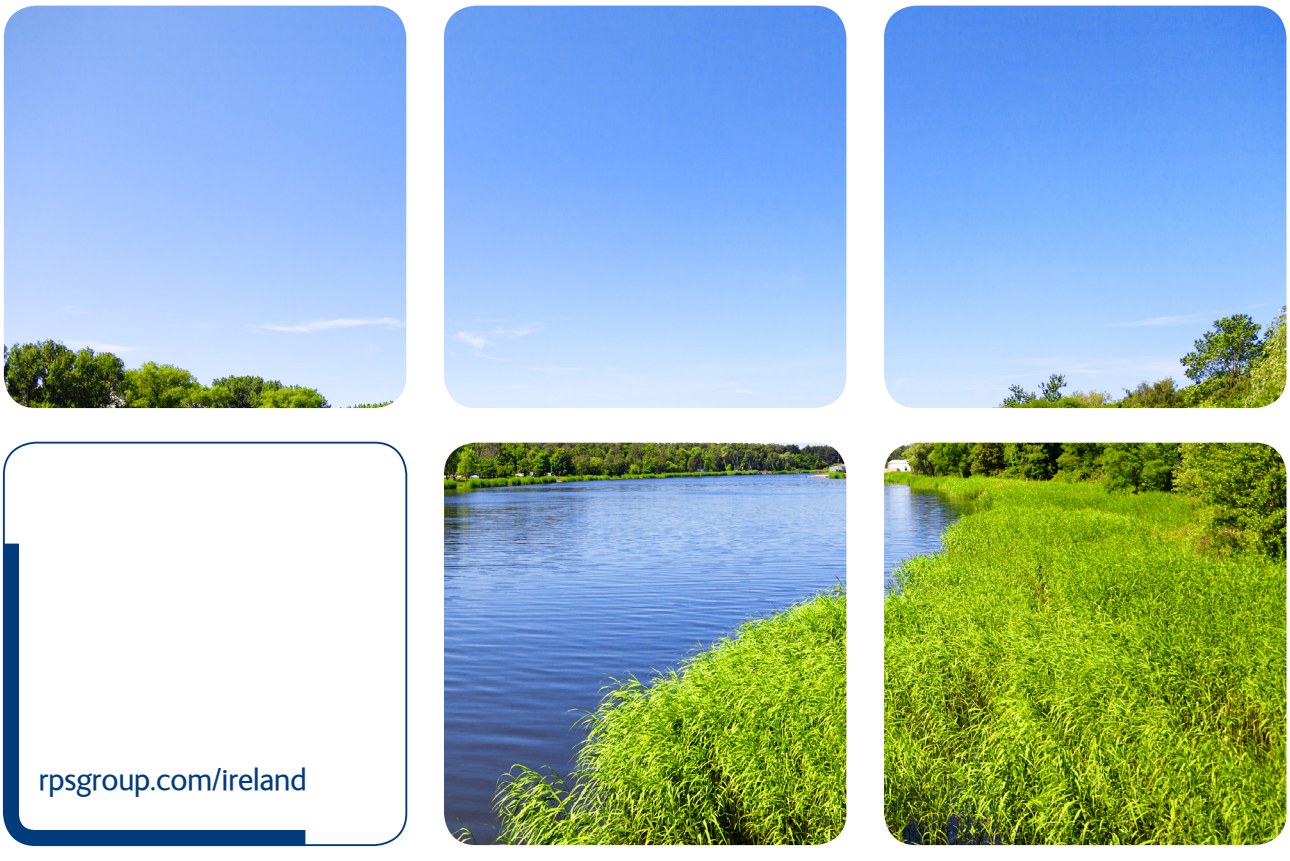
Draft Strategic Flood Risk Assessment of the Kildare County Development Plan 2017-2023

MDW0710Rp0003 February 2016



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1 INTRODUCTION

1.1 BACKGROUND

In accordance with the Planning and Development Act 2000 (as amended) Kildare County Council (KCC) commenced a review the existing County Development Plan and the preparation of a new County Development Plan for the period 2017–2023 in April 2015. The County Development Plan review process will take up to two years, concluding with the adoption of the new plan in February 2017. The public consultation on the pre-draft stage of the Development Plan was completed from March to May 2015. The KCC Chief Executive will submit a draft County Development Plan to the elected members of KCC for agreement in December 2015. The agreed draft Plan will then be the subject of public consultation from March to April 2016. A Chief Executives Report summarising the issues raised in submissions and observations received in respect of the Draft Plan will be submitted to the elected members in August 2015. Further public consultation will take place from October to November 2016. The elected members will consider the draft Plan and the Chief Executives Report in spring 2017 and formally make or amend the Plan.

In compliance with the Directive and the Planning and Development (Strategic Environmental Assessment) Regulations 2004-2011, the Planning Authority proposes to carry out Strategic Environmental Assessment (SEA) of the new Plan and will prepare an Environmental Report of the likely significant effects on the environment of implementing the new Plan.

The Environmental Protection Agency (EPA) SEA Scoping Guidance Document outlines that the SEA should adopt policies to avoid and restrict the zoning of lands in flood prone areas. It should also adopt a policy that requires flood risk assessments to be undertaken for developments and zoning being proposed in flood prone areas. These policies should be prepared in accordance with the requirements of The Planning System and Flood Risk Assessment Guidelines for Planning Authorities (2009) and Circular PL02/2014 (August 2014) referred to hereafter as 'The Guidelines'.

The Guidelines recommend that a Strategic Flood Risk Assessment (SFRA) Report be undertaken to support the SEA of proposed development plans.

1.2 PROJECT BRIEF

The SFRA Report shall be prepared in accordance with the requirements of The Guidelines. The aim of the SFRA is to provide an assessment of all types of flood risk within the County to assist KCC make informed strategic land-use planning decisions. The flood risk information will enable KCC to apply the Guidelines sequential approach, and where necessary the Justification Test, to appraise sites for development and identify how flood risk can be reduced as part of the development plan.

The Project Brief outlined that the following be prepared

- Stage 1 Flood Risk Identification Report
- SFRA for the Draft County Development Plan
- Final SFRA on material alterations to Draft Development Plan
- SFRA Statement

1.3 REPORT OBJECTIVES

The objective of this report is to prepare a Draft SFRA for the Kildare County Development Plan 2017-2023, which following review of the Stage 1 Flood Risk Identification report identified flooding and surface water management issues related to the County that warranted further investigation. Based on available data, areas at risk of flooding and flood zones in the County were identified in order to supplement the SEA and the County Development Plan. This flood risk information has enabled KCC 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 as part of the development plan.

1.4 DISCLAIMER

The SFRA has been prepared in compliance with the Guidelines but the SFRA remains a living document and is based on the best available data at the time of preparation. It is subject to change based on more up to date and relevant flood risk information becoming available during the lifetime of the County Development Plan. All information in relation to flood risk is provided for general policy guidance only. All landowners and developers are advised that Kildare County Council and their consultants can accept no responsibility for losses or damages arising due to assessments of the vulnerability to flooding of lands, uses and developments. Furthermore owners, users and developers are advised to take all reasonable measures to assess the vulnerability to flooding of lands in which they have an interest prior to making planning or development decisions.

2 STUDY AREA

2.1 INTRODUCTION

The County Kildare administrative area is shown Figure 2.1 KCC Extent and Watercourses below. The County has an extent of approximately 1688 km^2. The County extends east to west from the foothills of the Wicklow Mountains to the River Barrow and north to south from the River Liffey to County Carlow (as shown in Figure 2.1 below). The 2011 Census shows the County has a population of 210,312 and the Regional Planning Guidelines population target is 252,640 by 2022. The SFRA for the County Development Plan 2017-2023 examined flood risk in the Town Environs, Towns, Villages and Settlements as identified in Table 2.1. Larger towns within the County are subject to their own Local Area Plans and SFRAs.

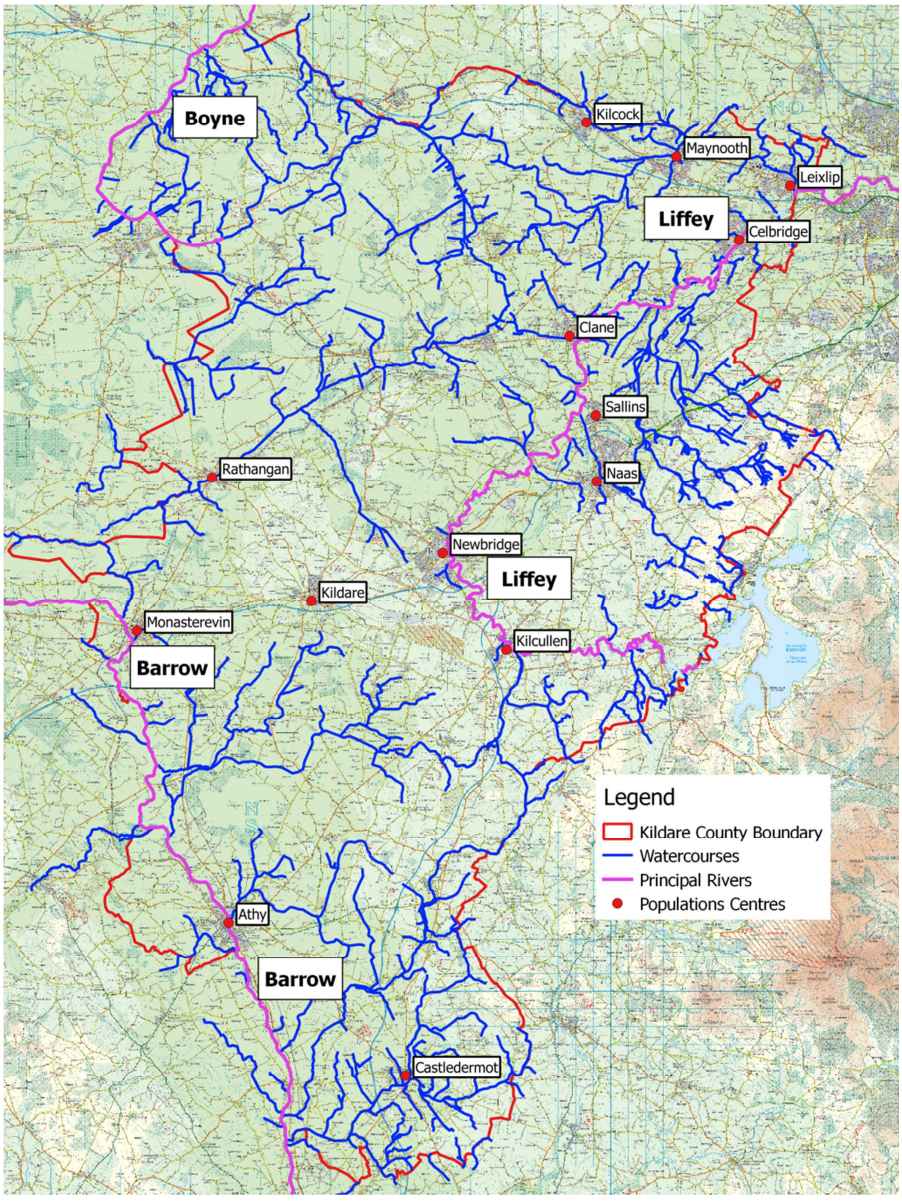


Figure 2.1 County Kildare Extent and Watercourses

2.2 WATERCOURSES

The approximate total length of watercourses within the county is 1,250 km. The principal rivers include the Liffey, Barrow and Boyne. Other notable rivers include the Rye Water, Morrell, Lerr, Greese, Tully, Slate and Lyreen. Figure 2.1 above shows the watercourses and principal rivers in the County. All of the watercourses lie within Hydrometric Area (HA) 07 (Boyne), HA 09 (Liffey-Dublin Bay) and HA 14 (Barrow). The catchments of the County are largely rural but there are large urban areas along each of the principal rivers e.g. Leixlip, Celbridge, Newbridge (Liffey), Athy, and Monasterevin (Barrow).

Town Environs	Towns	Villages	Settlements
▪ Athy ▪ Blessington ▪ Kilcock ▪ Kill ▪ Naas North ▪ Naas South ▪ Naas West	▪ Athgarvan ▪ Castledermot ▪ Derrinturn ▪ Kill ▪ Prosperous ▪ Rathangan	▪ Allenwood ▪ Ballitore ▪ Ballymore Eustace ▪ Caragh ▪ Coill Dubh / Cooleragh ▪ Crookstown ▪ Johnstown ▪ Johnstownbridge ▪ Kildangan ▪ Kilmeague ▪ Moone ▪ Robertstown ▪ Straffan ▪ Suncroft ▪ Timolin	▪ Allen ▪ Ardclough ▪ Brannockstown ▪ Broadford ▪ Brownstown ▪ Calverstown ▪ Cutbush ▪ Kilberry ▪ Kilmead ▪ Kilteel ▪ Maddenstown ▪ Maganey / Levitstown ▪ Milltown ▪ Moyvalley ▪ Narraghmore ▪ Nurney ▪ Rathcoffey ▪ Rathmore / Eadestown ▪ Staplestown ▪ Twomilehouse

Table 2.1 Town Environs, Towns, Villages and Settlements examined in the SFRA

3 THE PLANNING SYSTEM AND FLOOD RISK MANAGEMENT GUIDELINES FOR PLANNING AUTHORITIES

3.1 INTRODUCTION

In 2009 the Department of Environment, Heritage and Local Government in conjunction with the Office of Public Works published The Planning System and Flood Risk Management: Guidelines for Planning Authorities. The purpose of The Guidelines is to ensure that flood risk is considered by all levels of government when preparing development plans and planning guidelines. They should also be used by developers when addressing flood risk in development proposals. The Guidelines should be implemented in conjunction with the relevant flooding and water quality EU Directives including the Water Framework Directive (River Basin Management Plans (RBMPs)) and the Floods Directive (Catchment Flood Risk Assessment and Management (CFRAM) Studies).

The core objectives of the Guidelines are to:

- Avoid inappropriate development in areas at risk of flooding.
- Avoid new developments increasing flood risk elsewhere, including that which may arise from surface water run-off.
- Ensure effective management of residual risks for development permitted in floodplains.
- Avoid unnecessary restriction of national, regional or local economic and social growth.
- Improve the understanding of flood risk among relevant stakeholders; and
- Ensure that the requirements of EU and national law in relation to the natural environment and nature conservation are complied with at all stages of flood risk management.

The Guidelines recommend that Flood Risk Assessments (FRA) be carried out to identify the risk of flooding to land, property and people. FRAs should be carried out at different scales by government organisations, local authorities and for proposed developments appropriate to the level of information required to implement the core objectives of the Guidelines. The FRA scales are:

- **Regional Flood Risk Appraisal (RFRA)** – a broad overview of flood risk issues across a region to influence spatial allocations for growth in housing and employment as well as to identify where flood risk management measures may be required at a regional level to support the proposed growth. Currently being undertaken by the OPW through the CFRAM process.
- **Strategic Flood Risk Assessment (SFRA)** – an assessment of all types of flood risk informing land use planning decisions. This will enable the Planning Authority to allocate appropriate sites for development, whilst identifying opportunities for reducing flood risk. This SFRA will revisit and develop the flood risk identification undertaken in the RFRA, and give consideration to a range of potential sources of flooding. An initial flood risk assessment, based on the identification of Flood Zones, will also be carried out for those areas, which will be zoned for development. Where the initial flood risk assessment highlights the potential for a significant level of flood risk, or there is conflict with the proposed vulnerability of development, then a site specific FRA will be recommended, which will necessitate a detailed flood risk assessment.
- **Site Specific Flood Risk Assessment (FRA)** – site or project specific flood risk assessment to consider all types of flood risk associated with the site and propose appropriate site management and mitigation measures to reduce flood risk to and from.

3.2 FLOOD RISK ASSESSMENT

3.2.1 Flood Risk Assessment Approach

The Guidelines recommend that Flood Risk Assessments (FRA) be carried out to identify the risk of flooding to land, property and people. FRAs should use the Source-Pathway-Receptor (S-P-R) Model to identify the sources of flooding, the flow paths of the floodwaters and the people and assets impacted by the flooding. Figure 3.1 shows the SPR model that should be adopted in FRAs.

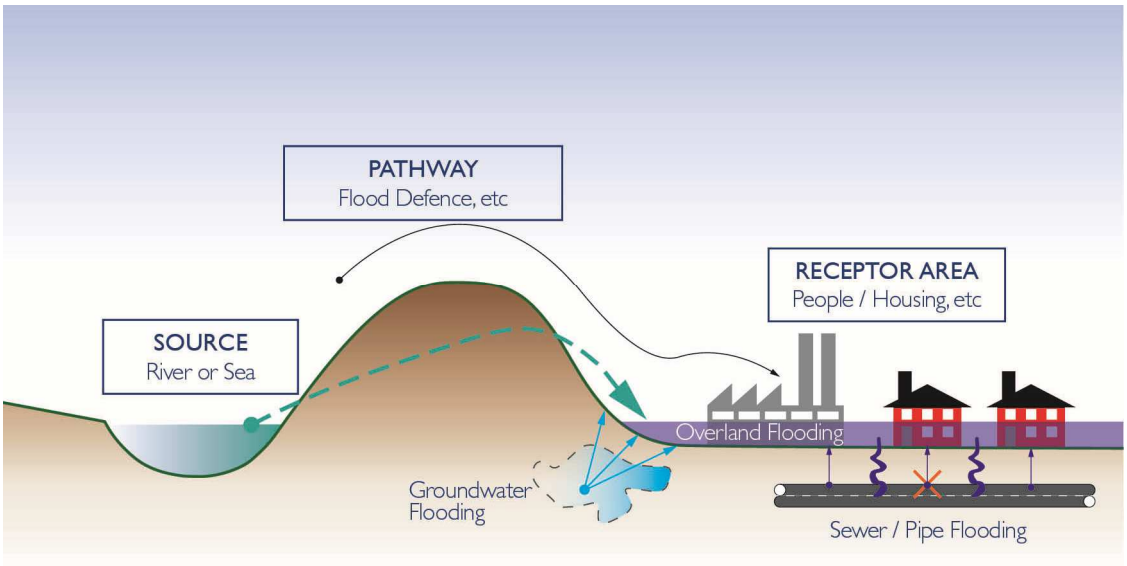


Figure 3.1 Flood Risk Assessment Source - Pathway - Receptor Model

FRAs should be carried out using the following staged approach;

- **Stage 1 Flood Risk Identification** – to identify whether there may be any flooding or surface water management issues related to either the area of regional planning guidelines, development plans and LAP's or a proposed development site that may warrant further investigation at the appropriate lower level plan or planning application levels.
- **Stage 2 Initial Flood Risk Assessment** – to confirm sources of flooding that may affect a plan area or proposed development site, to appraise the adequacy of existing information and to scope the extent of the risk of flooding which may involve preparing indicative flood zone maps. Where hydraulic models exist the potential impact of a development on flooding elsewhere and of the scope of possible mitigation measures can be assessed. In addition, the requirements of the detailed assessment should be scoped.
- **Stage 3 Detailed Flood Risk Assessment** – to assess flood risk issues in sufficient detail and to provide a quantitative appraisal of potential flood risk to a proposed or existing development or land to be zoned, of its potential impact on flood risk elsewhere and of the effectiveness of any proposed mitigation measures.

3.2.2 Types of Flooding

There are two main sources of flooding: inland and coastal. Inland flooding is caused by prolonged and/or intense rainfall. This results in fluvial, pluvial or ground water flooding acting independently

or in combination. Coastal flooding is not a concern for KCC as it is a landlocked county however a combination of high flow in rivers and a high tide may prevent the river from discharging into the sea thus increasing water levels inland causing rivers to overtop their banks.

- Fluvial flooding occurs when a river overtops its banks due to a blockage in the channel or the channel capacity is exceeded.
- Pluvial flooding occurs when overland flow cannot infiltrate into the ground, when drainage systems exceed their capacity or are blocked and when and when the water cannot discharge due to a high water level in the receiving watercourse.
- Groundwater flooding occurs when the level of water stored in the ground rises as a result of prolonged rainfall to meet the ground surface and flows out over it.

3.2.3 Flood Risk

Guidelines state flood risk is a combination of the likelihood of flooding and the potential consequences arising. Flood risk is expressed as:

Flood risk = Likelihood of flooding x Consequences of flooding

The Guidelines define the likelihood of flooding as the percentage probability of a flood of a given magnitude as occurring or being exceeded in any given year. A 1% probability indicates the severity of a flood that is expected to be exceeded on average once in 100 years, i.e. it has a 1 in 100 (1%) chance of occurring in any one year. Table 3.1 shows flood event probabilities used in flood risk management.

Annual Exceedance Probability (%)	Return Period (Years)
50	2
10	10
1	100
0.1	1000

Table 3.1 Flood Event Probabilities

The consequences of flooding depend on the hazards associated with the flooding (e.g. depth of water, speed of flow, rate of onset, duration, wave action effects, water quality), and the vulnerability of people, property and the environment potentially affected by a flood (e.g. the age profile of the population, the type of development, presence and reliability of mitigation measures etc.).

3.3 FLOOD ZONES

The Guidelines recommend identifying flood zones which show the extent of flooding for a range flood event probabilities. The Guidelines identify three levels of flood zones:

- Flood Zone A – where the probability of flooding from rivers and the sea is highest (greater than 1% or 1 in 100 for river flooding or 0.5% or 1 in 200 for coastal flooding).
- Flood Zone B – where the probability of flooding from rivers and the sea is moderate (between 0.1% or 1 in 1000 and 1% or 1 in 100 for river flooding and between 0.1% or 1 in 1000 year and 0.5% or 1 in 200 for coastal flooding).
- Flood Zone C – where the probability of flooding from rivers and the sea is low (less than 0.1% or 1 in 1000 for both river and coastal flooding). Flood Zone C covers all areas of the plan which are not in zones A or B.

The flood zones are generated without the inclusion of climate change factors. The flood zones only account for inland and coastal flooding. They should not be used to suggest that any areas are free from flood risk as they do not account for potential flooding from pluvial and groundwater flooding. Similarly flood defences should be ignored in determining flood zones as defended areas are still carry a residual risk of flooding from overtopping, failure of the defences and deterioration due to lack of maintenance. Figure 3.2 shows a typical flood zone map.

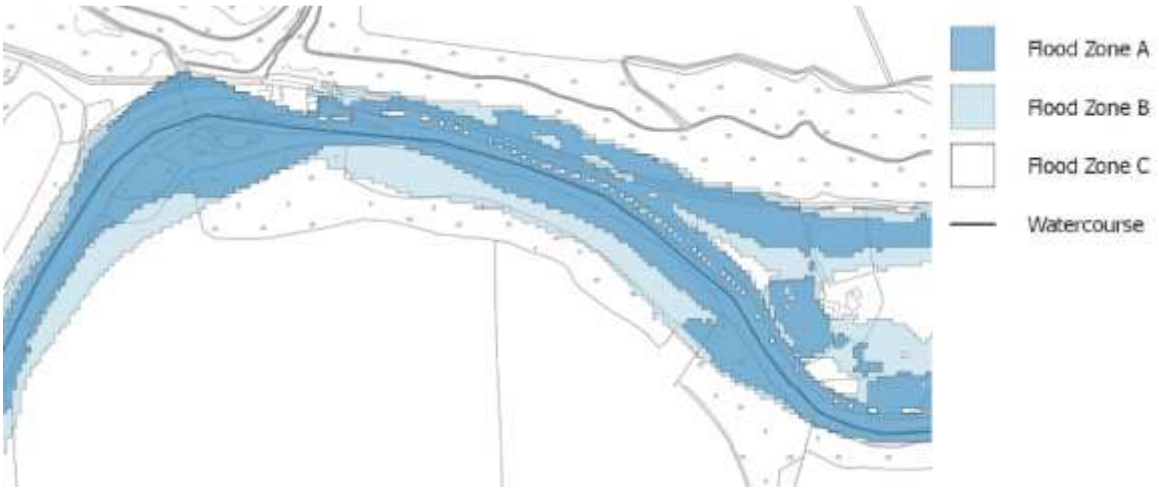


Figure 3.2 Typical Flood Zone Map

3.4 CLIMATE CHANGE

Climate Change is expected to increase flood risk. It could lead to more frequent flooding and increase the depth and extent of flooding. Due to the uncertainty surrounding the potential effects of climate change a precautionary approach is recommended in the Guidelines:

- Recognise that significant changes in the flood extent may result from an increase in rainfall or tide events and accordingly adopt a cautious approach to zoning land in these potential transitional areas.

- Ensure that the levels of structures designed to protect against flooding, such as flood defences, land-raising or raised floor levels are sufficient to cope with the effects of climate change over the lifetime of the development they are designed to protect.
- Ensure that structures to protect against flooding and the development protected are capable of adaptation to the effects of climate change when there is more certainty about the effects and still time for such adaptation to be effective.

3.5 STRATEGIC FLOOD RISK ASSESSMENT

The purpose of this report is to carry out a SFRA at county scale for Kildare but also to assess particular areas of interest at town / environ scale. The Guidelines recommend a series of outputs for a SFRA. These outputs in board terms include:

- Identify principal rivers, sources of flooding and produce flood zone maps for across the local authority area and in key development areas.
- An appraisal of the availability and adequacy of the existing information.
- Assess potential impacts of climate change to demonstrate the sensitivity of an area to increased flows or sea levels. Where mathematical models are not available climate change flood extents can be assessed by using the Flood Zone B outline as a surrogate for Flood Zone A with allowance for the possible impacts of climate change.
- Identify the location of any flood risk management infrastructure and the areas protected by it and the coverage of flood-warning systems.
- Consider, where additional development in Flood Zone A and B is planned within or adjacent to an existing community at risk, the implications of flood risk on critical infrastructure and services across a wider community-based area and how the emergency planning needs of existing and new development will be managed.
- Identify areas of natural floodplain, which could merit protection to maintain their flood risk management function as well as for reasons of amenity and biodiversity.
- Assess the current condition of flood-defence infrastructure and of likely future policy with regard to its maintenance and upgrade.
- Assess the probability and consequences of overtopping or failure of flood risk management infrastructure, including an appropriate allowance for climate change.
- Assess, in broad terms, the potential impact of additional development on flood risk elsewhere and how any loss of floodplain could be compensated for.
- Assess the risks to the proposed development and its occupants using a range of extreme flood or tidal events.
- Identify areas where site-specific FRA will be required for new development or redevelopment.
- Identify drainage catchments where surface water or pluvial flooding could be exacerbated by new development and develop strategies for its management in areas of significant change.
- Identify where integrated and area based provision of SUDS and green infrastructure are appropriate in order to avoid reliance on individual site by site solutions; and,
- Provide guidance on appropriate development management criteria for zones and sites.

3.6 SEQUENTIAL APPROACH AND JUSTIFICATION TEST

The Guidelines recommend using a sequential approach to planning to ensure the core objectives (as described in Section 3.1) are implemented. Development should be avoided in areas at risk of flooding, where this is not possible, a land use that is less vulnerable to flooding should be considered. If the proposed land use cannot be avoided or substituted a Justification Test must be applied and appropriate sustainable flood risk management proposals should be incorporated into the development proposal. Figure 3.3 shows the sequential approach principles in flood risk management. Table 3.2 and Table 3.3 outline recommendations from the Guidelines for the types of development that would be appropriate to each flood zone and those that would be required to meet the Justification Test.

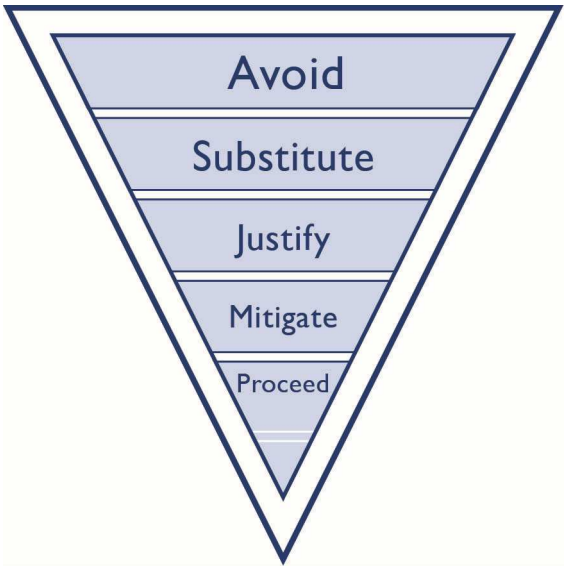


Figure 3.3 Sequential approach principles in flood risk management

	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

Table 3.2 Matrix of vulnerability versus flood zone to illustrate appropriate development and that required to meet the Justification Test

The Justification Test is used to assess the appropriateness of developments in flood risk areas. The test is comprised of two processes. The first is the Plan-making Justification Test and is used at the plan preparation and adoption stage where it is intended to zone or otherwise designate land which is at moderate or high risk of flooding. The second is the Development Management Justification Test and is used at the planning application stage where it is intended to develop land at moderate or high risk of flooding for uses or development vulnerable to flooding that would generally be inappropriate for that land.

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 ▪ Waste 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 merit	

Table 3.3 Classification of vulnerability of different types of development

3.7 DEVELOPMENT PLAN JUSTIFICATION TEST

The Development Plan Justification Test (or Plan–making Justification Test) should be carried out as part of the SFRA using mapped flood zones. It applies where land zonings have been reviewed with respect to 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, as set out in Table 3.2, and where avoidance or substitution is not appropriate. Where land use zoning objectives are being retained, they must satisfy all of the following criteria as per Table 3.4.

Justification Test for Development Plans
1. The urban settlement is targeted for growth under the National Spatial Strategy, regional planning guidelines, statutory plans as defined above or under the Planning Guidelines or Planning Directives provisions of the Planning and Development Act, 2000, as amended.
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[3] 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

Table 3.4 Justification Test for Development Plans

In cases where existing zoned lands are discovered to be within flood zones, the Development Plan Justification Test has been applied, and it is demonstrated that it cannot meet the specified requirements it is recommend that planning authorities reconsider the zoning by implementing the following:

- Remove the existing zoning for all types of development on the basis of the unacceptable high level of flood risk;
- Reduce the zoned area and change or add zoning categories to reflect the flood risk; and/or
- Replace the existing zoning with a zoning or a specific objective for less vulnerable uses;
- Prepare a local area plan informed by a detailed flood risk assessment to address zoning and development issues in more detail and prior to any development; and/or
- If the criteria of the Justification Test have been met, design of structural or non-structural flood risk management measures as prerequisites to development in specific areas, ensuring that

flood hazard and risk to other locations will not be increased or, if practicable, will be reduced. The mitigation measures are required prior to development taking place.

Records of Justification Tests are shown in Appendix C.

4 DEVELOPMENT MANAGEMENT AND FLOOD RISK

4.1 OVERVIEW

All development proposals regardless of which flood zone they are within should be supported by an appropriately detailed Flood Risk Assessment (FRA). The level of detail within the FRA will depend on the risks identified and the proposed land use. Applications should 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. For any development in flood risk areas that meet the Development Plan Justification Test, a Development Management Justification Test must then be applied. Development must satisfy all of the criteria of the Development Management Justification Test as per Table 4.1 below.

Justification Test for Development Management
1. The subject lands have been zoned or otherwise designated for the particular use or form of development in an operative development plan, which has been adopted or varied taking account of these Guidelines.
2. The proposal has been subject to an appropriate flood risk assessment that demonstrates: i. The development proposed will not increase flood risk elsewhere and, if practicable, will reduce overall flood risk; ii. The development proposal includes measures to minimise flood risk to people, property, the economy and the environment as far as reasonably possible; iii. The development proposed includes measures to ensure that residual risks to the area and/or development can be managed to an acceptable level as regards the adequacy of existing flood protection measures or the design, implementation and funding of any future flood risk management measures and provisions for emergency services access; and iv. The development proposed addresses the above in a manner that is also compatible with the achievement of wider planning objectives in relation to development of good urban design and vibrant and active streetscapes. The acceptability or otherwise of levels of residual risk should be made with consideration of the type and foreseen use of the development and the local development context.

Table 4.1 Justification Test for Development Management

4.2 SURFACE WATER AND DRAINAGE

All development proposals shall carry out a surface water and drainage assessment and shall be compliant with the Greater Dublin Strategic Drainage Study (GDSDS) (2005) and the Greater Dublin Regional Code of Practice for Drainage Works (2012) to ensure that drainage from the site is managed sustainably. The requirements below provide an overview of drainage requirements for development in Kildare. It is noted that the GDSDS and Code of Practice remain the overriding policy documents.

4.2.1 Drainage

1. Proposed development shall be drained on a completely separate system. All new developments must incorporate Sustainable Drainage Systems (SuDS). In the unlikely event of this not being feasible the Developer must provide alternative means of dealing with pollutants. Rainwater should be infiltrated to the ground and/or discharged via a SuDS system to a surface water drain or watercourse. Other effluent, including wastewater, shall discharge to the foul drainage systems.
2. In general, watercourses are not to be culverted or piped. They should remain open in their natural valley, which should be incorporated into the public open space. Culverting should be confined to road crossings and should be sufficiently large to prevent blockage, allow runoff from a one in a hundred rain event and to allow for man entry for maintenance purposes. Permission must be obtained from the OPW (under a section 50 licence) to construct any culvert or bridge.
3. All proposed structures must be set back from the edge of any watercourse to allow access for channel cleaning/maintenance. A 15 meters wide riparian buffer strip each side of the watercourse is recommended. In dense urban areas the width of the riparian buffer strip is to be agreed with KCC.
4. All new development must allow for climate change as set out in the GDSDS Technical Document, Volume 5, Climate Change

    i. River flows 20% increase in flows for all return periods up to 100 years
    ii. Rainfall 10% increase intensity (factor all intensities by 1.1)

5. Surface water outfalls to streams, rivers, etc. should be unobtrusive and not cause erosion of the bed and banks. A suitable non-return device should be fitted on the outfall pipeline. KCC must approve all design details.

Further guidance on the use of SuDS is given in the GDSDS Technical Documents Vol. 2 New Development and Vol. 3 Environmental Management and in the Design and Best Practice manuals produced by CIRIA in the UK.

4.2.2 Storm water management

1. Development shall comply with the Greater Dublin Strategic Drainage Study, Volume 2, New Development Policy.
2. The maximum permitted surface water outflow from any new development is to be restricted to that of a Greenfield site before any development took place.
3. All new development must allow for climate change as set out in the GDSDS Technical Document, Volume 5, Climate Change.
4. In general, all new developments must incorporate Sustainable Drainage Systems (SuDS).
5. Sustainable Drainage Systems include devices such as: Swales, Permeable Pavements, Filter Drains, Storage Ponds, Constructed Wetlands, Soakaways, etc. SuDS devices such as permeable paving or swales/ ponds etc. may require the approval of KCC.
6. In some exceptional cases it may not be feasible to use the above devices and at the discretion of the KCC, approval may be given to install underground attenuation tanks or enlarged pipes in conjunction with other devices to achieve the required water quality. These should only be considered as a last resort where it can be shown that SuDS measures are not achievable
7. Attenuation tanks shall normally be located in green areas; any other location requires the approval from KCC.

