements in relation Table 7-1 and Table 7-2; • Proposals should not impede existing flow paths or cause flood risk impacts to the surrounding areas, and; • Development is constructed in accordance with the site specific FRAs. • Any development shall also be required to be built in accordance with LCCC SuDS Policy.

A.4.3 Existing Residential



1. The urban settlement is targeted for growth under the National Spatial Strategy, regional planning guidelines, statutory plans or under the Planning Guidelines or Planning Directives provisions of the Planning and Development Act 2000, as amended.

Abbeyfeale is a Level 3 Settlement in the Settlement Hierarchy, identified in the Limerick Development Plan 2022 – 2028. The Limerick Development Plan promotes Level 3 towns as settlements capable of population and employment growth sustaining a wide range of functions, services and employment opportunities supporting Abbeyfeale's hinterland. Abbeyfeale requires investment in services, infrastructure, transport, employment and housing. In line with National Policy 3c 30% of all new homes targeted within Level 3 settlements shall be within the existing built-up area of the town.

2. 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 and, in particular:

Lands are located within 150 - 350 metres from the town centre and lands are zoned for Existing Residential development and is occupied with exiting dwelling houses on the lands.

i. Is essential to facilitate regeneration and/or expansion of the centre of the

Lands are located within 150 – 350 metres of the town centre, occupied with existing dwelling houses and form an

urban settlement:	integral part of the urban settlement.
ii. Comprises significant previously developed and/or under-utilised lands:	Lands are currently developed and occupied and zoning reflects land use on site.
iii. Is within or adjoining the core of an established or designated urban settlement:	Lands are located within 150 – 350 metres of the town centre, occupied with existing dwelling houses and form an integral part of the urban settlement.
iv. Will be essential in achieving compact and sustainable urban growth;	Lands are currently developed and occupied and zoning reflects land use on site.
v. There are no suitable alternative lands for the particular use or development type, in areas at lower risk of flooding within or adjoining the core of the urban settlement.	Lands are currently developed and occupied and zoning reflects land use on site.
3. A flood risk assessment to an appropriate level of detail has been carried out as part of the Strategic Environmental Assessment as part of the development plan preparation process, which demonstrates that flood risk to the development can be adequately managed and the use or development of the lands will not cause unacceptable adverse impacts elsewhere. N.B. The acceptability or otherwise of levels of any residual risk should be made with consideration for the proposed development and the local context and should be described in the relevant flood risk assessment	<p>A significant proportion of the land here is within Flood Zone A and B.</p> <p>Parts 1 and 2 of the test found that it is considered appropriate to retain the existing zoning. This is on the basis that;</p> <ul style="list-style-type: none"> • Additional development in Flood Zones A/B should be limited to extensions, renovations and change of use. • Demolition/reconstruction consisting of infill residential development on the ground floor can only take place in Flood Zone C. <p>Any future development should be subject to an FRA which should follow the general guidance provided in Section 7 of the SFRA and must specifically address the following:</p> <ul style="list-style-type: none"> • FRA should address climate change and FFL requirements in relation to Table 7-1 and Table 7-2; • Bedrooms should be located in the upstairs of two-story buildings when extending existing property; • Flood resilient construction materials and fittings should be considered if in Flood Zone A/B; • Provision should be made for any potential future flood relief measures; • Proposals should not impede existing flow paths or cause flood risk impacts to the surrounding areas, and; • Any development shall also be required to be built in accordance with LCCC SuDS Policy.

