SDCC Development Plan SFRA Variation

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Contents

1 Introduction 1

1.1 Terms of Reference 1
1.2 Scope of Variation No.2 Relevant to Flood Risk 1
1.3 Current Planning Policy 2
1.4 The SDC Study Area 4
1.5 Watercourses 4

2 Methodology 5

2.1 Introduction 5
2.2 Objectives and Principles of the Flood Risk Management Guidelines 5
2.3 Definition of Flood Risk 5
2.4 Likelihood of Flooding 6
2.5 Definition of Flood Zones 6
2.6 The Sequential Approach and Justification Test 9
2.7 Justification Test for Development Plans 10

3 Data Collection and Review 12

3.1 Introduction 12
3.2 Data Sources 12
3.3 Sources of Flooding 17
3.4 Flood Risk Identification Summary 20

4 Development Management and Flood Risk 21

4.1 Introduction 21
4.2 Requirements for a Flood Risk Assessment 21
4.3 Development in Flood Zone C 22
4.4 Development in Flood Zone A and B 23

5 Flood Risk Management Policies/Objectives 26

5.1 Flood Risk Management Policy 26
5.2 Flood Risk Management 26

6 Proposed Development Plan Zoning Variation Review 29

6.1 A Strategic Approach to Flood Risk Management 29

6.2 Approach in relation to Flood Zones and climate change 29
6.3 Review of Proposed Variation Lands 32
6.4 Conclusion 53

List of Figures

Figure 1-1: South Dublin County Watercourses 4
Figure 2-1 Source-Pathway Receptor Model 6
Figure 2-2 Sequential Approach (The Guidelines) 9
Figure 3-1: CFRAM Current Scenario Extents 15
Figure 3-2: CFRAM 1% AEP and 0.1% AEP High End Future Scenario 16
Figure 3-3: Wells and Springs South Dublin County 19
Figure 6-1: Proposed Variation Lands - Flood Zone A & B 30
Figure 6-2: Proposed Variation Lands - HEFS Flood Extents 31

List of Tables

Table 2.1: Probability of Flooding 6
Table 2.2: Definition of Flood Zones 7
Table 2.3: Classification of Vulnerability of Different Types of Development 8
Table 2.4: Matrix of Vulnerability vs Flood Zone to illustrate application of the Justification Test 8
Table 3-1: Available Flood Data for Flood Zone Development 13
Table 3-2 Other Available Data 13
Table 3-3: OPW Climate Change Allowances 17
Table 5-1 Policy IE4: Flood Risk Management 26
Table 5-2 Policy IE3: Surface Water and Groundwater 27
Table 6-1: Overview of Proposed Variation Lands Using Site Numbers Identified by SDCC 32

1 Introduction

JBA Consulting was commissioned by South Dublin County Council (SDCC) to provide assistance in the SFRA screening of Variation No. 2 of the South Dublin County Development Plan 2022-2028 to support the NPF Implementation: Housing Growth Requirements Guidelines for Planning Authorities issued under Section 28 of the Planning and Development Act 2000 (as amended). The SFRA is a live document that is designed to be updated as further flood risk information becomes available and changes to the development plan are proposed under any future variations.

1.1 Terms of Reference

Under the "Planning System and Flood Risk Management" guidelines, the purpose for the Strategic Flood Risk Assessment (SFRA) 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".

More specifically the SFRA for the Variation will complete the following tasks;

- Undertake a flood risk assessment for the relevant settlements within the CCDP, where zoning has been amended;
- Review the various sources of potential Flood Zone mapping;
- Assist CCC in the review of additional land use zoning considerations and the application of the sequential approach and justification test.

1.2 Scope of Variation No.2 Relevant to Flood Risk

The South Dublin County Development Plan (CDP) 2022-2028 sets out the vision to provide for new residential communities in accordance with approved area plans for the sustainable development of South Dublin County.

The CDP is accompanied by an existing SFRA at County level to inform policy, the existing SFRA remains in place and this Variation SFRA only considers/reviews changes resulting from the Variation.

The proposed variation to the CDP 2022-2028 is to respond to recent changes in National planning policy, including the National Planning Framework - First Revision, 2025 (Revised NPF) and publication of Section 28 Guidelines. Primarily in response to increased housing growth requirements and the need to zone additional lands for residential development, the proposed variation comprises of:

1. Changes to land-use zoning objectives,
2. Other new/amended policy measures, and
3. Identification of Future Strategic Long Term Development Areas to facilitate longer-term housing needs beyond the life of the current CDP.

The potential lands being considered by SDCC for land use zoning changes have been assessed as part of the SFRA process to inform the preferred lands being brought forward as part of the proposed variation. The designation of these lands supports compact growth, urban regeneration and transport orientated development, consistent with national and regional policy objectives, including the NPF, Eastern and Midland Regional Assembly's Regional Spatial and Economic Strategy (RSES) 2019– 2031 and the Dublin Metropolitan Area Strategic Plan (MASP).

This SFRA variation report has been completed to "avoid inappropriate land use zonings and development in areas at risk of flooding and to integrate sustainable water management solutions (such as SuDS, nonporous surfacing and green roofs) to create safe places in accordance with the Planning System and Flood Risk Assessment Guidelines for Local Authorities." as stated in the CDP.

This report has informed the new zoning recommendations to ensure that the lands follow the sequential approach and Justification Test where necessary. This SFRA variation has been undertaken in accordance with the national policy document on flood risk entitled "The Planning System and Flood Risk Management – Guidelines for Planning Authorities (OPW/DoEHLG, 2009)" and Circular PL02/2014 (August 2014) which sets out how to implement good planning practice in the management of flood risk.

A Stage 1 & 2 Flood Risk Assessment has been undertaken to identify any flooding or surface water management issues within the proposed variation lands that may warrant further investigation. As part of this stage the most up to date available data at the time of preparation was acquired. The Eastern and Dodder CFRAMS have generated flood zone mapping which has been deemed suitable as a Stage 2 Initial Flood Risk Assessment. This flood risk information has enabled SDCC to apply 'The Guidelines' sequential approach, and where necessary the Justification Test, to appraise sites for suitable land zonings and identify how flood risk can be managed. Although great care and modern widely accepted methods have been used in the preparation and interpretation of flood risk areas, there is inevitably a range of inherent uncertainties and assumptions made during the estimation of design flows and the construction of flood models. The inherent uncertainty necessitates a precautionary approach when interpreting flood extent mapping.

1.3 Current Planning Policy

1.3.1 Ireland 2040 – National Planning Framework (First Revision)

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 Eastern and Midland region, at all tiers of the planning hierarchy from national level through regional, city/county and local plans, masterplans and individual planning applications.

1.3.2 Regional Spatial and Economic Strategy 2019-2031 (RSES)

The Regional Spatial and Economic Strategy (RSES) for the Eastern and Midland Region sets out the strategic planning and economic framework to 2031, supporting the implementation of *Ireland 2040 – National Planning Framework*. It provides the regional context for housing delivery, employment, infrastructure, community facilities and investment.

1.4 The SDC Study Area

The subject area comprises lands across South Dublin County, approximately 8km west of Dublin city centre and forms part of the Greater Dublin Area. The county encompasses a mixture of urban, suburban and rural areas and includes key towns such as Tallaght, Clondalkin, Lucan, Rathfarnham, Templeogue, Newcastle and Rathcoole.

1.5 Watercourses

South Dublin County contains a network of rivers, streams and tributaries which form part of the Liffey and Dublin Bay catchment and the Dodder_SC_010, Liffey_SC_010. Liffey_SC_090 and Liffey_SC_070 sub catchments. The two main rivers contained within the County are the Liffey which runs along its northern boundary and flows in an easterly direction and the Dodder which runs from the south of the county through Templeogue before entering the Liffey watercourse in the northeast.

There are three lakes in the study area, the Brittas Reservoir to the south and the Glenasmole Reservoirs (upper and lower) to the southeast. The hydrological environment is provided in Figure 1-1.

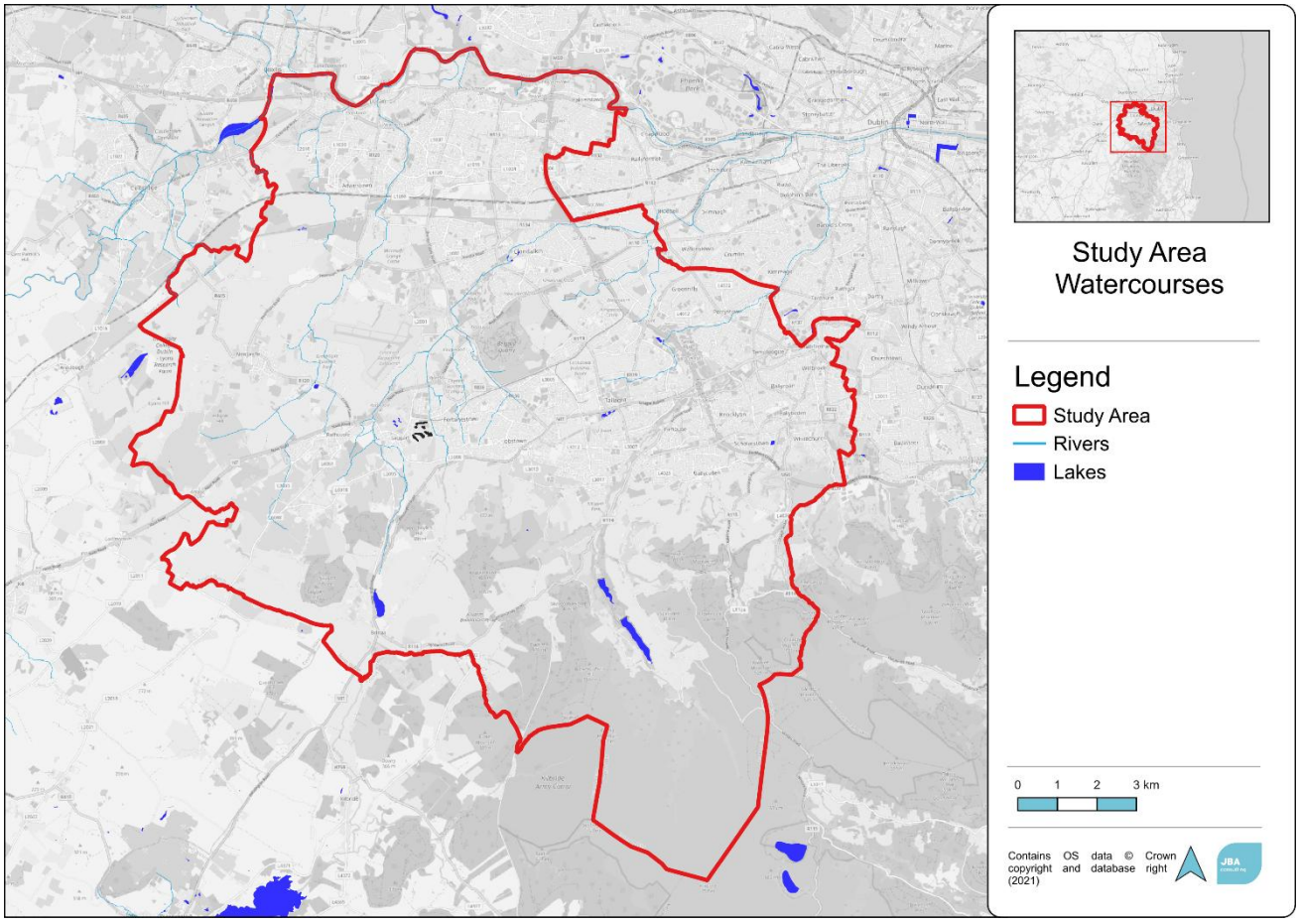


Figure 1-1: South Dublin County Watercourses

2 Methodology

2.1 Introduction

This report has been prepared in accordance with 'The Planning System and Flood Risk Management Guidelines for Planning Authorities' herein referred to as 'The Guidelines' as published by the Office of Public Works (OPW) and Department of Environment, Heritage and Local Government (DoHLG) in 2009.

2.2 Objectives and Principles of the Flood Risk Management Guidelines

The principal actions when considering flood risk are set out in The Guidelines and are summarised below:

- "Flood hazard and potential risk should be determined at the earliest stage of the planning process..."
- "Development should preferentially be located in areas with little or no flood hazard thereby avoiding or minimising the risk...."
- "Development should only be permitted in areas at risk of flooding when there are no alternatives, reasonable sites available..."
- "Where development is necessary in areas at risk of flooding an appropriate land use should be selected"
- A precautionary approach should be applied, where necessary, to reflect uncertainties in flooding datasets and risk assessment techniques..."
- "Land required for current and future flood management... should be proactively identified..."
- "Flood risk to, and arising from, new development should be managed through location, layout and design incorporating Sustainable Drainage Systems (SuDS) and compensation for any loss of floodplain..."
- Strategic environmental assessment (SEA) of regional planning guidelines, development plans and Masterplans should include flood risk as one of the key environmental criteria..."

2.3 Definition of Flood Risk

Flood risk is a combination of the likelihood of a flood event occurring and the potential consequences arising from that flood event and is then normally expressed in terms of the following relationship:

Flood Risk = Likelihood of flooding x Consequences of flooding

To fully assess flood risk, an understanding of where the water comes from (i.e., the source), how and where it flows (i.e., the pathways) and the people and assets affected by it (i.e., the receptors) is required. Figure 2-1 below shows a source-pathway-receptor model reproduced from 'The Guidelines'.

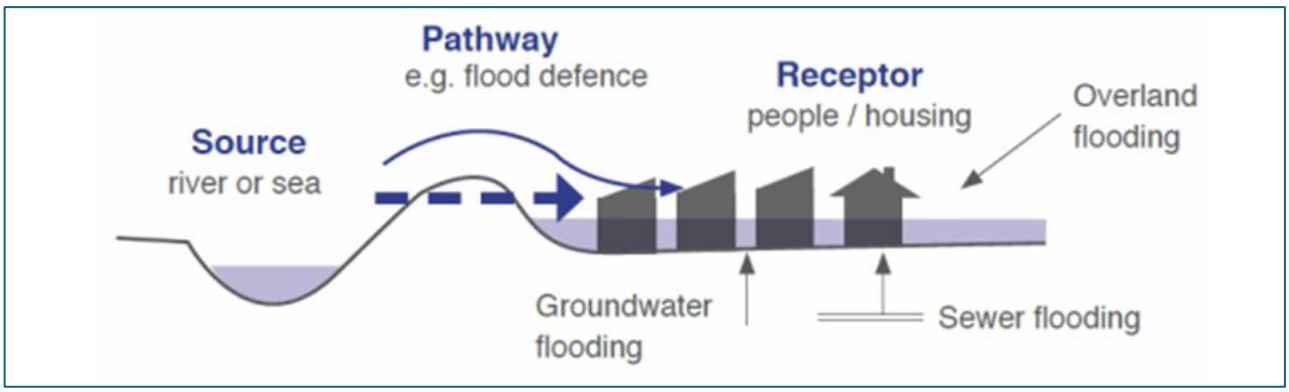


Figure 2-1 Source-Pathway Receptor Model

The principal sources of flooding are rainfall or higher than normal sea levels. The principal pathways are rivers, drains, sewers, overland flow and river and coastal floodplains. The receptors can include people, their property, and the environment. All three elements as well as the vulnerability and exposure of receptors must be examined to determine the potential consequences.

2.4 Likelihood of Flooding

The Guidelines define the likelihood of flooding as the percentage probability of a flood of a given magnitude or severity occurring or being exceeded in any given year. It is generally expressed as a return period or annual exceedance probability (AEP). A 1% AEP flood indicates a flood event that will be equalled or exceeded on average once every hundred years and has a return period of 1 in 100 years. Annual Exceedance Probability is the inverse of return period as shown in Table 2.1 below.