8. Where a tank is to be constructed in a trafficked area, a standard minimum depth of cover from road level to top of the roof of the tank should be 1.2m.
9. All enlarged pipes and associated manholes must comply with the GDSDS and the Code pf Practice.
10. In order to isolate and carry out maintenance of the flow control device a penstock valve (or similar approved) shall be installed within the outfall manhole, on the upstream end of the manhole.
11. For gravity systems a Hydrobrake (or similar approved flow control device) shall be installed in the last manhole.

4.3 RESIDUAL RISK

As well as assessing the surface water management risk for a site, all development including that in Flood Zone C, should consider residual risk factors should as culvert / bridge blockages and the effects of climate change which may expand the extents of Flood Zones A and B. These residual risk factors should influence the potential mitigation measures for a site which could include setting the finished floor levels.

4.4 DEVELOPMENT PROPOSALS IN FLOOD ZONES

4.4.1 Overview

It is recommended that any planning applications in flood risk areas are accompanied by a supporting appropriately detailed flood risk assessment. This is to ensure a conservative approach and that consideration is given to new development within Flood Zones where mitigation measures may still be required to ensure an appropriate level of flood protection and/or resilience. The detailed assessment should include at a minimum Stage 1 - Identification of Flood Risk. Where flood risk is identified a Stage 2 - Initial FRA will be required, and depending on the scale and nature of the risk a Stage 3 - Detailed FRA may be required.

Detailed FRAs should be carried out in accordance with the Guidelines and should present in sufficient detail the potential flood risk to a proposed development, the potential increase in flood risk elsewhere, any proposed mitigation measures and proposals for sustainable surface water management. The surface water drainage must be compliant with the GDSDS and the Code of Practice. The FRA should also consider the impacts of climate change, residual risk associated with culvert blockages and freeboard in setting the finished floor levels (FFLs) of new development.

4.4.2 Assessment of Proposals for Minor Development

The Justification Test does not apply to applications for minor development to existing buildings in areas of flood risk such as small extensions and most changes of use. However, a flood risk assessment of appropriate detail should accompany such applications to demonstrate that they would not have adverse flood risk impacts. These proposals should follow best practice in the management of health and safety for users and residents of the proposal.

4.4.3 Assessment of Proposals for Highly Vulnerable Development

Highly vulnerable development proposals should not be considered in flood risk areas unless supplemented by an appropriately detailed FRA and meets the criteria for the criteria of the Development Management Justification Test. The following considerations should be addressed in applications for highly vulnerable development in flood risk areas:

- The minimum finished floor level for highly vulnerable development should be above the Flood Zone B (0.1% AEP) level plus suitable freeboard. The recommended level of freeboard is 500 mm for fluvial flood levels.
- Applications should outline the emergency procedures that will be applied in the event of a flood. Evacuation routes should be identified but if this is not possible then containment may be considered if is considered safe and practical to do so. If either safe evacuation or containment is not possible, then the development proposal should be refused.
- The site layout should follow the sequential approach to allocate land within a development based on the vulnerability class of the development i.e. more vulnerable development should be placed on higher ground while water compatible development e.g. car parking, greenfield space can placed in the flood zones.
- Compensatory storage for development that results in a loss of floodplain within Flood Zone A must be provided on a level for level basis, the lands should be in close proximity to the area that storage is being lost from, the land must be within the ownership of the developer and the land given to storage must be land which does not flood in the 1% AEP event. Also the compensatory storage area should be constructed before land is raised to facilitate development.

4.4.4 Assessment of Proposals for Less Vulnerable Development

Less vulnerable development proposals should not be considered in Flood Zone A area unless supplemented by an appropriately detailed FRA and meets the criteria of the Development Management Justification Test. The minimum finished floor level for less vulnerable development should be above the Flood Zone A (1% AEP) level plus suitable freeboard. The recommended level of freeboard is 500 mm for fluvial flood levels.

4.4.5 Extension of Duration in Flood Risk Areas

In areas where recent and more up to date flood risk information subsequently finds that a site has a flood risk, applications for extension of duration or new applications within the zoning will require appropriately detailed FRA at development management stage. If the permitted development is found not to conform to The Guidelines then the application should be refused on flood risk grounds and a new application submitted, allowing for appropriate design and FRA.

5 FLOOD RISK

5.1 INTRODUCTION

There are several sources of relevant flood risk information available for County Kildare. This information was used to assess flood risk for the areas outlined in Table 2.1. Recommendations for area specific objectives and mapping identifying areas where more detailed flood risk assessments may be required where generated and are shown in Appendix A and Appendix B respectively. Figure 5.1 below shows an overview of the draft CFRAM flood zones, the indicative OPW Preliminary Flood Risk Assessment (PFRA) flood zones and historical flooding spots. The CFRAM and PFRA mapping was reviewed for information but the flood zones have not been adopted as discussed in 5.7.

5.2 HISTORICAL FLOODING

A review of historical flood data was carried out for the Eastern and South Eastern CFRAM Studies (See Section 5.3 below for more information on the CFRAM Studies) using information provided on floodmaps.ie and in consultation with KCC. The main sources of flooding in the county are fluvial and pluvial flooding.

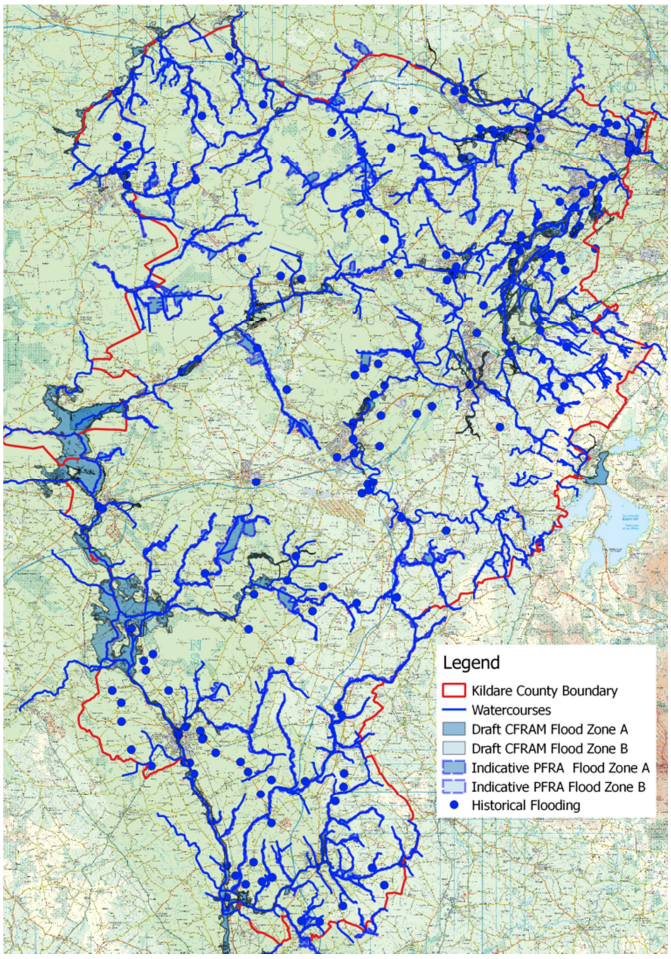


Figure 5.1 Flood Risk Overview for Kildare

5.3 CFRAM STUDIES

5.3.1 Background

The OPW is currently leading the development of Catchment Flood Risk Assessment and Management (CFRAM) Studies. The aim of these studies is to assess flood risk, through the identification of flood hazard areas and the associated impacts of flooding. The flood hazard areas have been identified as being potentially at risk from significant flooding, including areas that have experienced significant flooding in the past. They will also take account of issues such as climate change, land use practices and future development. These studies have been developed to meet the requirements of the EU Directive on the assessment and management of flood risks (the Floods Directive). The Floods Directive was transposed into Irish law by SI 122 of 2010 "European Communities (Assessment and Management of Flood Risks) Regulations 2010".

The CFRAM Studies will establish long-term Flood Risk Management Plans (FRMP) to manage flood risk within the relevant river catchment. Flood maps are one of the main outputs of the studies. The maps indicate modelled flood extents for flood events of a range of annual exceedance probability (AEP). County Kildare falls within two CFRAM Studies, The Eastern CFRAM and the South Eastern CFRAM. The two CFRAM Studies identified areas for further assessment (AFAs), as shown in Table 5.1, which through the National CFRAM Programme will be assessed by a flood risk management plan.

CFRAM Study	AFAs
Allenwood	South East
Athy	South East
Castledermot	South East
Celbridge	East
Clane	East
Hazelhatch	East
Johnstownbridge	East
Kilcock	East
Leixlip	East
Maynooth	East
Monasterevin	South East
Naas	East
Newbridge	East
Rathangan	South East
Suncroft	South East
Turnings/Killeenmore	East

Table 5.1 County Kildare CFRAM Areas for Further Assessment

5.3.2 Flood Risk Management Plans

The Eastern and South Eastern CFRAM Flood Risk Management Plan (FRMP) are ongoing and if it is deemed necessary, flood risk management objectives, options and plans will be developed for the AFAs in County Kildare.

5.3.3 CFRAM Fluvial Flood Zone Mapping

The CFRAM studies are currently ongoing and at the time of complying this SFRA the outputs are still draft and have been released as part of a statutory consultation process for the National CFRAM Programme. The draft CFRAM flood maps can only be used for information purposes as they may be amended following the consultation process due to observations, technical objections and appeals from the local authorities and the public. Therefore the CFRAM flood maps have been used in conjunction with the other flood risk information sources to identify areas where a more detailed flood risk assessment may be required.

Also the current CFRAM scenario flood extents were reviewed as part of the SFRA to establish an indication of future risk in areas as at the time of completion of the SFRA there were no climate change scenarios available for the CFRAM flood maps. As recommended by the Guidelines when hydraulic models are not available which include the effects of climate change the flood extents can be assessed by using the Flood Zone B outline as a surrogate for Flood Zone A with allowance for the possible impacts of climate change, this is further discussed in section 5.9.

5.4 FLOOD DEFENCE WORKS

5.4.1 Flood Defence Schemes

To counteract the known flood risk in the County, river/stream improvement works have been carried out in the last 20 years. These are outlined in Table 5.2 below.

Location	Description of Works
Ardclough	Construction of new culvert across the Grand Canal and upgrade of outfall to the River Liffey in the townland of Reeves, including upgrade of channels, cleaning of railway culvert and upgrade of field entrances.
Celbridge	Diversion of river, upgrade of channels, construction of new channel & general maintenance of the Toni River
Clane	Upgrade of culverts and construction of flood walls along the Butterstream
Hazelhatch	Flood relief scheme for the Shinkeen Stream
Johnstown	Johnstown flood alleviation scheme involved the construction of flood walls, flood embankments, the upgrade of bridges and the construction of a bypass channel
Kilcock	Construct overflow pipeline and upgrade of existing surface water culverts in Newtown village in order to convey flood flows through the village centre.
Leixlip	Rye Water Construction of flood walls, flood embankments, upgraded bridges, the upgrade of channels and of an existing outfall through Marshfield House, which is a protected structure in Leixlip just on the banks of the River Liffey.

Location	Description of Works
	Silleachain Other work included construction of a new box culvert on the Silleachain River.
Maynooth	Minor flood alleviation works on the Lyreen and Meadowbrook Rivers
Newbridge	Upgrading of surface water network in Kilbelin and culvert upgrade
Sallins	Construction of new culverts and outfall structure at the Grand Canal, channel deepening/widening, raising of bank levels and scour protection works to prevent erosion
River Morrell	Upgrade of culverts, construction of embankments and maintenance of the river. A full flood management scheme is currently being considered for the Morrell catchment from the townland of Turnings to the N7 Naas Road.

Table 5.2 Flood Relief Works carried out in Kildare in the recent past

Any planning decisions should also be cognisant of future works in the county. Current proposals include:

- Morrell River Flood Management Scheme – This is at an advanced stage development, it is anticipated that it will comprise a series of flood embankments and walls to alleviate flooding primarily in the Killeenmore, Sherlockstown and Tuckmilltown areas;
- Newbridge – Currently at preliminary design stage, it will include improvements to surface water drainage network to alleviate flooding in Dara Park;
- Ballymore Eustace – Upgrading of the culvert near Ballymore Eustace National School to alleviate flooding within the school grounds.

5.4.2 Flood Zone Mapping for Flood Defence Schemes

The Guidelines state that the effect of flood defences should be ignored when determining flood zones as defended areas still carry a residual risk from overtopping and failure of the defences. Because this residual risk of flooding remains, the sequential approach and the Justification Test apply to such defended locations. Under the Guidelines from a planning perspective to be considered a defended area the design standard of the scheme must protect for a 1% AEP flood event.

The ECFRAM draft flood zone mapping identifies several areas in Kildare which are compliant as defended areas including Johnstown and areas along the Morrell River. Maynooth and Leixlip also have compliant defended areas but they are outside the scope of this SFRA.

As the ECFRAM is still at draft stage to be in compliance with The Guidelines, should any proposals arise for new planning zones or development in the vicinity of defended areas, it is recommended that the flood zones for these areas are re-evaluated through an appropriately detailed Flood Risk Assessment prior to any approvals, to identify the extent of the current flooding scenario and delineate the defended areas.

5.5 OPW PRELIMINARY FLOOD RISK ASSESSMENT INDICATIVE FLUVIAL FLOOD MAPS

The Preliminary Flood Risk Assessment (PFRA) is a national screening exercise completed by the OPW in 2012 based on available and readily-derivable information. The PFRA aimed to identify areas where there may be a significant risk associated with flooding. Indicative fluvial flood maps where produced to help identify these areas. The mapping did not account for flood defences, channel structures or channel works. Areas where the risks associated with flooding might be significant were identified and are referred to as Areas for Further Assessment, or 'AFAs'. More detailed assessment of the AFA's is being undertaken through the CFRAM Studies to more accurately assess the extent and degree of flood risk, and, where the risk is significant, to develop where possible measures to manage and reduce the risk.

The PFRA mapping should be treated with caution due to the limited nature of the analysis. The PFRA mapping has been used in conjunction with other information sources to assess flood risk in the locations as shown in Table 2.1. Where a risk is identified a more appropriately detailed FRA is recommended as discussed in Section 5.10.

5.6 EXISTING DEVELOPMENT PLANS

Existing KCC Development Plans, SFRAs and Local Area Plans were reviewed to provide information on historic flood areas, flood defence works and any existing flood zone mapping.

5.7 FLUVIAL FLOOD ZONE MAPPING REVIEW

As discussed in section 5.3.3 above the CFRAM flood extents are still at draft stage and subject to change. Therefore they have not been included in the flood zone mapping for this iteration of the SFRA however if the extents are finalised within the lifetime of the County Development Plan they will be reviewed for adoption into the Plan.

Similarly the PFRA mapping should be treated with caution due to the limited nature of the analysis and has not been adopted for the SFRA. The PFRA mapping could be used in the future to infill flood zones in areas outside of the scope of the CFRAM mapping. The PFRA flood zone mapping would be provided for information purposes only to help identify areas where flood risk should be explored in greater detail. The PFRA mapping should not be solely used to define flood zones for an area as it is not considered suitable as a Stage 2 assessment.

However the CFRAM and PFRA flood zone maps are the most comprehensive flood maps produced for County Kildare since the introduction of the Guidelines and the Floods Directive. The Draft CFRAM flood zone mapping, PFRA flood zone mapping and existing SFRA flood zone mapping were examined to review the appropriateness of land zonings and to identify areas where a more detailed flood risk assessments may be required. These areas are discussed in section 5.10 and shown in Appendix B. Table 5.3 highlights the adequacy and confidence of the information used in the Flood Zone mapping review.

Flood Zone Mapping Source	Confidence	Comments
Eastern CFRAM	High / Moderate	The maps are still at draft final stage and subject to change following a public consultation process. More recent updates to flood defences, channel structures or channel works may not be accounted for.
South Eastern CFRAM	High / Moderate	The maps are still at draft final stage and subject to change following a public consultation process. More recent updates to flood defences, channel structures or channel works may not be accounted for.
OPW PFRA	Moderate / Low	These are indicative flood zone maps and should be used with caution. They do not account for flood defences, channel structures or channel works. They have been used to infill flood zones in areas outside of the scope of the CFRAM mapping. These are mostly smaller rural settlements.
Previous KCC SFRAs	High / Moderate	Previous SFRAs for the County e.g. Athy and Castledermot have been used for comparison against the CFRAM mapping.

Table 5.3 Adequacy of information for flood zone mapping review

5.8 OTHER SOURCES OF FLOODING

5.8.1 Overview

The flood zones only account for inland flooding. However they should not be used to suggest that any areas are free from flood risk as they do not account for potential flooding from other sources. Hence a review of other sources of flooding was carried out to identify potential areas of risk.

5.8.2 Coastal Flooding

Coastal flooding is not a concern for KCC as it is a landlocked county however a combination of high flow in rivers and a high tide may prevent the river from discharging into the sea thus increasing water levels inland causing rivers to overtop their banks. This has been incorporated in the draft CFRAM mapping, reviewed as part of the SFRA, using joint probability analysis, hence any impact coastal influences may have upstream along the Liffey or the Barrow is accounted for.

5.8.3 Groundwater Flooding

The OPW PFRA carried out a national scale a Groundwater Flooding Report which concludes that ground water flooding is largely confined to the West Coast of Ireland due to the hydrogeology of the area. Therefore ground water flooding is not a significant risk for Kildare but should still be examined at detailed FRA level particularly if the development includes proposals for basements. Figure 5.2 below shows that ground water flooding is not a significant risk for County Kildare.

Figure 5.2 OPW Preliminary Flood Risk Assessments Groundwater Flooding Hazard Map

5.8.4 Pluvial Flooding

The OPW Pluvial Flooding Risk Assessment (PFRA) study provides a national level pluvial screening of areas that are at potential risk of pluvial flooding. For a thorough assessment of pluvial risk in Kildare a more detailed assessment at a countywide scale (taking into consideration of local factors and parameters) would need to be carried out. Nonetheless, the national PFRA maps can be used to identify areas that may be at risk and that may require a pluvial flooding assessment to be carried out for planning applications.

Table 5.4 below highlights areas where a more detailed FRA maybe required addressing pluvial flood risk. Recommendations and guidelines from the GDSDS should be implemented in these areas to reduce the risk of pluvial flooding. The other SFRA areas as listed in Table 2.1 shows a minimum pluvial flood risk within the extents of the lands and surface water but drainage should still be addressed in site specific FRAs.

Town / Village / Settlement	Indicative Pluvial Risk Assessment
Allen	Pluvial Extents to the east of the of the main village crossroads. Surface water and drainage should be addressed in site specific FRAs.
Ardclough	Clusters of pluvial risk which agreed with historical flooding records. Surface water and drainage should be addressed in site specific FRAs.
Athgarvan	Pluvial Extents in town centre which correlates with historical flooding. Surface water and drainage should be addressed in site specific FRAs.
Brannockstown	Clusters of pluvial risk which agreed with historical flooding records. Surface water and drainage should be addressed in site specific FRAs.
Calverstown	Clusters of pluvial risk which agreed with historical flooding records. Surface water and drainage should be addressed in site specific FRAs.
Crookstown	Pluvial Extents to the west of the village but area not zoned. Surface water and drainage should be addressed in site specific FRAs.
Derrinturn	Pluvial Extents in town centre. Surface water and drainage should be addressed in site specific FRAs.
Kilberry	Clusters of pluvial risk which agreed with historical flooding records. Surface water and drainage should be addressed in site specific FRAs.
Maddenstown	Clusters of pluvial risk which agreed with historical flooding records. Surface water and drainage should be addressed in site specific FRAs.
Milltown	Pluvial Extents to the north of the village but area not zoned. Surface water and drainage should be addressed in site specific FRAs.
Moyvalley	Pluvial Extents in village adjacent to the canal which correlates with historical flooding. Surface water and drainage should be addressed in site specific FRAs.
Naas Environs - South	Significant extent along the watercourse centreline in the townland of Kilashee in the southern end of the zone lands. Surface water and drainage should be addressed in site specific FRAs.
Naas Environs - West	Significant pluvial extent in the zoned lands between the Grand Canal and the R445. Clusters of pluvial risk within the other zoned lands. Surface water and drainage should be addressed in site specific FRAs.
Robertstown	Pluvial Extents to the east alongside the canal but area not zoned. Surface water and drainage should be addressed in site specific FRAs.

Table 5.4 Locations with an indication of pluvial risk

5.9 CLIMATE CHANGE SENSITIVE AREAS

5.9.1 Overview

The Guidelines state that flood zones should be generated without the inclusion of climate change factors. Due to the uncertainty surrounding the potential effects of climate change a precautionary approach is recommended.

5.9.2 Draft CFRAM Flood Extents

As recommended by the Guidelines when hydraulic models are not available which include the effects of climate change the current scenario flood extents can be assessed by using the Flood Zone B outline as a surrogate for Flood Zone A with allowance for the possible impacts of climate change. Hence the draft CFRAM current scenario flood extents were reviewed as part of the SFRA to establish an indication of future risk in areas using the difference between the Flood Zones A and B. Table 5.5 outlines areas that are potentially sensitive to climate change impacts. Site specific FRAs should address climate change scenarios in relation to FFLs and potential mitigation measures in these areas.

Town / Village / Settlement	Indicative Fluvial Climate Change Sensitivity
Allenwood	Relative to Flood Zone A, there is an increase in Flood Zone B on the eastern side of the town.
Castledermot	Relative to Flood Zone A, there is an increase in Flood Zone B on the eastern side and in the town centre.
Johnstown	Relative to Flood Zone A, there is an increase in Flood Zone B on the eastern side and in the town centre.
Johnstownbridge	Relative to Flood Zone A, there is an increase in Flood Zone B on the eastern side of the town.
Kilberry	No significant changes to the west of the village between Flood zones A and Flood Zone B in current scenario hydraulic modelling
Naas Environs - South	Relative to Flood Zone A, there is a significant increase in Flood Zone B in the northern area of the zoning. Refer to the draft ECFRAM flooding mapping.
Suncroft	Relative to Flood Zone A, there is an increase in Flood Zone B on the western side of the town.

Table 5.5 Areas sensitive to climate change flood risk using Flood Zone B as an indicator

5.9.3 PFRA Indicative Flood Extents

In areas outside the scope of the CFRAM draft mapping, the PFRA flood zone mapping was used to assess future flood risk. Similarly the difference between the Flood Zones A and B was used an indication of future risk in those areas. No significant changes between the PFRA Flood Zones A and B was identified but the PFRA maps should be treated with caution due to the limited nature of the analysis and site specific FRAs should address climate change scenarios in relation to FFLs and potential mitigation measures.

5.10 LAND ZONINGS CONSIDERED FOR REVIEW

The zonings in the following areas have been reviewed against the available flood zone mapping, the indicative pluvial risk, the sensitivity of flood extents to climate change and previous SFRA data gathering. A summary of the zonings (other zoning categories not listed here should be considered on their own merit) and an assessment of their vulnerability and the requirements of application of the justification test are shown in Table 5.5. Justification Tests as applicable are shown in Appendix C.

Objective	Vulnerability	Justification Test Required
A - Town / District / Rural Centre	High / Less	For highly vulnerable development in Flood Zone A or B For less vulnerable development in Flood Zone A
B - Existing Residential and Infill	High	For Development in Flood Zone A or B
C – New Residential	High	For Development in Flood Zone A or B
D - General Development / Mixed Use	High / Less	For highly vulnerable development in Flood Zone A or B For less vulnerable development in Flood Zone A
E - Community & Education	High / Less	For highly vulnerable development in Flood Zone A or B For less vulnerable development in Flood Zone A
F - Open Space / Amenity	Less / Water Compatible	For highly vulnerable development in Flood Zone A or B For less vulnerable development in Flood Zone A
G – Office / Light Industry / Warehousing	Less	For Development in Flood Zone A
H – Industrial / Warehousing	Less	For Development in Flood Zone A
I – Agriculture	Less	For Development in Flood Zone A
J - Transport / Utilities	High	For Development in Flood Zone A or B
K - Retail / Commercial	Less	For Development in Flood Zone A
L - Leisure / Amenity	Less / Water Compatible	For highly vulnerable development in Flood Zone A or B For less vulnerable development in Flood Zone A
M – Future Park / Greenbelt	Water Compatible	N/A
N - Neighbourhood Centre	High / Less	For highly vulnerable development in Flood Zone A or B For less vulnerable development in Flood Zone A
O - Open Space / Amenity	Less / Water Compatible	For highly vulnerable development in Flood Zone A or B For less vulnerable development in Flood Zone A
P – Research / Technology	Less	For Development in Flood Zone A
Q Enterprise / Employment	Less	For Development in Flood Zone A
R - Retail / Commercial	Less	For Development in Flood Zone A
T - General Development	High / Less	For highly vulnerable development in Flood Zone A or B For less vulnerable development in Flood Zone A
U – Utilities / Services	High	For Development in Flood Zone A or B
W – White Land	High / Less	For highly vulnerable development in Flood Zone A or B For less vulnerable development in Flood Zone A

Table 5.6 Land Use Zoning and Vulnerabilities

5.10.1 Town Environs

Athy

The draft CFRAM mapping, the indicative pluvial risk mapping and fluvial climate change assessment do not indicate a significant flood risk in this area. A previous SFRA carried out a Stage 2 assessment to identify flood zones in Bennetsbridge. The SFRA gave recommendations for land zonings and development in the area. It is proposed that the existing flood risk policies, land zonings and recommendations for development and FRAs be retained.

Blessington

A review of the draft CFRAM flood zones in this area highlighted lands which are subject to B and C zoning objectives, which are classified as highly vulnerable development, overlap with Flood Zone A extents.

It was recommended that planning authorities carry out the Development Plan Justification Test to assess if the zoning in this area is still suitable. KCC carried out Justification Test and found that it is considered appropriate to retain the existing zoning. Justification Test would not apply to minor development to existing buildings in this area however; a flood risk assessment of appropriate detail should accompany such applications to demonstrate that they would not have adverse flood risk impacts.

For new development it is proposed that the existing flood risk policies and recommendations for FRAs should be retained, however based on the draft CFRAM mapping the extent of the areas required to carry out an FRA have been increased. FRA should address surface water and drainage, mitigation measures, residual risk and appropriate land use with respect to vulnerability of the proposed development type.

Kilcock

The draft CFRAM mapping, the indicative pluvial risk mapping and fluvial climate change assessment do not indicate a significant flood risk in this area. The previous SFRA flood risk information indicated a dense network of drains in the zoned land which will require careful assessment in surface water

Kill

The draft CFRAM mapping, the indicative pluvial risk mapping and fluvial climate change assessment do not indicate a significant flood risk in this area. The previous SFRA flood risk information indicated Kill has historical pluvial flooding issues. It is proposed that the existing flood risk policies and recommendations for FRAs should be retained.

Naas – North

The draft CFRAM mapping, the indicative pluvial risk mapping and fluvial climate change assessment do not indicate a significant flood risk in this area. The previous SFRA flood risk information indicated

a risk from culvert blockages hence the existing flood risk policies and recommendations for FRAs should be retained.

Naas - South

A review of the draft CFRAM flood zones highlighted lands in Broadford, which are subject to R1 zoning objective which is classified as highly vulnerable development has a significant overlap with Flood Zone A and B extents. The site is currently being developed with residential housing and was subject to a FRA which recommended a series of flood risk mitigation measures including setting minimum floor levels above design flood waters and installation of flow control devices upstream of the residential area. These mitigation measures may not have been included in the CFRAM flood zone mapping as it was developed prior to any development on the site.

It was recommended that planning authorities carry out the Development Plan Justification Test to assess if the zoning in these areas is still suitable based on the most up to date information. KCC carried out Justification Test and found that it is considered appropriate to retain the existing zoning as development on the site is ongoing and was subject to site-specific FRA. The construction of the development should follow the recommendations of the FRA in terms of FFLs and proposed mitigation measures. Justification Test would not apply to minor development to existing buildings in this area however; a flood risk assessment of appropriate detail should accompany such applications to demonstrate that they would not have adverse flood risk impacts.

It is proposed that the existing flood risk policies and recommendations for FRAs should be retained, however based on the draft CFRAM mapping the extent of the areas required to carry out an FRA have been increased. The FRAs should identify flood zone mapping and apply the sequential approach to development in the vicinity of flood risk areas. Highly vulnerable development should be avoided in the Flood Zones A and B with less vulnerable development subject to a detailed FRA in Flood Zone A.

Naas – West

The draft CFRAM mapping and fluvial climate change assessment do not indicate a significant flood risk in this area. However the indicative pluvial assessment indicated that the zoned lands may be liable to pluvial flooding. The previous SFRA flood risk information indicated a risk from culvert blockages. The existing flood risk policies and recommendations for FRAs should be retained. The FRAs for the sites identified at potential risk from pluvial flooding should carry out a surface water and drainage assessment.

5.10.2 Towns

Athgarvan

The draft CFRAM mapping and fluvial climate change assessment do not indicate a significant flood risk in this area. However the indicative pluvial assessment indicated that the Town centre may be liable to pluvial flooding. The previous SFRA flood risk information indicated Athgarvan has a historical pluvial flooding issue which correlates with the indicative PFRA mapping. It is proposed that the existing flood risk policies and recommendations for FRAs should be retained.

Castledermot

A review of the draft CFRAM flood zones in Castledermot highlighted lands which are subject to A, B, C and T zoning objectives, which are classified as highly and less vulnerable development, have a significant overlap with Flood Zone A and B extents. The previous SFRA flood extents were not as extensive in some of these areas.

It was recommended that planning authorities carry out the Development Plan Justification Test to assess if the zoning in these areas is still suitable based on the most up to date information. The previous SFRA proposed land zonings and Justification Tests for land adjacent to the Lerr River are largely still applicable and the existing flood risk policies and recommendations for FRAs should be retained.

Justification Tests were carried out for lands zoned C and T on the eastern and western sides of the town respectively. The C zoning has been rezoned to a water compatible zoning while the T zoning has been retained but future development will be subject a site-specific FRA with development being avoided in the flood zones. The FRA should address surface water and drainage, mitigation measures, residual risk and appropriate land use with respect to vulnerability of the proposed development type.

Derrinturn

The draft CFRAM mapping and fluvial climate change assessment do not indicate a significant flood risk in this area. However the indicative pluvial assessment indicated that the Town centre may be liable to pluvial flooding. The previous SFRA flood risk information indicated Derrinturn has no historical pluvial flooding issues however a pragmatic approach is being adopted in the town with all development subject to surface water and drainage requirements. It is proposed that the existing flood risk policies and recommendations for FRAs should be retained.

Kill

The draft CFRAM mapping, the indicative pluvial risk mapping and fluvial climate change assessment do not indicate a significant flood risk in this area. The previous SFRA flood risk information indicated Kill has historical pluvial flooding issues. It is proposed that the existing flood risk policies and recommendations for FRAs should be retained.

Prosperous

The draft CFRAM mapping, the indicative pluvial risk mapping and fluvial climate change assessment do not indicate a significant flood risk in this area. The previous SFRA flood risk information indicated some historical pluvial flooding issues. It is proposed that the existing flood risk policies and recommendations for FRAs should be retained.

Rathangan

The draft CFRAM mapping, the indicative pluvial risk mapping and fluvial climate change assessment do not indicate a significant flood risk in this area. The previous SFRA flood risk information indicated no historical flooding issues within the town. It is proposed that the existing flood risk policies and recommendations for FRAs should be retained.

5.10.3 Villages

Allenwood

A review of the draft CFRAM flood zones in Allenwood highlighted lands which are subject to a B objective in the south of the town which are classified as highly vulnerable development have a significant overlap with Flood Zone A extents. The majority of the land in the flood zone is currently undeveloped with some overlap with existing development.

It was recommended that planning authorities carry out the Development Plan Justification Test to assess if the zoning in this area is still suitable. KCC carried out Justification Test and found that there is already enough suitably zoned land that is not at risk of flooding at various locations in Allenwood. Therefore it is considered appropriate to rezone the undeveloped parcel of the site to an agricultural zoning. Justification Test would not apply to minor development to existing buildings in this area however; a flood risk assessment of appropriate detail should accompany such applications to demonstrate that they would not have adverse flood risk impacts.

For new development in this area, it is proposed that the existing flood risk policies and recommendations for FRAs should be retained, however based on the draft CFRAM the extent of the areas that are required to carry out an FRA has been extended adjacent to the Ballynakill Stream. The FRAs should address surface water and drainage, mitigation measures, residual risk and appropriate land use with respect to vulnerability of the proposed development type.

Caragh

A review of the PFRA flood zones in this area highlighted lands which are subject to R1 and R2 zoning objectives are classified as highly vulnerable development and overlap with Flood Zone A extents. The Awillyinish Stream historical has overtopped its banks following high rainfall events. Due to the indicative nature of the PFRA mapping it would not be appropriate to zone / rezone land based on the extents.

It is recommended that the existing flood risk policies, land zonings and recommendations for development and FRAs be retained. The FRA should address surface water and drainage, mitigation measures, residual risk and appropriate land use with respect to vulnerability of the proposed development type.

Crookstown

A review of the PFRA flood zones in this area highlighted lands which are subject to an E zoning objective which is classified as highly vulnerable development, overlaps with Flood Zone A extents.

Due to the indicative nature of the PFRA mapping it would not be appropriate to zone / rezone land based on the extents.

A site specific FRA for this site was submitted in support of planning application 12/321 for the development of a new school. The FRA delineated flood zones for the site and carried out surface drainage assessment. The site was developed in accordance with the recommendations of the FRA.

It is recommended that the existing flood risk policies, land zonings and recommendations for development and FRAs be retained. The recommendations are detailed in Appendix A. The FRA should address surface water and drainage, mitigation measures, residual risk and appropriate land use with respect to vulnerability of the proposed development type.

Johnstown

A review of the draft CFRAM flood zones in Johnstown highlighted lands which are subject to A, B, and Q zoning objectives, which are classified as highly and less vulnerable development, have an overlap with Flood Zone A and B extents.

It was recommended that planning authorities carry out the Development Plan Justification Test to assess if the zoning in these areas is still suitable. KCC carried out Justification Test and found that it is considered appropriate retain the existing land zones in areas at risk of flooding but any development shall be subject to a site-specific FRA. No new development or inappropriate zonings are proposed for flood risk areas. Site specific FRAs should address surface water and drainage, mitigation measures, residual risk (flood defence failure on the eastern side of the town and in the town centre) and appropriate land use with respect to vulnerability of the proposed development type. Justification Test would not apply to minor development to existing buildings in this area however; a flood risk assessment of appropriate detail should accompany such applications to demonstrate that they would not have adverse flood risk impacts.

