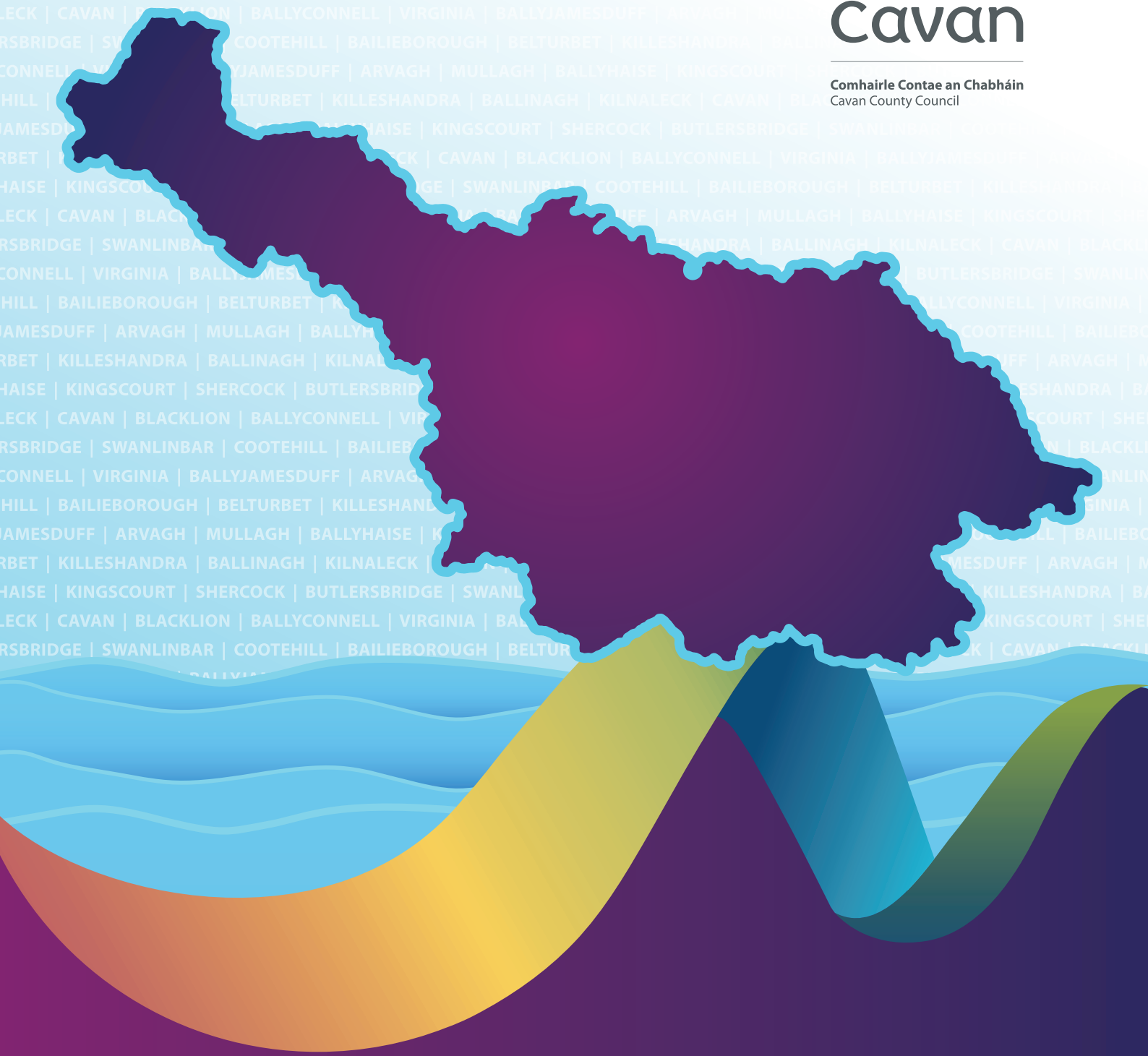




Cavan

Comhairle Contae an Chabháin
Cavan County Council



Cavan County Development Plan 2022-2028

Incorporating the Cavan Town Local Area Plan 2022-2028
Strategic Flood Risk Assessment