Table 2.1: Probability of Flooding

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

2.5 Definition of Flood Zones

Flood zones are geographical areas within which the likelihood of flooding is in a particular range and are split into three categories in The Guidelines, which has been provided in Table 2.2.

Table 2.2: 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).

It is important to note that The Planning System and Flood Risk Management Guidelines for Planning Authorities and Technical Appendices, 2009 ignore the presence of flood defences when defining Flood Zones; this is due to the fact that even areas that benefit from an existing flood defence can still be vulnerable due to the speed when overtopping or a breach or other failure takes place. Therefore, this residual risk of flooding where appropriate should be assessed as part of the application of the Justification Test and, if the site is zoned for development, through the site-specific flood risk assessment.

2.5.1 Consequences of Flood Risk

The consequences of flooding depend on the hazards associated with the event, including: depth of water, speed of flow, rate of onset, duration, wave action effects and water quality. The consequences are also determined by the vulnerability of people, property and the environment potentially affected by a flood. The recovery time following flooding is also important.

The Planning System and Flood Risk Management Guidelines for Planning Authorities and Technical Appendices, 2009 provide three vulnerability categories based on the type of development which are detailed below in Table 2.3 source The Planning System and Flood Risk Management Guidelines for Planning Authorities and Technical Appendices, 2009). This illustrates the types of development that would be appropriate to each Flood Zone and those that would be required to meet the Justification Test. Inappropriate development that does not meet the criteria of the Justification Test should not be considered at the plan-making stage or approved within the development management process. Table 2.4 provides the matrix of vulnerability vs flood zone

Table 2.3: Classification of Vulnerability of Different Types of Development

Vulnerability Class	Land uses and types of development which include*:
Highly vulnerable development (including essential infrastructure)	Garda, ambulance and fire stations and command centres required to be operational during flooding; Hospitals; Emergency access and egress points; Schools; Dwelling houses, student halls of residence and hostels; Residential institutions such as residential care homes, children's homes and social services homes; Caravans and mobile home parks; Dwelling houses designed, constructed or adapted for the elderly or, other people with impaired mobility; and Essential Infrastructure, such as primary transport and utilities distribution, including: electricity generating power stations and sub-stations, water and sewage treatment, and potential significant sources of pollution (SEVESO sites, IPPC sites, etc.) in the event of flooding.
Less vulnerable development	Buildings used for; retail, leisure, warehousing, commercial, industrial and non-residential institutions; Land and buildings used for holiday or short-let caravans and camping, subject to specific warning and evacuation plans; Land and buildings used for agriculture and forestry; Water treatment (except landfill and hazardous waste); Mineral working and processing; and Local Transport Infrastructure.
Water compatible development	Flood control infrastructure; Docks, marinas and wharves; Navigation facilities; Ship building, repairing and dismantling , dockside fish processing and refrigeration and compatible activities requiring a waterside location; Water-based recreation and tourism (excluding sleeping accommodation); Lifeguard and coastguard stations; Amenity open space, outdoor sports and recreation and essential facilities such as changing rooms; and Essential ancillary sleeping or residential accommodation for staff required by uses in this category (subject to a specific warning and evacuation plan).
*Uses not listed here should be considered on their own merits	

Table 2.4: Matrix of Vulnerability vs Flood Zone to illustrate application of the Justification Test

	FLOOD ZONE A	FLOOD ZONE B	FLOOD ZONE C
Highly vulnerable development	**JUSTIFICATION TEST**	**JUSTIFICATION TEST**	APPROPRIATE
Less vulnerable development	**JUSTIFICATION TEST**	APPROPRIATE	APPROPRIATE
Water-compatible development	APPROPRIATE	APPROPRIATE	APPROPRIATE

2.6 The Sequential Approach and Justification Test

The sequential approach is the key tool in ensuring that development, particularly new developments, first and foremost is directed towards land that is at low risk. Figure 2-2 sets out the broad philosophy underpinning the sequential approach.

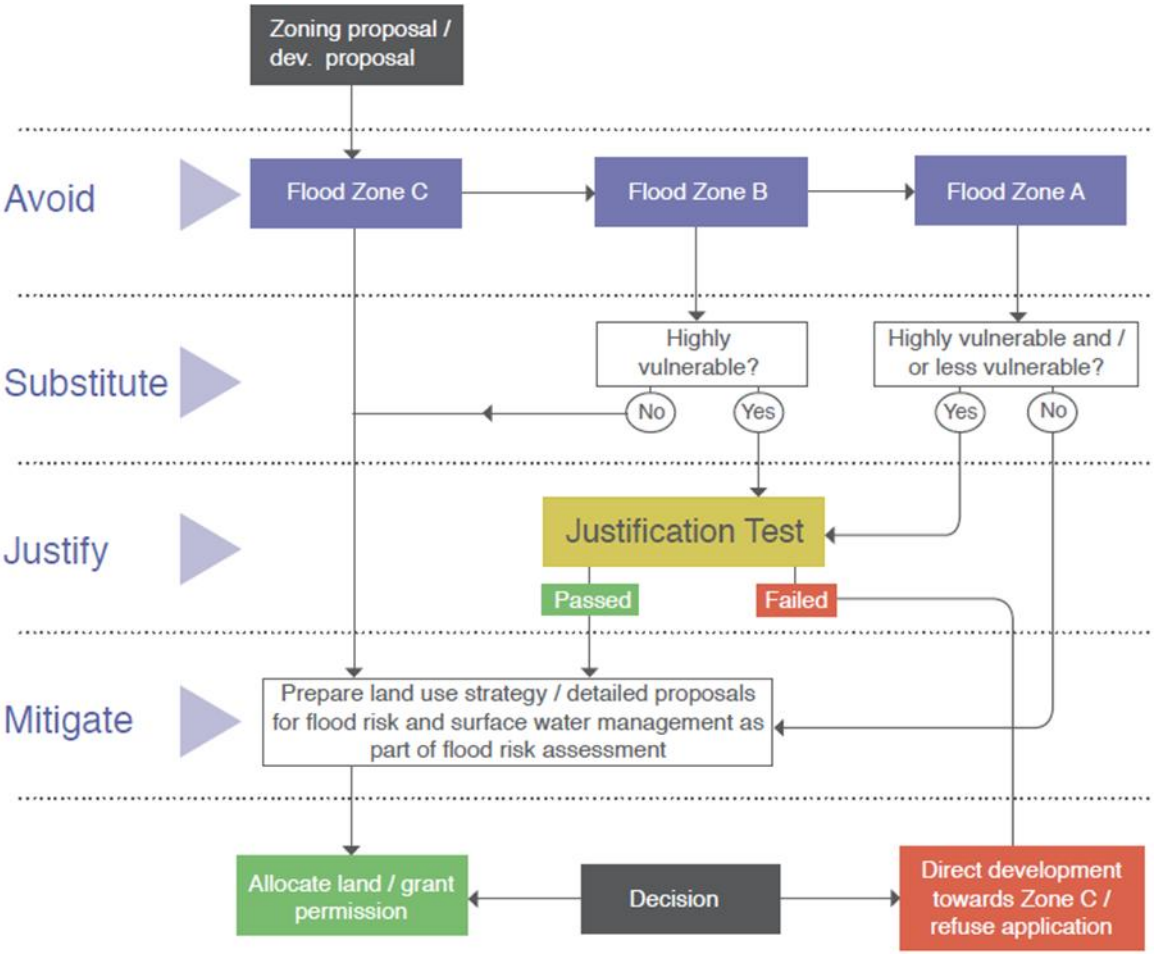


Figure 2-2 Sequential Approach (The Guidelines)

The sequential approach to flood risk makes use of flood risk assessment and of prior identification of Flood Zones for river and coastal flooding and classification of the vulnerability of flooding of different types of development. This approach highlights the importance of taking into account the risks of other sources of flooding in all areas and at all stages of the planning process.

The sequential approach is based on the following principles:

Avoid – Substitute – Justify – Mitigate – Proceed

Where possible, development in areas identified as being at high flood risk for that type of development should be avoided. This may necessitate rezoning lands within the Development Plan from a higher vulnerability land-use, such as residential, to a less vulnerable use, such as open space. Where rezoning is not possible, development restrictions are provided for through the application of the Justification Test, as set out below.

2.7 Justification Test for Development Plans

The primary approach for managing flood risk has been to either avoid development in Flood Zone A or B, or substitute a lower vulnerability development. However, it is only when both avoidance and substitution cannot take place should consideration be given to mitigation and management of risks, which can only be provided for through the Justification Test.

The plan making Justification Test is informed by the Flood Zone dataset. It applies where South Dublin County Council (SDCC) has reviewed the need for development of areas at a high or moderate risk of flooding for uses which are vulnerable to flooding and which would generally be inappropriate, and where avoidance or substitution is not appropriate. Where land-use zoning objectives have been retained, SDCC is satisfied that it has clearly demonstrated that the designation for development has satisfied the Justification Test for Development Plans. In such cases, all of the following criteria have been satisfied:

> *1. The urban settlement is targeted for growth under the National Planning Framework and Regional Spatial and Economic Strategy, statutory plans, as defined above or under the provisions of the Planning and Development Act, 2000, as amended.*
>
> *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:*
>
> > *i. Is essential to facilitate regeneration and/or expansion of the centre of the urban settlement;*
> > *ii. Comprises significant previously developed and/ or under-utilised lands;*
> > *iii. Is within or adjoining the core of an established or designated urban settlement;*
> > *iv. Will be essential in achieving compact and sustainable urban growth and*
> > *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.*
>
> *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.

Source: The Planning System and Flood Risk Management Guidelines for Planning Authorities (2009)

Circular letter PL2/2014 from DECLG dated 13 August 2014 states that for existing developed areas at risk of flooding, and proposed regeneration areas, the Planning Authority or Development Plan must 'specify the nature and design of structural or non-structural flood

risk management measures prior to future development in such areas to ensure that flood hazard and flood risk to the area and other locations is not increased, or if practicable, will be reduced.' In many cases through this SFRA, flood risk to existing development has been identified and appraised. The extent and depth of flooding has been assessed and it has been determined that risks are mitigated through variation to the zoning being outside of flood risk areas, as detailed in the later sections of this SFRA.

3 Data Collection and Review

3.1 Introduction

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

A number of flood investigation and management studies have been undertaken that cover South Dublin. This encompasses either historical or predicted flood extents. The aim of the flood risk identification stage of the SFRA is to identify flood risk based on the data available, considering all sources of flooding, and to appraise the quality and usefulness of the data.

A wide range of data was collected and reviewed for completeness, applicability, quality, and confidence in its accuracy. One of the key outcomes of this SFRA variation is to produce a Flood Zone Map which, along with other planning considerations, will inform land-use rezoning / development decisions. The accuracy of the flood extent may vary across the study area depending on the origin and quality of available data, but the best available or readily derivable information has been used to form the composite map.

In all cases, the outlines have been reviewed against each other, any additional available data and against local engineering knowledge and have been refined where appropriate. In particular, the datasets that have been used are the Eastern CFRAM flood extents.

3.2 Data Sources

Table 3-1 and Table 3-2 set out the available flood data which can be utilised within this SFRA variation document.

The CFRAM Programme is complete and implementation of the outputs from this work is underway by the OPW. The EU Floods Directive requires Member States to review the PFRA, the FRMPs and the flood maps on a six yearly cycle and consequently, the OPW completed the National Indicative Fluvial Mapping (NIFM) Programme in 2019 and it continues to update predictive flood mapping to provide the best available flood risk information through the map review programme. Further information on the above is available at www.floodinfo.ie.

Table 3-1: Available Flood Data for Flood Zone Development

Description	Coverage	Robustness	Comment on usefulness
Eastern CFRAM & Dodder CFRAM Flood Mapping	Covers the entirety of the study area	High AFA status	Detailed 1D/2D CFRAM HPW model and is useful. In general, CFRAM provides all information needed to apply the Justification Test (JT) for Plan Making under the SFRA.
Historical Flood Event Outlines	Coverage of previous flood events	Moderate	Used indirectly to validate flood zones. Useful background information for flooding in specific areas of the settlement.

Table 3-2 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	Broadscale, County wide	Moderate	Initial assessment of groundwater vulnerability. Provides a screening tool for use in FRA.
Historic Flood Records including photos, aerial photos and reports.	Coverage of South Dublin flood events	Various	Highly useful oversight of historic flooding issues provided by Local Authority.
LiDAR height model	South Dublin County area	High	Aerial survey is used to appraise the topography and identify low spots, floodplain and areas potentially susceptible to flooding.
Camac FAS	River Camac catchment	High	Surveys to help confirm and build a hydraulic model of the catchment to predict flooding and inform alleviation measures.
Poddle FAS	6 km stretch of the River Poddle from Tymon North, Tallaght to St. Teresa's Gardens, Donore Avenue	High	Surveys to help confirm and build a hydraulic model of the 6km stretch of the River Poddle to predict flooding and inform alleviation measures.
Whitechurch FAS	Whitechurch stream in Rathfarnham (Dodder sub-catchment)	High	Surveys to help confirm and build a hydraulic model of the Whitechurch stream to predict flooding and inform alleviation measures.

3.2.1 CFRAMS

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 RBD covers parts of Wicklow, Kildare, Dublin, Meath, Westmeath, Offaly, Louth, Monaghan, and Cavan.

Prior to this the Dodder CFRAM was carried out as one of Ireland's pilot CFRAM projects, it carried very similar outputs and recommendations. The mapping from the Dodder and Eastern CFRAMS are of comparable detail and confidence and are discussed as a whole as CFRAM datasets.

The initial Flood Risk Review (FRR) stage of the of the Eastern 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 Eastern River Basin, which included South Dublin County. 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. These maps build on and supplement 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.

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 Eastern CFRAM study also included detailed assessments of flooding and impacts for potential future climate change scenarios.

The 1% AEP and 0.1% AEP current scenario extents which define the flood zones are shown in Figure 3-1. The high-end future scenario outlines are displayed over page in Figure 3-2 and although not used to define flood zones, they are a key part of informing zoning decisions for South Dublin County.