It is recommended that the existing flood risk policies, land zonings and recommendations for development and FRAs should also be retained.

Johnstownbridge

A review of the draft CFRAM flood zones in Johnstownbridge highlighted lands subject to a B zoning objective, which is classified as highly vulnerable development, overlaps with Flood Zone B extents.

It was recommended that planning authorities carry out the Development Plan Justification Test to assess if the zoning in these areas is still suitable. KCC carried out Justification Test and found that it is considered appropriate retain the existing land zones in areas at risk of flooding but any development shall be subject to a site-specific FRA. No new development or inappropriate zonings are proposed for flood risk areas. Site specific FRAs should address surface water and drainage, mitigation measures, residual risk and appropriate land use with respect to vulnerability of the proposed development type. Justification Test would not apply to minor development to existing buildings in this area however; a flood risk assessment of appropriate detail should accompany such applications to demonstrate that they would not have adverse flood risk impacts.

It is recommended that the existing flood risk policies, land zonings and recommendations for development and FRAs should also be retained, however based on the draft CFRAM mapping the extent of the areas required to carry out an FRA have been increased.

Kildangan

A review of the PFRA flood zones in this area highlighted lands which are subject to B and C zoning objectives, which are classified as highly vulnerable development, overlap with Flood Zone A extents. Due to the indicative nature of the PFRA mapping it would not be appropriate to zone / rezone land based on the extents.

It is recommended that the existing flood risk policies, land zonings and recommendations for development and FRAs be retained. The FRA should address surface water and drainage, mitigation measures, residual risk and appropriate land use with respect to vulnerability of the proposed development type.

Suncroft

A review of the draft CFRAM flood zones in Suncroft highlighted lands subject to a B zoning objective, which is classified as highly vulnerable development, overlaps with Flood Zone A and B extents.

It was recommended that planning authorities carry out the Development Plan Justification Test to assess if the zoning in these areas is still suitable. KCC carried out Justification Test and found that it is considered appropriate retain the existing land zones in areas at risk of flooding but any development shall be subject to a site-specific FRA. No new development or inappropriate zonings are proposed for flood risk areas. Site specific FRAs should address surface water and drainage, mitigation measures, residual risk and appropriate land use with respect to vulnerability of the proposed development type. Justification Test would not apply to minor development to existing buildings in this area however; a flood risk assessment of appropriate detail should accompany such applications to demonstrate that they would not have adverse flood risk impacts.

It is recommended that the existing flood risk policies, land zonings and recommendations for development and FRAs should also be retained.

Timolin

A review of the PFRA flood zones in this area highlighted lands which are subject to B and E zoning objectives, which are classified as highly vulnerable development; overlap with Flood Zone A extents. Due to the indicative nature of the PFRA mapping it would not be appropriate to zone / rezone land based on the extents.

It is recommended that the existing flood risk policies, land zonings and recommendations for development and FRAs be retained. The FRA should address surface water and drainage, mitigation measures, residual risk and appropriate land use with respect to vulnerability of the proposed development type.

5.10.4 Individual Risk Receptors

Section 5.5 outlines how the OPW PFRA identified AFAs that may be at risk from flooding. The PFRA also identified individual risk receptors (IRRs) which may be at risk. IRRs are an individual asset of particular economic or social, such as transport and utilities infrastructure, which may require specific consideration during the development of the flood risk management options. These IRRs are being examined in further detail during the CFRAM process.

The PFRA process identified one IRR in Kildare which warranted further review, The Longstone ESB power station on the River Liffey located just upstream of Ballymore Eustace. The ECFRAM initial flood risk review report found due to the managed nature of the river flow at this location flooding from the river is not considered to be a significant flood risk to this station the principal risk is from a dam breach.

The PFRA did not identify other IRRs in Kildare but the CFRAM process may identify further IRRs which may require specific consideration during the development of the flood risk management options.

5.10.5 Zoning Flood Risk Summary and Proposals

Table 5.7 outlines the SFRA proposals and the planning decisions undertaken to address flood risk in the zoning review areas. Justification Tests are shown in Appendix C.

The remaining areas (as shown in Table 2.1) not highlighted in Table 5.8 were also reviewed. The previous SFRA information and the available flood zone mapping indicated that the existing policies and recommendations from the previous county development were largely sufficient to address flood risk in these areas. Some adjustments were made to address pluvial risk and fluvial climate change risk on a case by case basis.

The full list of recommendations and mapping identifying areas where more detailed flood risk assessments may be required are shown in Appendix A and Appendix B respectively.

Settlement Designation	Zoning Area Review	SFRA Proposal	KCC Decision
Town Environs	Athy	The existing flood risk policies and recommendations for FRAs should be retained.	Site-specific FRAs will be required in the areas identified in Appendix B. Site-specific Flood Risk Assessment to an appropriate level of detail, addressing all potential sources of flood risk must demonstrate compliance with the Planning System and Flood Risk Management-Guidelines for Planning Authorities (DoEHLG/OPW 2009) or any updated version of these guidelines and the recommendations of the SFRA.
	Blessington Environs	Carry out Justification Test to review zonings For new development retain existing flood risk policies and recommendations for areas where FRAs are required. Increase the extent of lands that require FRAs. Applications for minor development to existing buildings should undertake a FRA of appropriate detail to demonstrate that they would not have adverse flood risk impacts.	Following application of the Justification Test: The land zoning has been retained but future development in this area will be subject to a site-specific FRA. Development should be avoided in the flood zones. The existing flood risk policies and recommendations for FRAs should also be retained. Site-specific FRAs will be required in the areas identified in Appendix B. Site-specific Flood Risk Assessment to an appropriate level of detail, addressing all potential sources of flood risk must demonstrate compliance with the *Planning System and Flood Risk Management-Guidelines for Planning Authorities (DoEHLG/OPW 2009)* or any updated version of these guidelines and the recommendations of the SFRA.
	Kilcock	The existing flood risk policies and recommendations for FRAs should be retained.	Site-specific FRAs will be required in the areas identified in Appendix B. Site-specific Flood Risk Assessment to an appropriate level of detail, addressing all potential sources of flood risk must demonstrate compliance with the Planning System and Flood Risk Management-Guidelines for Planning Authorities (DoEHLG/OPW 2009) or any updated version of these guidelines and the recommendations of the SFRA.
	Kill	The existing flood risk policies and recommendations for FRAs should be retained.	Site-specific FRAs will be required in the areas identified in Appendix B. Site-specific Flood Risk Assessment to an appropriate level of detail, addressing all potential sources of flood risk must demonstrate compliance with the Planning System and Flood Risk Management-Guidelines for Planning Authorities (DoEHLG/OPW 2009) or any updated version of these guidelines and the recommendations of the SFRA.

Settlement Designation	Zoning Area Review	SFRA Proposal	KCC Decision
Town Environs	Naas - North	The existing flood risk policies and recommendations for FRAs should be retained.	Site-specific FRAs will be required in the areas identified in Appendix B. Site-specific Flood Risk Assessment to an appropriate level of detail, addressing all potential sources of flood risk must demonstrate compliance with the Planning System and Flood Risk Management-Guidelines for Planning Authorities (DoEHLG/OPW 2009) or any updated version of these guidelines and the recommendations of the SFRA.
	Naas - South	Carry out Justification Test to review zoning in Broadfield. Retain existing flood risk policies and recommendations for areas where FRAs are required. Increase the extent of lands that require FRAs. Applications for minor development to existing buildings should undertake a FRA of appropriate detail to demonstrate that they would not have adverse flood risk impacts.	Following application of the Justification Test: The land zoning has been retained but future development in this area will be subject to a site-specific FRA. Development should be avoided in the flood zones. The existing flood risk policies and recommendations for FRAs should also be retained. Site-specific FRAs will be required in the areas identified in Appendix B. Site-specific Flood Risk Assessment to an appropriate level of detail, addressing all potential sources of flood risk must demonstrate compliance with the Planning System and Flood Risk Management-Guidelines for Planning Authorities (DoEHLG/OPW 2009) or any updated version of these guidelines and the recommendations of the SFRA.
	Naas - West	The existing flood risk policies and recommendations for FRAs should be retained.	Site-specific FRAs will be required in the areas identified in Appendix B. Site-specific Flood Risk Assessment to an appropriate level of detail, addressing all potential sources of flood risk must demonstrate compliance with the Planning System and Flood Risk Management-Guidelines for Planning Authorities (DoEHLG/OPW 2009) or any updated version of these guidelines and the recommendations of the SFRA.
Towns	Athgarvan	The existing flood risk policies and recommendations for FRAs should be retained.	Site-specific FRAs will be required in the areas identified in Appendix B. Site-specific Flood Risk Assessment to an appropriate level of detail, addressing all potential sources of flood risk must demonstrate compliance with the Planning System and Flood Risk Management-Guidelines for Planning Authorities (DoEHLG/OPW 2009) or any updated version of these guidelines and the recommendations of the SFRA.

Settlement Designation	Zoning Area Review	SFRA Proposal	KCC Decision
Towns	Castledermot	Carry out Justification Test to review zonings in eastern and western sides of the town Retain existing flood risk policies and recommendations for areas where FRAs are required. Increase the extent of lands that require FRAs. Applications for minor development to existing buildings should undertake a FRA of appropriate detail to demonstrate that they would not have adverse flood risk impacts.	Following application of the Justification Test: The land in the east of the town at was rezoned to a water compatible zoning. The land zoning in the west of the town has been retained. Development in this area will be subject to a site-specific FRA. Development should be avoided in the flood zones. The existing flood risk policies and recommendations for FRAs should also be retained. Site-specific FRAs will be required in the areas identified in Appendix B. Site-specific Flood Risk Assessment to an appropriate level of detail, addressing all potential sources of flood risk must demonstrate compliance with the Planning System and Flood Risk Management-Guidelines for Planning Authorities (DoEHLG/OPW 2009) or any updated version of these guidelines and the recommendations of the SFRA.
	Derrinturn	The existing flood risk policies and recommendations for FRAs should be retained.	Site-specific FRAs will be required in the areas identified in Appendix B. Site-specific Flood Risk Assessment to an appropriate level of detail, addressing all potential sources of flood risk must demonstrate compliance with the Planning System and Flood Risk Management-Guidelines for Planning Authorities (DoEHLG/OPW 2009) or any updated version of these guidelines and the recommendations of the SFRA.
	Kill	The existing flood risk policies and recommendations for FRAs should be retained.	Site-specific FRAs will be required in the areas identified in Appendix B. Site-specific Flood Risk Assessment to an appropriate level of detail, addressing all potential sources of flood risk must demonstrate compliance with the Planning System and Flood Risk Management-Guidelines for Planning Authorities (DoEHLG/OPW 2009) or any updated version of these guidelines and the recommendations of the SFRA.
Towns	Prosperous	The existing flood risk policies and recommendations for FRAs should be retained.	Site-specific FRAs will be required in the areas identified in Appendix B. Site-specific Flood Risk Assessment to an appropriate level of detail, addressing all potential sources of flood risk must demonstrate compliance with the Planning System and Flood Risk Management-Guidelines for Planning Authorities (DoEHLG/OPW 2009) or any updated version of these guidelines and the recommendations of the SFRA.

Settlement Designation	Zoning Area Review	SFRA Proposal	KCC Decision
Towns	Rathangan	The existing flood risk policies and recommendations for FRAs should be retained.	Site-specific FRAs will be required in the areas identified in Appendix B. Site-specific Flood Risk Assessment to an appropriate level of detail, addressing all potential sources of flood risk must demonstrate compliance with the Planning System and Flood Risk Management-Guidelines for Planning Authorities (DoEHLG/OPW 2009) or any updated version of these guidelines and the recommendations of the SFRA.
Villages	Allenwood	Carry out Justification Test to review zoning in southern end of the village. For new development retain existing flood risk policies and recommendations for areas where FRAs are required. Increase the extent of lands that require FRAs adjacent to the Ballynakill Stream. Applications for minor development to existing buildings should undertake a FRA of appropriate detail to demonstrate that they would not have adverse flood risk impacts.	Following application of the Justification Test the undeveloped land at risk from flooding was rezoned to a water compatible zoning. Site-specific FRAs will be required in the areas identified in Appendix B. Site-specific Flood Risk Assessment to an appropriate level of detail, addressing all potential sources of flood risk must demonstrate compliance with the *Planning System and Flood Risk Management-Guidelines for Planning Authorities (DoEHLG/OPW 2009)* or any updated version of these guidelines and the recommendations of the SFRA.
	Caragh	The existing flood risk policies and recommendations for FRAs should be retained.	Site-specific FRAs will be required in the areas identified in Appendix B. Site-specific Flood Risk Assessment to an appropriate level of detail, addressing all potential sources of flood risk must demonstrate compliance with the Planning System and Flood Risk Management-Guidelines for Planning Authorities (DoEHLG/OPW 2009) or any updated version of these guidelines and the recommendations of the SFRA.
	Crookstown	The existing flood risk policies and recommendations for FRAs should be retained.	Site-specific FRAs will be required in the areas identified in Appendix B. Site-specific Flood Risk Assessment to an appropriate level of detail, addressing all potential sources of flood risk must demonstrate compliance with the Planning System and Flood Risk Management-Guidelines for Planning Authorities (DoEHLG/OPW 2009) or any updated version of these guidelines and the recommendations of the SFRA.

Settlement Designation	Zoning Area Review	SFRA Proposal	KCC Decision
Villages	Johnstown	Carry out Justification Test to review zonings in existing residential areas. Retain existing flood risk policies and recommendations for areas where FRAs are required. Applications for minor development to existing buildings should undertake a FRA of appropriate detail to demonstrate that they would not have adverse flood risk impacts.	Following application of the Justification Test: The land zoning has been retained but future development in this area will be subject to a site-specific FRA. Development should be avoided in the flood zones. The existing flood risk policies and recommendations for FRAs should also be retained. Site-specific FRAs will be required in the areas identified in Appendix B. Site-specific Flood Risk Assessment to an appropriate level of detail, addressing all potential sources of flood risk must demonstrate compliance with the Planning System and Flood Risk Management-Guidelines for Planning Authorities (DoEHLG/OPW 2009) or any updated version of these guidelines and the recommendations of the SFRA.
	Johnstownbridge	Carry out Justification Test to review zonings in existing residential areas. Retain existing flood risk policies and recommendations for areas where FRAs are required. Applications for minor development to existing buildings should undertake a FRA of appropriate detail to demonstrate that they would not have adverse flood risk impacts.	Following application of the Justification Test: The land zoning has been retained but future development in this area will be subject to a site-specific FRA. Development should be avoided in the flood zones. The existing flood risk policies and recommendations for FRAs should also be retained. Site-specific FRAs will be required in the areas identified in Appendix B. Site-specific Flood Risk Assessment to an appropriate level of detail, addressing all potential sources of flood risk must demonstrate compliance with the Planning System and Flood Risk Management-Guidelines for Planning Authorities (DoEHLG/OPW 2009) or any updated version of these guidelines and the recommendations of the SFRA.
	Kildangan	The existing flood risk policies and recommendations for FRAs should be retained.	Site-specific FRAs will be required in the areas identified in Appendix B. Site-specific Flood Risk Assessment to an appropriate level of detail, addressing all potential sources of flood risk must demonstrate compliance with the Planning System and Flood Risk Management-Guidelines for Planning Authorities (DoEHLG/OPW 2009) or any updated version of these guidelines and the recommendations of the SFRA.

Settlement Designation	Zoning Area Review	SFRA Proposal	KCC Decision
Villages	Suncroft	Carry out Justification Test to review zonings in existing residential areas. Retain existing flood risk policies and recommendations for areas where FRAs are required. Applications for minor development to existing buildings should undertake a FRA of appropriate detail to demonstrate that they would not have adverse flood risk impacts.	Following application of the Justification Test: The land zoning has been retained but future development in this area will be subject to a site-specific FRA. Development should be avoided in the flood zones. The existing flood risk policies and recommendations for FRAs should also be retained. Site-specific FRAs will be required in the areas identified in Appendix B. Site-specific Flood Risk Assessment to an appropriate level of detail, addressing all potential sources of flood risk must demonstrate compliance with the Planning System and Flood Risk Management-Guidelines for Planning Authorities (DoEHLG/OPW 2009) or any updated version of these guidelines and the recommendations of the SFRA.
	Timolin	The existing flood risk policies and recommendations for FRAs should be retained.	Site-specific FRAs will be required in the areas identified in Appendix B. Site-specific Flood Risk Assessment to an appropriate level of detail, addressing all potential sources of flood risk must demonstrate compliance with the Planning System and Flood Risk Management-Guidelines for Planning Authorities (DoEHLG/OPW 2009) or any updated version of these guidelines and the recommendations of the SFRA.

Table 5.7 SFRA proposals and the planning decisions undertaken to address flood risk in the identified areas

5.11 ADOPTION AREAS

Following the Local Government Reform Act 2014, Town Councils in Kildare were abolished. The planning and development of these areas authority now falls under the authority of Kildare County Council. The existing LAPs land zonings for these areas will be adopted into the County Development Plan. The Naas and Athy LAPs are due to reviewed and updated in 2016 as the current plans will expire in 2017 and 2018 respectively. They are not within the remit of this SFRA; however a desktop review of the zonings was carried out to identify any areas which may require a review for the new LAPs.

5.11.1 Athy

The previous SFRA for Athy identified flood zones which are broadly in agreement with the draft CFRAM flood mapping. Justification Tests and flood risk management policies implemented for this Plan are largely appropriate. However new residential zonings in the north east of the town (Clonmullin) would need to be reviewed in relation to the draft CFRAM mapping as they indicate that there are large flood zone extents in this area.

5.11.2 Naas

The previous SFRA for Nass identified areas where FRAs should be carried out prior to development being undertaken. These areas broadly agree with the draft CFRAM flood mapping. FRAs in new residential areas in Plopluck and Oldtown would need to be reviewed in relation to the draft CFRAM mapping as they indicate that there are flood zone extents in these areas. Site specific FRAs should address flood risk, propose mitigation measures and assign appropriate land uses.

6 FLOOD RISK MANAGEMENT POLICIES AND OBJECTIVES

6.1 GENERAL DEVELOPMENT PLANS AND STRATEGIES

The existing Development Plan outlines flood risk management strategies that have been brought forward to the new Plan, these include:

- Ensure that flood risk identification, assessment and management avoidance are integrated with the planning system.
- Provide Flood Management Systems throughout the county to flood risk and the consequences of flooding
- Implement and comply with the Planning System and Flood Risk Management Guidelines (2009).
- Incorporate the potential for increased incidences of flooding due to climate change into strategic land use decisions for the development plan and local area plans and into the assessment of planning applications.

These requirements and procedures should be retained and strengthened where appropriate. Similarly the existing flood risk management policies have been retained and amended as appropriate:

- To support and co-operate with the Office of Public Works (OPW) in delivering the Catchment Based Flood Risk Assessment and Management Programme in the Eastern and South Eastern District CFRAMS and associated Flood Management Plans (FRMP). The recommendations and outputs arising from these studies shall be considered in preparing plans and assessing development proposals.
- To support the implementation of the EU Flood Risk Directive (2007/60/EC) on the assessment and management of flood risks and the Flood Risk Regulations (SI No 122 of 2010)
- To manage flood risk in the County in accordance with the requirements of the Planning System and Flood Risk Management Guidelines for Planning Authorities, DECLG and OPW (2009) and circular PL02/2014 (August 2014), in particular when preparing plans and programmes and assessing development proposals.
- To support and facilitate the delivery of flood alleviation and management schemes in Kildare including the following:
    - Morrell River Flood Management Scheme
    - Dara Park Surface Water Improvement Scheme
- To support the Transportation Section in the implementation of minor surface water management schemes delivered in the Municipal District area.
- To recognise the important role of bogland and other wetland areas in flooding patterns. Development in these areas shall therefore be subject of a Flood Risk Assessment in accordance with the relevant guidance.
- To require development proposals which may affect canals and their associated infrastructure to prepare a flood risk assessment in accordance with the relevant guidance.
- To ensure that all towns, villages, and settlements are provided with adequate flood alleviation measures within the limits of cost effectiveness and availability of finance.

- To recognise and implement the duties of the Barrow Drainage Board as dissolved under S.I. 478/2014, Local Government Act 2001 (Section 231) Order 2014.
- To continue river enhancement and drainage works as required over the lifetime of this plan.
- To ensure that the reasonable requirements of Inland Fisheries Ireland are adhered to in the construction of flood alleviation measures and in all river enhancement works in the county.
- To support the Water Framework Directive and any River Basin Management Plan prepared under that Directive in the delivery of all Flood Alleviation and Management Schemes.
- Any future Local Area Plans and any other land use plans or policies shall be subject to a flood risk assessment in accordance with the Flood Risk Guidelines 2009.

The areas as shown in Table 2.1 were reviewed against the available flood zone mapping, the indicative pluvial risk, the sensitivity of flood extents to climate change and previous SFRA data gathering. Local recommendations were made to address flood risk and mapping identifying areas where more detailed flood risk assessments may be required were produced.

6.2 FLOOD RISK MANAGEMENT PLANS

The Eastern and South Eastern CFRAM FRMPs are ongoing (due for completion in 2016) and Areas for Further Assessment (AFAs) are currently being assessed. If it is deemed necessary, flood risk management objectives, options and plans will be developed for the Eastern CFRAM and any recommendation from the FRMPs should be supported in future development plans.

7 SUMMARY

7.1 OVERVIEW

The SFRA Report has been prepared in accordance with the requirements of The Planning System and Flood Risk Assessment Guidelines for Planning Authorities (2009) and Circular PL02/2014 (August 2014). The SFRA has provided an assessment of all types of flood risk within the County to assist KCC to make informed strategic land-use planning decisions. The flood risk information has enabled KCC to apply the Guidelines sequential approach, and where necessary the Justification Test, to appraise sites for development and identify how flood risk can be reduced as part of the development plan.

7.2 FLOOD ZONES AND FLOOD RISK

Kildare is susceptible to several types of flood risk, including:

- Fluvial - Flooding occurs when a river overtops its banks due to a blockage in the channel or the channel capacity is exceeded.
- Pluvial - Flooding occurs when overland flow cannot infiltrate into the ground, when drainage systems exceed their capacity or are blocked and when and when the water cannot discharge due to a high water level in the receiving watercourse.

These types of flood risk act independently or in combination to cause flooding across the county.

The CFRAM flood extents are still at draft stage and subject to change. Therefore they have not been included in the flood zone mapping for this iteration of the SFRA however if the extents are finalised within the lifetime of the County Development Plan they will be reviewed for adoption into the Plan. Similarly the PFRA mapping should be treated with caution due to the limited nature of the analysis and has not been adopted for the SFRA. They will be in the future to infill flood zones in areas outside of the scope of the CFRAM mapping when the CFRAM mapping can be adopted.

However the CFRAM and PFRA flood zone maps are the most comprehensive flood maps produced for County Kildare since the introduction of the Guidelines and the Floods Directive. The Draft CFRAM flood zone mapping, PFRA flood zone mapping and existing SFRA flood zone mapping were examined to review the appropriateness of land zonings and to identify areas where more detailed flood risk assessments are required.

7.3 FLOOD MANAGEMENT POLICIES

The existing County Development Plan flood risk management policies have been retained and amended as appropriate. The council has committed to supporting and co-operating with the Office of Public Works (OPW) in delivering the Catchment Based Flood Risk Assessment and Management Programme in the Eastern and South Eastern District CFRAMS and associated Flood Management Plans (FRMP). The recommendations and outputs arising from these studies shall be considered in preparing plans and assessing development proposals. They will manage flood risk in the county in accordance with the requirements of the Planning System and Flood Risk Management Guidelines

for Planning Authorities, DECLG and OPW (2009) and circular PL02/2014 (August 2014), in particular when preparing plans and programmes and assessing development proposals. They have also committed to delivering flood alleviation and management schemes including the Morrell River Flood Management Scheme, the Dara Park Surface Water Improvement Scheme as well support implementation of minor flood management schemes. Local flood risk management policies will also recommendations will be implemented based on the findings of the SFRA. The full list of recommendations and mapping are shown in Appendix A and Appendix B.

7.4 SFRA REVIEW AND MONITORING

The Kildare SFRA will be reviewed and updated every six years in line the County Development Plan review process. Additionally, outputs from future studies and datasets may trigger a review and update of the SFRA during the lifetime of the 2017-2023 Development Plan. These include the outputs from the CFRAM FRMPs. Other sources of information may not lead to an update of the SFRA during the lifetime of the plan but they should be retained and collected to supplement the future County SFRAs.

APPENDIX A

AREA SPECIFIC RECOMMENDATIONS OF SFRA

Town Environs

Town Environs	Recommendations
Athy (Bennetsbridge & Gallowshill)	The flood zones as identified in SFRA for the 2011-2017 for Bennetsbridge should be adhered. Development in Flood Zone C is appropriate for the land use zoning for Low Density Residential Development. It was recommended that lands within Flood Zone B are zoned for less-vulnerable development types. It was recommended that the lands in Flood Zone A are zoned for water-compatible development. Any development within Flood Zones A and B should include appropriate mitigation measures that can be implemented by applying the sequential approach to the design and layout of any scheme so as to reduce flood risk to the development. Any buildings constructed on the subject lands should be constructed outside of the lands liable to flooding from the 1 in 100 year event. Floor levels should be set at least 0.5m above flood levels from the re-calculated Design Flood Flow. Development proposals for the lands zoned AE1 in Gallowshill shall be the subject of a site-specific Flood Risk Assessment appropriate to the type and scale of the development being proposed.
Blessington	Development proposals for the following lands shall be the subject of a site-specific Flood Risk Assessment appropriate to the type and scale of the development being proposed: i) Development incorporating lands located within 75m of the banks (or culverted sections) of the watercourse which flows in a southerly direction through the subject area; (ii) lands zoned C and B adjacent to watercourses Site Specific FRAs should address the following: ▪ Apply sequential approach should be applied through site planning and should avoid encroachment onto, or loss of, the flood plain. ▪ Highly Vulnerable Development shall not be permitted in Flood Zone A or B. ▪ Development in Flood Zone A should only be water compatible. ▪ Compensatory storage may be considered provided there is no increased flood risk elsewhere. It must be provided on a level for level basis and the land given to storage must be land which does not flood in the 1% AEP flood event. ▪ Should address residual risk of culvert blockage (where applicable), increased flood extents under climate change scenarios and pluvial risk which should be aimed at setting finished floor levels.
Kilcock Environs	Development proposals for the following lands shall be the subject of a site-specific Flood Risk Assessment appropriate to the type and scale of the development being proposed: (i) Development incorporating lands zoned KE1.
Kill	Development proposals for the following lands shall be the subject of a site-specific Flood Risk Assessment appropriate to the type and scale of the development being proposed: (i) Development incorporating lands zoned KE1.
Naas - North	Development proposals for the following lands shall be the subject of a site-specific Flood Risk Assessment appropriate to the type and scale of the development being proposed: (i) lands within 100m of the banks (or culverted sections) of the Morell River.
Naas - South	Development proposals for the following lands shall be the subject of a site-specific Flood Risk Assessment appropriate to the type and scale of the development being proposed: (i) lands zoned NE4 and NE5. Site Specific FRAs should address the following: ▪ Identify flood zone mapping ▪ Apply sequential approach should be applied through site planning and should

	avoid encroachment onto, or loss of, the flood plain. ▪ Highly Vulnerable Development shall not be permitted in Flood Zone A or B. ▪ Development in Flood Zone A should only be water compatible. ▪ Compensatory storage may be considered provided there is no increased flood risk elsewhere. It must be provided on a level for level basis and the land given to storage must be land which does not flood in the 1% AEP flood event. ▪ Should address residual risk of culvert blockage (where applicable), increased flood extents under climate change scenarios and pluvial risk which should be aimed at setting finished floor levels.
Naas - West	Development proposals for the following lands shall be the subject of a site-specific Flood Risk Assessment appropriate to the type and scale of the development being proposed: (i) Development incorporating lands zoned NE3 and NE1. Development in the zoned lands between the Grand Canal and the R445 should carry out a surface water and drainage assessment.

Towns

Towns	Recommendations
Athgarvan	In order to reduce surface water run-off and to minimise the risk of flooding, lands will be required to be developed in accordance with SuDS principles and in compliance with the GDSDS To undertake a study of surface water drains in the town and to seek an upgrade / maintenance of drains as appropriate, subject to the availability of finance. To ensure that development proposals for the lands identified in Appendix B are subject to site specific flood risk assessment appropriate to the type and scale of development being proposed.
Castledermot	In order to reduce surface water run-off and to minimise the risk of flooding, lands will be required to be developed in accordance with SuDS principles and in compliance with the GDSDS. To facilitate an upgrade of surface water drains in the town where required, subject to the availability of finance. To require separate foul and surface water systems for all future developments To ensure that development proposals for the lands identified in Appendix B are subject to site specific flood risk assessment appropriate to the type and scale of development being proposed. Site Specific FRAs should address the following: ▪ Apply sequential approach should be applied through site planning and should avoid encroachment onto, or loss of, the flood plain. ▪ Highly Vulnerable Development shall not be permitted in Flood Zone A or B. ▪ Development in Flood Zone A should only be water compatible. ▪ Compensatory storage may be considered provided there is no increased flood risk elsewhere. It must be provided on a level for level basis and the land given to storage must be land which does not flood in the 1% AEP flood event. ▪ Should address residual risk of culvert blockage (where applicable), increased flood extents under climate change scenarios and pluvial risk which should be aimed at setting finished floor levels.
Derrinturn	In order to reduce surface water run-off and to minimise the risk of flooding, lands will be required to be developed in accordance with SuDS principles and in compliance with the GDSDS. To require on site surface water attenuation measures where a development is likely to cause flooding or potentially destructive storm surges in existing watercourses. To improve the capacity of the surface water discharge pipeline. To ensure that development

Towns	Recommendations
	proposals for the lands identified in Appendix B are subject to site specific flood risk assessment appropriate to the type and scale of development being proposed.
Kill	In order to reduce surface water run-off and to minimise the risk of flooding, lands will be required to be developed in accordance with SuDS principles and in compliance with the GDSDS. To facilitate an upgrade of surface water drains in the town where required, subject to the availability of finance. To ensure that development proposals for the lands identified in Appendix B are subject to site specific flood risk assessment appropriate to the type and scale of development being proposed.
Prosperous	In order to reduce surface water run-off and to minimise the risk of flooding, lands will be required to be developed in accordance with SuDS principles and in compliance with the GDSDS. To undertake a study of surface water drains in the town and to seek an upgrade of drains as appropriate, subject to the availability of finance. To ensure that development proposals for the lands identified in Appendix B are subject to site specific flood risk assessment appropriate to the type and scale of development being proposed.
Rathangan	In order to reduce surface water run-off and to minimise the risk of flooding, lands will be required to be developed in accordance with SuDS principles and in compliance with the GDSDS. To require separate foul and surface water systems for all future developments. To ensure that development proposals for the lands identified in Appendix B are subject to site specific flood risk assessment appropriate to the type and scale of development being proposed.

Villages

Villages	Recommendations
Allenwood	Development proposals for the following lands shall be the subject of a site-specific Flood Risk Assessment appropriate to the type and scale of the development being proposed: (i) development incorporating lands located within 80m of the banks (or culverted sections) of the watercourse which flows in a northerly direction adjacent to the eastern boundary of the Village Plan; (ii) development incorporating lands located within 75m of a recorded flood event (as shown on OPW flood maps); (iii) lands zoned C, Q or E. (iv) lands zoned B adjacent to the Ballynakill Stream Site Specific FRAs should address the following: ▪ Apply sequential approach should be applied through site planning ▪ Highly Vulnerable Development shall not be permitted in Flood Zone A or B. ▪ Should address residual risk of culvert blockage (where applicable), increased flood extents under climate change scenarios and pluvial risk which should be aimed at setting finished floor levels.
Ballitore	Development proposals for the following lands shall be the subject of a site-specific Flood Risk Assessment appropriate to the type and scale of the development being proposed: (i) development incorporating lands located within 100m of the eastern bank and within 50m of the western bank (or culverted sections) of the River Greese; (ii) development incorporating lands located within 75m of a recorded flood event (as shown on OPW flood maps); (iii) lands zoned Q.
Ballymore Eustace	Development proposals for the following lands shall be the subject of a site-specific Flood Risk Assessment appropriate to the type and scale of the development being proposed: (i) development incorporating lands within 75m of the banks of the River Liffey; (ii) lands zoned C1, C2 or A1.
Caragh	Development proposals for the following lands shall be the subject of a site-specific Flood Risk Assessment appropriate to the type and scale of the development being proposed: (i) development incorporating lands located within 50m of the banks (or culverted sections) of the watercourse which flows between the lands zoned F and the lands zoned

Villages	Recommendations
	B at the southwestern corner of the village; (ii) development incorporating lands located within 25m of the banks (or culverted sections) of the watercourse which flows through the Old Chapel Grove, Old Chapel Wood and The Streams residential developments before converging with the Awillyinish Stream; (iii) development incorporating lands located within 50m of a recorded flood event (as shown on OPW flood maps); (iv) lands zoned C.
Coill Dubh / Cooleragh	Development proposals for the following lands shall be the subject of a site-specific Flood Risk Assessment appropriate to the type and scale of the development being proposed: (i) lands zoned C in Coill Dubh (ii) lands zoned Q in Coolearagh.
Crookstown	Development proposals for the following lands shall be the subject of a site-specific Flood Risk Assessment appropriate to the type and scale of the development being proposed: (i) development incorporating lands located within 100m of the banks (or culverted sections) of the River Greese.
Johnstown	Development proposals for the following lands shall be the subject of a site-specific Flood Risk Assessment appropriate to the type and scale of the development being proposed: (i) development incorporating lands located within 75m of any watercourse; (ii) development incorporating lands located within 100m of a recorded flood event (as shown on OPW flood maps); (iii) lands zoned A and U; (iv) lands zoned Q located west of the Furness Road; (v) lands zoned E located at the southern boundary of the Village. Site specific FRAs should address climate change scenarios in relation to FFLs and the residual risk of flood defence failure on the eastern side of the town and in the town centre.
Johnstownbridge	Development proposals for the following lands shall be the subject of a site-specific Flood Risk Assessment appropriate to the type and scale of the development being proposed: (i) development incorporating lands located within 100m of the banks (or culverted sections) of any watercourse; (ii) lands zoned C1, C2 and E. FRAs should address residual risk of culvert blockage (where applicable), increased flood extents under climate change scenarios and pluvial risk which should be aimed at setting finished floor levels.
Kildangan	Development proposals for the following lands shall be the subject of a site-specific Flood Risk Assessment appropriate to the type and scale of the development being proposed: (i) development incorporating lands within 75m of the banks (or culverted sections) of all watercourses;
Kilmeague	No significant risk identified as a minimum all development proposals shall carry out a surface water and drainage assessment.
Moone	Development proposals for the following lands shall be the subject of a site-specific Flood Risk Assessment appropriate to the type and scale of the development being proposed: (i) development incorporating lands located within 50m of the banks (or culverted sections) of any watercourse.
Robertstown	Development proposals for the following lands shall be the subject of a site-specific Flood Risk Assessment appropriate to the type and scale of the development being proposed: (i) lands zoned Settlement Core; (ii) lands zoned for Settlement Expansion at the east of Robertstown; (iii) lands north of the Canal.
Straffan	Development proposals for the following lands shall be the subject of a site-specific Flood Risk Assessment appropriate to the type and scale of the development being proposed: (i) development incorporating lands located within 250m of the junction of Barberstown Road and New Road (ii) lands zoned C1, E and Q.
Suncroft	Development proposals for the following lands shall be the subject of a site-specific Flood Risk Assessment appropriate to the type and scale of the development being proposed: (i) development incorporating lands located within 50m of a recorded flood event (as shown on OPW flood maps); (ii) development incorporating lands located within 100m of the banks (or culverted sections) of the watercourse which flows along Eascanrath Lane (L70721); (iii) development incorporating lands located within 50m of the banks (or

Villages	Recommendations
	culverted sections) of the watercourse which passes through lands zoned B at the south western boundary of the village plan. (iv) lands zoned C or E. Site specific FRAs should address climate change scenarios in relation to FFLs and the residual risk of flood defence failure on the eastern side of the town and in the town centre.
Timolin	Development proposals for the following lands shall be the subject of a site-specific Flood Risk Assessment appropriate to the type and scale of the development being proposed: (i) Development incorporating lands located within 75m of the banks of the Bothoge River. This river is taken to include the Mill Race which flows through the south eastern corner of the village.