STRATEGIC FLOOD RISK ASSESSMENT

FOR THE

CAVAN COUNTY DEVELOPMENT PLAN 2022-2028

INCORPORATING THE CAVAN TOWN
LOCAL AREA PLAN 2022-2028

for: **Cavan County Council**

Courthouse
Farnham
Cavan Town



by: **CAAS Ltd.**

1st Floor
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JULY 2022

Amendments to Development Objectives Codes

The following is a list of development objective codes that have been updated in the adopted County Development Plan incorporating a Local Area Plan for Cavan Town, 2022-2028. The specified changes as outlined below should be noted with reference to development objectives codes contained in this report.

- Tourism Infrastructure and Visitor Services Development Objectives are amended from TV 09 to TV 06 and TV 10 to TV 07
- Foul Drainage and Wastewater Development Objectives are amended from FDW 12 to FDW 11, FDW 13 to FDW 12, FDW 14 to FDW 13, FDW 15 to FDW 14, FDW 16 to FDW 15, FDW 17 to FDW 16, FDW 18 to FDW 17, FDW 19 to FDW 18.

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Appendix I

Summary of the requirements of the Flood Guidelines for land uses in Flood Zones

Appendix II

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Appendix III

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Section 1 Introduction and Policy Background

1.1 Introduction and Terms of Reference

Cavan County Council is reviewing the Cavan County Development Plan 2014 (as varied) and has prepared the Cavan County Development Plan 2022-2028, incorporating the Cavan Town Local Area Plan 2022-2028.

The preparation of the Plan has undergone an appropriate level of Strategic Flood Risk Assessment (SFRA) in accordance with *The Planning System and Flood Risk Management - Guidelines for Planning Authorities* (Department of the Environment, Heritage and Local Government and Office of Public Works, 2009) and Department of the Environment, Community and Local Government Circular PL 2/2014. The SFRA provides an assessment of flood risk and includes mapped boundaries for Flood Risk Zones.

The SFRA was undertaken alongside the Plan-preparation process, and has been updated to take into account new information and changes to the Plan on foot of submissions.

1.2 Summary of Conclusion and Recommendations

The purpose of this document is to detail the findings of the SFRA that has been undertaken alongside the preparation of the Plan.

The SFRA has informed the Plan and enables compliance with the Flood Risk Management Guidelines. Recommendations – including those related to land use zoning and flood risk management provisions – have been integrated into the Plan.

1.3 Flood Risk and its Relevance as an Issue to the Plan

1.3.1 Flood Risk

Flooding is an environmental phenomenon and can pose a risk to human health as well as causing economic and social effects. Some of the effects of flooding are identified on Table 1 below.

Certain lands within the County have the potential to be vulnerable to flooding and this vulnerability could be exacerbated by changes in both the occurrence of severe rainfall events and associated flooding. Local conditions such as low-lying lands and slow surface water drainage can increase the risk of flooding.

Table 1 Potential effects that may occur as a result of flooding

Tangible Effects	Intangible Human and Other Effects
Damage to buildings (houses)	Loss of life
Damage to contents of buildings	Physical injury
Damage to new infrastructure e.g. roads	Increased stress
Loss of income	Physical and psychological trauma
Disruption of flow of employees to work causing knock on effects	Increase in flood related suicide
Enhanced rate of property deterioration and decay	Increase in ill health
Long term rot and damp	Homelessness
	Loss of uninsured possessions

1.4 Flood Risk Management Policy

1.4.1 EU Floods Directive

The European Directive 2007/60/EC on the assessment and management of flood risk aims to reduce and manage the risks that floods pose to human health, the environment, cultural heritage and economic activity. The Directive applies to inland waters as well as all coastal waters across the whole territory of the EU. The Directive requires Member States to:

- Carry out a preliminary assessment by 2011 in order to identify the river basins and associated coastal areas where potential significant flood risk exists (preliminary mapping was prepared and a list of Areas for Further Assessment finalised in 2012).
- Prepare flood extent maps for the identified areas (finalised in 2016 for inclusion in Flood Risk Management Plans – see below).
- Prepare flood risk management plans focused on prevention, protection and preparedness. These plans are to include measures to reduce the probability of flooding and its potential consequences. These Plans were adopted in 2018.