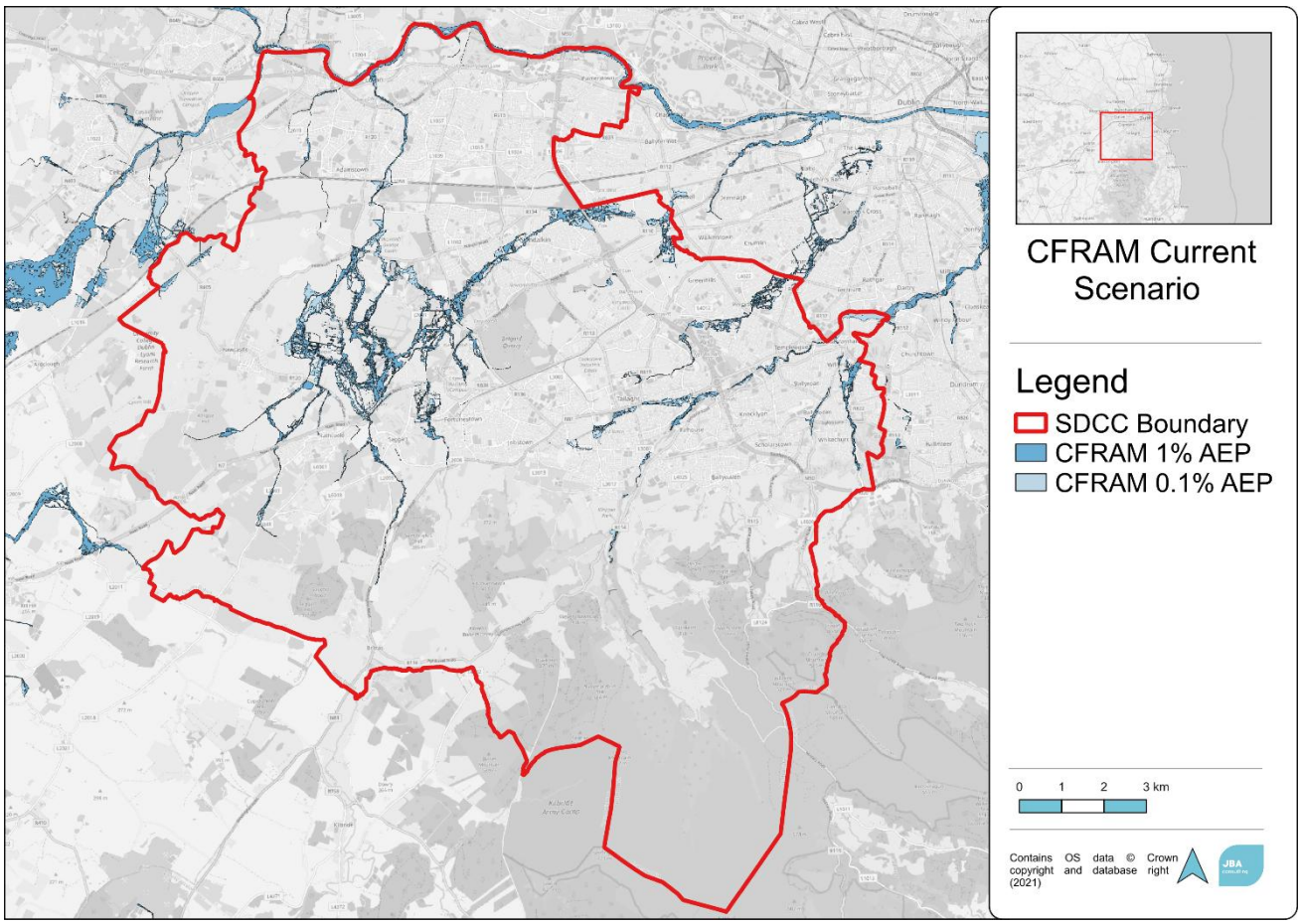


Figure 3-1: CFRAM Current Scenario Extents

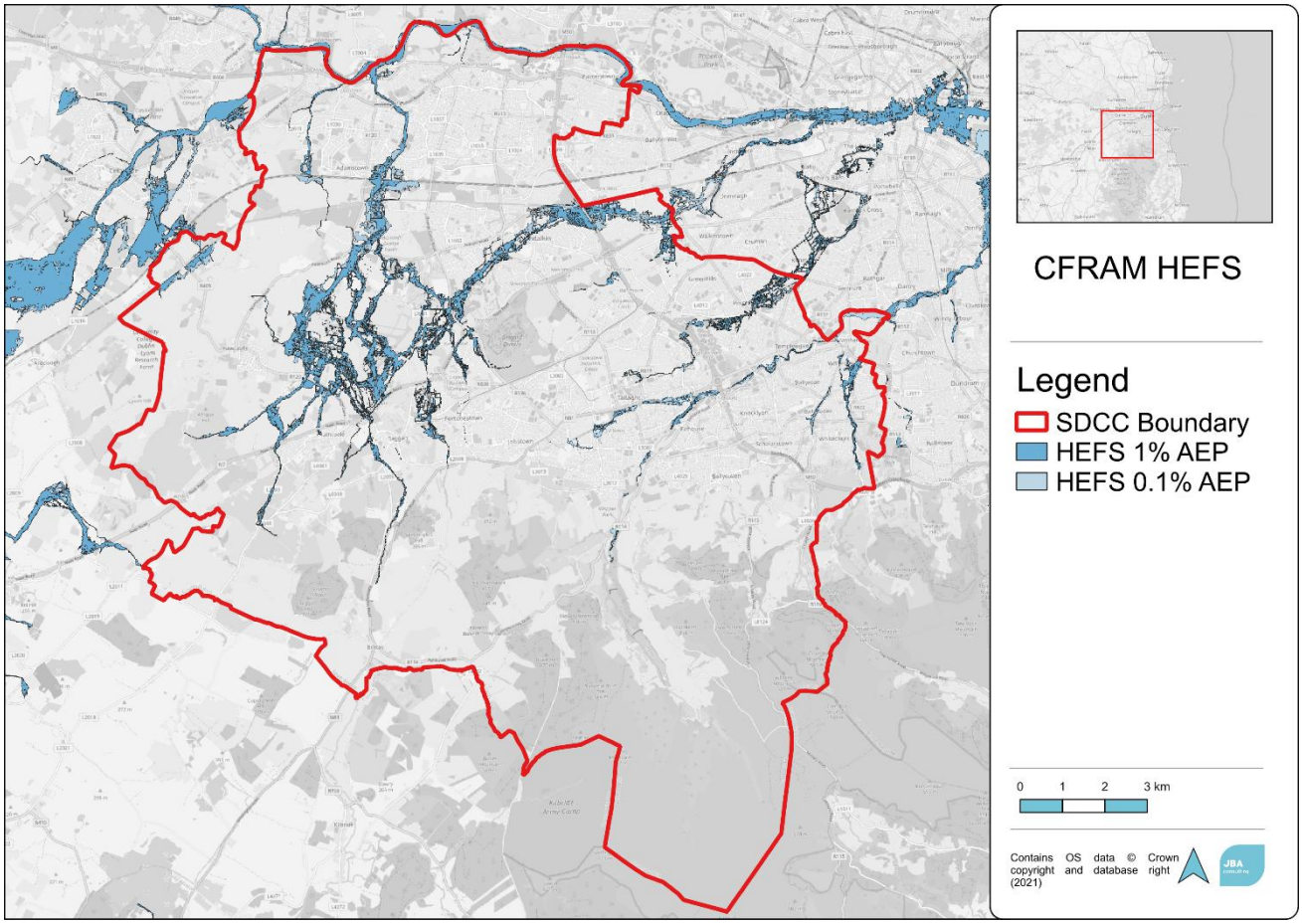


Figure 3-2: CFRAM 1% AEP and 0.1% AEP High End Future Scenario

3.2.2 Climate Change

The Guidelines recommend that a precautionary approach to climate change is adopted recognising the uncertainty associated with its 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 Plan[1]. The allowances are displayed below in Table 3-3.The assessment of climate change is based on two scenarios identified as the Mid-Range Future Scenario (MRFS) and High-End Future Scenario (HEFS). The differences between each scenario are also provided in Table 3-3.

1 OPW (2025) Climate Change Sectoral Adaptation Plan for Flood Risk Management 2025-2030.

Table 3-3: OPW Climate Change Allowances

Parameter	MRFS	HEFS
Extreme Rainfall Depths	+ 20%	+ 30%
Peak Flood Flows	+ 20%	+ 30%
Mean Sea Level Rise	+ 500 mm	+ 1000 mm
Land Movement	- 0.5 mm / year[1]	- 0.5 mm / year[1]
Urbanisation	*No General Allowance – Review on Case-by-Case Basis*	*No General Allowance – Review on Case-by-Case Basis*
Forestation	- 1/6 Tp^2	- 1/3 Tp^2 + 10% SPR[3]

Note 1: Applicable to the southern part of the country only (Dublin – Galway and south of this)

Note 2: Reduction in the time to peak (Tp) to allow for potential accelerated runoff that may arise as a result of drainage of afforested land

Note 3: Add 10% to the Standard Percentage Runoff (SPR) rate: This allows for temporary increased runoff rates that may arise following felling of forestry

Climate change has been addressed at both the plan making and development management stages as part of this SFRA.

From a plan making perspective, Flood Zones A and B represent the current flood risk scenario, as derived from the CFRAM Study. These extents define the present-day probability of flooding and form the primary basis for flood risk assessment in this Plan. Consideration was also given to the presence or otherwise of flood defences, and where a flood relief scheme is ongoing or planned, it was noted that an adaptation plan would be an integral part of the scheme design.

While HEFS extents are not used to delineate Flood Zones, they provide valuable information to inform zoning decisions, particularly where development is proposed in areas that may be vulnerable under more extreme climate scenarios. **Therefore, the HEFS flood extents have been used as part of the review process**. This approach aligns with the National Planning Framework (NPF) First Revision, which identifies flood risk management and climate change adaptation as key components of sustainable spatial planning. The NPF Strategic Flood Risk Assessment emphasises that flood risk should be a core consideration in land use planning, that the sequential approach should guide zoning decisions and that climate resilience must be embedded in all plan-making processes.

Climate change risk mitigation through development management is also addressed in the recommendations for the scope of site-specific FRAs and in the discussion on potential flood mitigation measures, including consideration of site layouts and landscaping, finished floor levels and design of drainage systems and SuDS.

3.3 Sources of Flooding

Over the last few decades, the risk of flooding has continued to increase in Ireland. Much of this has been attributed to:

- Climate change, resulting in increased and more intense rainfall (e.g. more thunderstorms), increased sea water levels, and
- Increasing levels of urbanisation. The main types of flooding are from (i) tidal/coastal flooding which arises from the sea or estuaries, (ii) river or fluvial flooding which arise from rivers or streams,
- Pluvial or surface water flooding which arises directly from rainfall,
- Groundwater flooding
- Dam breach and
- Sewer/ infrastructural failure.

3.3.1 Fluvial Flooding

Fluvial flooding occurs when rivers or streams exceed channel capacity, leading to overtopping of banks and inundation of adjacent low-lying areas. This typically arises from intense or prolonged rainfall but can be exacerbated by channel blockages, structural constrictions, or high tide conditions in estuarine areas that restrict river outflow. Flood behaviour depends on catchment characteristics such as rainfall patterns, topography, floodplain storage, and infiltration rates. Larger, flatter catchments and smaller, steeper catchments produce markedly different responses to heavy rainfall.

Review of the CFRAM flood maps confirms that significant areas within South Dublin County are at risk of inundation. The flood maps have been used within the SFRA to guide development and associated Justification Test.

3.3.2 Pluvial Flooding

Pluvial flooding results when heavy, often sudden rainfall, causes flooding before it can infiltrate the ground, or enter a natural or man-made drainage system or a watercourse or a conveyance system (e.g. canal) because the system is already full to capacity. Pluvial flooding is associated with surface water flooding, which is a combination of true pluvial flooding, sewer flooding (due to heavy rainfall), groundwater flooding and flooding from urban watercourses.

The surface water system is managed by SDCC. The combined (surface water and foul) system and foul drainage system are managed by Irish Water. Irish Water policy is to prevent 30-year flooding + estimated global effects to houses and buildings from the combined public drainage network while SDCC has enhanced the local surface water networks to cope with pluvial flooding as far as possible where previous flooding has occurred.

3.3.3 Groundwater Flooding

Groundwater flooding can occur when groundwater rises up from the underlying water table. Water emerges at the ground surface or into basements, flooding both surface and subsurface infrastructure. This tends to occur after much longer periods of sustained rainfall or very high tides. Higher rainfall means that more water will infiltrate into the ground, causing the water table to rise. Groundwater flooding tends to occur in low lying areas, where with

additional groundwater flowing towards these areas, the water table can rise to the surface causing flooding. High river, estuary or tide levels can prevent groundwater escaping into them in times of significant rainfall thus causing ground water flooding.

Data available on the Geological Survey Ireland map viewer has been examined and found no particular karst or other ground water systems within the catchment, although a number of springs and wells are recorded across the county (Figure 3-3). There are no recorded historic or predictive groundwater flood extents within the South Dublin County area.

Groundwater risks should be assessed on a site-by-site basis through percolation testing and bore holes as appropriate. Groundwater risk in relation to basement development should be carried out and it is advised that developments require a basement impact assessment to consider groundwater/ surface water flooding and gives a general restriction against the development of basements below the estimated flood levels for Flood Zones A or B.

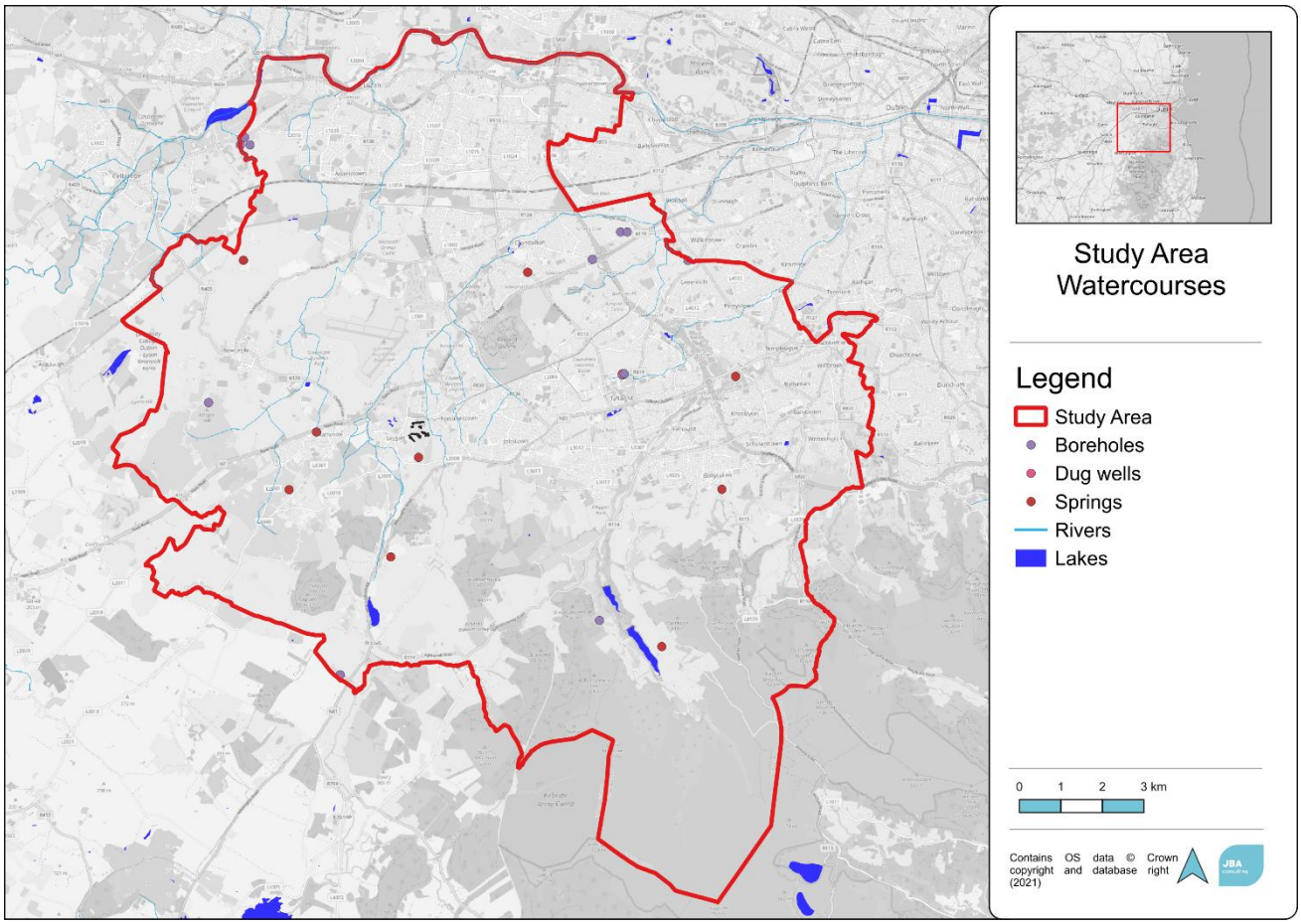


Figure 3-3: Wells and Springs South Dublin County

3.4 Flood Risk Identification Summary

Having regard to all the information sources available to SDCC, it is concluded that South Dublin County is primarily at risk from fluvial flooding. However, as relevant to any urban area pluvial flood risk is present following the potential surcharging of the stormwater system following exceedance rainfall events. Risks from climate change are also likely to be significant.