Settlements

Settlements	Recommendations
Allen	Development proposals for lands located within 50m of the stream which crosses the R415 at the southern boundary of the settlement shall be the subject of a site-specific Flood Risk Assessment appropriate to the type and scale of the development being proposed.
Ardclough	Development proposals for the following lands shall be the subject of a site-specific Flood Risk Assessment appropriate to the type and scale of the development being proposed: (i) development incorporating lands east of the canal identified for Settlement Expansion; (ii) development incorporating lands identified as Settlement Core and Existing Settlement.
Brannockstown	Development proposals for development incorporating lands located north and/or west of the Kilcullen Road junction shall be the subject of a site-specific Flood Risk Assessment appropriate to the type and scale of the development being proposed.
Broadford	Development proposals for development incorporating lands located north and/or within 50m of Broadford Bridge shall be the subject of a site-specific Flood Risk Assessment appropriate to the type and scale of the development being proposed.
Brownstown	No significant risk identified as a minimum all development proposals shall carry out a surface water and drainage assessment.
Calverstown	Development proposals for all lands within 100m of any watercourse (culverted or otherwise) shall be the subject of a site-specific Flood Risk Assessment appropriate to the type and scale of the development being proposed.
Cutbush	Development proposals for lands identified for Settlement Expansion at the eastern side of the settlement shall be the subject of a site-specific Flood Risk Assessment appropriate to the type and scale of the development being proposed.
Kilberry	Development proposals for the following lands shall be the subject of a site-specific Flood Risk Assessment appropriate to the type and scale of the development being proposed: (i) lands identified for Settlement Expansion; (ii) lands located within 100m of a recorded flood event (as shown on OPW flood maps).
Kilmead	No significant risk identified as a minimum all development proposals shall carry out a surface water and drainage assessment.
Kilteel	No significant risk identified as a minimum all development proposals shall carry out a surface water and drainage assessment.
Maddenstown	No significant risk identified as a minimum all development proposals shall carry out a surface water and drainage assessment.
Maganey/Levitstown	Development proposals for lands located within 150m of the banks of the River Barrow shall be the subject of a site-specific Flood Risk Assessment appropriate to the type and scale of the development being proposed. The lands identified for

Settlements	Recommendations
	"Settlement Expansion" at Levitstown are considered to be at significant risk of flooding. The development strategy proposal for these lands should be the subject of a Level 3 Site Specific FRA to inform the application of the Sequential Approach to this decision making process.
Milltown	Development proposals for lands located within 75m of the Grand Canal Feeder shall be the subject of a site-specific Flood Risk Assessment appropriate to the type and scale of the development being proposed.
Moyvalley	Development proposals for all lands within the boundary of the plan shall be the subject of a site-specific Flood Risk Assessment appropriate to the type and scale of the development being proposed.
Narraghmore	Development proposals for lands located west and south-west of the Settlement Core shall be the subject of a site-specific Flood Risk Assessment appropriate to the type and scale of the development being proposed.
Nurney	Development proposals for lands located within 100m of the river flowing through Nurney shall be the subject of a site-specific Flood Risk Assessment appropriate to the type and scale of the development being proposed.
Rathcoffey	Development proposals for lands identified for Settlement Expansion and for lands identified as Existing Settlement located south thereof shall be the subject of a site-specific Flood Risk Assessment appropriate to the type and scale of the development being proposed.
Rathmore/Eadestown	Development proposals for the following lands shall be the subject of a site-specific Flood Risk Assessment appropriate to the type and scale of the development being proposed: (i) lands in Rathmore located within 50m of a watercourse; (ii) lands in Eadestown identified for Settlement Expansion.
Staplestown	Development proposals for the following lands shall be the subject of a site-specific Flood Risk Assessment appropriate to the type and scale of the development being proposed: (i) lands identified for Settlement Expansion; (ii) development incorporating lands located within 75m of the banks of the River.
Twomilehouse	Development proposals for lands located within 50m of watercourses shall be the subject of a site-specific Flood Risk Assessment appropriate to the type and scale of the development being proposed.

APPENDIX B

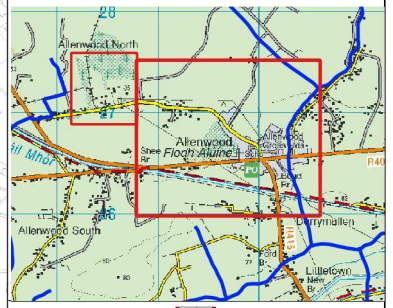
IDENTIFIED LOCATIONS FOR SITE-SPECIFIC FLOOD RISK ASSESSMENTS

Contents

TOWN ENVIRONS / TOWNS / VILLAGES / SETTLEMENTS WITH AMENDED LOCATIONS FOR SITE-SPECIFIC FRA

Legend

Development proposals for lands outlined thus are to be the subject of site-specific Flood Risk Assessment appropriate to the type and scale of the development being proposed.



Kildare County Council
Comhairle Contae Chill Dara

Project

Strategic Flood Risk Assessment

Title

Allenwood

Figure 1.0

RPS Consulting Engineers
West Pier Business Campus
Dun Laoghaire
Co. Dublin
Tel: +353 1 488 2900
Fax: +353 1 462 0814

Issue Details

Drawn:	BT	**Project No.**	MDW0710
Checked:	JH	**File Ref:**	
Approved:	JH	MDW0710QG000A01	
Scale:	1:5,500 @ A3	**Map Projection:**	
Date:	15/01/2016	Irish National Grid (ING)	

Legend

Kildare County Boundary

Development proposals for lands outlined thus are to be the subject of site-specific Flood Risk Assessment appropriate to the type and scale of the development being proposed.

Kildare County Council
Comhairle Contae Chill Dara

Project

Strategic Flood Risk Assessment

Title

Blessington

Figure 2.0

RPS Consulting Engineers
West Pier Business Campus
Dun Laoghaire
Co. Dublin
Tel: +353 1 488 2900
Fax: +353 1 462 0814

Issue Details

Drawn:	BT	**Project No.**	MDW0710
Checked:	JH	**File Ref:**	
Approved:	JH	MDW0710QG0002A01	
Scale:	1:5.500 @ A3	**Map Projection:**	
Date:	15/01/2016	Irish National Grid (ING)	

Legend

Development proposals for lands outlined thus are to be the subject of site-specific Flood Risk Assessment appropriate to the type and scale of the development being proposed.

Kildare County Council
Comhairle Contae Chill Dara

Project

Strategic Flood Risk Assessment

Title

Castledermot

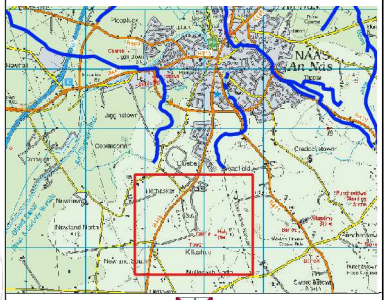
Figure 3.0

RPS Consulting Engineers
West Pier Business Campus
Dun Laoghaire
Co. Dublin
Tel: +353 1 488 2900
Fax: +353 1 462 0814

Issue Details			
Drawn:	BT	**Project No.**	MDW0710
Checked:	JH	**File Ref:**	
Approved:	JH		MDW0710QG0003A01
Scale:	1:6,100 @ A3	**Map Projection:**	
Date:	15/01/2016		Irish National Grid (ING)

Legend

Development proposals for lands outlined thus are to be the subject of site-specific Flood Risk Assessment appropriate to the type and scale of the development being proposed.



Kildare County Council
Comhairle Contae Chill Dara

Project

Strategic Flood Risk Assessment

Title

Naas Enviorns - South

Figure 4.0

RPS Consulting Engineers
West Pier Business Campus
Dun Laoghaire
Co. Dublin
Tel: +353 1 488 2900
Fax: +353 1 462 0814

Issue Details

Drawn:	BT	**Project No.**	MDW0710
Checked:	JH	**File Ref:**	
Approved:	JH		MDW0710QG0004A01
Scale:	1:6,000 @ A3	**Map Projection:**	
Date:	15/01/2016		Irish National Grid (ING)

Legend

Kildare County Boundary

Development proposals for lands outlined thus are to be the subject of site-specific Flood Risk Assessment appropriate to the type and scale of the development being proposed.

Kildare County Council
Comhairle Condae Chill Dara

Project

Strategic Flood Risk Assessment

Title

Johnstownbridge

Figure 5.0

RPS Consulting Engineers
West Pier Business Campus
Dun Laoghaire
Co. Dublin
Tel: +353 1 488 2900
Fax: +353 1 462 0814

Issue Details

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Approved:	JH		
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Date:	18/02/2016		

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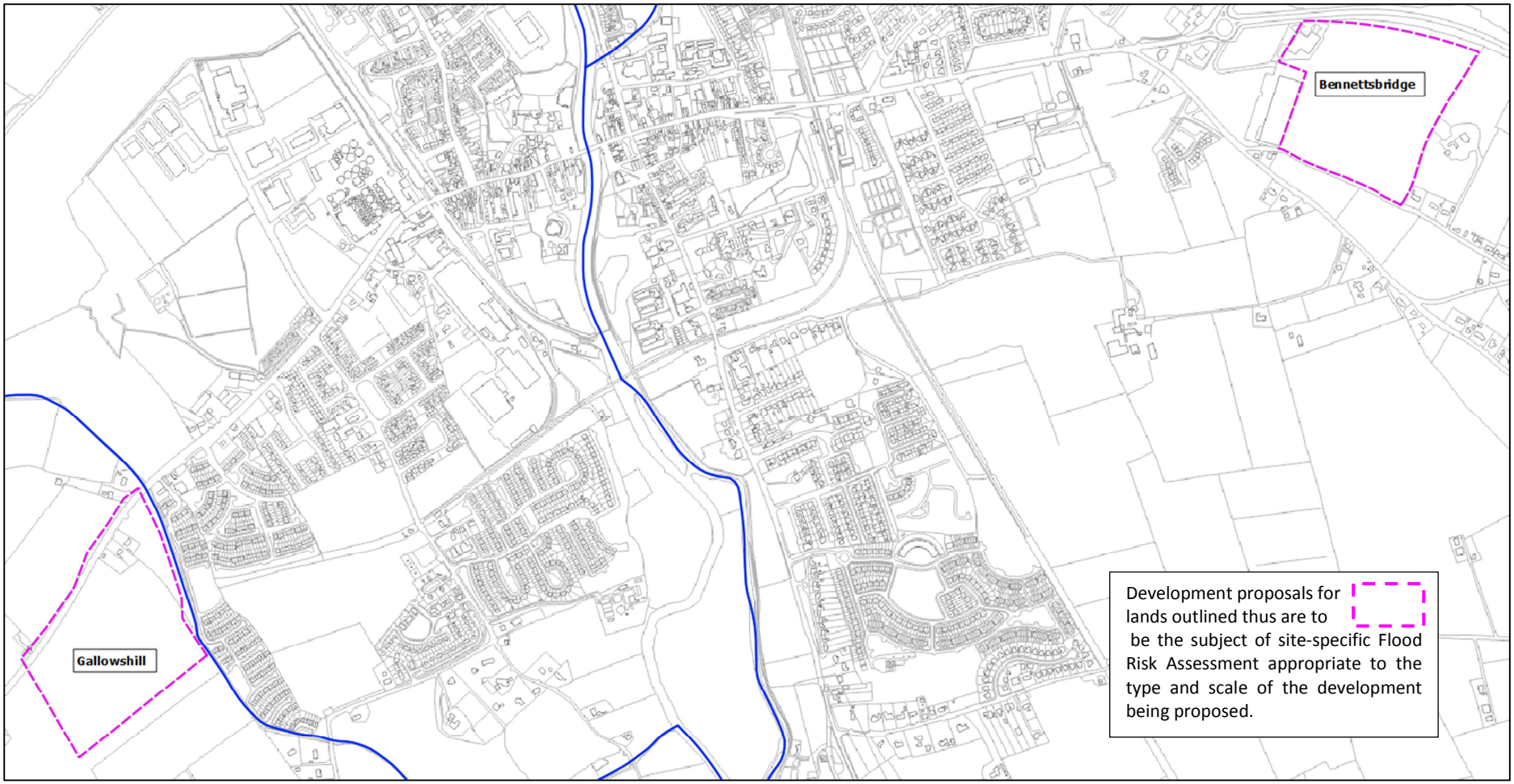
TOWN ENVIRONS WITH RETAINED LOCATIONS FOR SITE-SPECIFIC FRAS


Bennettsbridge
Gallowshill
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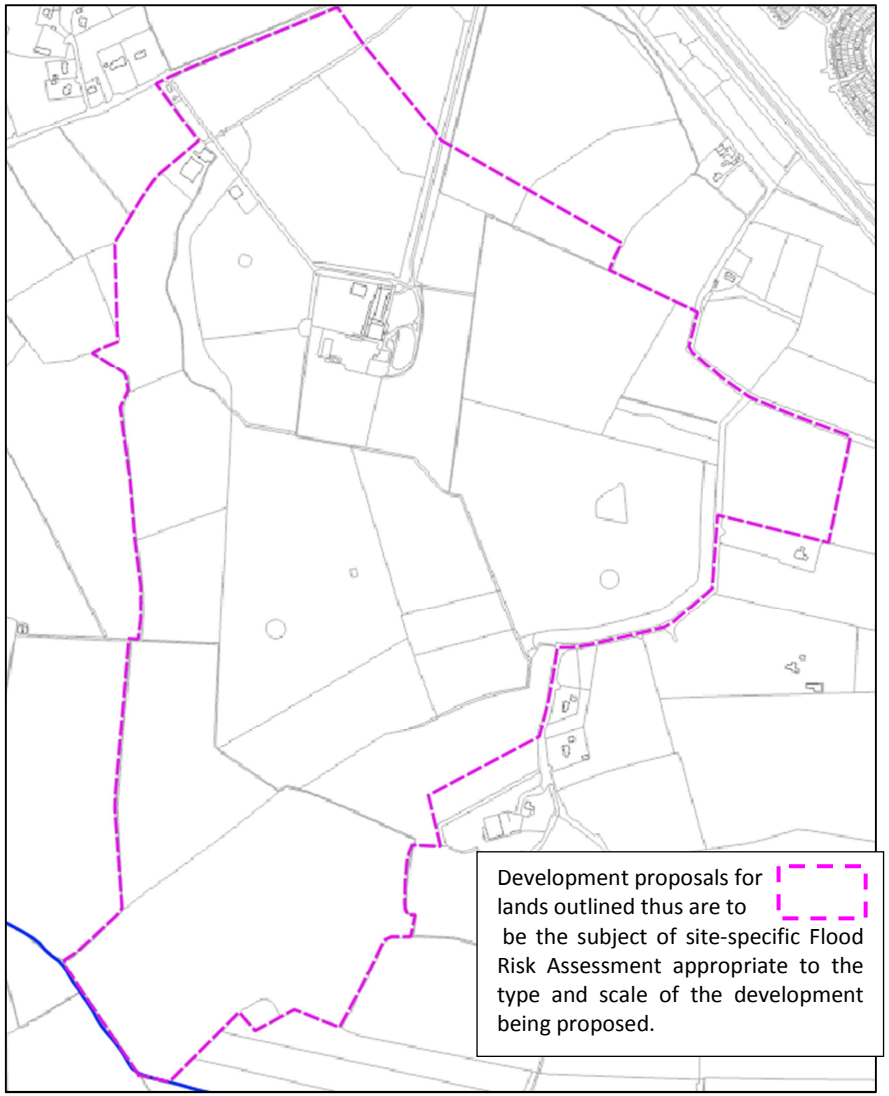
Athy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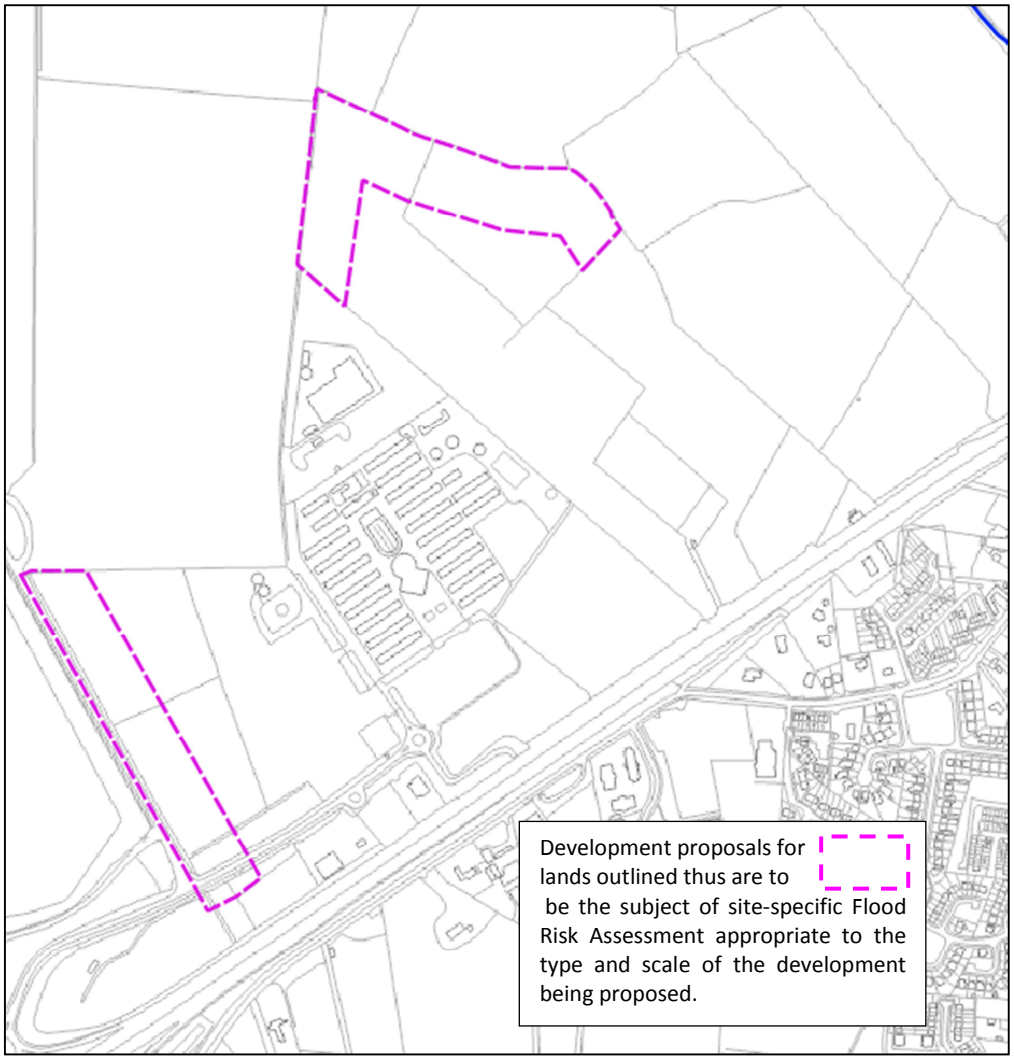
Kilcock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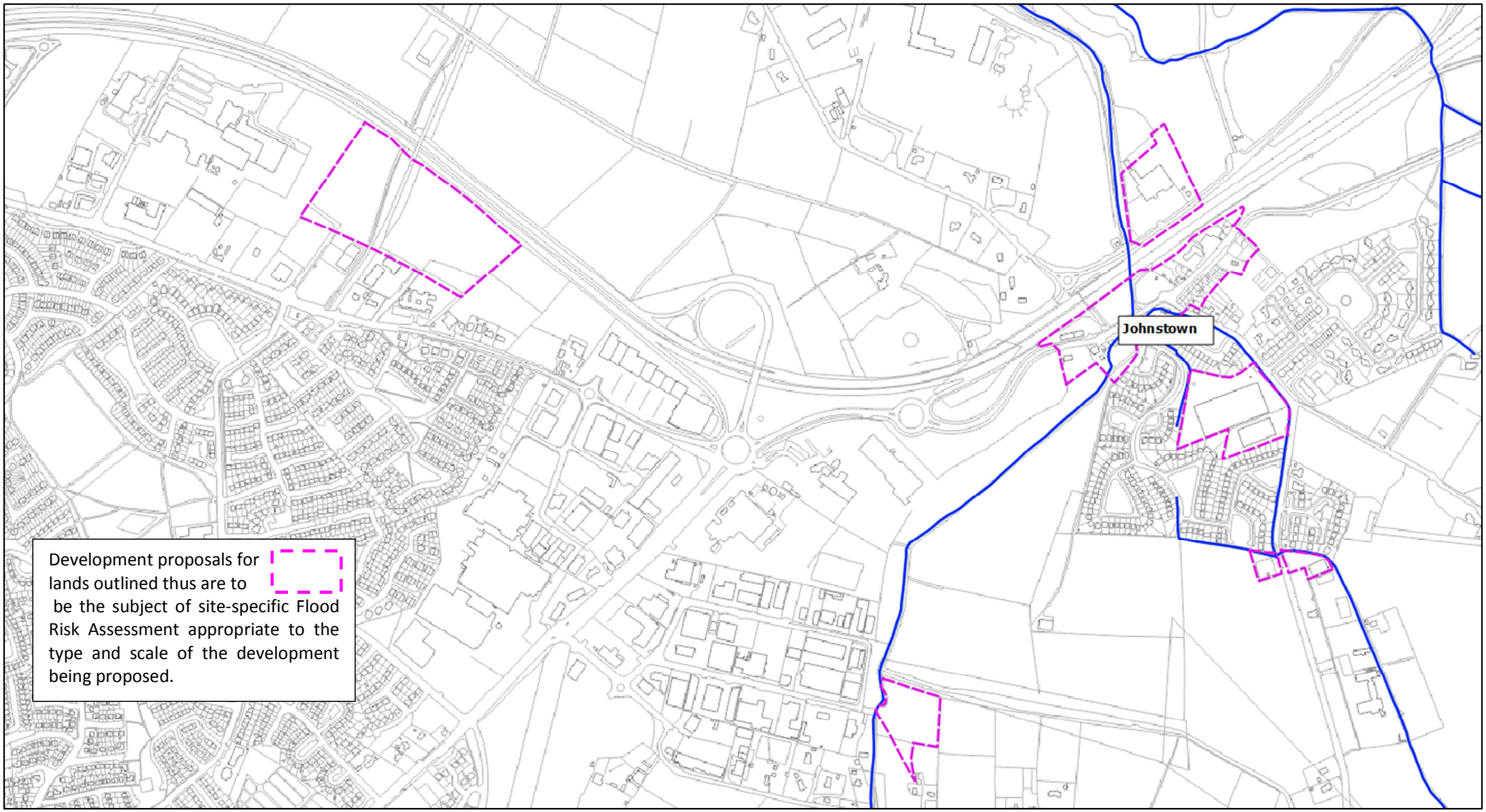
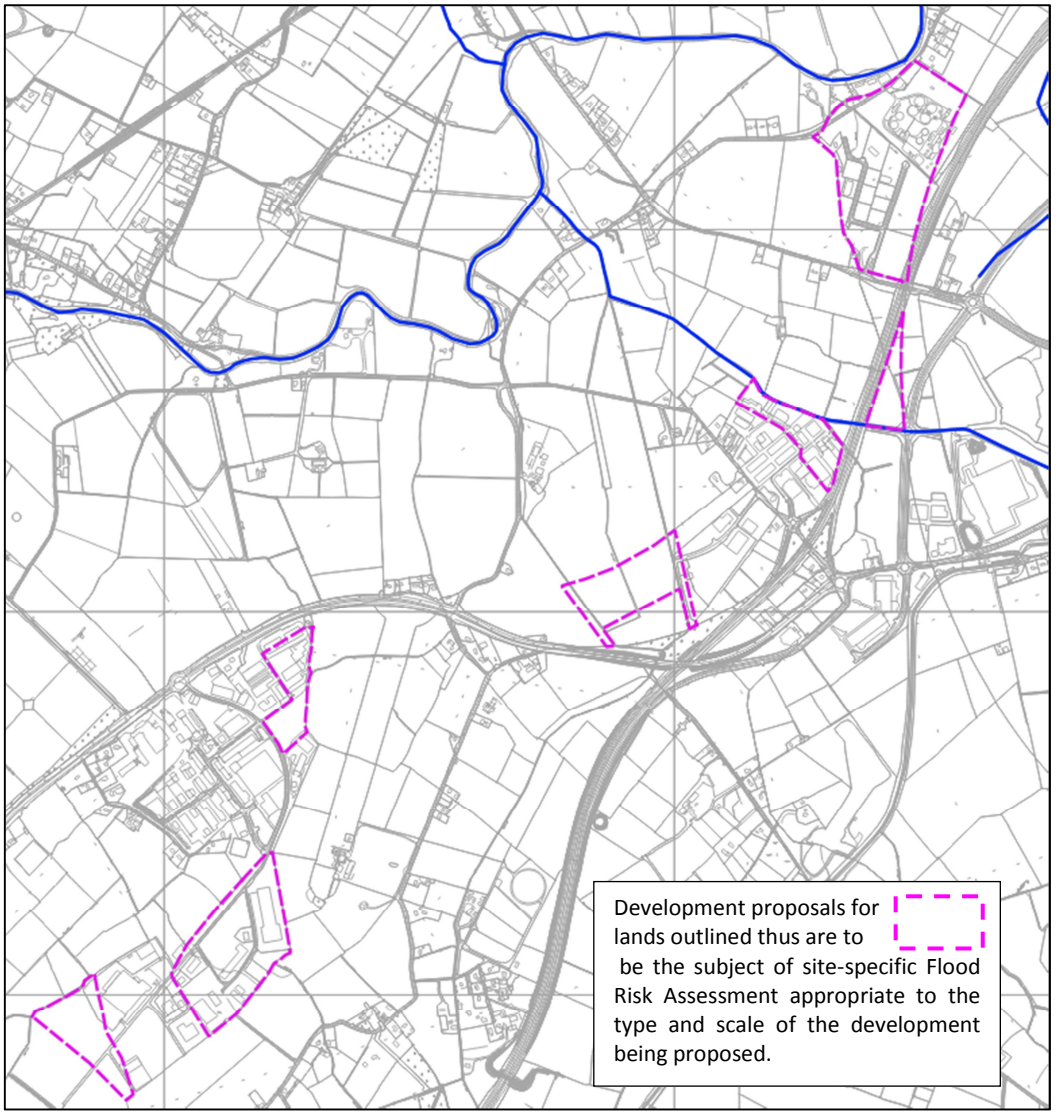
Kill