Implementation of the EU Floods Directive is required to be coordinated with the requirements of the EU Water Framework Directive and the current National River Basin Management Plan.

1.4.2 National Flood Policy

Historically, flood risk management focused on land drainage for the benefit of agricultural improvement. With increasing urbanisation, the Arterial Drainage Act, 1945, was amended in 1995 to permit the Office of Public Works (OPW) to implement localised flood relief schemes to provide flood protection for cities, towns and villages.

In line with changing national and international paradigms on how to manage flood risk most effectively and efficiently, a review of national flood policy was undertaken in 2003-2004. The review was undertaken by an Inter-Departmental Review Group, led by the Minister of State at the Department of Finance with special responsibility for the OPW. The Review Group prepared a report that was put to Government, and subsequently approved and published in September 2004 (Report of the Flood Policy Review Group, OPW, 2004).

The scope of the review included a review of the roles and responsibilities of the different bodies with responsibilities for managing flood risk, and to set a new policy for flood risk management in Ireland into the future. The adopted policy was accompanied by many specific recommendations, including:

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

1.4.3 National CFRAM Programme

The national Catchment Flood Risk Assessment and Management (CFRAM) programme commenced in Ireland in 2011. The CFRAM Programme is intended to deliver on core components of the National Flood Policy, adopted in 2004, and on the requirements of the EU Floods Directive. The Programme is being implemented through CFRAM studies that have been undertaken for each of the river basin districts in Ireland.

The CFRAM Programme comprises three phases as follows:

- The Preliminary Flood Risk Assessment¹ (PFRA) mapping exercise, which was completed in 2012;
- The CFRAM Studies and parallel activities, with Flood Risk Management Plans finalised in 2018; and
- Implementation and Review.

The Programme provides for three main consultative stages as follows:

- Consultation for the PFRA mapping that was adopted in 2012;
- Consultation for Flood Extent mapping, that was finalised in 2016 for inclusion in Flood Risk Management Plans; and
- Consultation for Flood Risk Management Plans, that were adopted in 2018.

The OPW is the lead agency for flood risk management in Ireland. The coordination and implementation of Government policy on the management of flood risk in Ireland is part of its responsibility. The European Communities (Assessment and Management of Flood Risks) Regulations 2010 (S.I. No. 122) identifies the Commissioners of Public Works as the 'competent authority' with overall responsibility for implementation of the Floods Directive 2007/60/EC. The OPW is the principal agency involved in the preparation of CFRAM Studies.

1.4.4 Flood Risk Management Guidelines

1.4.4.1 Introduction

In 2009, the OPW and the then Department of the Environment and Local Government (DEHLG) published Guidelines on flood risk management for planning authorities entitled *The Planning System and Flood Risk Management - Guidelines for Planning Authorities*. The Guidelines introduce mechanisms for the incorporation of flood risk identification, assessment and management into the planning process. Implementation of the Guidelines is intended to be achieved through actions at the national, regional, local authority and site-specific levels. Planning authorities and An Bord Pleanála are required to have regard to the Guidelines in carrying out their functions under the Planning Acts.

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.

1.4.4.2 Principles of Flood Risk Management

The key principles of flood risk management set out in the flood Guidelines are to:

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

¹ The PFRAs identified areas at risk of significant flooding and includes maps showing areas deemed to be at risk. The areas deemed to be most significant risk, where the flood risk that is of particular concern nationally, are identified as Areas for Further Assessment (AFAs). AFAs were identified in County Cavan at Ballyconnell and Cavan Town. The OPW has undertaken a detailed assessment on the extent and degree of fluvial flood risk for various areas in County Cavan, including these AFAs, producing Flood Extent Mapping.

The Guidelines follow the principle that development should not be permitted in flood risk areas, particularly floodplains, except where there are no alternative and appropriate sites available in lower risk areas that are consistent with the objectives of proper planning and sustainable development.