4 Development Management and Flood Risk

4.1 Introduction

In order to guide both applicants and planning officials through the process of planning for and managing flood risk, the key features of a range of development scenarios have been identified (relating to the Flood Zone, development vulnerability and presence or absence of flood defences).

It is accepted that flood risk and its management is a complex and highly site-specific phenomenon so the specific requirements of the assessment should ideally be agreed with SDCC at pre-planning stage.

It should be noted that this section of the SFRA variation is for lands and sites where the Justification Test for Development Plans has been applied and passed, and therefore Part 1 of the Justification Test for development management can also be passed.

This means a Site-Specific Flood Risk Assessment may result in locally appropriate information which could show a greater or lower level of risk than is included in the Flood Zone maps. This is to be expected and it will require discussion between the applicant/developer and the SDCC Planning and Engineering teams to ensure the assessment is appropriate and relevant to the site in question.

4.2 Requirements for a Flood Risk Assessment

An appropriately detailed Flood Risk Assessment (FRA) will be required in support of any planning application (see section 5.2 of the accompanying Strategic Flood Risk Assessment (SFRA) document). For sites within Flood Zones 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 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 and demonstrate compliance with the minimum required finished floor levels, detailed in the following sections of this report. In addition, flood risk from sources other than fluvial and tidal should be reviewed, as should the impacts of climate change. Groundwater flood risk for each portion of a development below ground should be evaluated in the FRA.

For sites within Flood Zones 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 Stage 3 FRA incorporates a site-specific hydraulic model to enable detailed analysis of flood risk. The extents of Flood Zones 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 an FRA has been triggered.

The FRA may be relatively straight forward, with qualitative appraisal of risks accompanying the drainage design. Alternatively, the findings of the Eastern CFRAM study, CFRMP and the various other studies that have been carried out in South Dublin County may be drawn upon

to inform finished floor levels and provide details on flood depth, velocity and impacts of defence breach. This information will all be essential in understanding residual flood risks and in developing emergency plans. In other circumstances, a detailed modelling study and flood risk assessment may need to be undertaken.

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), and the proposal will demonstrate that appropriate mitigation and management measures are put in place.

To ensure that flood risk assessments demonstrate the use of the sequential approach as set out in the FRA Guidelines[2], in terms of the site layout and design and satisfies the Justification Test (where required), demonstrating that appropriate mitigation and management measures are put in place before any proposal can be considered acceptable in principle

Specific requirements for an FRA in varying circumstances are detailed in the following sections.

4.3 Development in Flood Zone C

Where a site is within Flood Zone C, but adjoining or in close proximity to Flood Zone A or B there could be a risk of flooding associated with factors such as the event of failure of a defence, blocking of a bridge or culvert. Risk from sources other than fluvial and coastal must also be addressed for all development in Flood Zone C. Where a site is located on a 'dry island' (i.e., is fully surrounded by Flood Zone A or B), it is particularly important that flood risks are fully investigated and particular consideration is given to emergency response and evacuation routes; it should not be assumed that development on a 'dry island' is appropriate.

As a minimum, an FRA should be undertaken which will screen out possible indirect sources of flood risk and where they cannot be screened out it should present mitigation measures. The most likely mitigation measure will involve setting finished floor levels to a height that is above the 1 in 100 year fluvial, with an allowance for climate change (HEFS) and freeboard. Design elements such as channel maintenance or trash screens may also be required. Evacuation routes in the event of inundation of surrounding land should also be detailed.

The impacts of climate change (HEFS) should be considered for all proposed developments. Considerations should be proportionate to the type of development, including design life and future adaptability, but may include raising finished floor levels.

It may also be appropriate to consider residual risks arising from culvert/ structure blockage, particularly where it is identified that the site in question forms part of a flow route. Identification of flow routes across the site will not necessarily prohibit development but should be incorporated into the landscaping and design of the development. This will prevent ingress of water to the development itself and ensure risks to neighbouring sites are unchanged.

2 The Planning System and Flood Risk Management Guidelines for Planning Authorities

4.4 Development in Flood Zone A and B

Within Flood Zone A and B, potential development has been classed as either minor (typically extensions and changes of use) or major new development, which may be less or highly vulnerable to flooding. Each scenario is discussed below.

On lands where the Justification Test for Plan Making has been passed and where a small proportion of the land is at risk of flooding, the sequential approach to development will be applied, and development within Flood Zones A and B will be limited to Minor Development (see below and Section 5.28 of the Planning System and Flood Risk Management Guidelines). There will be a presumption against the granting of permission for highly or less vulnerable development which encroaches onto or results in the loss of the flood plain. Water compatible development only will be considered in such areas at risk of flooding.

4.4.1 Minor Development

Section 5.28 of The Planning System and Flood Risk Management Guidelines for Planning Authorities, 2009 identifies certain types of development as being 'minor works' and, therefore, exempt from the Justification Test for development management. Such development relates to works associated with existing developments, such as extensions, renovations and rebuilding of existing development, small scale infill and changes of use.

Despite the 'sequential approach' and 'Justification Test' not applying, as they relate to existing buildings, an assessment of the risks of flooding should accompany such applications. This must demonstrate that the development would not increase flood risks, by introducing significant numbers of additional people into the flood plain and/or putting additional pressure on emergency services or existing flood management infrastructure. The development must not have adverse impacts or impede access to a watercourse, floodplain or flood protection and management facilities. Where possible, the design of built elements in these applications should demonstrate principles of flood resilient design. (See: The Planning System and Flood Risk Management Guidelines for Planning Authorities Technical Appendices, 2009, Section 4 – Designing for Residual Flood Risk).

Generally, the approach to deal with flood protection would involve raising the ground floor levels above the level of extreme high tides. However, in some parts of the plan area, which are already developed, ground floor levels for flood protection could lead to floor levels being much higher than adjacent streets, thus creating a hostile streetscape for pedestrians. This would cause problems for infill development sites if floor levels were required to be significantly higher than those of neighbouring properties. In this regard, for the key development 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 of 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. Residential uses would not be permitted at ground flood levels in high risk zones.

It should be noted that for residential buildings within Flood Zone A or B, bedroom accommodation 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 built 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. This is because the development concerns land which has previously been developed and would already have limited capacity to mitigate flooding. However, a commentary to this effect must be substantiated in the FRA.

4.4.2 Highly Vulnerable Development

Two broad classes of major development have been identified for the purposes of this assessment. The first is new development which is located in 'greenfield' (currently undeveloped). The second is brownfield and larger scale infill and regeneration which comprises sites located in more urban areas.

Highly vulnerable development in Flood Zones A or B needs to have passed both the Plan Making Justification Test and the Justification Test for Development Management. Development which is highly vulnerable to flooding, as defined in The Planning System and Flood Risk Management Guidelines for Planning Authorities and Technical Appendices, 2009, includes (but is not limited to): dwelling houses, hospitals, emergency services and caravan parks, and requires a particularly rigorous consideration of flood risks and robust flood management measures.

4.4.2.1 New Development

It is not appropriate for new, highly vulnerable development to be located on greenfield land in Flood Zone A or B, whether it is highly or less vulnerable. In the main, such areas are parks and public open space within the wider built environment which provide flood storage and reduce risks to existing development. There would be little or no opportunity to compensate for the loss of such storage areas, and development within them would be contrary to a number of the policies and objectives within this Plan. Such proposals do not pass the Justification Test. Instead, a less vulnerable use should be considered.

4.4.2.2 Regeneration

Regeneration of areas within Flood Zones A and B has, in the main, been justified and the approach for managing risks to such development is provided below.

The DECLG Circular Letter PL2/2014 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'.

4.4.3 Less Vulnerable Development

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.

Less vulnerable development includes retail, leisure, and warehousing etc. 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 be the 1% AEP fluvial or 0.5% AEP tidal events as standard, with climate change and a suitable freeboard included in the setting of finished floor levels.

The presence or absence of flood defences informs the level of flood mitigation recommended for less vulnerable developments in areas at risk of flooding. In contrast with highly vulnerable development, there is greater scope for the developer of less vulnerable uses to accept flood risks and build to a lower standard of protection, which is still high enough to manage risks for the development in question. However, any deviation from the design standard of 1% AEP, plus climate change, plus freeboard, needs to be fully justified within the FRA.

4.4.4 Flood Mitigation Measures at Site Design

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

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

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

5 Flood Risk Management Policies/Objectives

5.1 Flood Risk Management Policy

The Guidelines recommend a sequential approach to spatial planning, promoting avoidance rather than justification and subsequent mitigation of risk. The implementation of The Guidelines on a settlement basis is achieved through the application of the policies and objectives contained within Chapters 2, 6 and 11 of the South Dublin CDP 2022-2028.

The use and application of the policies and guidelines constitute the formal plan for flood risk management in South Dublin County. This approach has been achieved in the development plan making process in the settlements contained within the plan and covered in this SFRA.

5.2 Flood Risk Management

Section 11.3 of the CDP outlines the approach to Flood Risk Management. SDCC will require compliance with best practice guidance for the collection, reuse, treatment and disposal of surface waters for all future development proposals.

Section 11.3.1 of the CDP also emphases the importance of riparian corridors, which are now regarded as essential for ecosystem service provision. The benefits of Riparian Corridors are addressed in detail in Chapter 4: Green Infrastructure, Section 4.2.2 Sustainable Water Management, relevant policy and objectives are also set out in that section.

SDCC policy and objectives are outlined in Table 5-1 and Table 5-2.

Table 5-1 Policy IE4: Flood Risk Management

Policy IE4: Flood Risk
Ensure the continued incorporation of Flood Risk Management into the spatial planning of the County, to meet the requirements of the EU Floods Directive and the EU Water Framework Directive and to promote a climate resilient County.
IE4 Objective 1: **To require site specific flood risk assessments to be undertaken for all new developments within the County in accordance with The Planning System and Flood Risk Management – Guidelines for Planning Authorities (2009) and the requirements of DECLG Circular P12 / 2014 and the EU Floods Directive and Chapter 12: Implementation and Monitoring and the policies and objectives of this chapter.**
IE4 Objective 2: **To require all developments in the County to be designed and constructed in accordance with the "Precautionary Principle" detailed in the OPW Guidelines.**
IE4 Objective 3: **To continue to support and co-operate with the Office of Public Works in measures set out in the relevant Flood Risk Management Plan.**
IE4 Objective 4: **To support and facilitate the delivery of flood alleviation schemes in South Dublin County, including the schemes listed, in as environmentally sensitive a way as possible and to ensure that zoning or development proposals do not impede or prevent the progression of these measures:**

Poddle Flood Alleviation Scheme; **Camac Flood Alleviation Scheme;** **Whitechurch Flood Alleviation Scheme;** **Lucan to Chapelizod Flood Alleviation Scheme.**
IE4 SLO 1: **To require the preparation of a site and catchment specific Flood Risk Assessment and Mitigation Strategy, prepared by a qualified person(s), to be submitted with any proposal for development on the 'EE' zoned lands at Moneenalion Commons Upper, Baldonnell (See Development Plan Map).**

Table 5-2 Policy IE3: Surface Water and Groundwater

Policy IE3: Surface Water and Groundwater
Manage surface water and protect and enhance ground and surface water quality to meet the requirements of the EU Water Framework Directive.
IE3 Objective 1: **To maintain, improve and enhance the environmental and ecological quality of our surface waters and groundwater by implementing the relevant programme of measures set out in the River Basin Management Plans.**
IE3 Objective 2: **To maintain and enhance existing surface water drainage systems in the County and to require Sustainable Drainage Systems (SuDS) in new development in accordance with objectives set out in section 4.2.2 of this Plan including, where feasible, integrated constructed wetlands, at a local, district and County level, to control surface water outfall and protect water quality.**
IE3 Objective 3: **To protect the regionally and locally important aquifers within the County from risk of pollution.**
IE3 Objective 4: **To continue efforts to improve water quality under the Local Government (Water Pollution) Act 1977, as amended and by implementing the measures outlined under the Nitrates Directive (91 / 676 / EEC) and the current National Nitrates Action Programme (NAP) and all other relevant legislation.**
IE3 Objective 5: **To generally prohibit development within restricted areas identified on the Bohernabreena / Glenasmole Reservoir Restricted Areas Map contained in Appendix 5.**
IE3 Objective 6: **To protect salmonid water courses, such as the Liffey and Dodder River catchments (including Bohernabreena Reservoir), which are recognised to be exceptional in supporting salmonid fish species.**
IE3 Objective 7: **To protect surface water quality by continuing to assess the impact of domestic and industrial misconnections to the drainage network in the County and the associated impact on surface water quality, and by implementing measures to address same, and to diagnose and repair any misconnections in Council housing stock as part of the re-letting process.**
IE3 Objective 8:

Integrate Surface Water and Groundwater systems as an essential component of all new developments, in accordance with the requirements set out in Chapter 12: Implementation and Monitoring and the policies and objectives of this chapter.

Policy GI3: Sustainable Water Management
Protect and enhance the natural, historical, amenity and biodiversity value of the County's watercourses. Require the long-term management and protection of these watercourses as significant elements of the County's and Region's Green Infrastructure Network and liaise with relevant Prescribed Bodies where appropriate. **Accommodate flood waters as far as possible during extreme flooding events and enhance biodiversity and amenity through the designation of riparian corridors and the application of appropriate restrictions to development within these corridors**
GI3 Objective 1: **To ensure that hydromorphical assessments are undertaken where proposed development is within lands which are partially or wholly within the Riparian Corridors identified as part of this Development Plan.**
GI3 Objective 2: **To require development proposals that are within riparian corridors to demonstrate how the integrity of the riparian corridor can be maintained and enhanced having regard to flood risk management, biodiversity, ecosystem service provision, water quality and hydromorphology.**
GI3 Objective 3: **To promote and protect native riparian vegetation along all watercourses and ensure that a minimum 10m vegetated riparian buffer from the top of the riverbank is maintained / reinstated along all watercourses within any development site.**
GI3 Objective 4: **To uncover existing culverts where appropriate and in accordance with relevant river catchment proposals to restore the watercourse to acceptable ecological standards for biodiversity wherever possible improving habitat connection and strengthening the County's GI network.**

6 Proposed Development Plan Zoning Variation 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 proposed variation to the land use zoning objectives utilised within South Dublin CDP and assess their potential vulnerability to flooding.
- Based on the associated vulnerability, a clarification on the requirement of the application of the Justification Test is provided.
- The consideration of the 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.

6.1 A Strategic Approach to Flood Risk Management

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

Following The 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.

6.2 Approach in relation to Flood Zones and climate change

The Justification Test is required for all proposed variation lands within a flood zone, whether located behind defences or not.

The HEFS extents provide valuable information to inform zoning decisions, particularly where development is proposed in areas that may be vulnerable under more extreme climate scenarios. Therefore, the HEFS flood extents have been used as part of the appraisal of the proposed variation lands. This approach aligns with the National Planning Framework (NPF) First Revision, which identifies flood risk management and climate adaptation as key components of sustainable spatial planning. The NPF Strategic Flood Risk Assessment

emphasises that flood risk should be a core consideration in land use planning, that the sequential approach should guide zoning decisions and that climate resilience must be embedded in all plan-making processes.

The baseline Flood Zone A & B extents and the proposed variation lands are provided in Figure 6-1.

Figure 6-2 and Table 6-1 provides the HEFS flood extents with the proposed variation lands that have been used as part of the review detailed under Section 6.3.