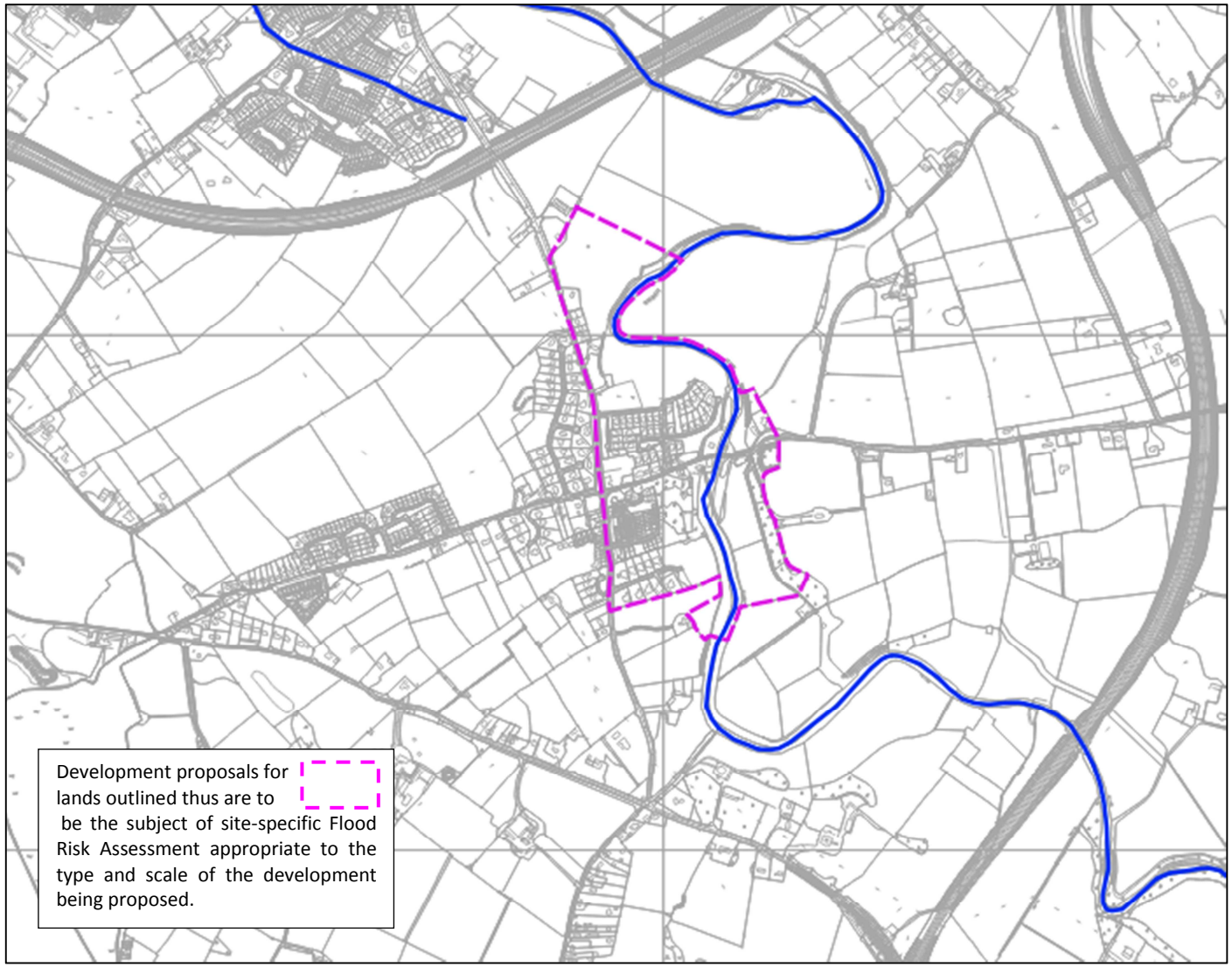


Naas Environs – North



Naas Environs – West

TOWNS WITH RETAINED LOCATIONS FOR SITE-SPECIFIC FRAS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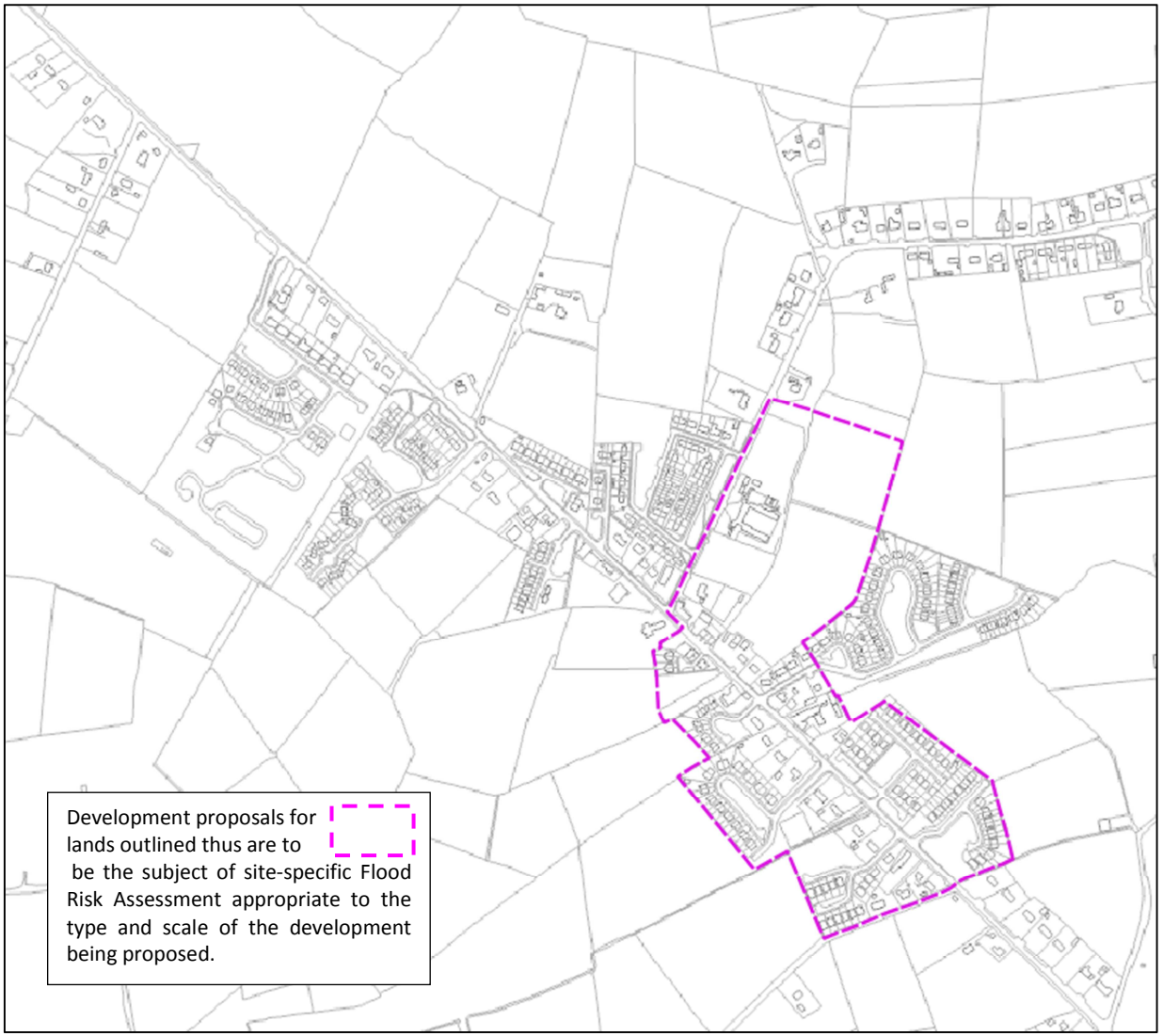
Athgarvan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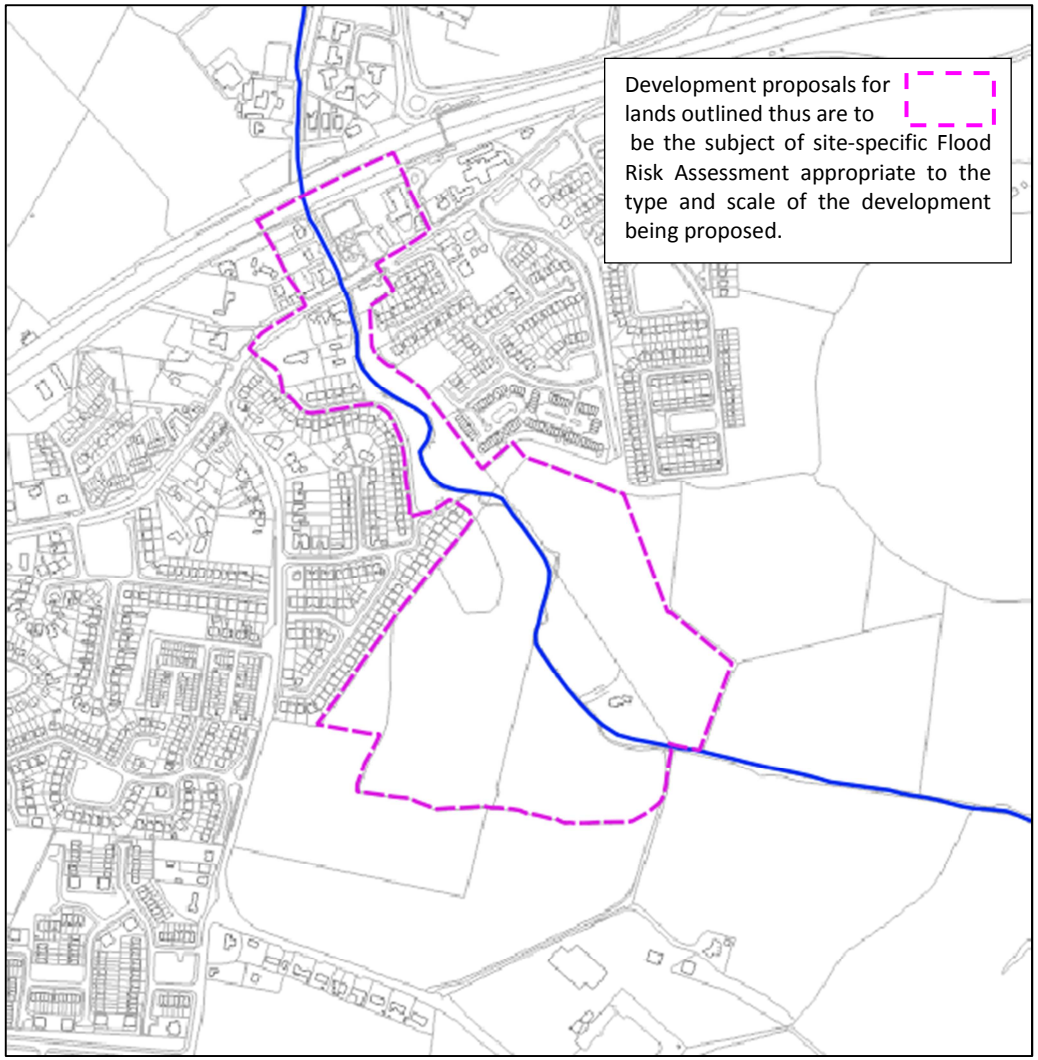
Derrinturn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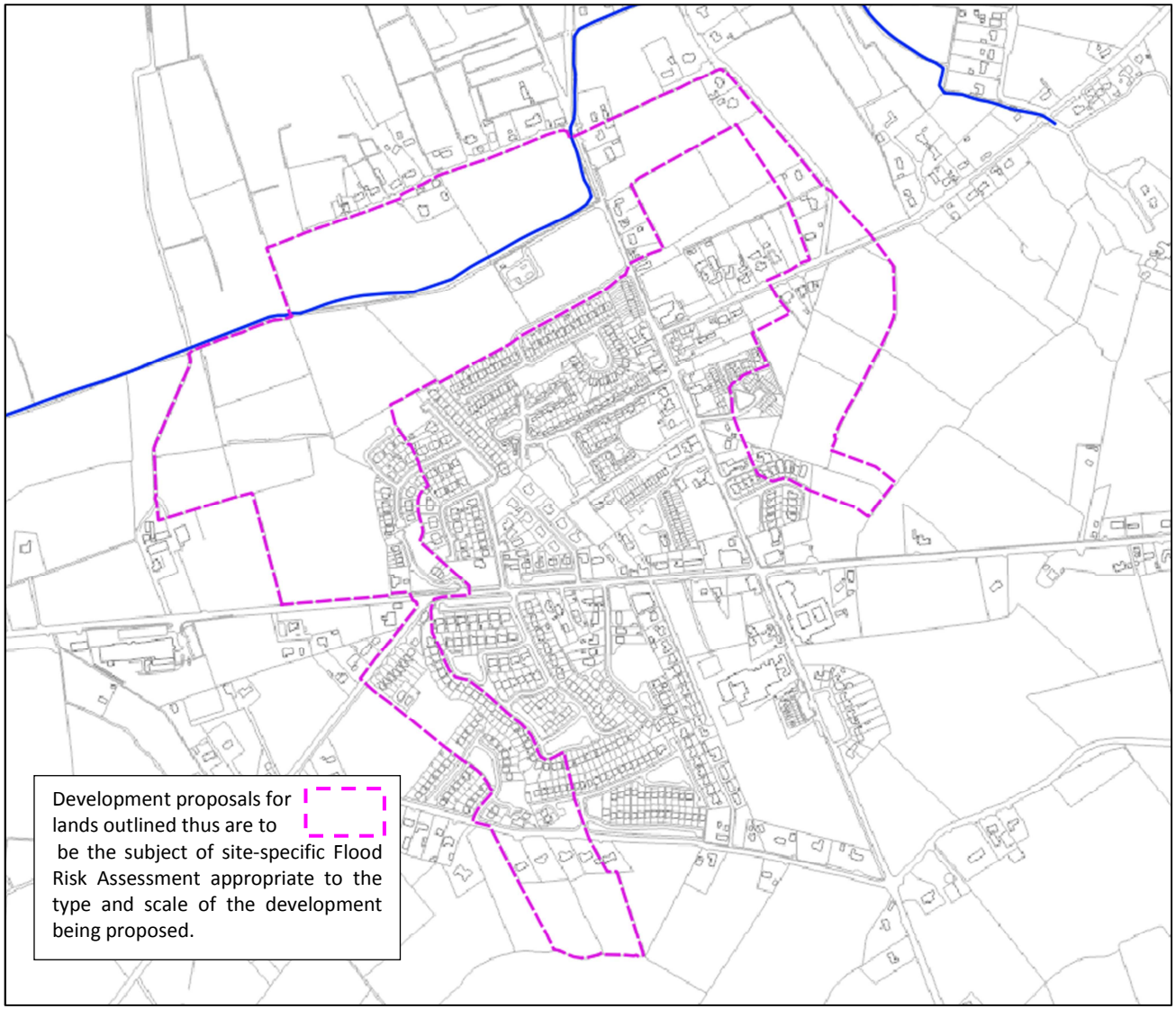
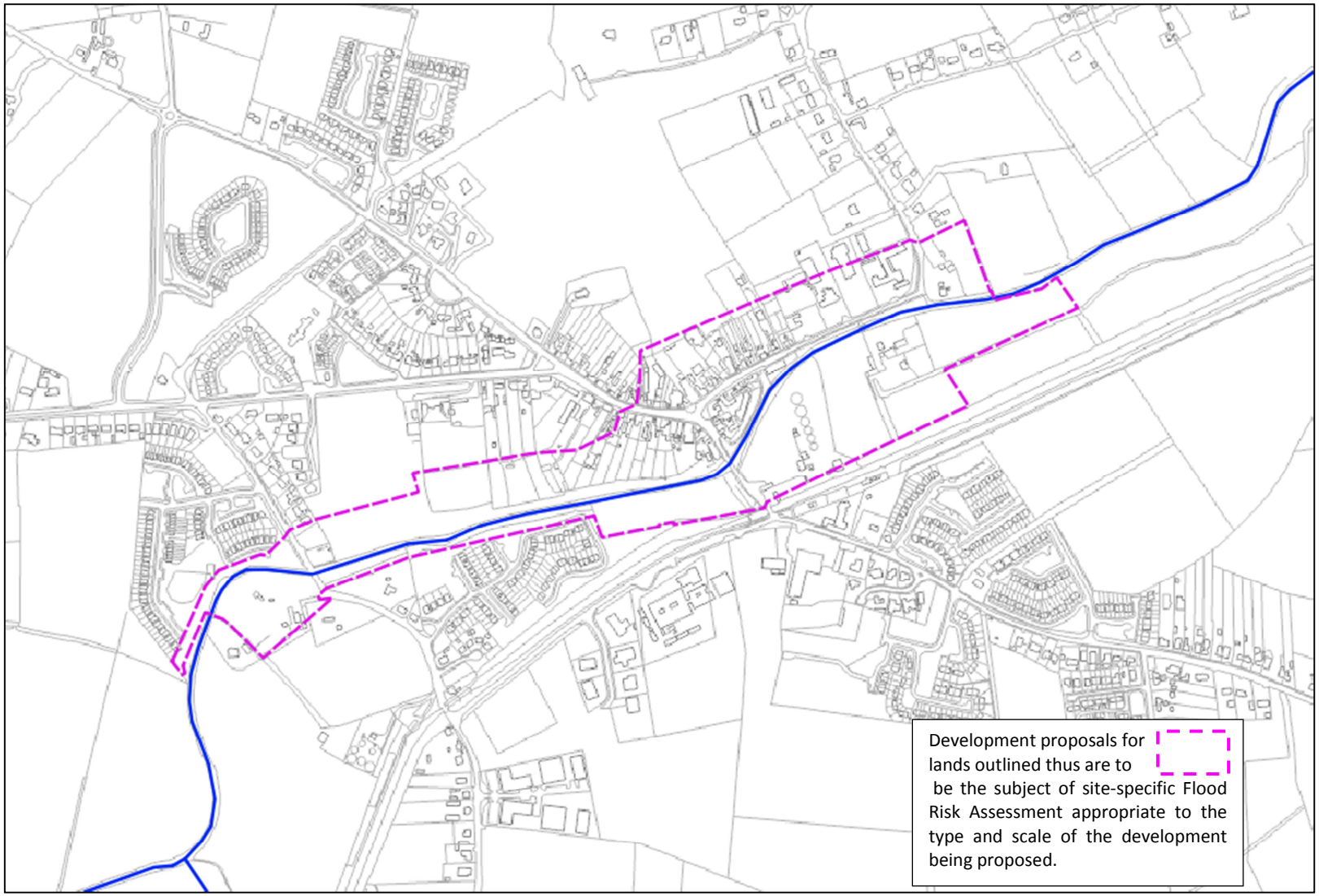
Kill

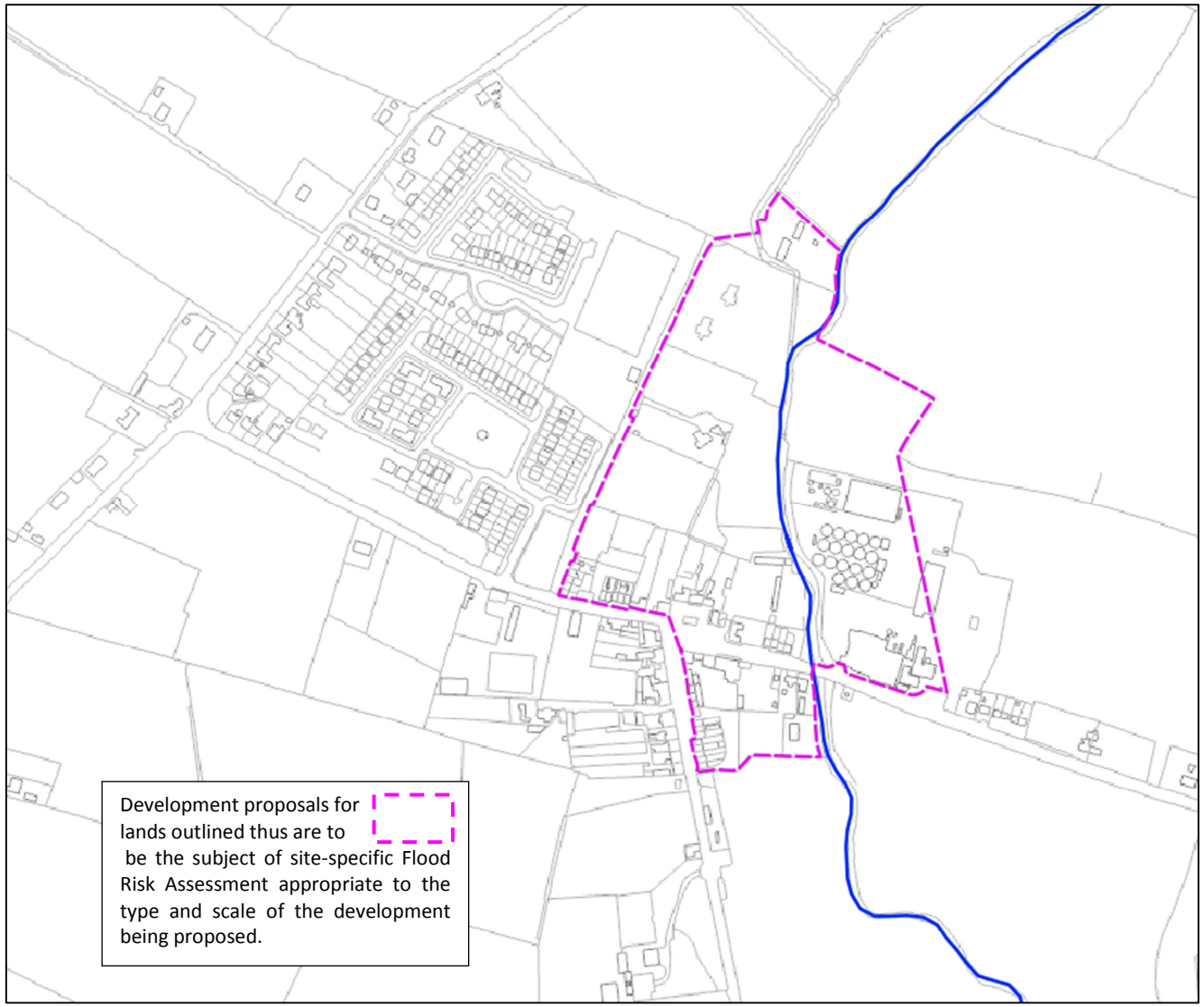

Development proposals for lands outlined thus are to be the subject of site-specific Flood Risk Assessment appropriate to the type and scale of the development being proposed.

Prosperous

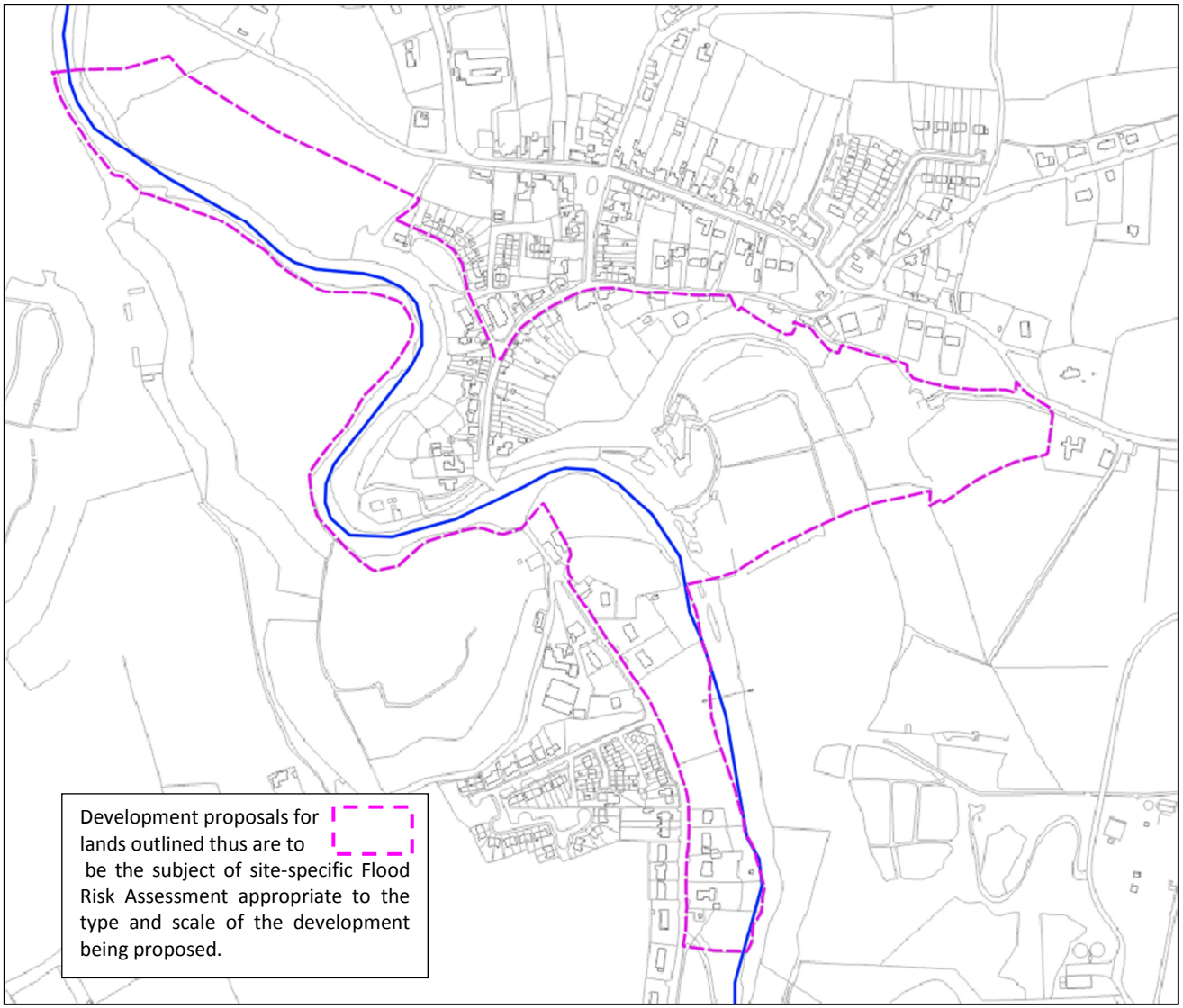

Development proposals for lands outlined thus are to be the subject of site-specific Flood Risk Assessment appropriate to the type and scale of the development being proposed.

Rathangan

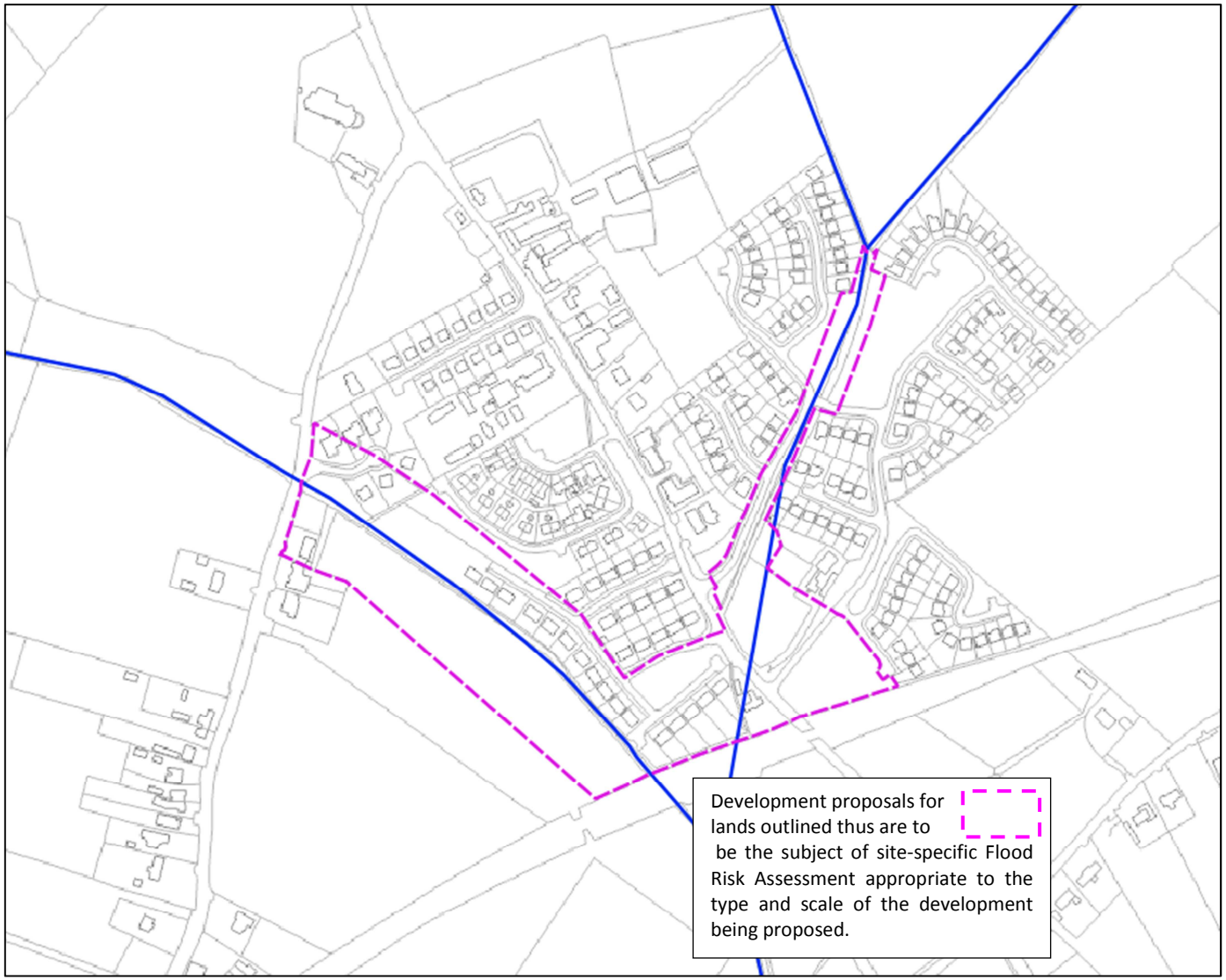
VILLAGES WITH RETAINED LOCATIONS FOR SITE-SPECIFIC FRAS


Development proposals for lands outlined thus are to be the subject of site-specific Flood Risk Assessment appropriate to the type and scale of the development being proposed.

Ballitore



Ballymore Eustace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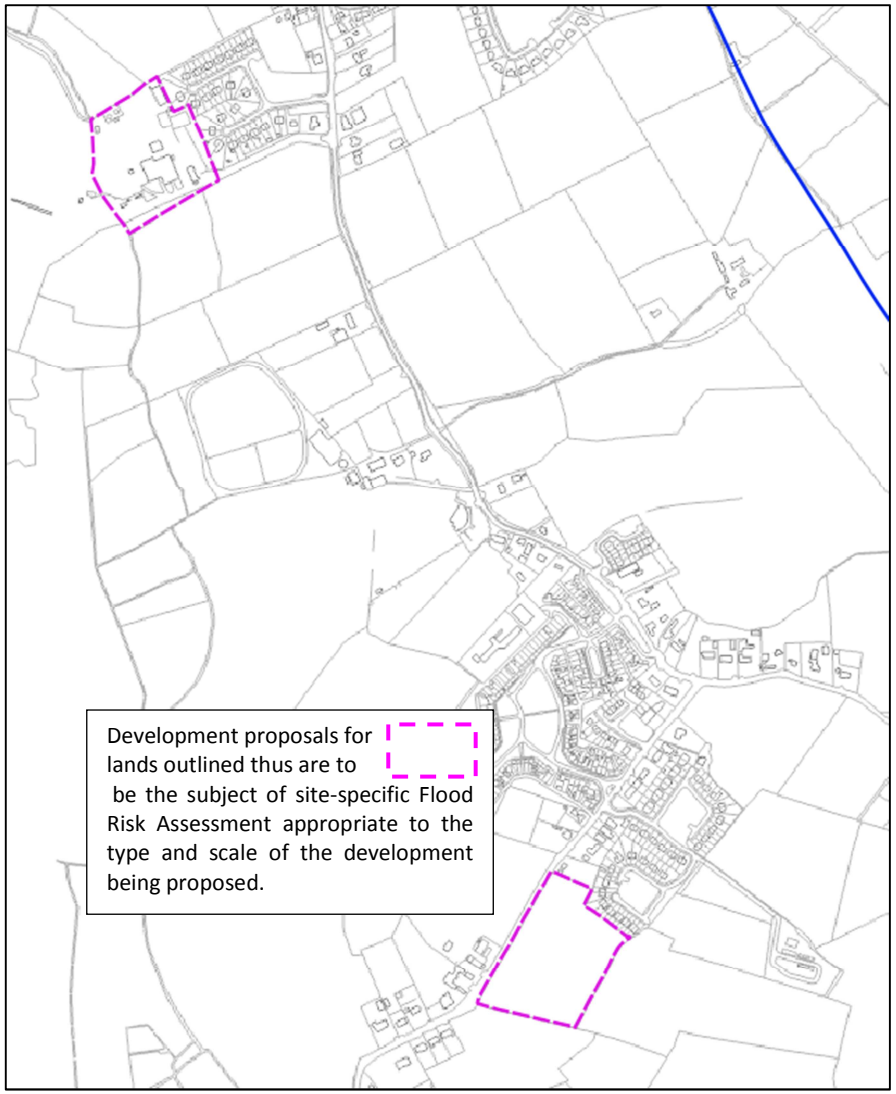
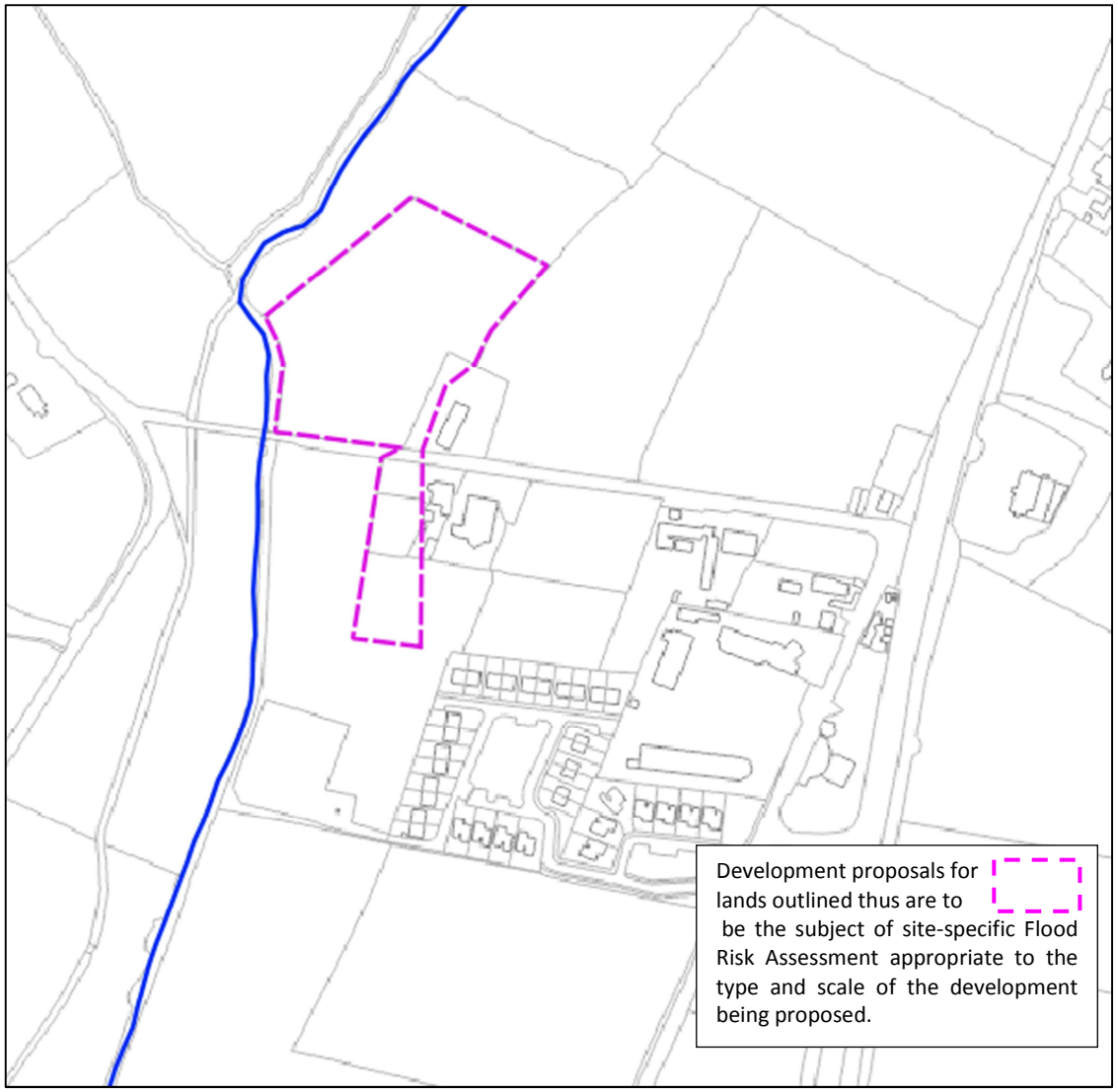
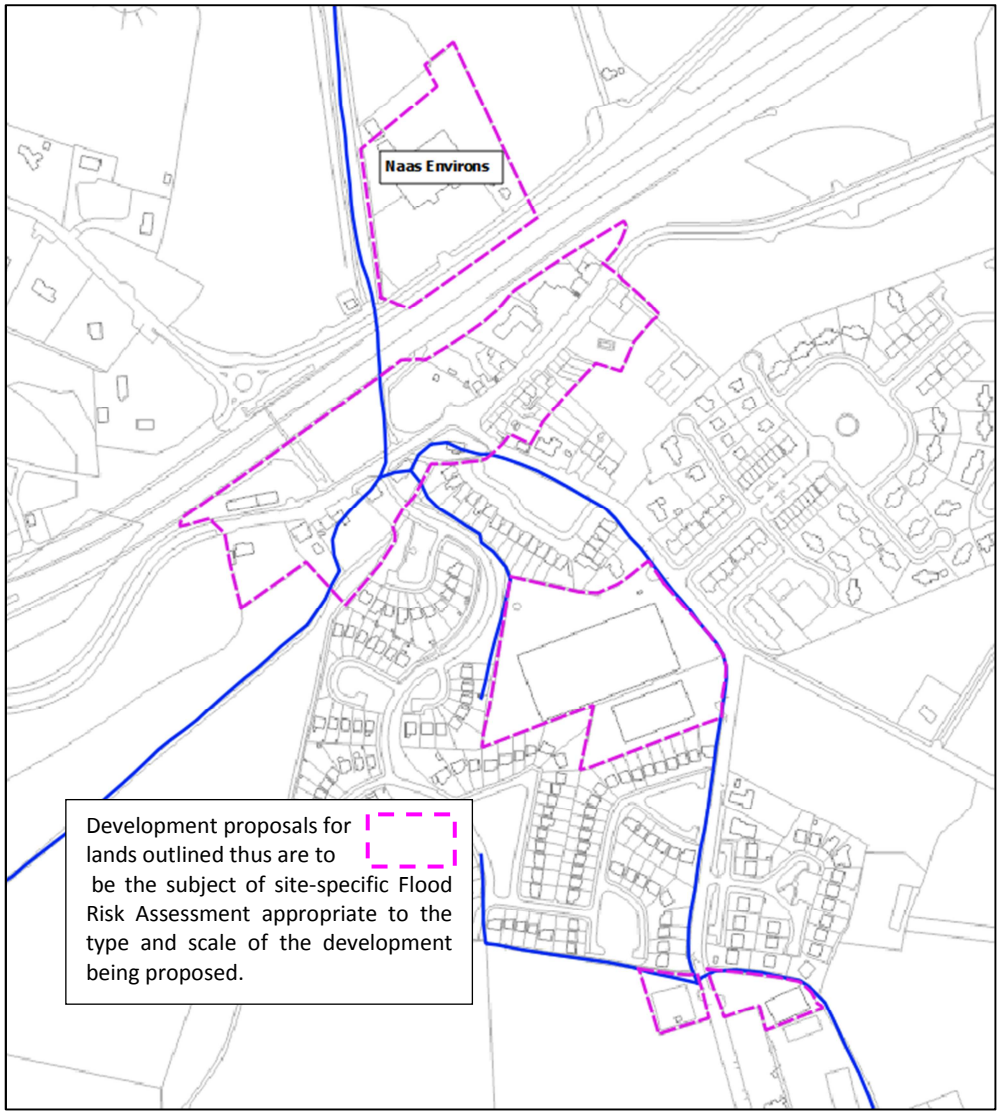
Caragh



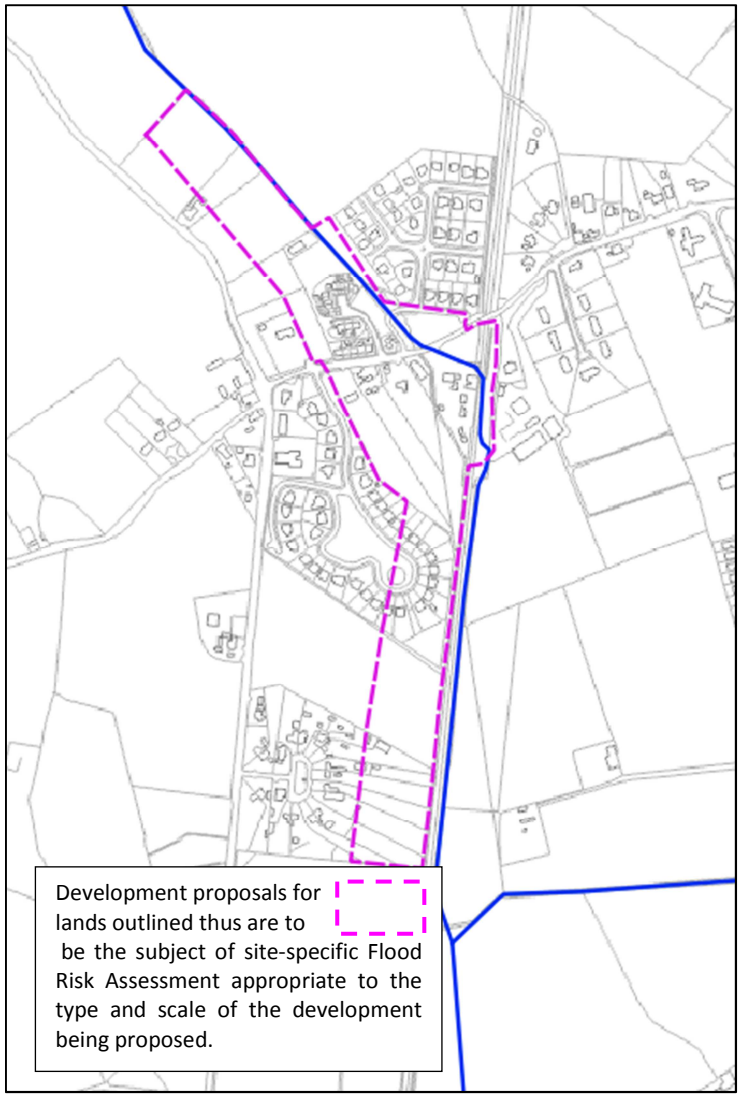
Coill Dubh / Cooleragh


Development proposals for lands outlined thus are to be the subject of site-specific Flood Risk Assessment appropriate to the type and scale of the development being proposed.