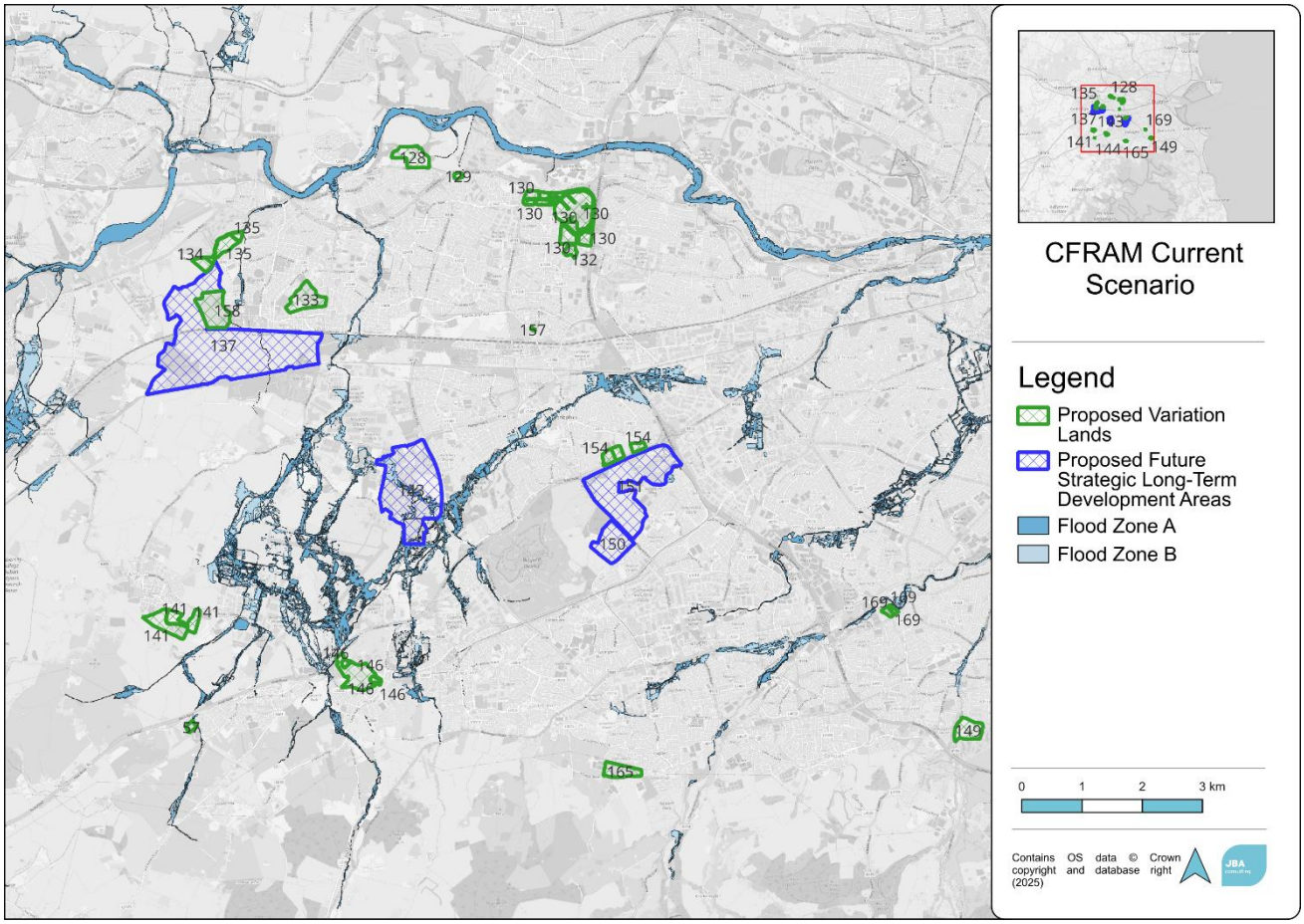


Figure 6-1: Proposed Variation Lands - Flood Zone A & B

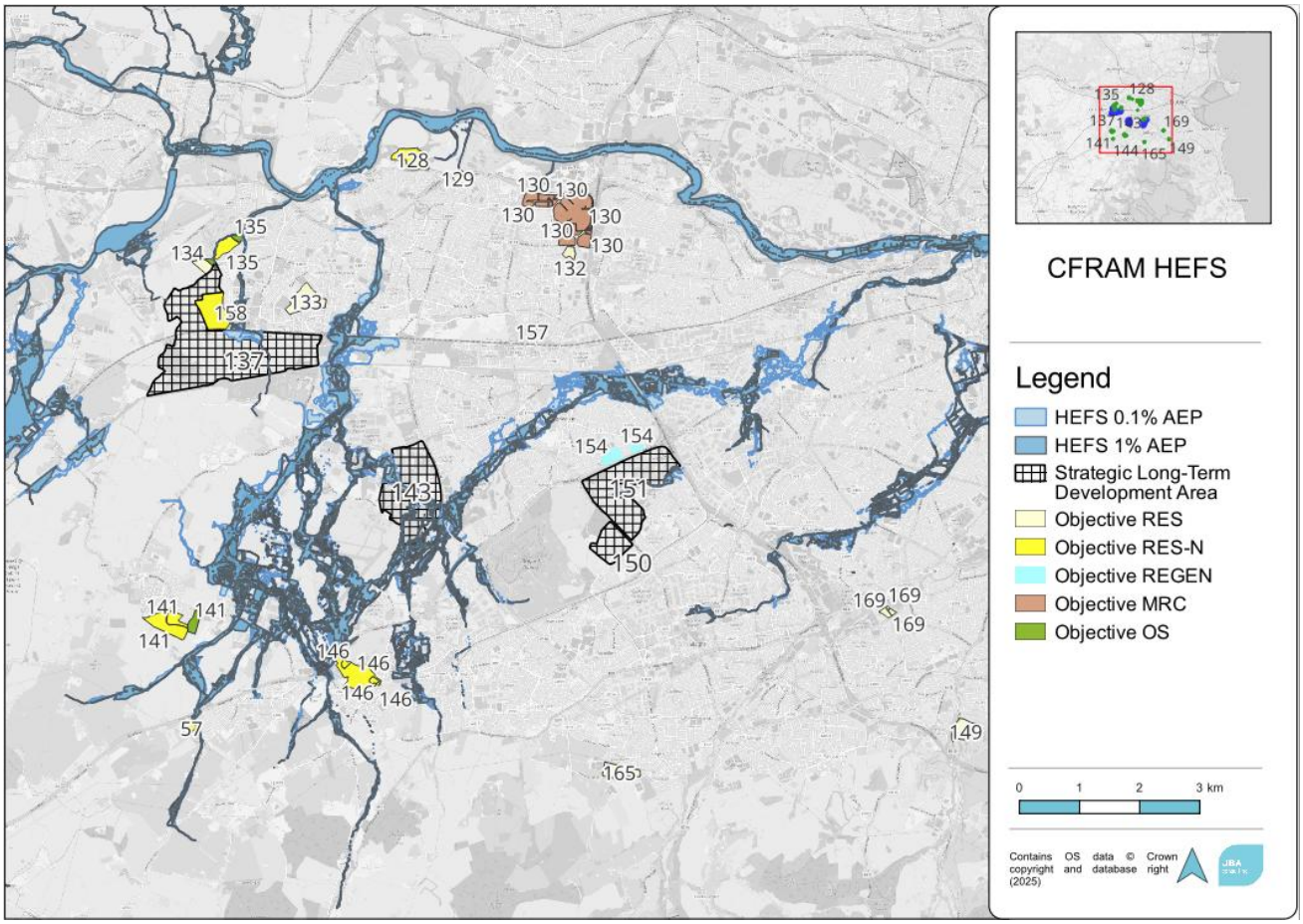
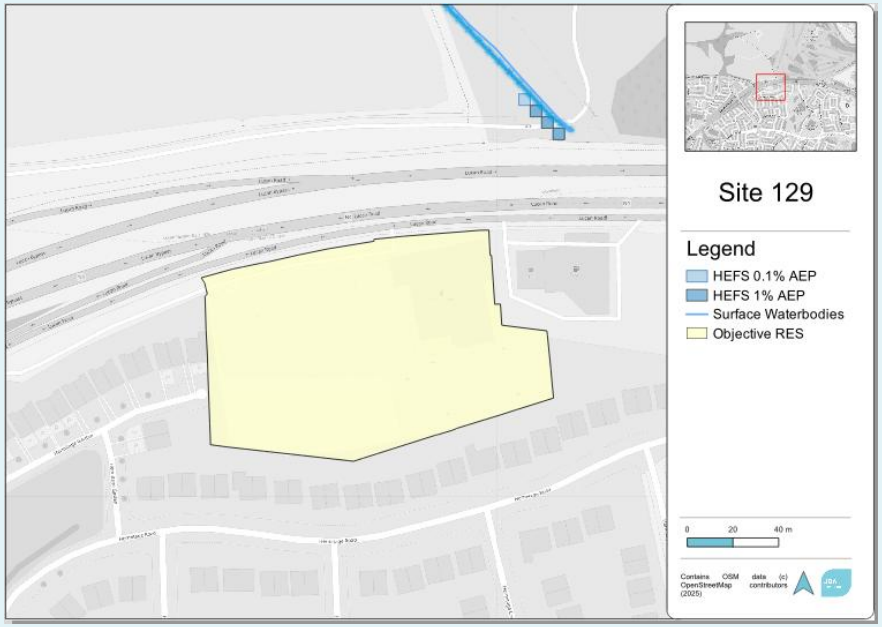


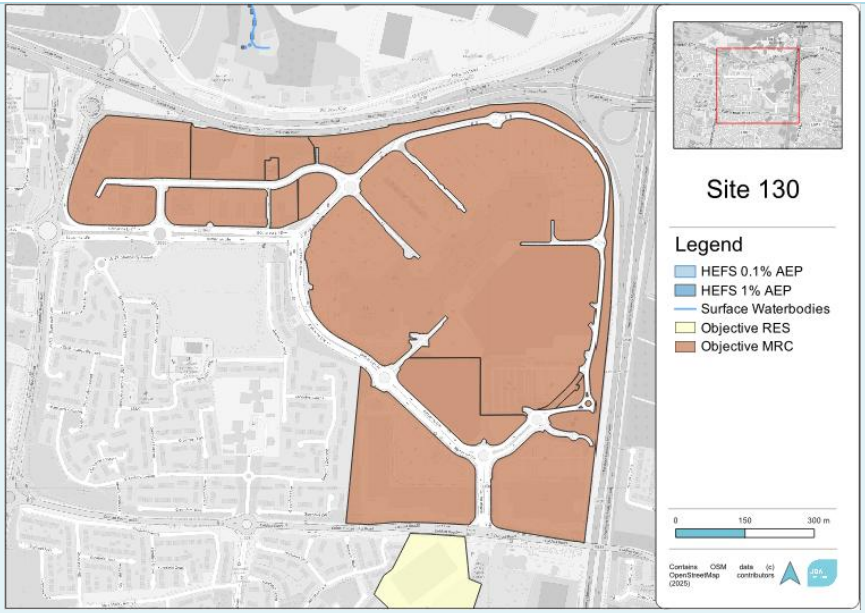
Figure 6-2: Proposed Variation Lands - HEFS Flood Extents

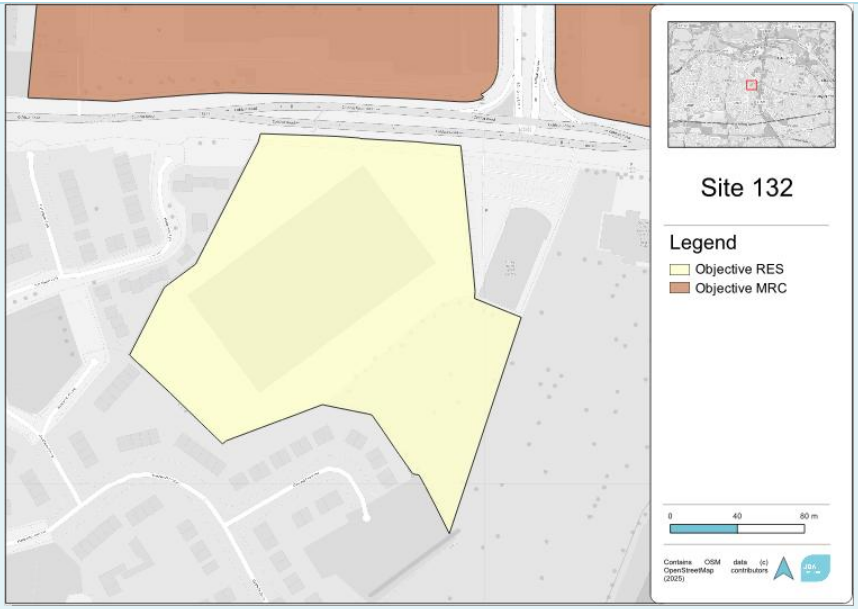
The following sections review the proposed sites within the proposed variation to the plan and provide a comprehensive summary of flood risk and justification where necessary.

6.3 Review of Proposed Variation Lands

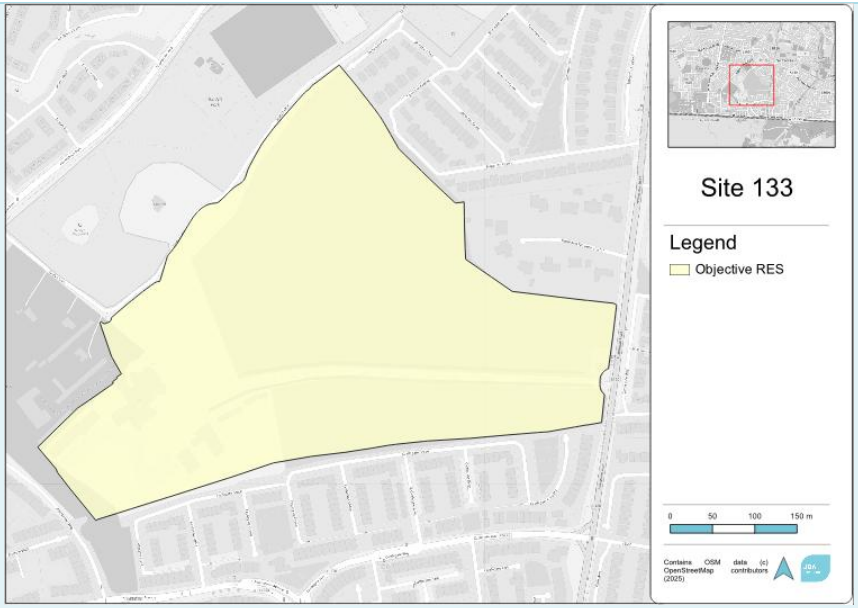
Table 6-1: Overview of Proposed Variation Lands Using Site Numbers Identified by SDCC

Site 129 – Foxhunter	SFRA Review
	Proposed variation site 129 comprises grassland and developed land. It is situated off the N4 road to the east of Lucan. The lands are currently zoned for RW (retail warehousing). There are no known watercourses in proximity to the site. The site is not situated within Flood Zones A or B, nor in the HEFS 0.1% and 1% AEP zones. Thus, no justification test is required and the variation to the land use zoning in the CDP is appropriate. Flood risk for any new development should be assessed in accordance with Section 4.3 of this SFRA.
Site 130 – Liffey Valley Major Retail Centre	SFRA Review
	Proposed Variation Site 130 comprises of the entirety of the Liffey Valley Retail Parks and Shopping Centre and partially developed land. It is in the townships of Irishtown and Palmerstown Upper to the north of Clondalkin. The lands are currently zoned as major retail centre and the proposed variation is to permit residential use. There are no known watercourses in proximity to the site.