Crookstown


Naas Environs
Development proposals for lands outlined thus are to be the subject of site-specific Flood Risk Assessment appropriate to the type and scale of the development being proposed.

Johnstown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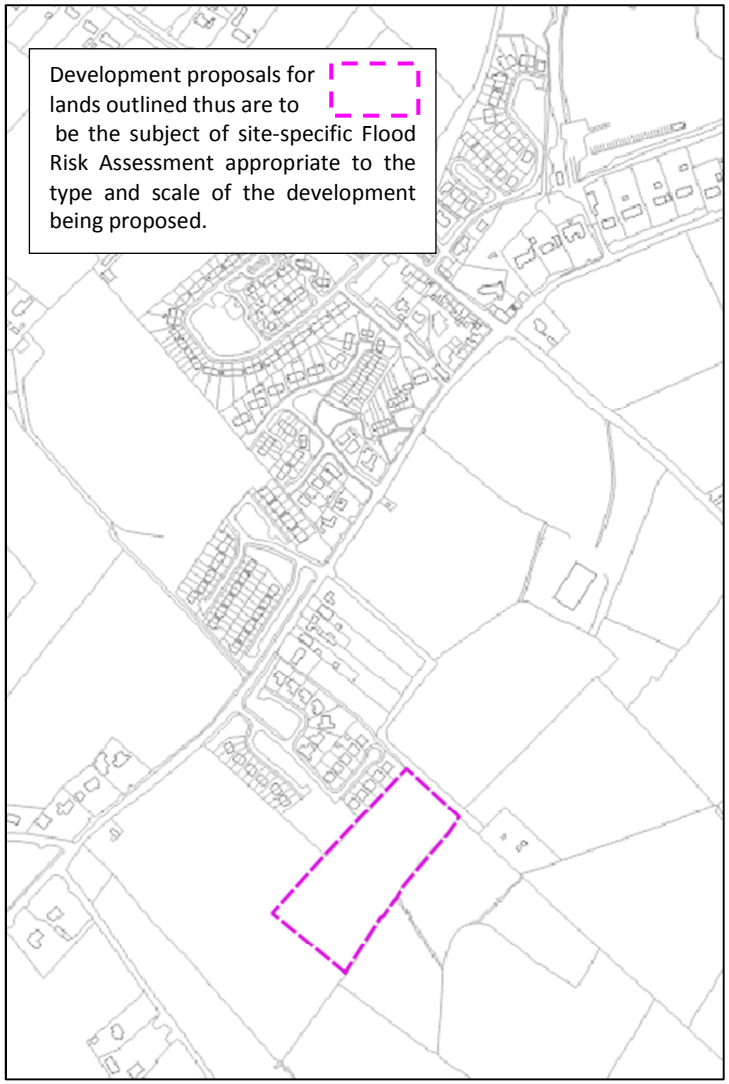
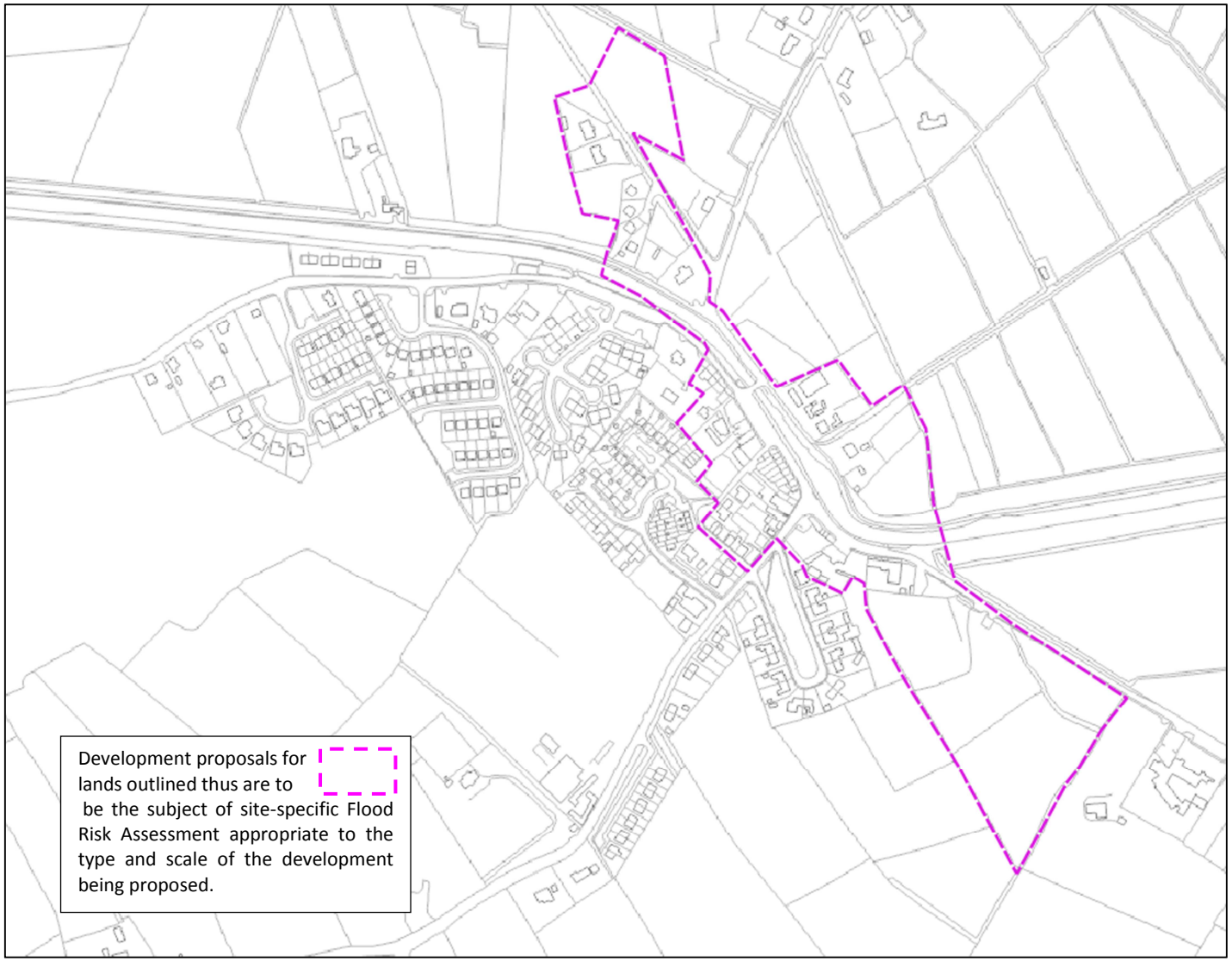
Kildangan


Development proposals for lands outlined thus are to be the subject of site-specific Flood Risk Assessment appropriate to the type and scale of the development being proposed.

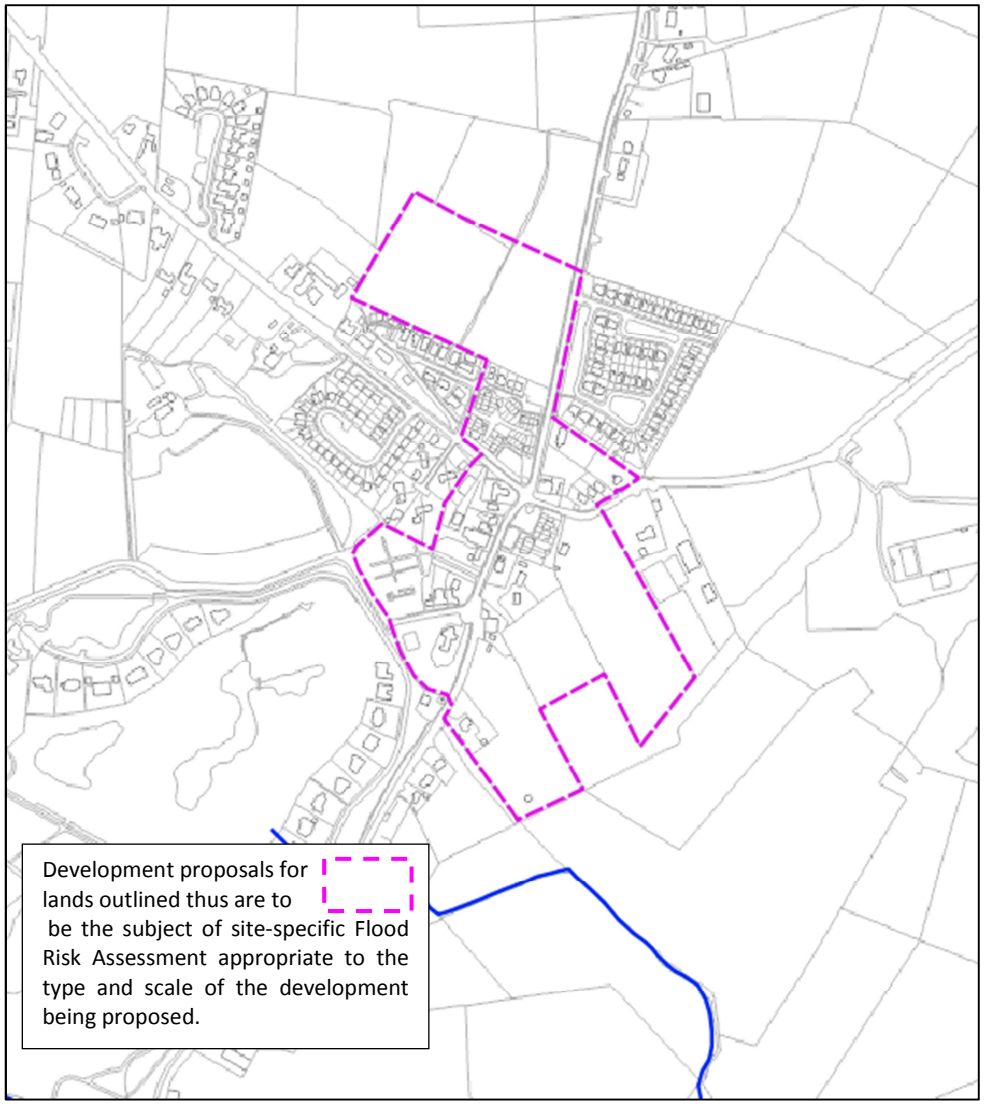
Kilmeague


Development proposals for lands outlined thus are to be the subject of site-specific Flood Risk Assessment appropriate to the type and scale of the development being proposed.

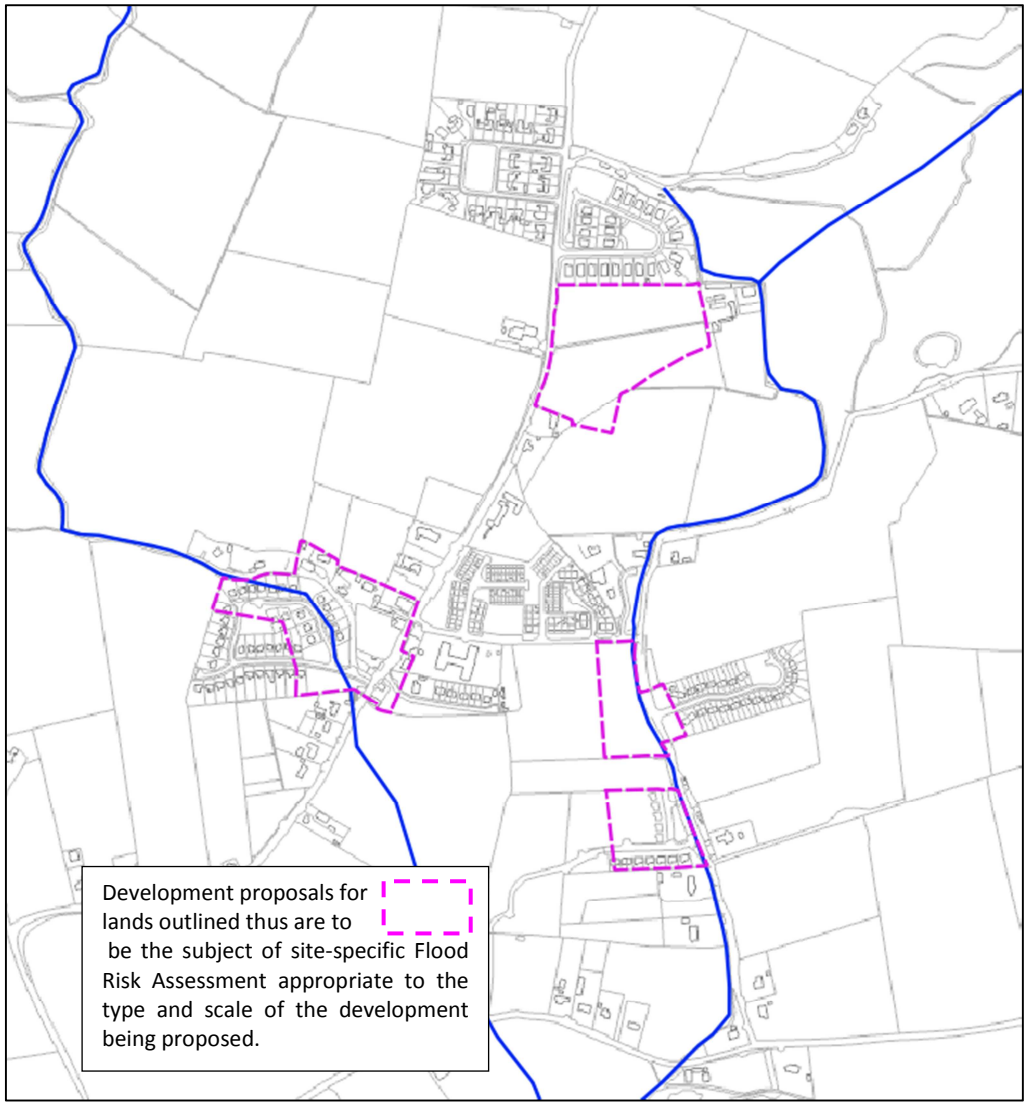
Moone



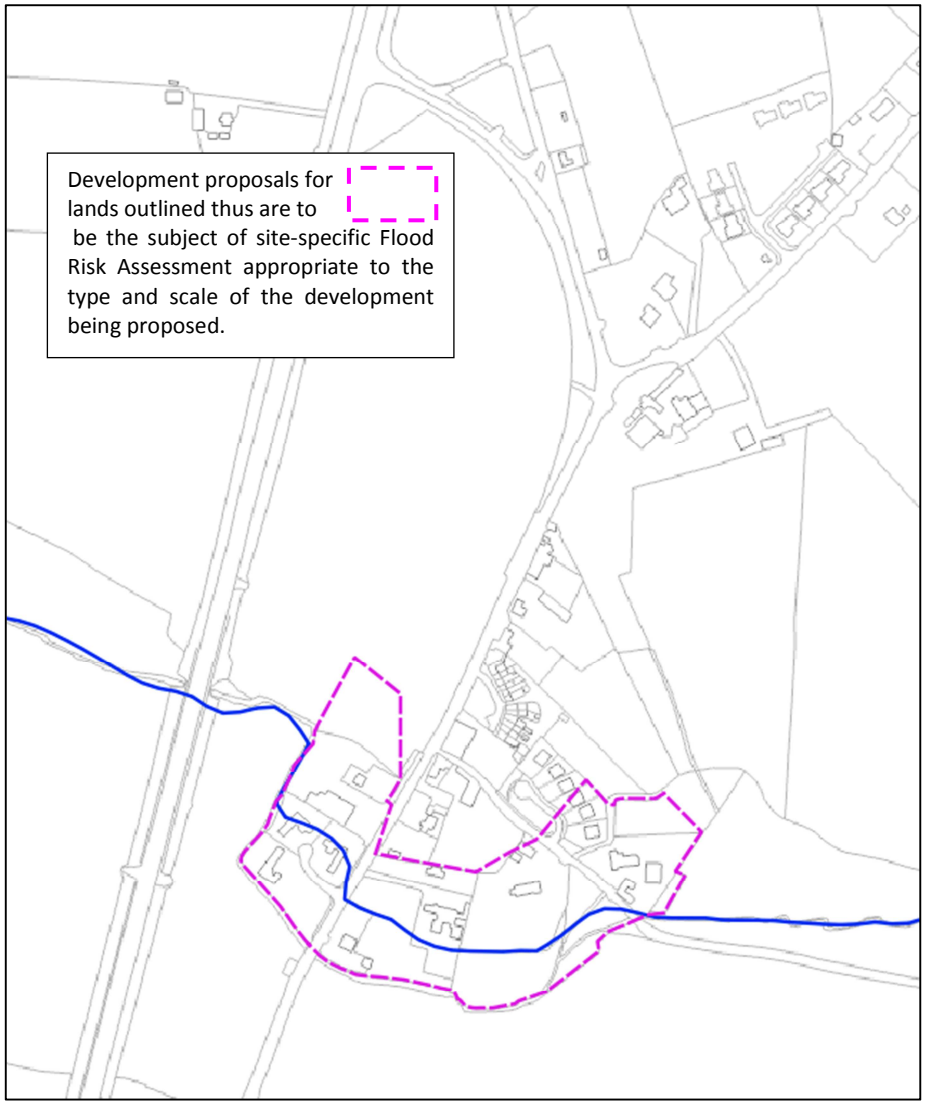
Robertstown


Development proposals for lands outlined thus are to be the subject of site-specific Flood Risk Assessment appropriate to the type and scale of the development being proposed.

Straffan

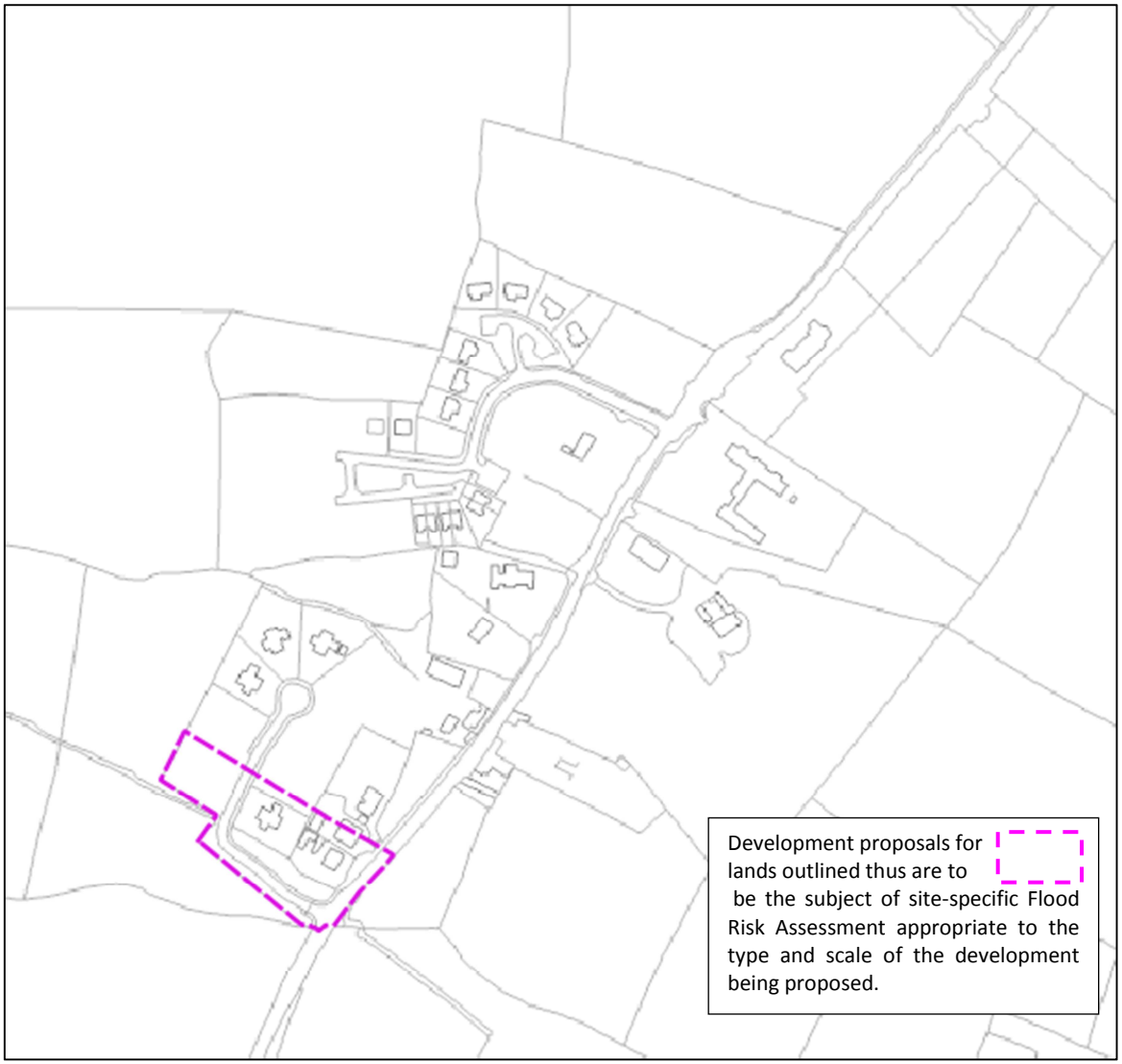

Development proposals for lands outlined thus are to be the subject of site-specific Flood Risk Assessment appropriate to the type and scale of the development being proposed.

Suncroft

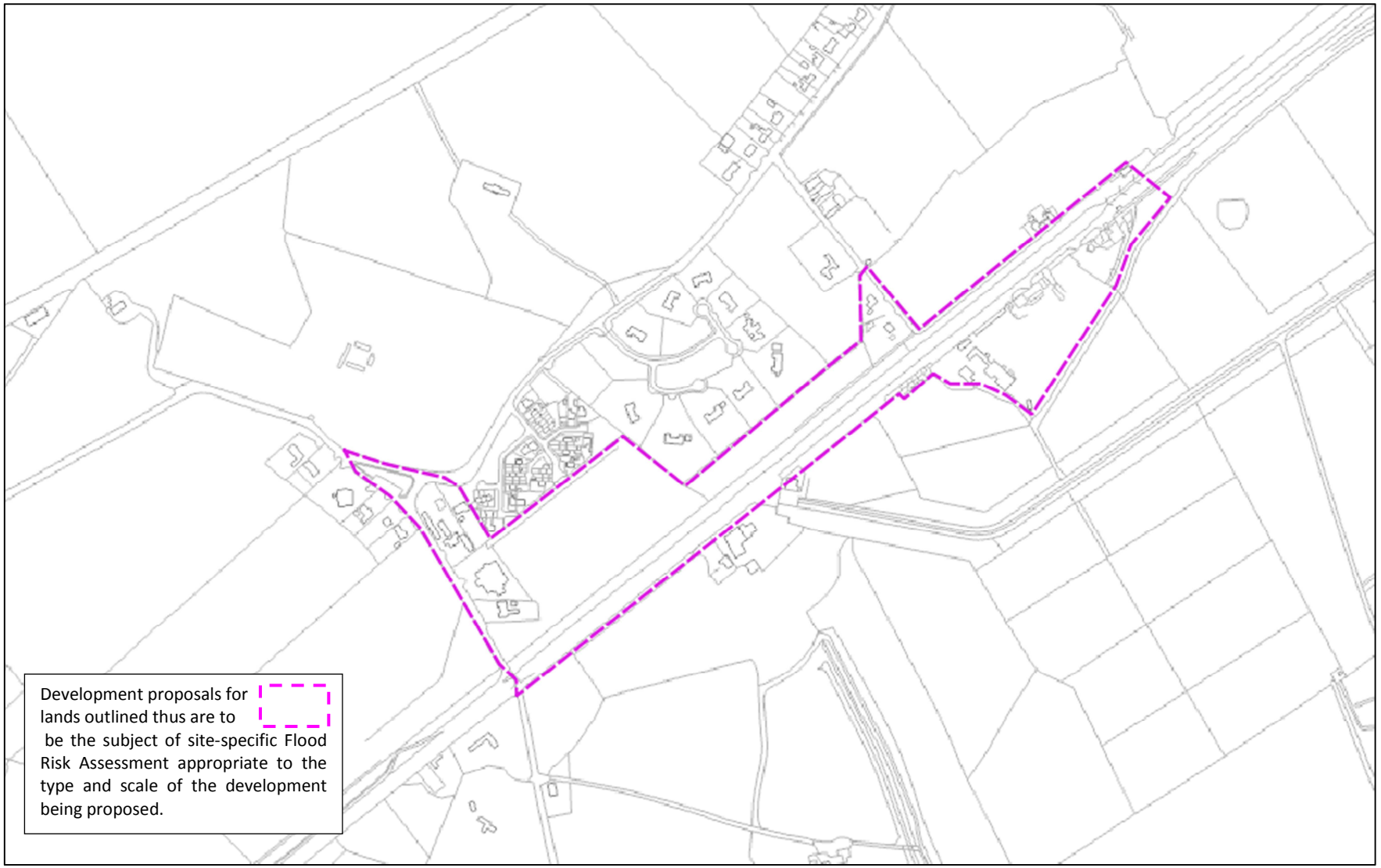

Development proposals for lands outlined thus are to be the subject of site-specific Flood Risk Assessment appropriate to the type and scale of the development being proposed.

Timolin

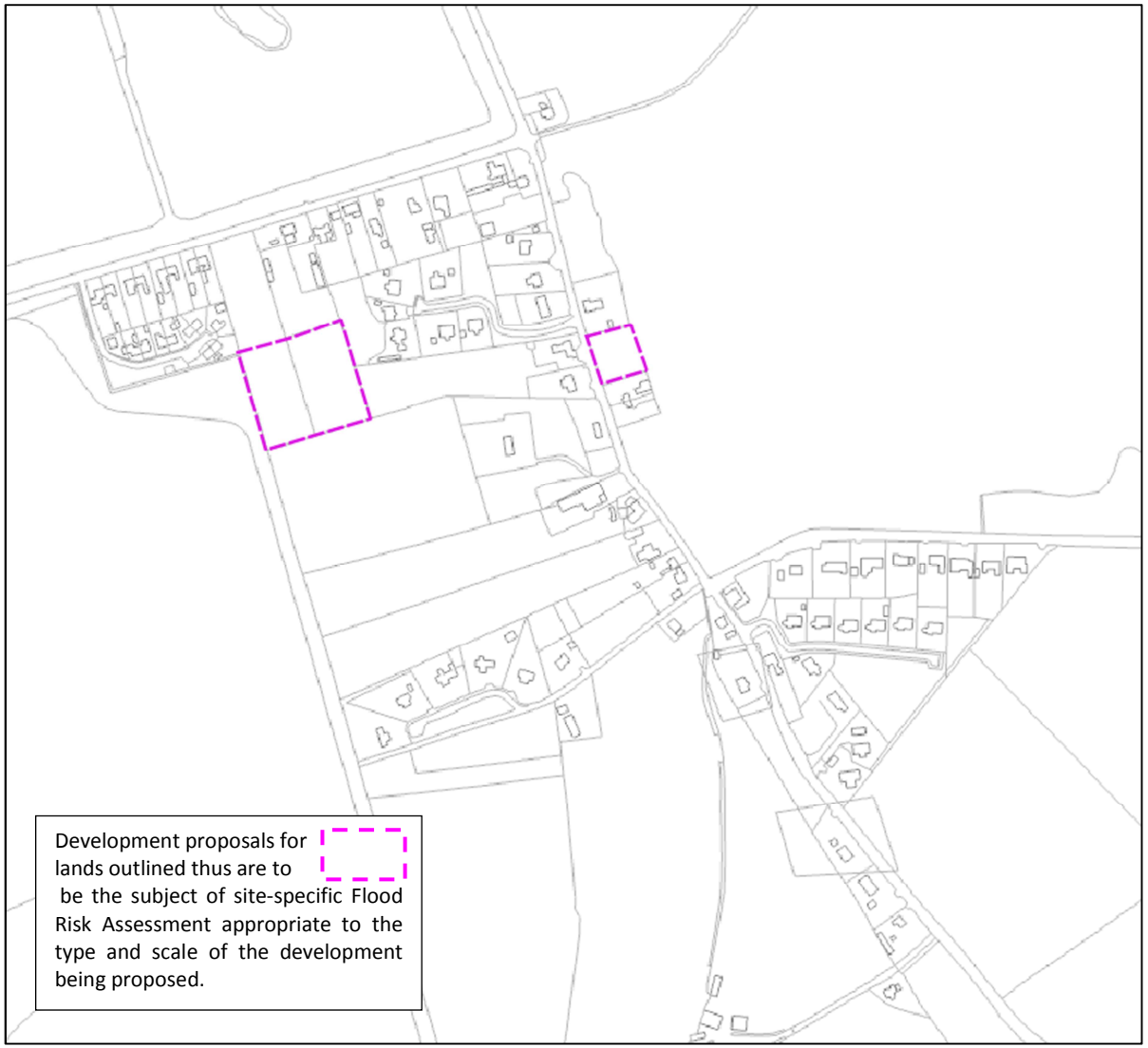
SETTLEMENTS WITH RETAINED LOCATIONS FOR SITE-SPECIFIC FRAS


Development proposals for lands outlined thus are to be the subject of site-specific Flood Risk Assessment appropriate to the type and scale of the development being proposed.

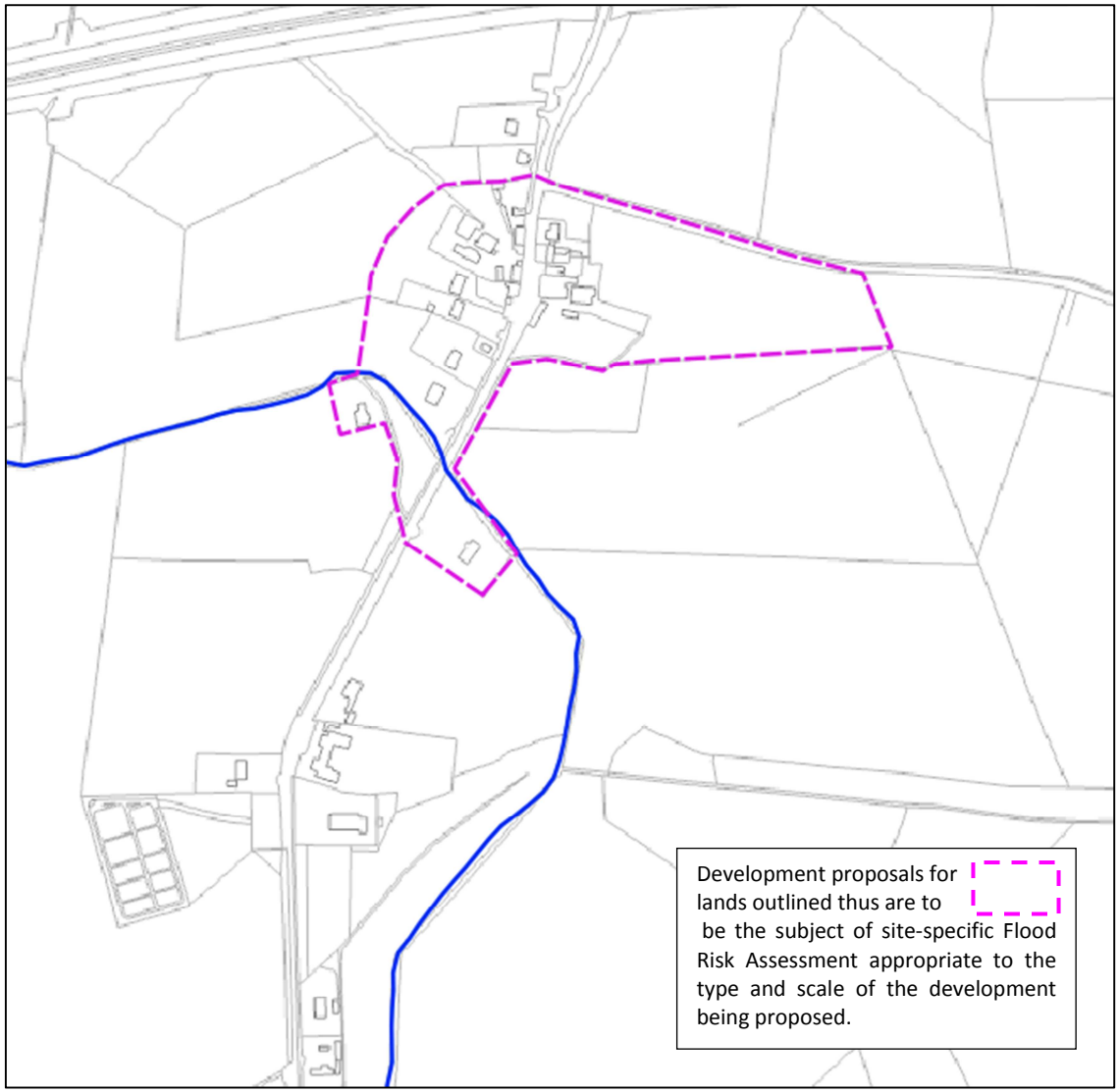
Allen


Development proposals for lands outlined thus are to be the subject of site-specific Flood Risk Assessment appropriate to the type and scale of the development being proposed.