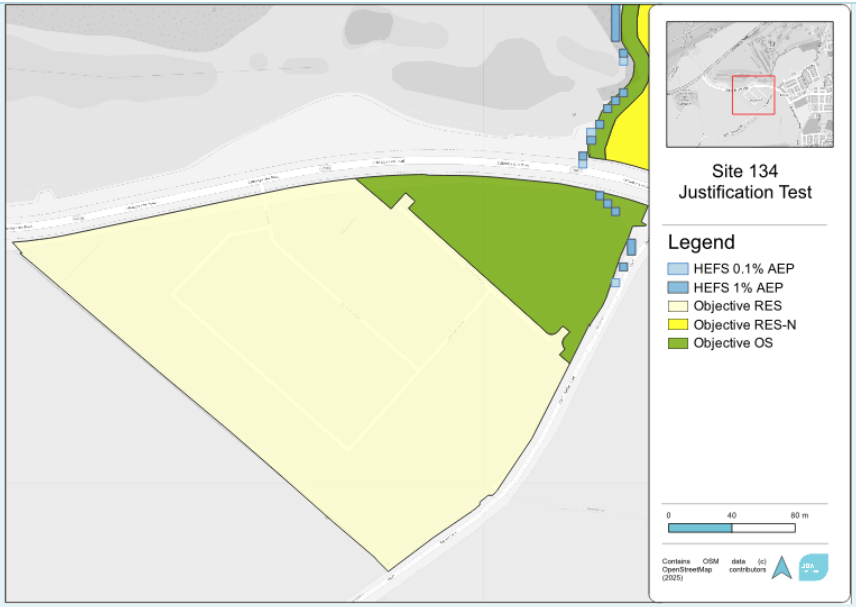
	The site is not situated within Flood Zones A or B, nor in the HEFS 0.1% and 1% AEP zones. Thus, no justification test is required and the variation to the land use zoning in the CDP is appropriate. Flood risk for any new development should be assessed in accordance with Section 4.3 of this SFRA.
Site 132 – Coldcut Road	SFRA Review
	Proposed variation site 132 comprises open grassland. It is situated off Coldcut Road in the township of Rowlagh to the north of Clondalkin. The lands are currently zoned for open space and recreation. It is proposed to change the zoning to residential to enable future residential development within the site. There are no known watercourses in proximity to the site. The site is not situated within Flood Zones A or B, nor in the HEFS 0.1% and 1% AEP zones. Thus, no justification test is required and the variation to the land use zoning in the CDP is appropriate. Flood risk for any new development should be assessed in accordance with Section 4.3 of this SFRA.



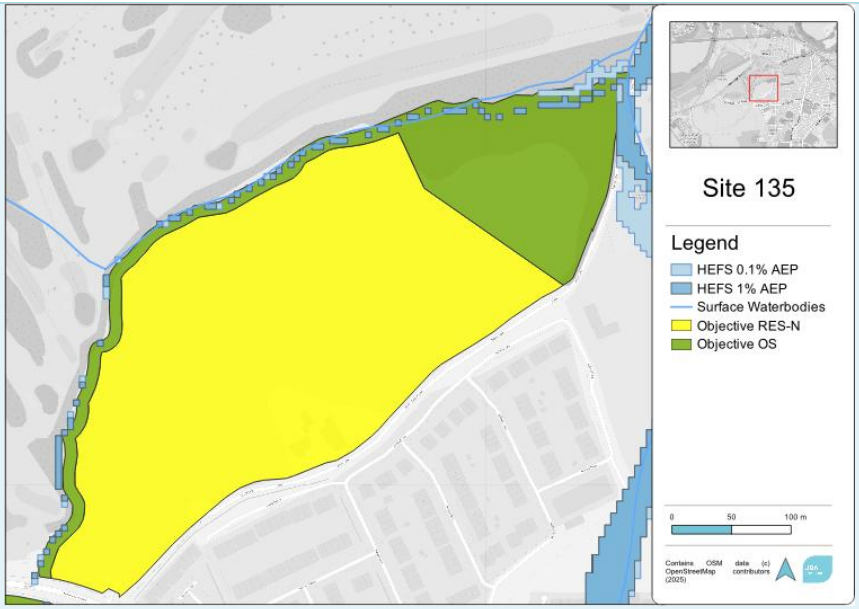
Site 133 – Finnstown Castle	SFRA Review
	Proposed variation site 133 comprises of Finnstown Castle open grassland and scrub. It is situated in Adamstown to the east of Tandy's Lane Park and to the west of Newcastle Road to the south of Lucan. The lands are currently zoned for open space and recreation. There are no open channels present within the boundaries of the site. As such the site is not situated within Flood Zones A or B, nor in the HEFS 0.1% and 1% AEP zones. Thus, no justification test is required and the variation to the land use zoning in the CDP is appropriate. Flood risk for any new development should be assessed in accordance with Section 4.3 of this SFRA.

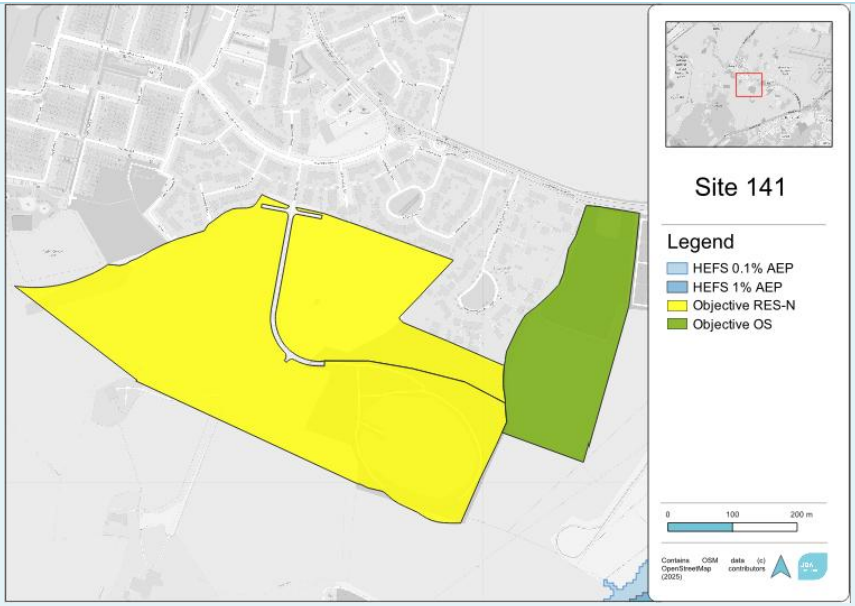


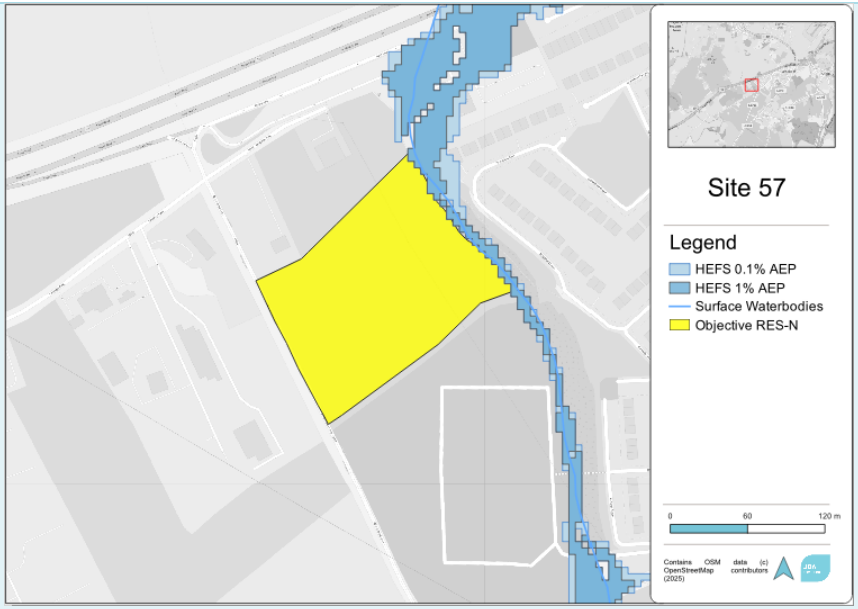
Site 134 - Stonewall	SFRA Review
	Proposed variation site 134 comprises developed land used for residential buildings. It is situated between the L2010 Celbridge Link Road and Tubber Lane in the township of Backstown to the southwest of Lucan. The lands are currently zoned for rural amenity and agriculture. There is a local stream/watercourse that runs along the eastern boundary of the site and past the Celbridge Link Road via a culvert system. The site is divided into 2 sections, the proposed variation to the site includes residential use for the western portion and open space for the eastern portion which is situated within the HEFS zones and this is in accordance with GI3 Objective 3 for riparian buffer zones. Thus, no justification test is required and the variation to the land use zoning in the CDP is appropriate. Flood risk for any new development should be assessed in accordance with Section 4.3 of this SFRA.

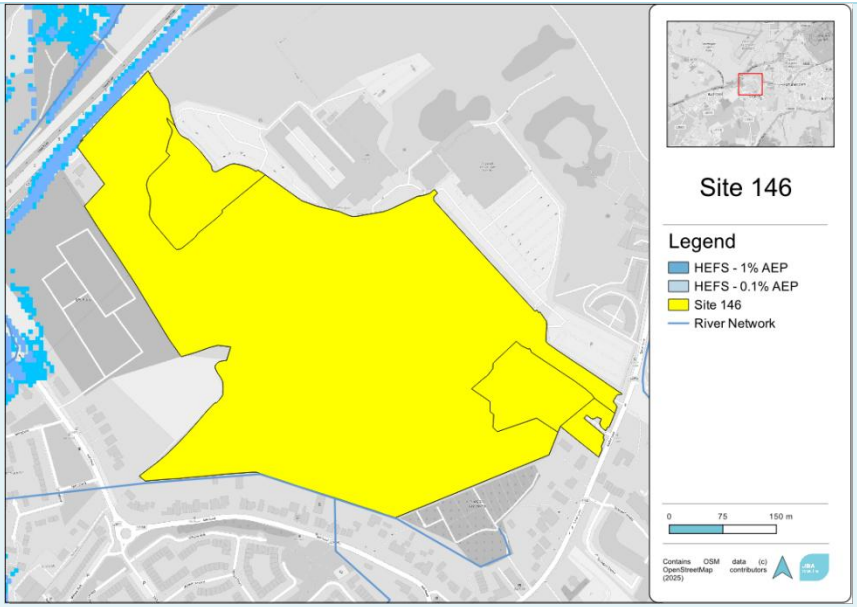


Site 135 – Tubber Lane North	SFRA Review
	Proposed variation site 135 comprises agricultural land, hedgerows and developed land in use as residential buildings. It is situated directly to the north of Tubber Lane in the township of Tobermaclugg to the southwest of Lucan. The lands are currently zoned for rural amenity and agriculture. The River Liffey runs approximately 1.5 km north of the site, and a tributary to the river runs along the site's northern boundary. The site is situated slightly within Flood Zones A and B, and in the HEFS 0.1% and 1% AEP zones. The site is divided into 2 sections, the proposed variation to the site includes residential use for the main portion and open space for the portion which is situated within the HEFS zones and pulled back from the riparian corridor in accordance with GI3 Objective 3. Thus, no justification test is required and the variation to the land use zoning in the CDP is appropriate.

	Flood risk for any new development should be assessed in accordance with Section 4.3 of this SFRA.
Site 141 – Ballynakelly	SFRA Review
	Proposed variation site 141 comprises of a significant unfinished structure, open grassland, cultivated land, scrub and mixed forest. It is situated directly to the southeast of Newcastle. The lands are currently zoned for rural amenity and agriculture. The EPA watercourse pathway is not accurate within this site and there is no open channel present. The site is not situated within Flood Zones A or B, nor in the 0.1% and 1% AEP HEFS extents. Thus, no justification test is required and the variation to the land use zoning in the CDP is appropriate.

	Flood risk for any new development should be assessed in accordance with Section 4.3 of this SFRA.
Site 57 – Rathcoole West	SFRA Review
	Proposed variation site 57 comprises open grassland and partially developed land. It is situated south of the N4 road to the west of Rathcoole. The lands are currently zoned for new residential communities. A stream runs along the eastern border of the site causing a minor overlap with Flood Zones A and B, and in the HEFS 0.1% and 1% AEP zones. In accordance with GI3 Objective 3 and CS10 SLO2 the watercourse will be granted a 10m vegetated riparian buffer from the top of each bank. This will serve to protect the floodplain from any further development and incorporates Flood Zone A/B and HEFS extents. In this case a justification test is not required and the removal of the “Strategic Residential Reserve” objective is appropriate.

	Flood risk for any new development should be assessed in accordance with Section 4.3 of this SFRA.
Site 146 – Citywest	SFRA Review
	Proposed variation site 146 comprises some existing buildings, grassland and scrub. It is situated to the north of Mill Road in Saggart. The lands are currently zoned for open space and recreation. It is proposed to change the underlying zoning to residential. There are no formal watercourses present within the boundaries of the site. The River Camac flows to the northwest of the site, but the HEFS extents do not encroach within it. An un-modelled watercourse, a tributary of the River Camac, lies to the south of the site boundary. Site inspection indicates this channel is substantially modified and culverted along much of its length, conveying minimal flow under dry weather conditions. Three documented flood events associated with this tributary occurred on 24th October 2011, all linked to culvert capacity exceedance or blockage during an intense rainfall event:



- Garter Lane, Saggart — culvert under the road at Saggart Medical Centre was overwhelmed, resulting in overtopping and flooding of 1 residential property (0.2m depth) and 200m of road.
- Avoca Roundabout, Saggart — culvert under Mill Road was overwhelmed due to a channel blockage, affecting 2 residential properties and 100m of the N82 (0.1m depth).
- Mill Road/Mill Race Development, Saggart — overland flows through the Mill Race development lands built up behind a masonry wall, which subsequently collapsed, affecting the driveways and gardens of up to 8 properties and 50m of the N82 (0.1m depth).

A further flood event associated with a low-capacity culvert in the vicinity is recorded for 2016; however, no supporting documentation is available to confirm the source, cause, or mechanism of this event.

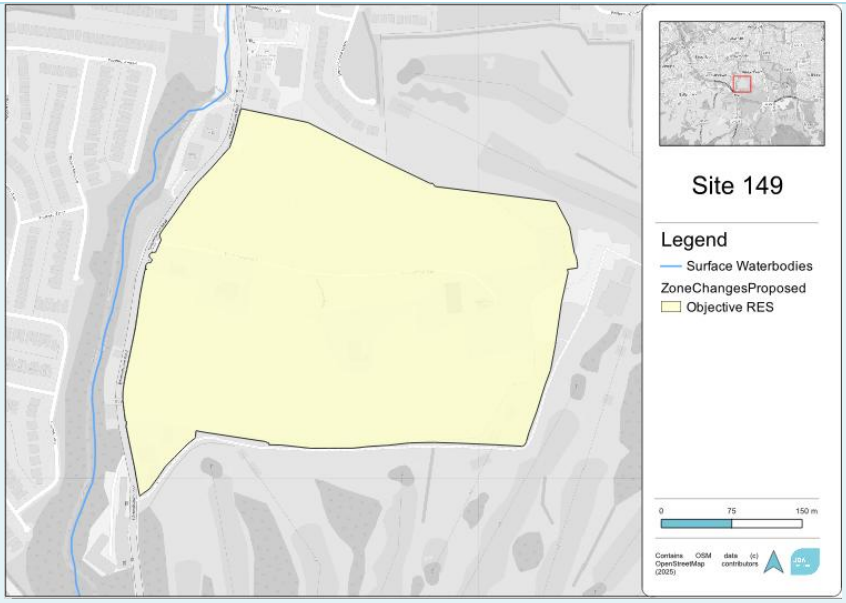
The historic record indicates that flood risk along this watercourse is primarily associated with culvert capacity and blockage during high-intensity rainfall, rather than fluvial flood zone extents. The site is not situated within Flood Zones A or B, nor in the 1% AEP and 0.1% HEFS extents. Thus, no Justification Test is required and the variation to the land use zoning in the CDP is appropriate.

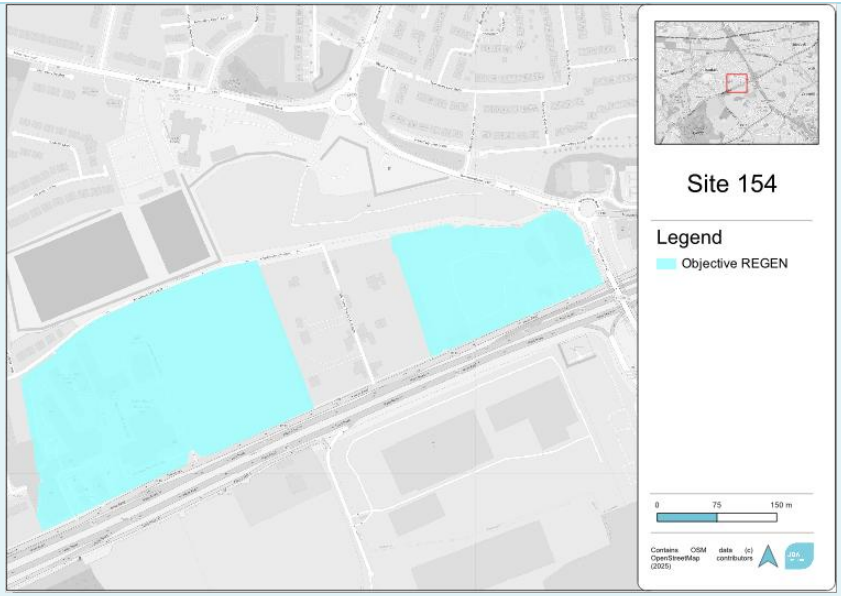
The ornamental ponds/surface water features within the site would require detailed assessment at development management stage in order to manage their function as part of the masterplanning process, in accordance with Section 4 of this SFRA and in the context of the wider stormwater and SuDS design.

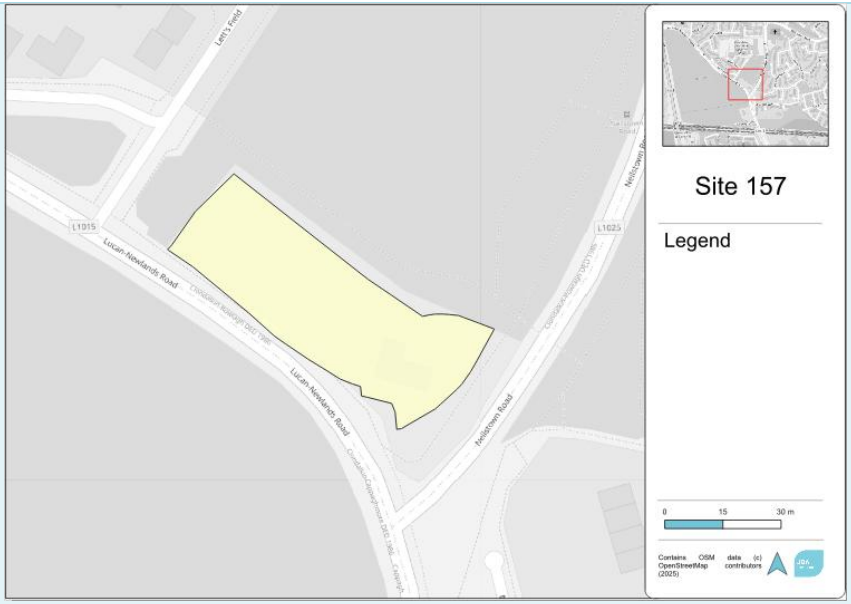
The OPW has advised that draft 1% AEP flood extents for the River Camac Flood Alleviation Scheme, displayed at public consultation in 2022, show flooding on these lands. While these extents are draft and do not supersede the current flood zone mapping, they indicate that flood risk at the site may be greater than currently mapped. SDCC should liaise with the Camac FAS design team to confirm the latest scheme flood extents. The site-specific FRA should use the most up-to-date scheme modelling available and, should Flood Zone A or B be confirmed within the site, apply the sequential approach at masterplan stage so that highly vulnerable development is located outside these areas.

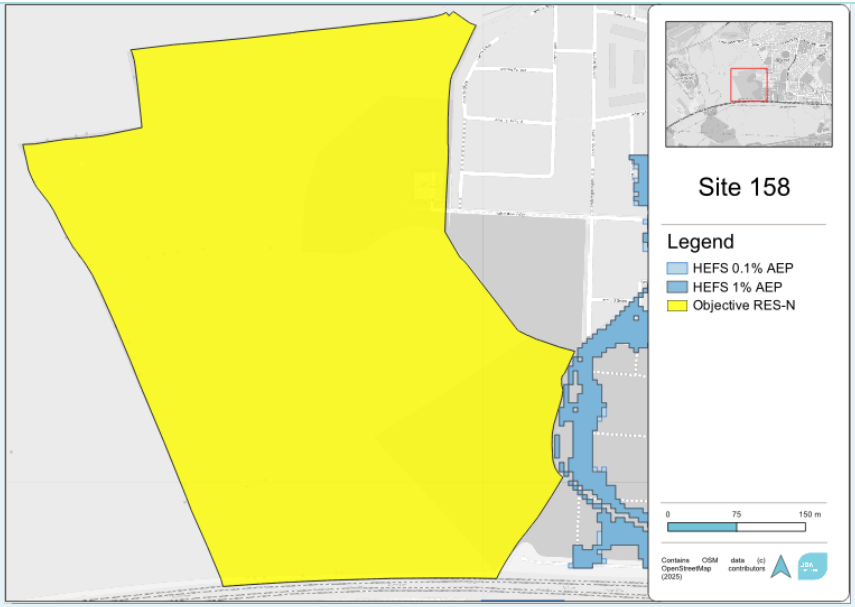
The site-specific FRA should also consider flood risk from the watercourse to the east of the site and overland flow routes from pluvial flooding on surrounding lands. Pluvial flooding generated within the site can be managed through the surface water drainage system.

	Flood risk for any new development should be assessed in accordance with Section 4.3 of this SFRA, and the site-specific FRA required under the SLO for this amendment should explicitly address the capacity and blockage risk associated with the culverted watercourse to the south, informed by the historic flood record set out above.
Site 149 – Edmondstown Road	SFRA Review

	Proposed variation site 149 comprises open grassland, some existing dwellings and agricultural land. It is situated in Edmondstown Park in the township of Edmondstown to south of Rathfarnham. The lands are currently zoned for rural amenity and agriculture. It is proposed to change the zoning to residential. The Owendoher River which runs approximately 30m from the site's western boundary along Edmondstown Road. The site is not situated within the 1% AEP (Flood Zone A) or 0.1% AEP (Flood Zone B) flood extents. It is noted that the HEFS climate change flood extents have not been prepared for the Owendoher River in the vicinity of the site. HEFS flood extents for the area are included in the SDCC's development plan flood zone mapping and SFRA, these maps do not indicate any flooding within or in the vicinity of the site. No justification test is required and the variation to the land use zoning is appropriate. Pluvial and stormwater flood risk also needs to be assessed. An appropriate threshold for the Finish Floor Levels (FFLs) needs to be set to minimise the pluvial flood risk. Flood risk for any new development should be assessed in accordance with Section 4.3 of this SFRA.
Site 154 – Knockmeenagh Lane	SFRA Review
	Proposed variation site 154 comprises developed and undeveloped land and is currently in use for commercial properties. It is situated adjacent to Naas Road

	in the township of Redcow to the east of Clondalkin. The lands are currently zoned for enterprise and employment. It is proposed to change the land use to residential. There are no known watercourses in proximity to the site. The site is not situated within Flood Zones A or B, nor in the 1% AEP and 0.1% HEFS extents. Thus, no justification test is required and the variation to the land use zoning in the CDP is appropriate. Flood risk for any new development should be assessed in accordance with Section 4.3 of this SFRA.
Site 157 – Ninth Lock Road	SFRA Review

	Proposed variation site 157 comprises developed land and is currently in use commercial properties. It is situated adjacent to Ninth Lock Road and Neilstown Road in the township of Neillstown to the north of Clondalkin. The lands are currently zoned for open space and recreation. It is proposed to change the land use to residential. There are no known watercourses in proximity to the site. The site is not situated within Flood Zones A or B, nor in the 1% AEP and 0.1% HEFS extents. Thus, no justification test is required and the variation to the land use zoning in the CDP is appropriate. Flood risk for any new development should be assessed in accordance with Section 4.3 of this SFRA.
Site 158 – Adamstown West	SFRA Review



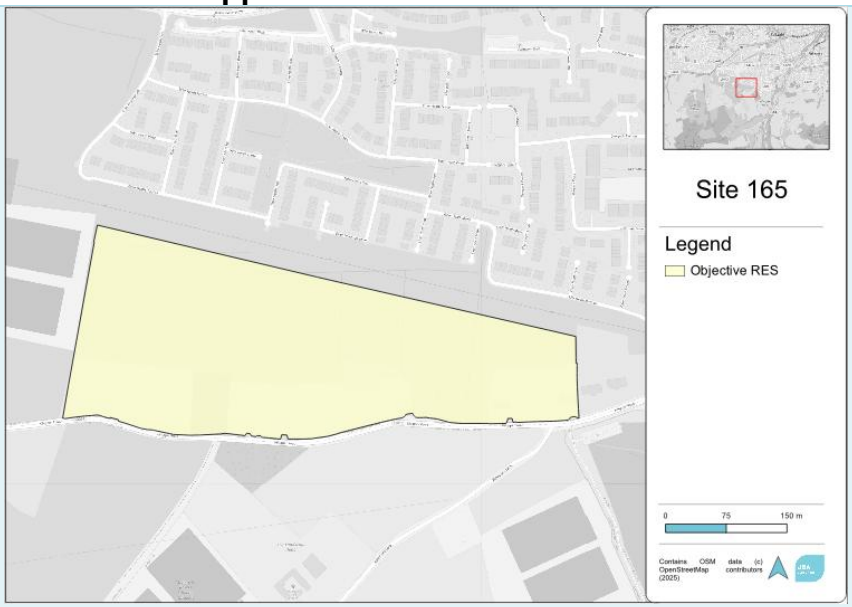
Proposed variation site 158 comprises open grassland. It is situated adjacent to Aderrig Glade in the township of Aderrig to the southwest of Lucan. The lands are currently zoned for rural amenity and agriculture. It is proposed to change the zoning to residential.

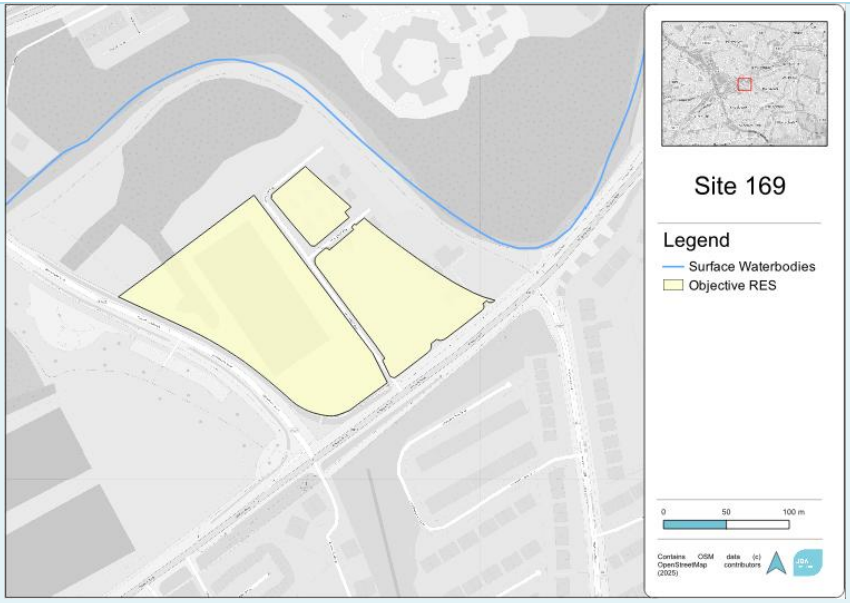
It is noted that the EPA mapping indicates that a small watercourse is located within the site. Having reviewed the OSI historic maps (6" and 25") for Site 158, there is no indication of a stream in this area. The geometry of the channel does not match a natural river system and includes 90-degree bends, and review of LiDAR data confirms that there is no catchment to the west of the site that would provide river flows to this system. It is therefore considered to function as a local surface water drain serving the site and adjacent lands, rather than a natural watercourse. Given its limited catchment, the associated flood risk is considered low and can be assessed and managed through a site-specific Flood Risk Assessment.

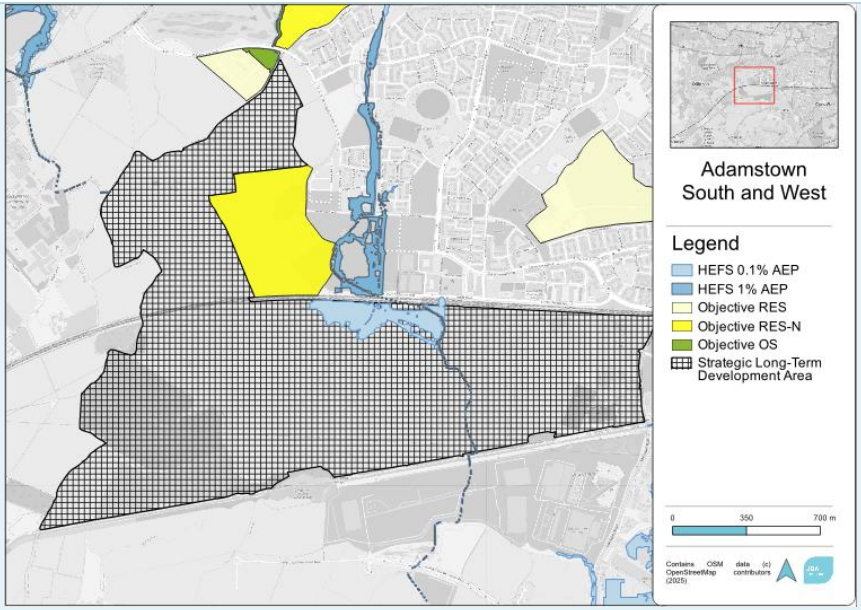
A watercourse mapped under the Eastern CFRAM flows along the eastern boundary of the site. Its catchment is restricted to the adjacent agricultural lands and the associated flood risk is considered low. Any remnant field drains are surface water features and can be incorporated into the SuDS network of any future development.