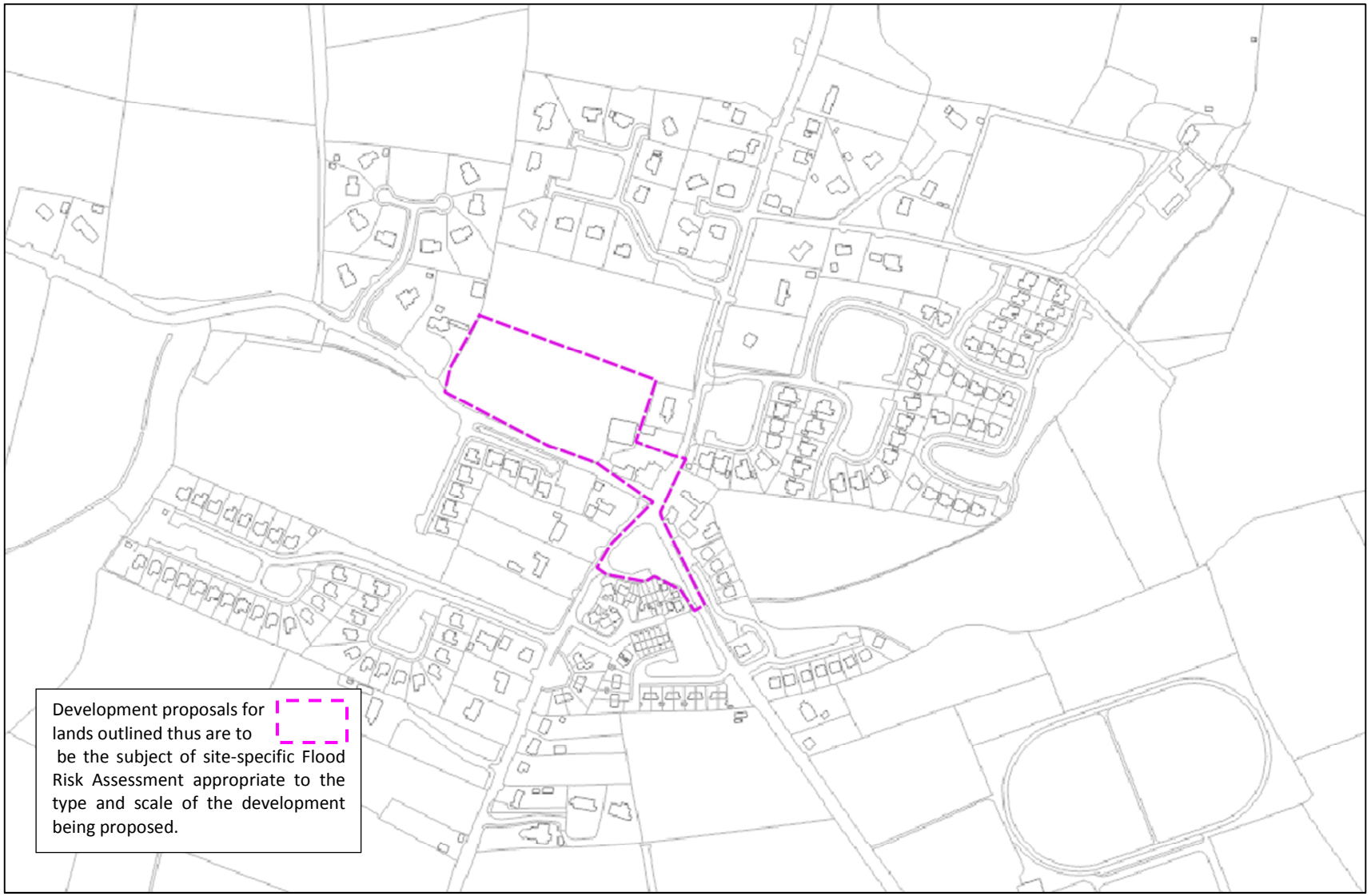
Ardclough



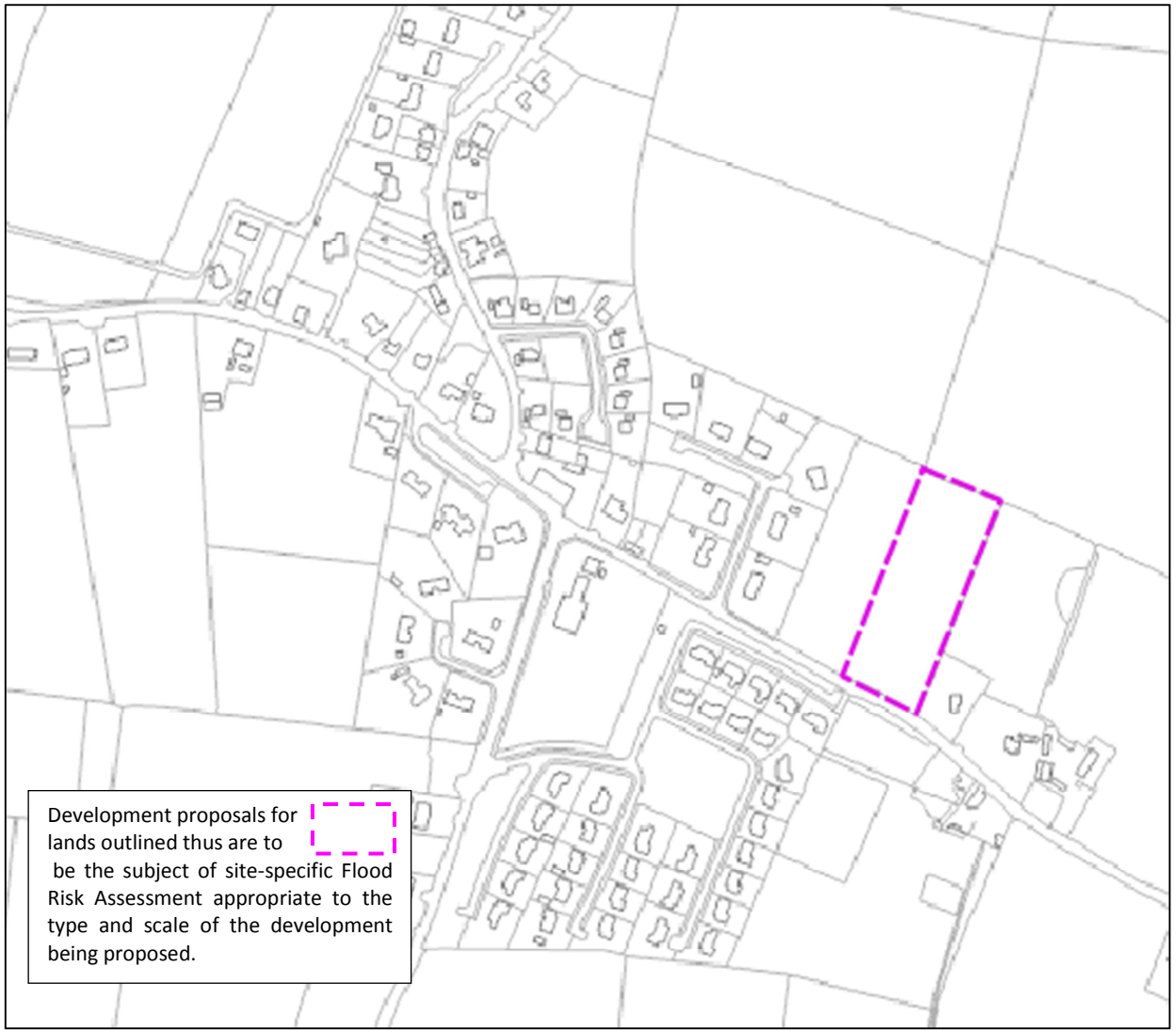
Brannockstown


Development proposals for lands outlined thus are to be the subject of site-specific Flood Risk Assessment appropriate to the type and scale of the development being proposed.

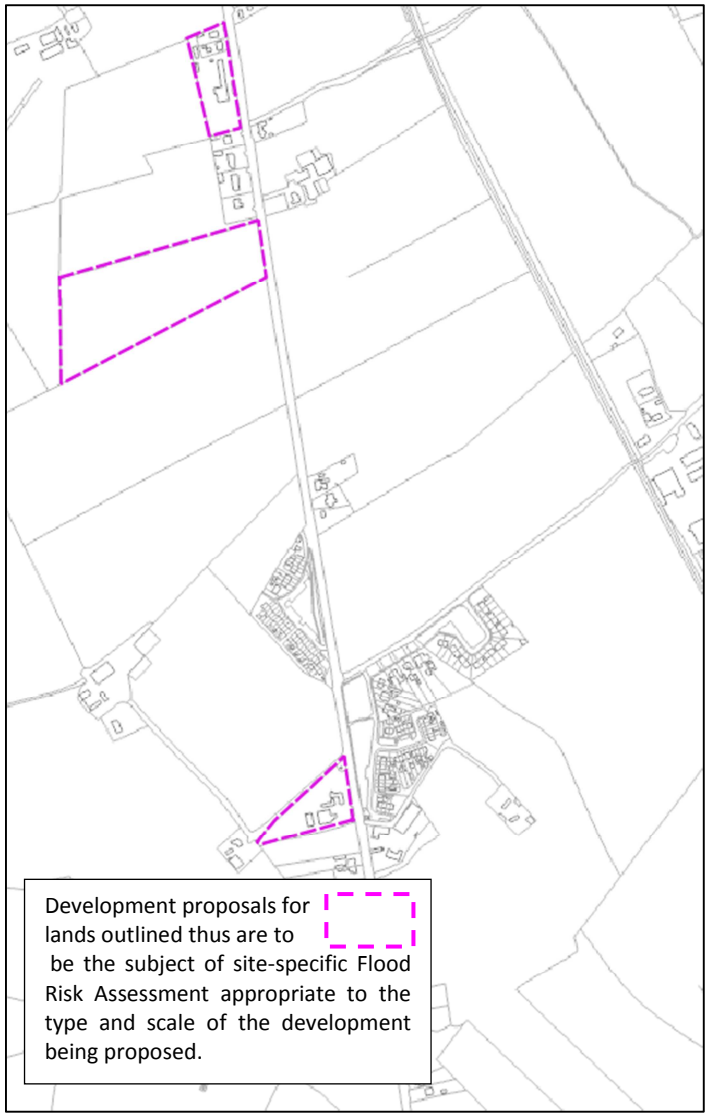
Broadford



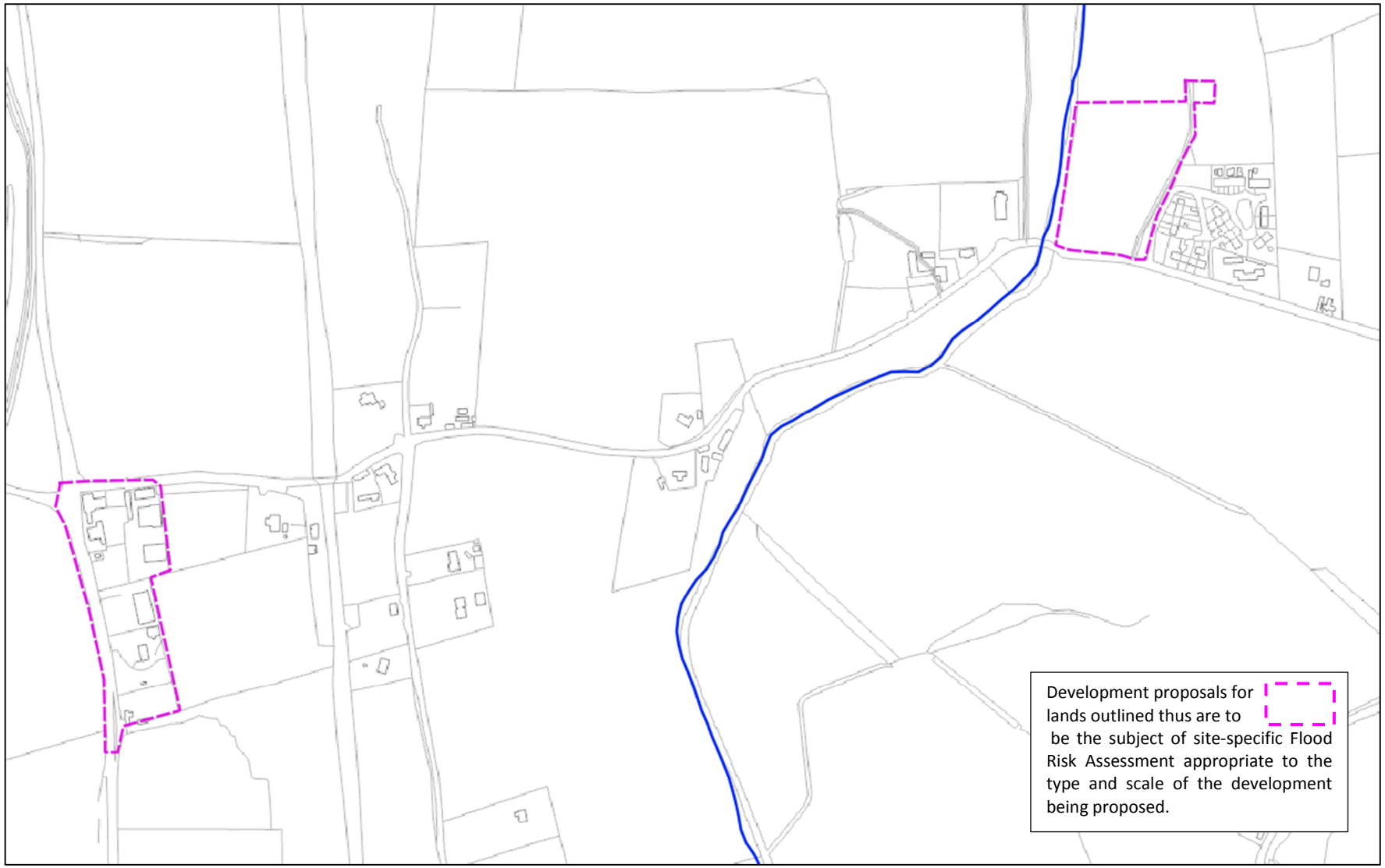
Calverstown


Development proposals for lands outlined thus are to be the subject of site-specific Flood Risk Assessment appropriate to the type and scale of the development being proposed.

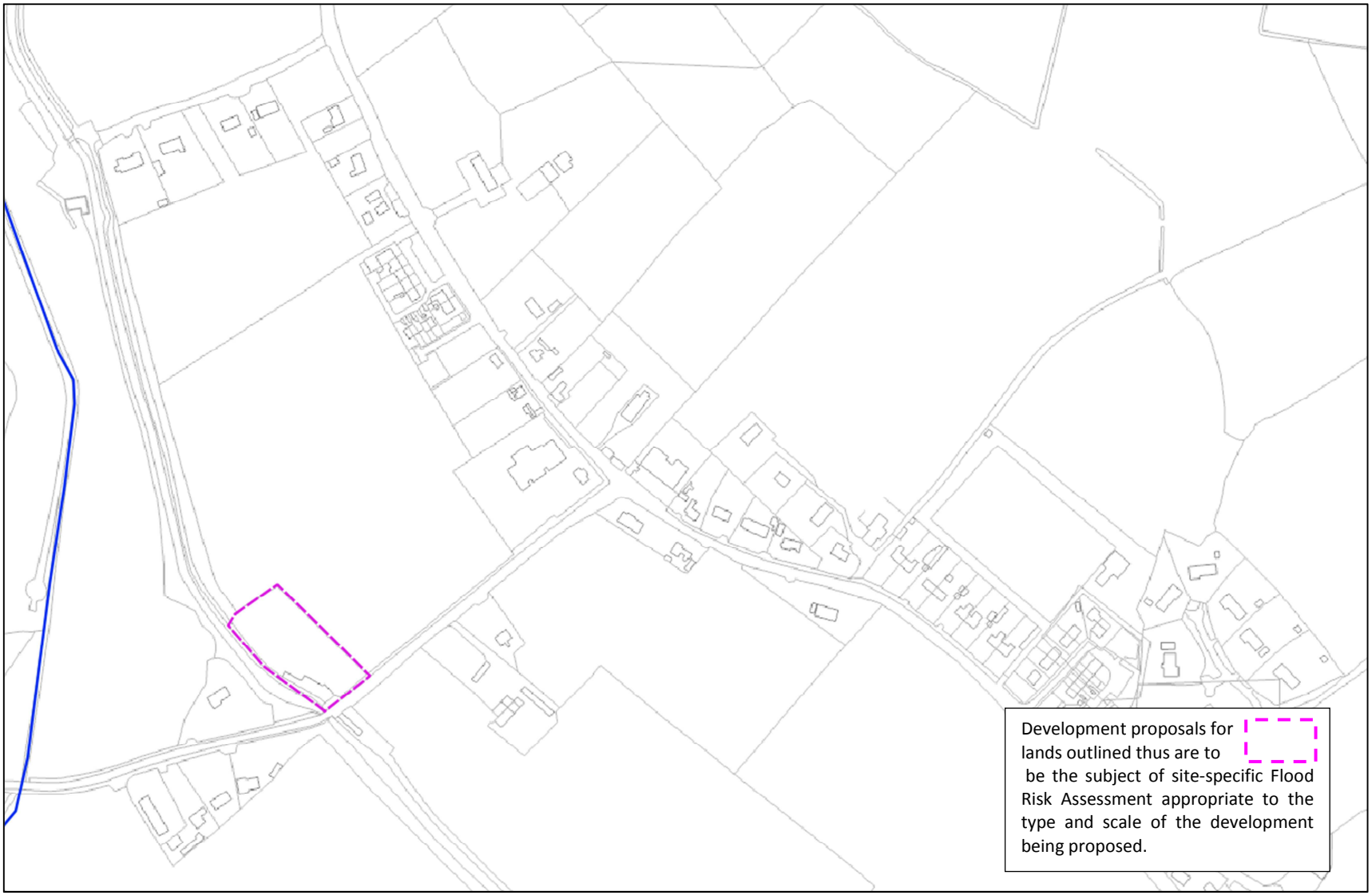
Cutbush


Development proposals for lands outlined thus are to be the subject of site-specific Flood Risk Assessment appropriate to the type and scale of the development being proposed.

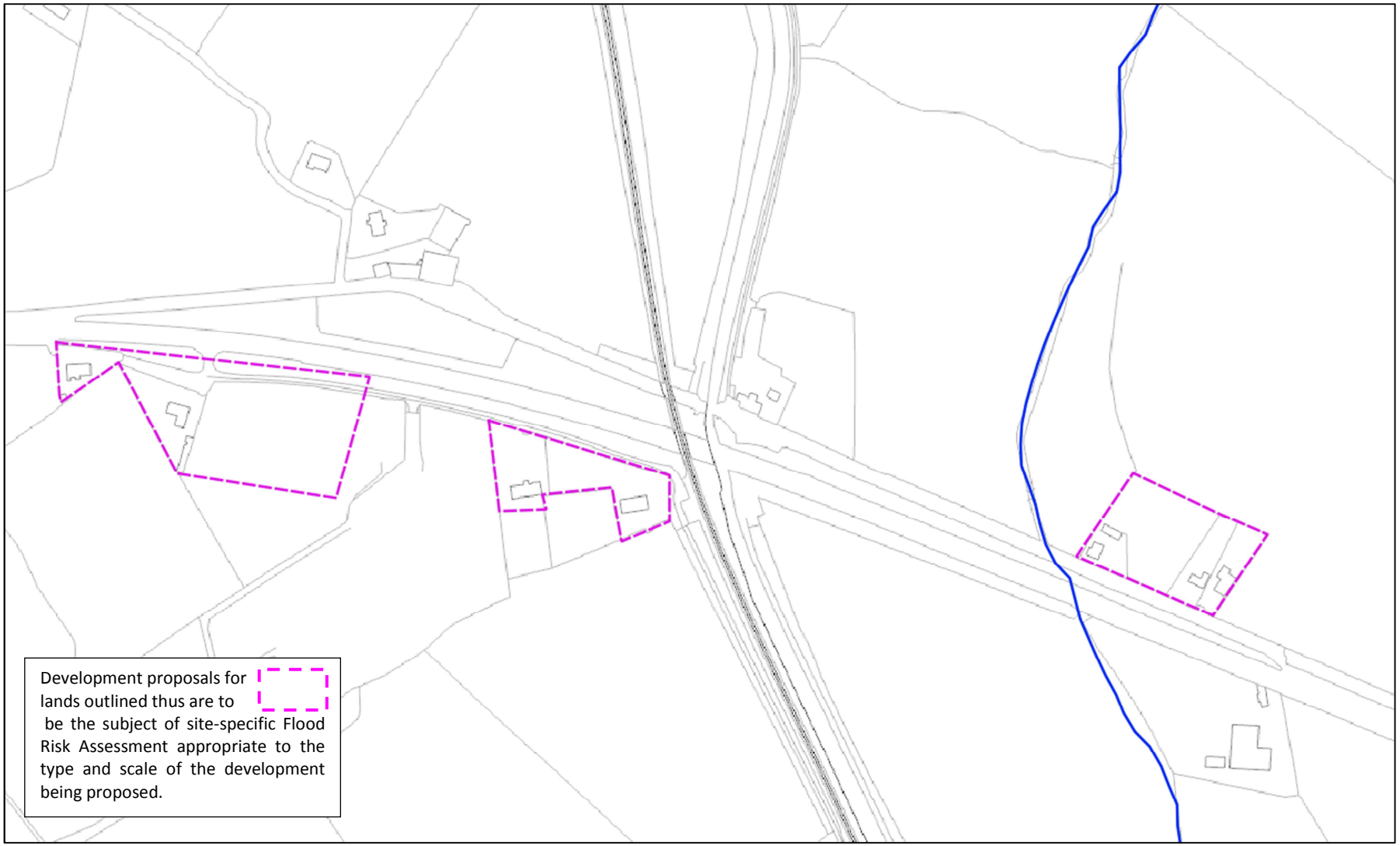
Kilberry



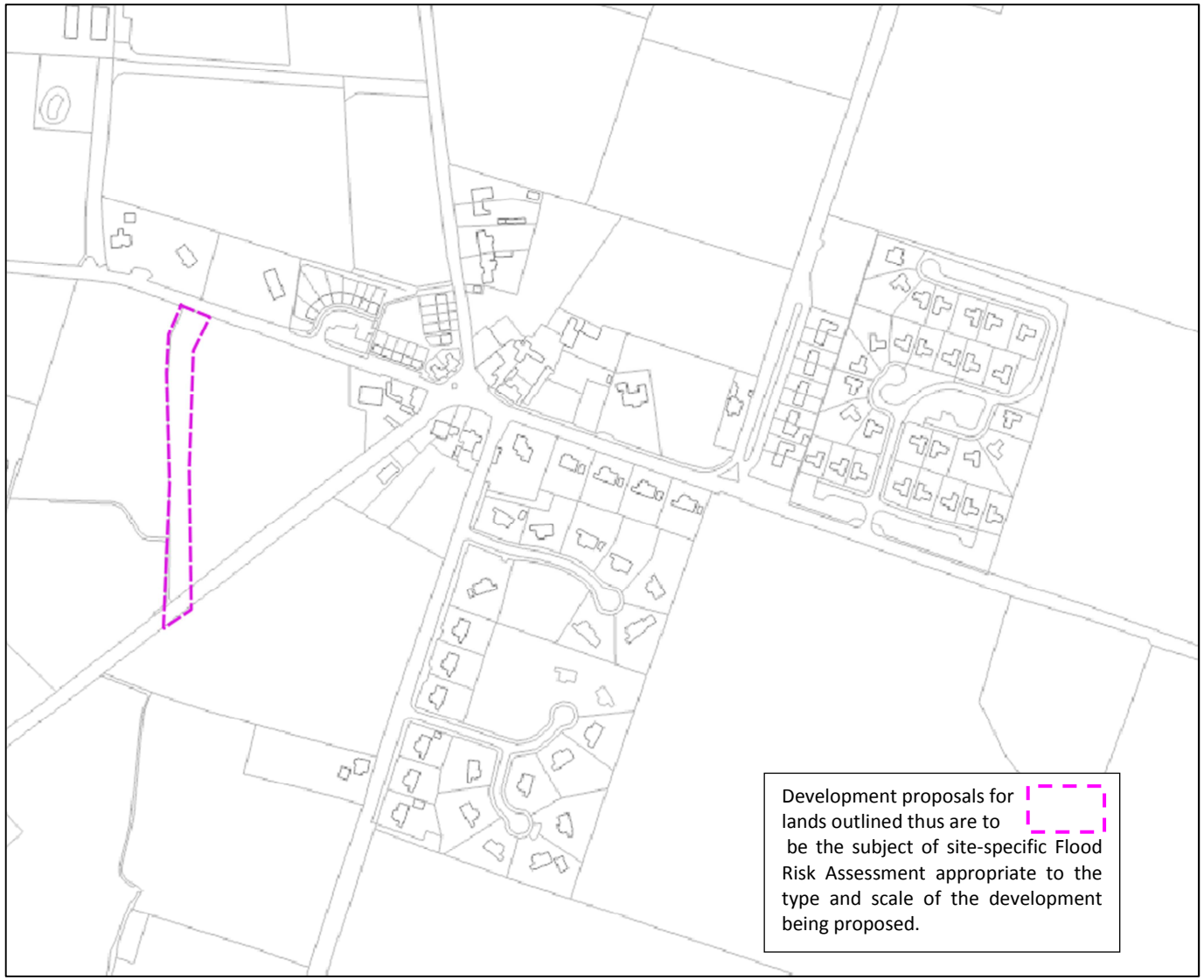
Maganey / Levitstown


Development proposals for lands outlined thus are to be the subject of site-specific Flood Risk Assessment appropriate to the type and scale of the development being proposed.

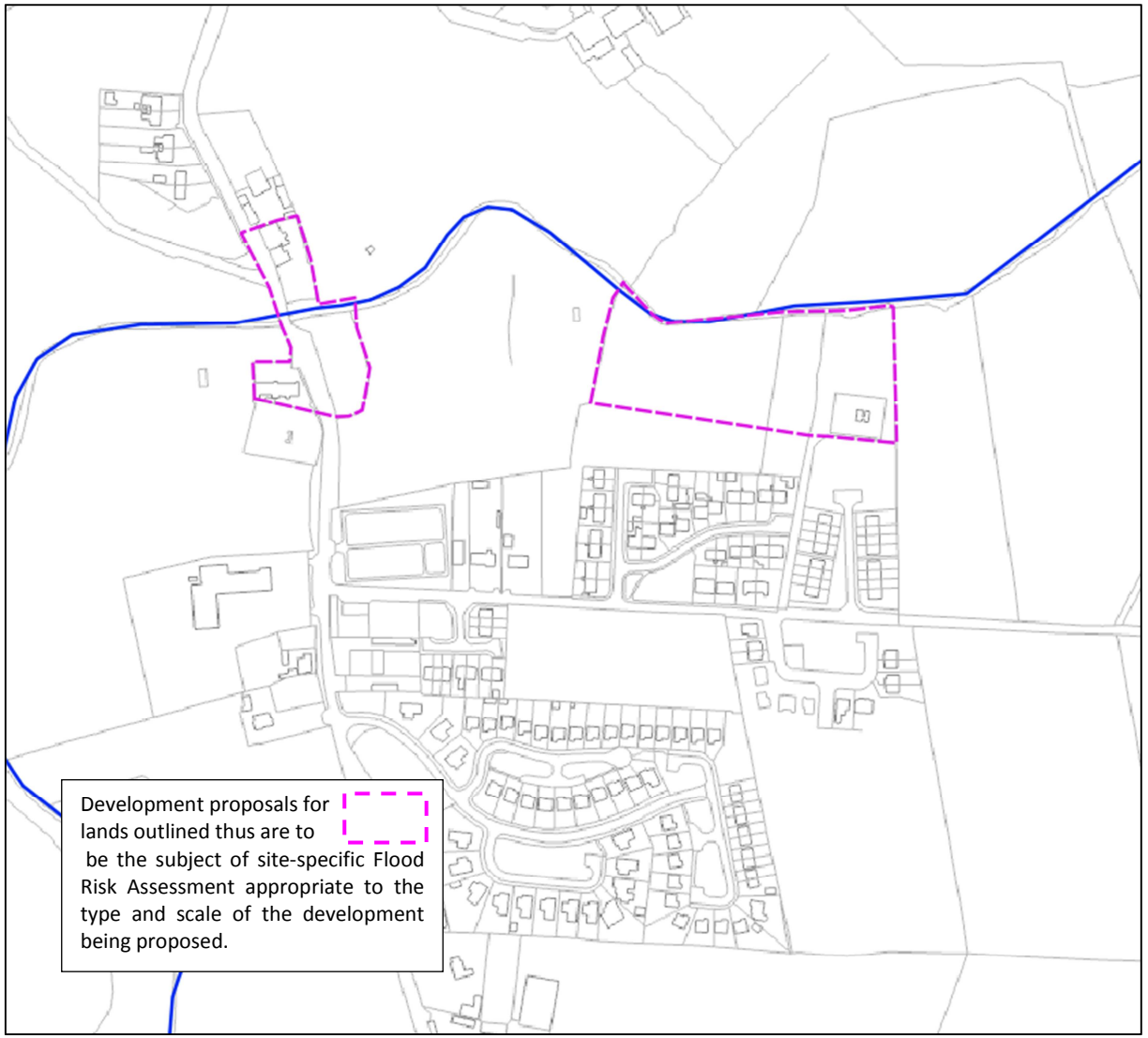
Milltown


Development proposals for lands outlined thus are to be the subject of site-specific Flood Risk Assessment appropriate to the type and scale of the development being proposed.

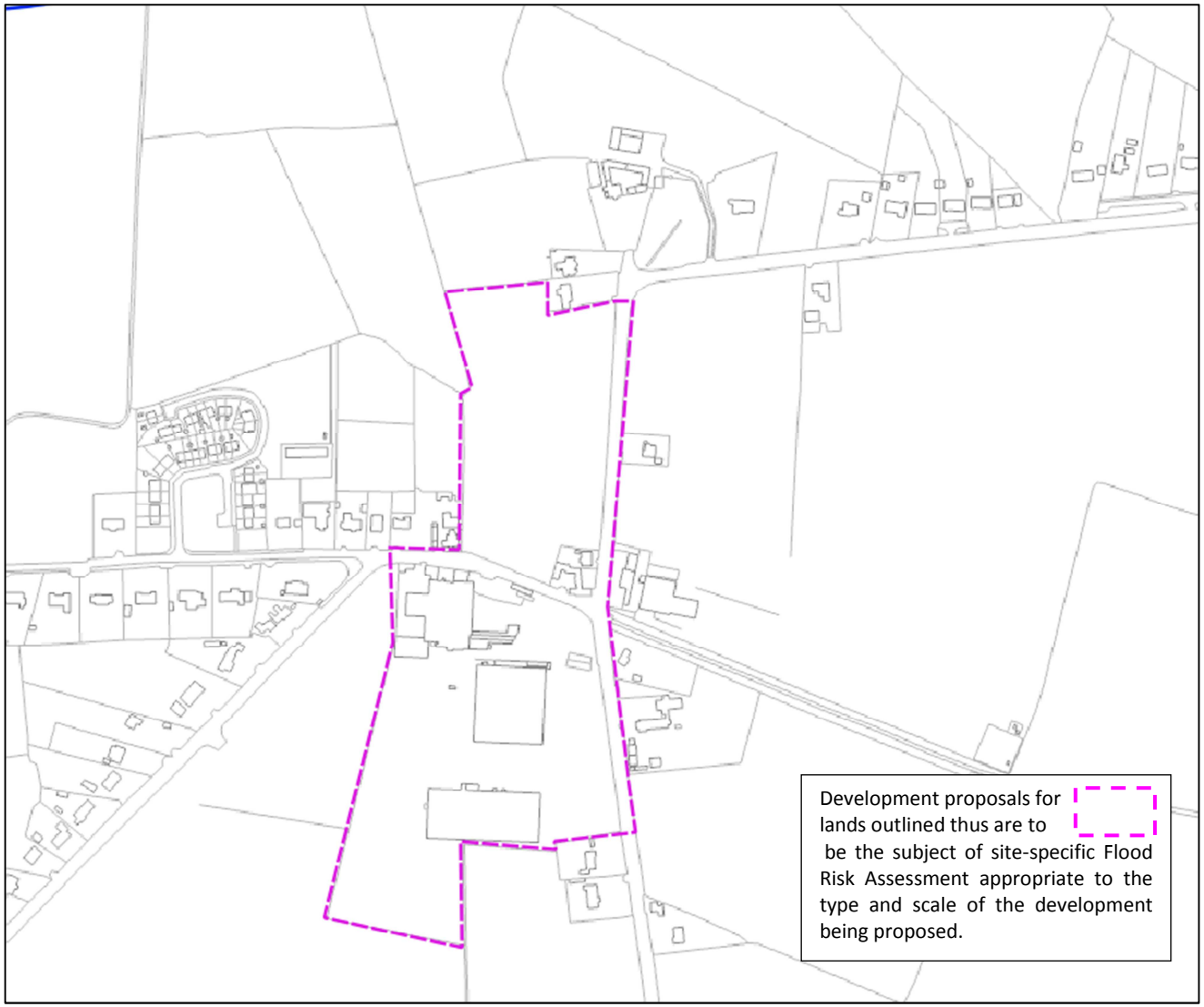
Moyvally



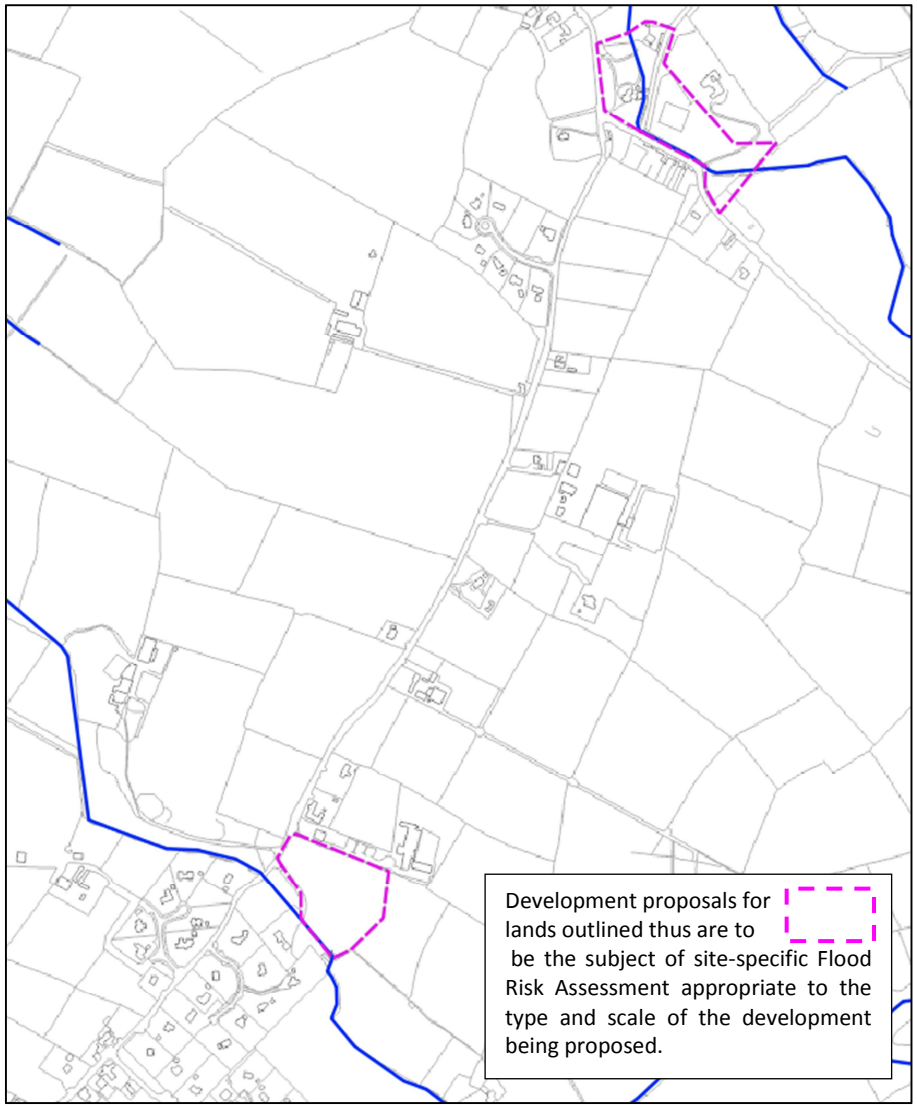
Narraghmore


Development proposals for lands outlined thus are to be the subject of site-specific Flood Risk Assessment appropriate to the type and scale of the development being proposed.