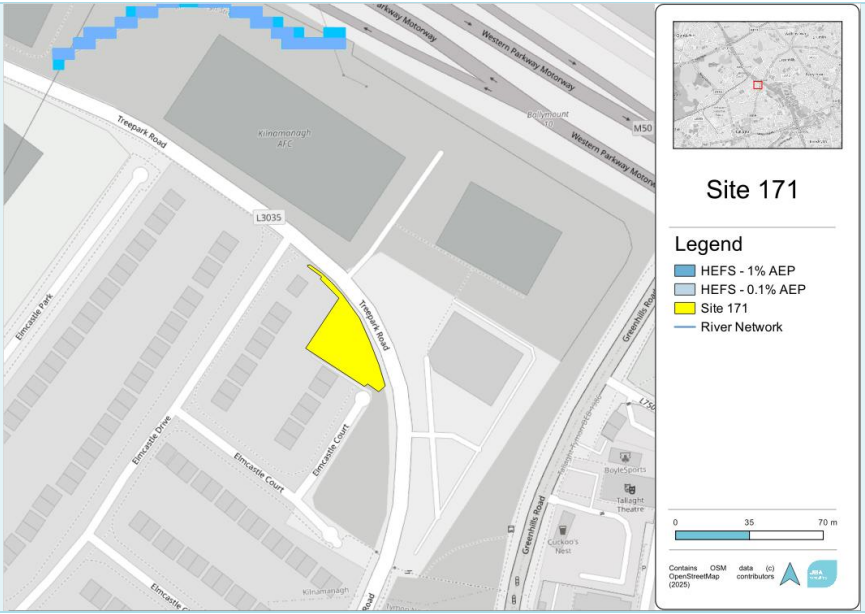
The site is not situated within Flood Zones A or B, nor in the 1% AEP and 0.1% HEFS extents. Thus, no justification test is required and the variation to the land use zoning in the CDP is appropriate.

Flood risk for any new development should be assessed in accordance with Section 4.3 of this SFRA.

Site 165 – Kiltipper Road	SFRA Review
	Proposed variation site 165 comprises open grassland, treelines and existing dwellings facing onto Kiltipper Road. It is situated directly to the north of Kiltipper Road in the township of Killinardan to the southwest of Tallaght. The lands are currently zoned for rural amenity and agriculture. It is proposed to change the flood extents to residential. There are no known watercourses in proximity to the site. The site is not situated within Flood Zones A or B, nor in the 1% AEP and 0.1% HEFS extents. Thus, no justification test is required and the variation to the land use zoning in the CDP is appropriate. Flood risk for any new development should be assessed in accordance with Section 4.3 of this SFRA.
Site 169 – Cherryfield Way	SFRA Review
	Proposed variation site 169 comprises amenity grassland and developed land with residential use. It is situated to the north of Firhouse Road to the south of Templeogue. The lands are currently zoned for enhancement and protection of outstanding natural character and amenity. The River Dodder runs approximately 40m to the northeast of the site. The site is not situated within Flood Zones A or B, nor in the 1% AEP and 0.1% HEFS extents. The zoning has been pulled back further than the riparian corridor. Thus, no justification test is required and the variation to the land use zoning in the CDP is appropriate.

	Flood risk for any new development should be assessed in accordance with Section 4.3 of this SFRA.
Site 137 – Adamstown South and West	SFRA Review
	Proposed Future Strategic Long-Term Development Area Adamstown South and West comprises agricultural land, hedgerows, some existing dwellings on Tubber Lane and scrub. It is situated directly to the south of Adamstown train station, west of Adamstown and to the north of the grand canal greenway in Adamstown to the south of Lucan. The lands are currently zoned for rural amenity and agriculture. The River Liffey runs approximately 2.5 km north of the site, and a tributary to the river cuts through the eastern section of the site. Sections of the site are located within the site are located in the 1% AEP and 0.1% HEFS extents. Given that the lands are not being currently zoned then under any future plan making process it is recommended that as per GI3 Objective 3 a riparian corridor of at least 10m from each top of bank is provided and water compatible

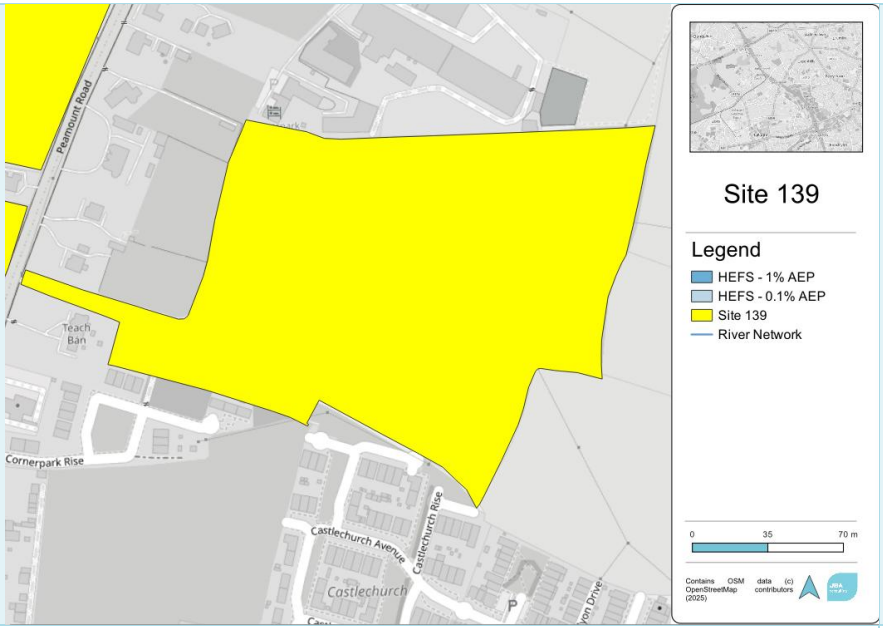
	zoning is provided within Flood Zones A and B, and in the HEFS 0.1% and 1% AEP zones. Policies IE3, IE4 and GI3 should be followed during that process to ensure commensurate assessment of flood risk.
Site 171, Lands adjacent to 21 Elmcastle Court, Kilnamanagh	SFRA Review



Site 139, Haughan's Field, Cornerpark, Newcastle

Proposed variation site 171 comprises Sustained Infill Lands adjacent to 21 Elmcastle Court, Kilnamanagh, Dublin 24. It is proposed to amend the zoning objective from Open Space (OS) to Residential (RES).
The site is situated fully within Flood Zone C. Thus, no Justification Test is required and the proposed zoning change to RES is appropriate.

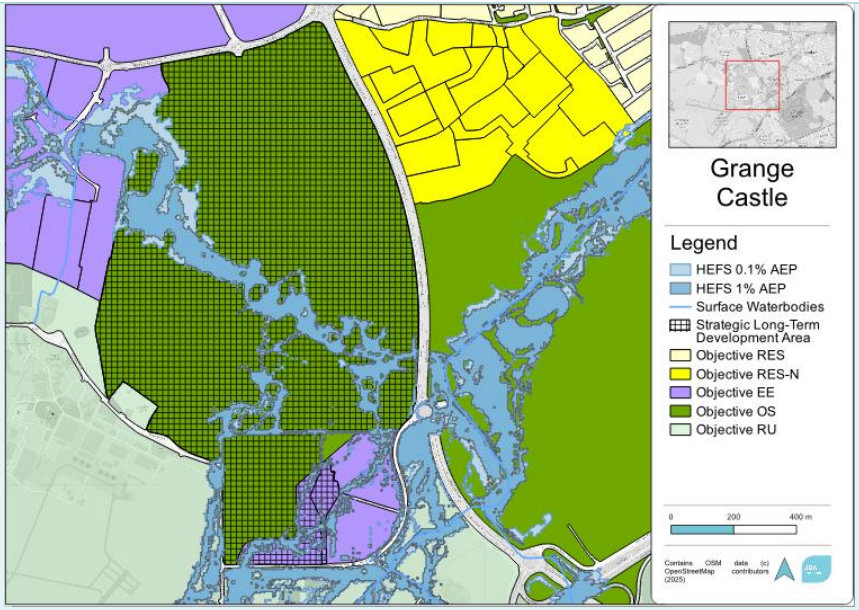
Flood risk for any new development should be assessed in accordance with Section 4.3 of this SFRA.

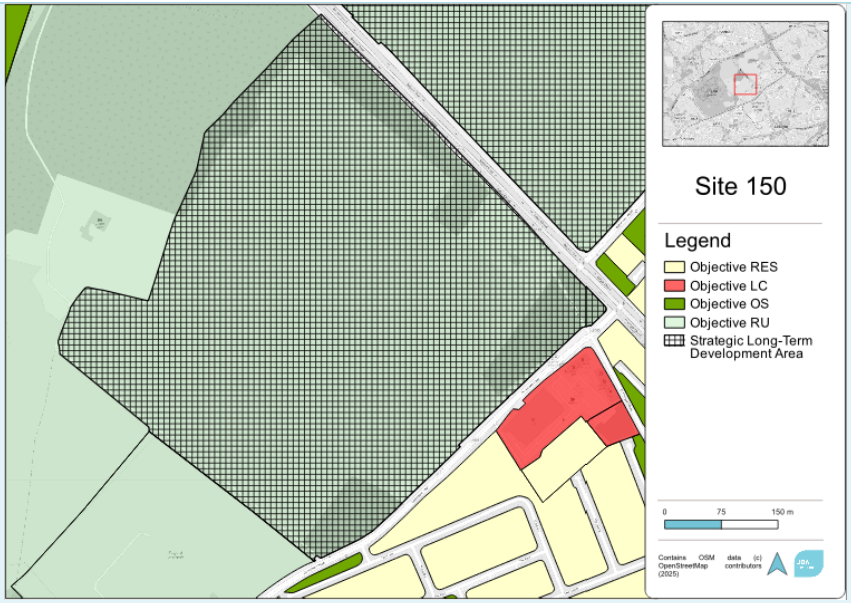


Proposed variation site 139 comprises agricultural land and grassland at Cornerpark, Newcastle, contiguous with the existing built-up area to the south. It is proposed to amend the zoning objective from RU to RES, with a new SLO requiring a masterplan for a maximum of 2ha of the RES lands to be integrated as part of the housing development to deliver a sports centre/facility, including pitch, clubhouse and training pitches.
The site is situated fully within Flood Zone C. Thus, no Justification Test is required and the proposed zoning change to RES is appropriate.

Flood risk for any new development should be assessed in accordance with Section 4.3 of this SFRA.

Site 143 – Grange Castle	SFRA Review
	Proposed Future Strategic Long-Term Development Area lands Grange Castle comprises of a golf course, open grassland and treelines. It is situated directly to the west of Grange Castle Road in Priest-Town to the west of Clondalkin. The lands are currently zoned for open space and recreation (green), and enterprise and employment (purple). One stream runs along a small section of the northwestern corner of the site. The site is situated within Flood Zones A and B, and in the 1% and 0.1% AEP HEFS extents. Given that the lands are not being currently zoned then under any future plan making process it is recommended that as per GI3 Objective 3 a riparian corridor of at least 10m from each top of bank is provided and water compatible zoning is provided within Flood Zones A and B, and in the HEFS 0.1% and 1%

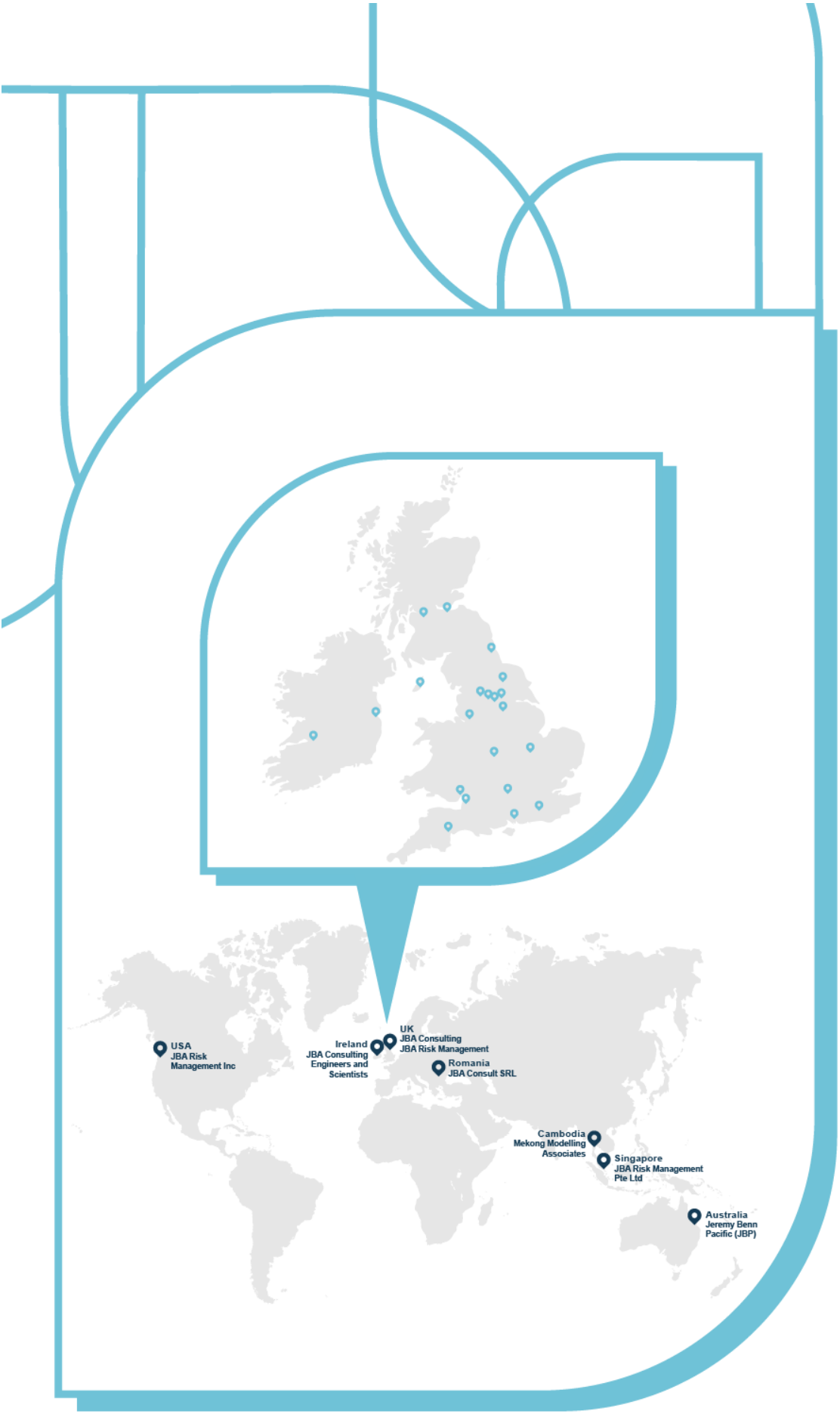
	AEP extents. Policies IE3, IE4 and GI3 should be followed during that process to ensure commensurate assessment of flood risk.
Site 150 – Belgard Road	SFRA Review
	Proposed Future Strategic Long-Term Development Area lands Belgard Road comprises agricultural land, hedgerows and treelines. It is situated adjacent Belgard Road and Cookstown Road in Belgard. Belgard Quarry is directly to the west. The lands are currently zoned for rural amenity and agriculture. There are no known watercourses in proximity to the site. The site is not situated within Flood Zones A or B, nor in the 1% AEP and 0.1% HEFS extents. Thus, no justification test is required and any future amendment to the land use zoning would potentially be appropriate.


Site 150
Legend
Objective RES
Objective LC
Objective OS
Objective RU
Strategic Long-Term Development Area
0
75
150 m

6.4 Conclusion

This SFRA proposed variation has been developed to inform the preparation of policies and objectives for the SDCC CDP, which have been reviewed against the recommendations set out in The Planning System and Flood Risk Management Guidelines for Planning Authorities and Technical Appendices, 2009. The land-use zoning allocations have avoided areas of high flood risk. It is noted the Flood Zones are based on best currently available data, but that a more detailed, site specific, flood risk assessment may produce locally varying flood outlines. There are a number of triggers which may prompt a review of the SFRA or will require a slight change in specification for site specific flood risk assessments, including the completion of various ongoing schemes.

This SFRA review has concluded that, based on the CFRAM HEFS 1% and 0.1% AEP flood maps, variation to the CDP for all the proposed variation lands is appropriate and no justification tests are required.



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