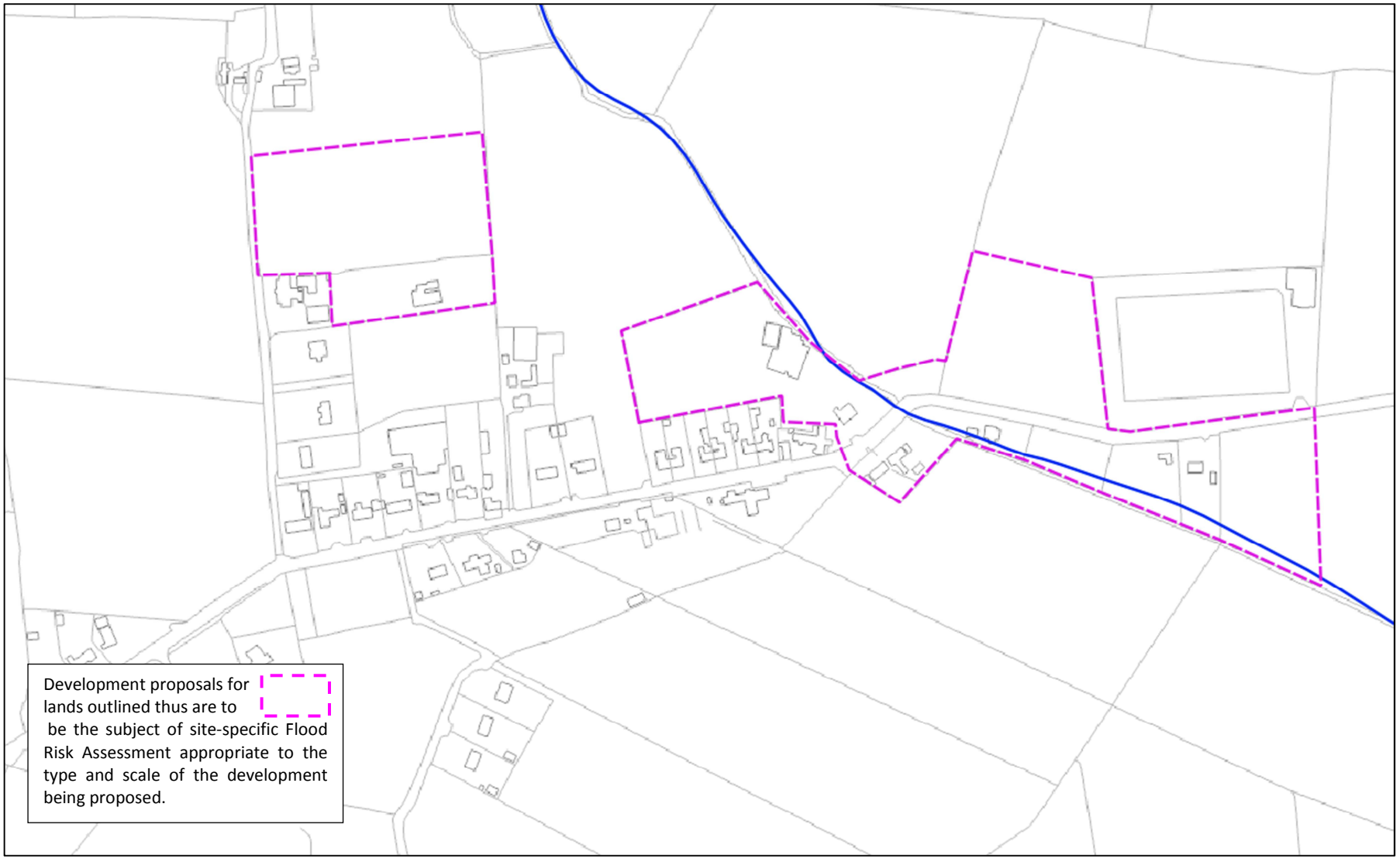
Nurney


Development proposals for lands outlined thus are to be the subject of site-specific Flood Risk Assessment appropriate to the type and scale of the development being proposed.

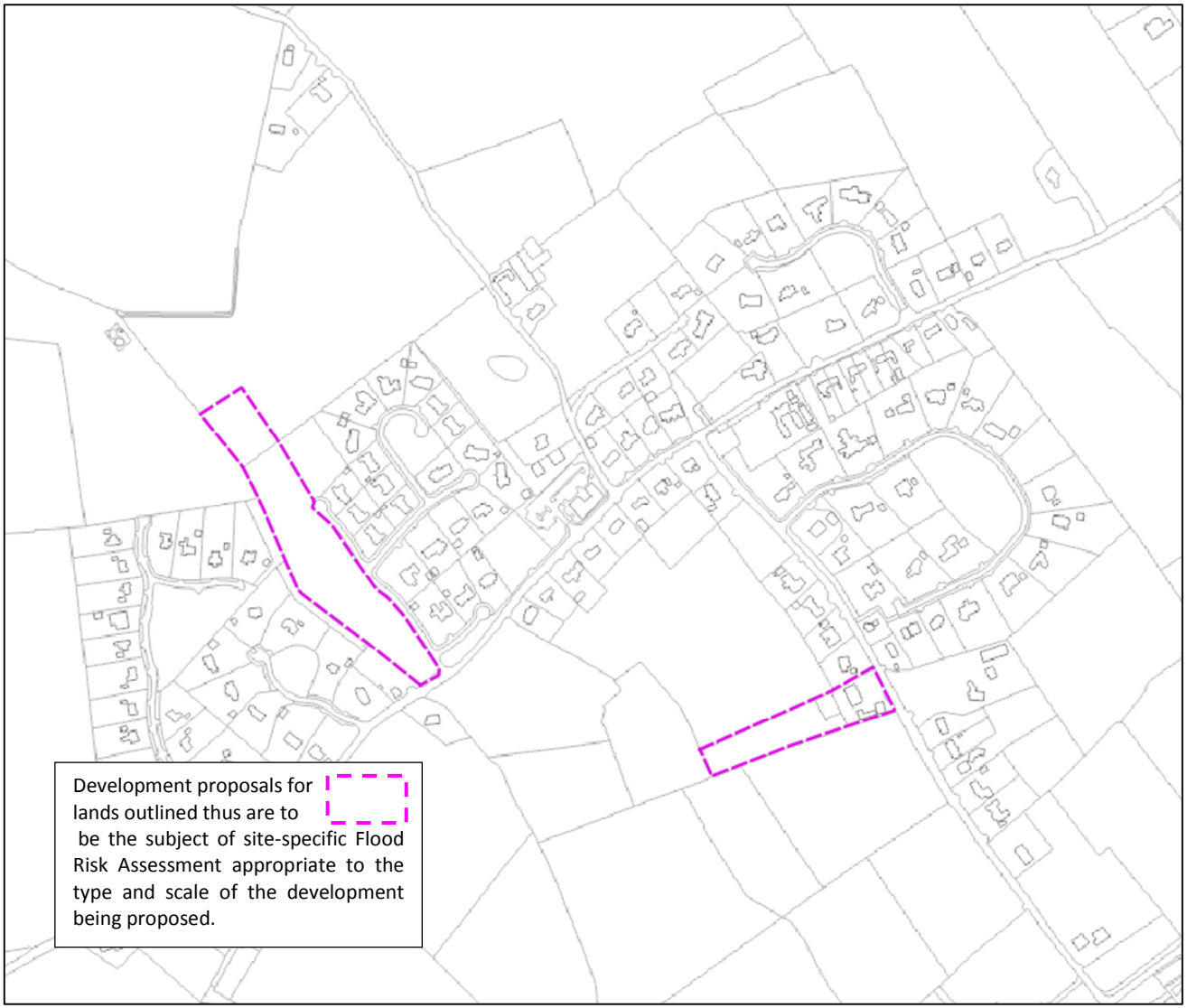
Rathcoffey



Rathmore / Eadestown



Staplestown



Twomilehouse

APPENDIX C

JUSTIFICATION TESTS

	County Development Plan 2017-2023	C Zoning Allenwood
1	The Regional Planning Guidelines for the Greater Dublin Area 2010-2022 set out the planned direction for growth within the Greater Dublin Area up to 2022 by giving regional effect to national planning policy under the National Spatial Strategy (NSS). Castledermot is designated as a Small Town.	Allenwood was identified as a Village in the County Development Plan 2011-2017. It is proposed to remain a village in the Proposed Draft Kildare County Development Plan 2017-2023 Arising from the RPGs and the Proposed Draft Kildare County Development Plan 2017-2023, the county's 11 designated villages are to accommodate 1144 residential units during the period between 2011 and 2023. Allenwood based on current zonings in the 2011-2017 CDP could accommodate 533 units on its own. Allenwood is to continue as a local service centre with growth levels to cater for local needs. Allenwood shall also foster local enterprise that supports it sustainable development.
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 subject site is zoned B Existing Residential / Infill. This zoning seeks to protect and improve existing residential amenity and to provide for appropriate infill residential development and to provide for new and improved ancillary services. The undeveloped portion of the site measures approximately 2.5ha and approximately 1.74ha is located inside the flood zone. There have been houses developed on the northern section of the site and it appears that the flood zone may impact on some of these dwellings. There appears to be some open drainage through the site and the Grand Canal and Bond Bridge are located to the south of the site. A tributary of the River Slate is adjacent to the east of the site and it flows in a southerly direction. This site was zoned in the Allenwood Village Plan as part of the Kildare County Development Plan 2011-2017.
	(i) Is essential to facilitate regeneration and / or expansion of the centre of the urban settlement;	The subject site is located in close proximity to the River Slate and the Grand Canal and is identified as being at risk of flooding. The site has never been the subject of a planning application. The site is zoned B Existing Residential / Infill. There are enough lands zoned General Development in Allenwood that could accommodate xxx residential units which is sufficient to facilitate the towns growth targets over the life time of this plan.

	(ii) Comprises significant previously developed and / or underutilized lands;	The majority of the site does not comprise previously developed lands. The land appears to be in use for agricultural purposes.
	(iii) Is within or adjoining the core of an established or designated urban settlement;	The site is located within approximately 230 meters of the crossroads in the centre of Allenwood.
	(iv) Will be essential in achieving compact and sustainable urban growth; and	The site is located in close proximity to the village centre but there are a number of undeveloped suitably zoned sites also in close proximity to the village centre that do not have the same flooding risks that could accommodate development. Given the availability of other lands within the town centre and adjoining it, together with other permissions outside of the ones subject to significant flooding it is not considered essential for compact and sustainable urban growth.
	(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.	There is already enough suitably zoned land that is not at risk of flooding at various locations in Allenwood. These lands will facilitate the appropriate sustainable development of Allenwood in line with the proposed Settlement Strategy of the Kildare County Development Plan 2017-2023. Therefore it is considered appropriate to rezone this site to agricultural
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	The undeveloped land has been rezoned to an agricultural zoning. Development proposals for the following lands shall be the subject of a site-specific Flood Risk Assessment appropriate to the type and scale of the development being proposed: (i) development incorporating lands located within 80m of the banks (or culverted sections) of the Ballynakill Stream which flows in a southerly direction adjacent to the eastern boundary of the Village Plan; (ii) development incorporating lands located within 75m of a recorded flood event (as shown on OPW flood maps); (iii) lands zoned C, Q or E. (iv) lands zoned B adjacent to the Ballynakill Stream Site Specific FRAs should address the following: Apply sequential approach should be applied through site planning Highly Vulnerable Development shall not be permitted in Flood Zone A or B. FRA should address residual risk of increased flood extents under climate change scenarios and pluvial risk which should be aimed at setting finished floor levels.

	County Development Plan 2017-2023	BNE 1 and BNE 2 Zoning Blessington (Environs)
1	The Regional Planning Guidelines for the Greater Dublin Area 2010-2022 set out the planned direction for growth within the Greater Dublin Area up to 2022 by giving regional effect to national planning policy under the National Spatial Strategy (NSS). Blessington is designated as a Moderate Growth Town in the Regional Planning Guidelines.	Blessington is designated as a moderate Growth Town in the Wicklow Development Plan 2010-2016. The lands are located in Kildare County Council jurisdiction and are zoned in the Kildare County Council Environs Plans chapter Arising from the RPGs and the Proposed Draft Kildare County Development Plan 2017-2023, a growth target of 309 units is prescribed for Blessington between 2011 and 2023.
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 subject site is predominantly zoned BNE1 Low Density Residential, the section of the lands which is already occupied by housing is zoned BNE 2 Existing Residential. These zonings provide for residential development and ancillary services. The site is in 2 parcels of (a) 14ha and (b) 12ha approximately 20% is located inside the flood zone. A larger residential development has been completed in between the two parcels of land mentioned above this section is zoned BNE 2 Existing Residential. The BNE 1 lands are the subject of this justification test. O8/783 is a refused residential planning application on site (b). Site (a) has not been the subject of a planning application To the south, north and east of the sites are existing residential developments with agricultural lands to the west of the site, basically the site is on the edge of Blessington town.
	(i) Is essential to facilitate regeneration and / or expansion of the centre of the urban settlement;	Water courses flow through each of parcels (a) and (b) and they merge and flow along the south eastern boundary of the site. The flood zone also appears to impact upon the section of the lands already developed for residential purposes. There are enough lands zoned for residential development outside the flood zone to facilitate the sustainable development of the town in line with the Core Strategy
	(ii) Comprises significant previously developed and / or underutilized lands;	The lands do not comprise previously developed lands. The land appears to be in use for agricultural purposes apart from the BNE 2 lands which already facilitate a residential development.

	(iii) Is within or adjoining the core of an established or designated urban settlement;	The site is not located within or adjoining the core The site is significantly removed from the edge of the settlement of Blessington, the site is located on the western edge of the town.
	(iv) Will be essential in achieving compact and sustainable urban growth; and	The site is located at the edge of the town and given the availability of other lands within the town centre and adjoining it, together with other permissions outside of the ones subject to significant flooding it is not considered essential for compact and sustainable urban growth.
	(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.	There is already a significant quantity of suitably zoned land that is not at risk of flooding at various locations in Blessington and in other areas of County Kildare. These lands will facilitate the appropriate sustainable development in line with the proposed Settlement Strategy of the Kildare County Development Plan 2017-2023. A large section of the site is impacted upon by the flood zone and therefore is unsuitable for certain sensitive uses. Along with residential an objective to provide a school on the site has been proposed. Prior to any development being permitted on this site a site specific flood risk assessment will have to be carried out to the satisfaction of Kildare County Council. The recommendations of this assessment will determine the location, type and quantum of development on this 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	Development proposals for the sites lands shall be the subject of a site-specific Flood Risk Assessment appropriate to the type and scale of the development being proposed: (i) Development incorporating lands located within 75m of the banks (or culverted sections) of the watercourse which flows in a southerly direction through the subject area; (ii) lands zoned C and B adjacent to watercourses Site Specific FRAs should address the following: Apply sequential approach should be applied through site planning and should avoid encroachment onto, or loss of, the flood plain. Highly Vulnerable Development shall not be permitted in Flood Zone A or B. Development in Flood Zone A should only be water compatible. Compensatory storage may be considered provided there is no increased flood risk elsewhere. It must be provided on a level for level basis and the land given to storage must be land which does not flood in the 1% AEP flood event.

	County Development Plan 2017-2023	C Zoning Castledermot
1	The Regional Planning Guidelines for the Greater Dublin Area 2010-2022 set out the planned direction for growth within the Greater Dublin Area up to 2022 by giving regional effect to national planning policy under the National Spatial Strategy (NSS). Castledermot is designated as a Small Town.	Castledermot was identified as a Small town in the County Development Plan 2011-2017. It is proposed to retain this settlement designation in the Proposed Draft County Development Plan 2017-2023 Arising from the RPGs and the Proposed Draft County Development Plan 2017-2023, a growth target of 1,578 population / 155 units is prescribed for Castledermot between 2011 and 2023. Castledermot is also designated as a local employment centre in the County Development Plan where the retention of existing enterprises and the promotion of new local employment opportunities will be encouraged.
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 subject site is zoned C2 New Residential phase 2. This zoning provides for residential development and ancillary services. The site is 3.2ha and approximately 2.8ha is located inside the flood zone. The River Lerr is directly adjacent to the western boundary of the site, further to the west is the fairgreen. The rest of the site is surrounded by agricultural lands. This site was zoned in the Castledermot Local Area Plan 2009 and Variation No 1 of the 2011-2017 also zoned the site for residential purposes.
	(i) Is essential to facilitate regeneration and / or expansion of the centre of the urban settlement;	The subject site is located in close proximity to the River Lerr and is identified as being at risk of flooding. The site has never been the subject of a planning application. The site is zoned C2 New Residential phase 2. There are enough lands zoned General Development in Castledermot that could accommodate xxx residential units which is sufficient to facilitate the towns growth targets over the life time of this plan.
	(ii) Comprises significant previously developed and / or underutilized lands;	The lands do not comprise previously developed lands. The land appears to be in use for agricultural purposes.

	(iii) Is within or adjoining the core of an established or designated urban settlement;	The site is not located within or adjoining the core The site is significantly removed from the edge of the settlement of Castledermot, in an area characterised by agricultural uses.
	(iv) Will be essential in achieving compact and sustainable urban growth; and	The site is located at the edge of the town and given the availability of other lands within the town centre and adjoining it, together with other permissions outside of the ones subject to significant flooding it is not considered essential for compact and sustainable urban growth.
	(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.	There is already enough suitably zoned land that is not at risk of flooding at various locations in Castledermot. These lands will facilitate the appropriate sustainable development of Castledermot in line with the proposed Settlement Strategy of the Kildare County Development Plan 2017-2023. Therefore it is considered appropriate to rezone this site to agricultural
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	The undeveloped land has been rezoned to a water compatible zoning. Development proposals for the sites lands shall be the subject of a site-specific Flood Risk Assessment appropriate to the type and scale of the development being proposed. Site Specific FRAs should address the following: Apply sequential approach should be applied through site planning and should avoid encroachment onto, or loss of, the flood plain. Highly Vulnerable Development shall not be permitted in Flood Zone A or B. Should address climate change scenarios in relation to FFLs and potential mitigation measures.

	County Development Plan 2017-2023	T2 Zoning Castledermot
1	The Regional Planning Guidelines for the Greater Dublin Area 2010-2022 set out the planned direction for growth within the Greater Dublin Area up to 2022 by giving regional effect to national planning policy under the National Spatial Strategy (NSS). Castledermot is designated as a Small Town.	Castledermot was identified as a Small town in the County Development Plan 2011-2017. It is proposed to retain this settlement designation in the Proposed Draft County Development Plan 2017-2023 Arising from the RPGs and the Proposed Draft County Development Plan 2017-2023, a growth target of 1,578 population / 155 units is prescribed for Castledermot between 2011 and 2023. Castledermot is also designated as a local employment centre in the County Development Plan where the retention of existing enterprises and the promotion of new local employment opportunities will be encouraged.
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 subject site is zoned T2 General Development phase 2. This zoning provides for a wide range of uses including office, leisure, residential, retail and light industrial/employment use. The site is 8.3ha and approximately 1.47.ha is located inside the flood zone. A water course flows through the western portion of the site to the River Lerr to the south. There is an industrial building on the eastern side of the site and the Castledermot GAA club is located to the west and south of the site. This site was zoned in the Castledermot Local Area Plan 2009 and Variation No 1 of the 2011-2017 also zoned the site for General Development purposes.
	(i) Is essential to facilitate regeneration and / or expansion of the centre of the urban settlement;	The subject site is located to the north of the River Lerr, a tributary of that river flows along the western boundary of the site. The majority of the site has never been the subject of a planning application, the industrial building on the eastern end of the site has been extended with a planning application but this building is outside the flood zone. The site is zoned T2 General Development phase 2. There are enough lands zoned General Development in Castledermot that could accommodate xxx residential units which is sufficient to facilitate the towns growth targets over the life time of this plan.

	(ii) Comprises significant previously developed and / or underutilized lands;	The majority of the lands appear to be in amenity uses as Castledermot GAA club and a section of the site is in industrial use with the remainder in agricultural use.
	(iii) Is within or adjoining the core of an established or designated urban settlement;	The site is located on the edge of the settlement of Castledermot, in an area characterised by low density residential development and agricultural uses.
	(iv) Will be essential in achieving compact and sustainable urban growth; and	The site is located at the edge of the town and given the availability of other lands within the town centre and adjoining it, together with other permissions outside of the ones subject to significant flooding it is not considered essential for compact and sustainable urban growth. However due to the current amenity and industrial uses and the amount of uses the land use zoning category could facilitate it is proposed to retain the 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.	There is already enough suitably zoned land that is not at risk of flooding at various locations in Castledermot to facilitate residential development. This site will facilitate the sustainable development of the town in terms of amenity and industrial development. Therefore it is considered appropriate to retain the zoning whilst ensuring that no development takes place within the flood zone.
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	Development proposals for the sites lands shall be the subject of a site-specific Flood Risk Assessment appropriate to the type and scale of the development being proposed: Site Specific FRAs should address the following: Apply sequential approach should be applied through site planning and should avoid encroachment onto, or loss of, the flood plain. Highly Vulnerable Development shall not be permitted in Flood Zone A or B. Development in Flood Zone A should only be water compatible. Compensatory storage may be considered provided there is no increased flood risk elsewhere. It must be provided on a level for level basis and the land given to storage must be land which does not flood in the 1% AEP flood event.

	County Development Plan 2017-2023	Johnstown
1	The Regional Planning Guidelines for the Greater Dublin Area 2010-2022 set out the planned direction for growth within the Greater Dublin Area up to 2022 by giving regional effect to national planning policy under the National Spatial Strategy (NSS).	Johnstown was identified as a Village in the County Development Plan 2011-2017. It is proposed to remain a village in the Proposed Draft Kildare County Development Plan 2017-2023 Arising from the RPGs and the Proposed Draft County Development Plan 2017-2023, the county's 11 designated villages are to accommodate 1144 residential units during the period between 2011 and 2123. Johnstown based on current zonings in the 2011-2017 CDP could accommodate 62 units on its own. Johnstown is to continue as a local service centre with growth levels to cater for local needs. Johnstown shall also foster local enterprise that supports it sustainable development.
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 subject lands are zoned B Existing Residential and Infill. This zoning seeks to protect and improve residential amenity whilst also providing opportunities for appropriate infill residential development. The lands have been developed for residential development and the houses are occupied, the extent of the flood zone is mainly focussed on an area of open space but does have some impact on neighbouring houses. The Morrell river runs to the north west of the site and a watercourse runs through the site. This site was zoned in the Johnstown Village Plan as part of the Kildare County Development Plan 2011-2017.
	(i) Is essential to facilitate regeneration and / or expansion of the centre of the urban settlement;	The subject site is located in close proximity to the Morell river and is identified as being at risk of flooding. The site has been fully built out.
	(ii) Comprises significant previously developed and / or underutilized lands;	The lands are built out for residential development.
	(iii) Is within or adjoining the core of an established or designated urban settlement;	The lands are contiguous to the village centre and appropriate for residential development based on a sequential test.
	(iv) Will be essential in achieving compact and sustainable urban growth;	The site is essential in order to achieve a compact village form 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.	The site has been developed and any further development in Johnstown has been identified at a location not at risk of flooding. The development of this land constituted the appropriate sustainable development of Johnstown and the zoning shall remain.
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	The existing land zones at risk of flooding will be retained but any development shall be subject to a site-specific FRA. No new development or inappropriate zonings are proposed for flood risk areas. Development proposals for the following lands shall be the subject of a site-specific Flood Risk Assessment appropriate to the type and scale of the development being proposed: (i) development incorporating lands located within 75m of any watercourse; (ii) development incorporating lands located within 100m of a recorded flood event (as shown on OPW flood maps); (iii) lands zoned A and U; (iv) lands zoned Q located west of the Furness Road; (v) lands zoned E located at the southern boundary of the Village. Site specific FRAs should address climate change scenarios in relation to FFLs and the residual risk of flood defence failure on the eastern side of the town and in the town centre.

	County Development Plan 2017-2023	Johnstownbridge
1	The Regional Planning Guidelines for the Greater Dublin Area 2010-2022 set out the planned direction for growth within the Greater Dublin Area up to 2022 by giving regional effect to national planning policy under the National Spatial Strategy (NSS).	Johnstown was identified as a Village in the County Development Plan 2011-2017. It is proposed remain a village in the Proposed Draft Kildare County Development Plan 2017-2023 Arising from the RPGs and the Proposed Draft County Development Plan 2017-2023, the county's 11 designated villages are to accommodate 1144 residential units during the period between 2011 and 2123. Johnstownbridge based on current zonings in the 2011-2017 CDP could accommodate 161 units on its own. Johnstownbridge is to continue as a local service centre with growth levels to cater for local needs. Johnstownbridge shall also foster local enterprise that supports it sustainable development.
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 subject lands are zoned B Existing Residential and Infill. This zoning seeks to protect and improve residential amenity whilst also providing opportunities for appropriate infill residential development. The lands have been developed for residential development and the houses are occupied, the extent of the flood zone is mainly focussed on the southern sections of the existing housing developments. The Fear English river runs to the south east of the village, it forms the southern boundary of The Glebe housing development and flows through the Dunfierth Park housing development. The River Blackwater runs to the north of Dunfierth Park. These sites were zoned in the Johnstownbridge Village Plan as part of the Kildare County Development Plan 2011-2017.
	(i) Is essential to facilitate regeneration and / or expansion of the centre of the urban settlement;	The subject developments are located in close proximity to the Fear English river and are identified as being at risk of flooding. The sites have been fully built out.
	(ii) Comprises significant previously developed and / or underutilized lands;	The lands are built out for residential development.

	(iii) Is within or adjoining the core of an established or designated urban settlement;	The lands are close to the village centre and appropriate for residential development.
	(iv) Will be essential in achieving compact and sustainable urban growth; and	The sites are essential in order to achieve sustainable urban growth.
	(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 site has been developed and any further development in Johnstownbridge has been identified at a location not at risk of flooding. The development of this land constituted the appropriate sustainable development of Johnstownbridge and the zoning shall remain.
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	The existing land zones at risk of flooding will be retained but any development shall be subject to a site-specific FRA. No new development or inappropriate zonings are proposed for flood risk areas. Development proposals for the following lands shall be the subject of a site-specific Flood Risk Assessment appropriate to the type and scale of the development being proposed: (i) development incorporating lands located within 100m of the banks (or culverted sections) of any watercourse; (ii) lands zoned C1, C2 and E. Site specific FRAs should address climate change scenarios in relation to FFLs and potential mitigation measures on the eastern side of the town.

	County Development Plan 2017-2023	NE 4 New Low Density Residential Naas (Environs)
1	The Regional Planning Guidelines for the Greater Dublin Area 2010-2022 set out the planned direction for growth within the Greater Dublin Area up to 2022 by giving regional effect to national planning policy under the National Spatial Strategy (NSS). Naas is designated as a Large Growth Town 1 in the Regional Planning Guidelines.	Naas is designated as a Large Growth Town 1 in the Regional Planning Guidelines, it is the main county town. Naas is to act as a self-sustaining regional economic driver accommodating significant new investment in transport, housing economic and commercial activity. Arising from the RPGs and the Proposed Draft Kildare County Development Plan 2017-2023, a growth target of 4,609 units is prescribed for Naas between 2011 and 2023.
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 subject site is predominantly zoned NE 4 Low Density Residential. This zoning provides for low density residential development and ancillary services. The site is approximately 8.8ha in size and approximately 5 ha is located inside the flood zone. The site is located to the east of the Pipers Hill Education Campus and to the north of the Kilashee house hotel. There is planning permission on the site for residential development under 05/437. The development has been the subject of modifications and extensions but residential uses remain at the location of the lands identified in the flood zone. A flood risk assessment was submitted to the Council on the 07/03/12 as part of the information associated with planning application 11/1179 which is the extension of duration application for 05/437.
	(i) Is essential to facilitate regeneration and / or expansion of the centre of the urban settlement;	A water course flows through the middle of the site in an east to west direction, the water course appears to have been incorporated into the design of the development layout. There are enough lands zoned for residential development outside the site and the flood zone of this development to facilitate the sustainable development of the town in line with the Core Strategy
	(ii) Comprises significant previously developed and / or underutilized lands;	The development is currently under construction.

	(iii) Is within or adjoining the core of an established or designated urban settlement;	The site is not located within or adjoining the core The site is significantly removed from the edge of the settlement of Naas along the Kilcullen Road, the site is located on the southern edge of the town.
	(iv) Will be essential in achieving compact and sustainable urban growth; and	The site will deliver residential units in close proximity to an existing education campus.
	(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 development has been committed following a site specific flood risk assessment in order to reduce the risk of flooding the development shall be in accordance with the recommendations of the FRA.
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	The existing zoning has been retained but future Development proposals for the following lands shall be the subject of a site-specific Flood Risk Assessment appropriate to the type and scale of the development being proposed: (i) lands zoned NE4 and NE5. Site specific FRAs should address climate change scenarios in relation to FFLs and potential mitigation measures. The FRAs should identify flood zone mapping and apply the sequential approach to development in the vicinity of flood risk areas. Highly vulnerable development should be avoided in the Flood Zones A and B with less vulnerable development subject to a detailed FRA in Flood Zone A.

	County Development Plan 2017-2023	Suncroft
1	The Regional Planning Guidelines for the Greater Dublin Area 2010-2022 set out the planned direction for growth within the Greater Dublin Area up to 2022 by giving regional effect to national planning policy under the National Spatial Strategy (NSS).	Suncroft was identified as a Village in the County Development Plan 2011-2017. It is proposed remain a village in the Proposed Draft Kildare County Development Plan 2017-2023 Arising from the RPGs and the Proposed Draft County Development Plan 2017-2023, the county's 11 designated villages are to accommodate 1144 residential units during the period between 2011 and 2123. Suncroft based on current zonings in the 2011-2017 CDP could accommodate 116 units on its own. Suncroft is to continue as a local service centre with growth levels to cater for local needs. Suncroft shall also foster local enterprise that supports its sustainable development.
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 subject lands are zoned B Existing Residential and Infill. This zoning seeks to protect and improve residential amenity whilst also providing opportunities for appropriate infill residential development. The lands have been developed for residential development and the houses are occupied, the extent of the flood zone is mainly focussed on the houses on the northern section of the Prussellstown Green Housing Development. A tributary of the Finnery river appears to be culverted in the northern section of the development. This site was zoned in the Suncroft Village Plan as part of the Kildare County Development Plan 2011-2017.
	(i) Is essential to facilitate regeneration and / or expansion of the centre of the urban settlement;	The northern section of the subject site has been identified as being at risk of flooding. The site has been fully built out.
	(ii) Comprises significant previously developed and / or underutilized lands;	The lands are built out for residential development.
	(iii) Is within or adjoining the core of an established or designated urban settlement;	The lands are contiguous to the village centre and appropriate for residential development based on a sequential test.

	(iv) Will be essential in achieving compact and sustainable urban growth; and	The site is essential in order to achieve a compact village form and sustainable urban growth.
	(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 site has been developed and any further development in Suncroft has been identified at a location not at risk of flooding. The development of this land constituted the appropriate sustainable development of Suncroft and the zoning shall remain.
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	The existing land zones at risk of flooding will be retained but any development shall be subject to a site-specific FRA. No new development or inappropriate zonings are proposed for flood risk areas. Development proposals for the following lands shall be the subject of a site-specific Flood Risk Assessment appropriate to the type and scale of the development being proposed: (i) development incorporating lands located within 50m of a recorded flood event (as shown on OPW flood maps); (ii) development incorporating lands located within 100m of the banks (or culverted sections) of the watercourse which flows along Eascanrath Lane (L70721); (iii) development incorporating lands located within 50m of the banks (or culverted sections) of the watercourse which passes through lands zoned B at the south western boundary of the village plan. (iv) lands zoned C or E. Site specific FRAs should address climate change scenarios in relation to FFLs and potential mitigation measures on the western side of the town.