Development in areas that have the highest flood risk should be avoided and/or only considered in exceptional circumstances (through a prescribed *Justification Test*) if adequate land or sites are not available in areas that have lower flood risk. Most types of development would be considered inappropriate in areas that have the highest flood risk. Only water-compatible development such as docks and marinas, dockside activities that require a waterside location, amenity open space, outdoor sports and recreation and essential transport infrastructure that cannot be located elsewhere would be considered appropriate in these areas.

1.4.4.3 Stages of SFRA

The Flood Risk Management Guidelines recommend a staged approach to flood risk assessment that covers both the likelihood of flooding and the potential consequences. The stages of appraisal and assessment are:

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 Spatial and Economic Strategies, 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 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 are 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.

1.4.4.4 Flood Zones

Flood risk is an expression of the combination of the flood probability or likelihood and the magnitude of the potential consequences of the flood event. It is normally expressed in terms of the following relationship:

$$\text{Flood risk} = \text{Likelihood of flooding} \times \text{Consequences of flooding}$$

Likelihood of flooding is normally defined as the percentage probability of a flood of a given magnitude or severity occurring or being exceeded in any given year. For example, a 1% Annual Exceedance Probability (AEP) 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.

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 and the presence and reliability of mitigation measures).

Flood zones are geographical areas within which the likelihood of flooding is in a particular range and they are a key tool in flood risk management within the planning process as well as in flood warning and emergency planning.

There are three types of flood zones defined for the purposes of the Flood Guidelines:

- **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 flooding²);
- **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); and
- **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 other areas that are not in zones A or B.

A summary of the requirements of the Flood Guidelines for land uses across each of the above flood zones is provided at **Appendix I**.

1.5 Emerging Information and Disclaimer

It is important to note that compliance with the requirements of the Flood Risk Management Guidelines is currently based on emerging and best available data at the time of preparing the assessment, including Flood Risk Management Plans, which will be updated on a cyclical basis as part of CFRAM activities.

Following adoption of the Plan, information in relation to flood risk may be altered in light of future data and analysis, by, for example, the OPW, or future flood events. As a result, all landowners and developers are advised that Cavan County Council and their agents can accept no responsibility for losses or damages arising due to assessments of the vulnerability to flooding of lands, uses and developments. Owners, users and developers are advised to take all reasonable measures to assess the vulnerability to flooding of lands and buildings (including basements) in which they have an interest prior to making planning or development decisions. Any future SFRA for the area will integrate other new and emerging data.

1.6 Content of the County Development Plan

The Cavan County Development Plan is a land use plan and overall strategy for the proper planning and sustainable development of the functional area of County Cavan over the six-year period 2022-2028. The Plan sets out the Council's proposed policies and objectives for the development of the County over the Plan period. The Plan comprises of the following documents: Volume 1 – Written Statement; Volume 2- Book of Maps; and Volume 3- Appendices.

Volume 1 is divided into an Introduction and 14 Chapters as follow:

- Chapter 1 - Core Strategy
- Chapter 2 - Settlement Strategy
- Chapter 3 - Housing
- Chapter 4 - Sustainable Communities
- Chapter 5 - Climate Change
- Chapter 6 - Economic
- Chapter 7 - Transportation and Infrastructure
- Chapter 8 - Environment, Water and Drainage
- Chapter 9 - Tourism
- Chapter 10 - Natural Heritage
- Chapter 11 - Built and Cultural Heritage
- Chapter 12 - Rural
- Chapter 13 - Development Management
- Chapter 14 - Land Use

The most relevant parts of the Plan for this SFRA relate to land use zoning and provisions relating to flood risk management³.

² Coastal flooding is not relevant to County Cavan

³ Flood risk management recommendations made by the SFRA process and integrated into the Plan by the Council, are provided under Section 4.

Section 2 Stage 1 SFRA - Flood Risk Identification

2.1 Introduction

Stage 1 SFRA (flood risk identification) was undertaken in order to identify whether there may be any flooding or surface water management issues within or adjacent to zoned lands and consequently whether Stage 2 SFRA (flood risk assessment) should be proceeded to.

Different areas of County Cavan are subject to different Flood Risk Management Plans. These comprise 2018 Plans for the Boyne Catchment, the Neagh Bann Catchment, the Erne River Catchment and the Shannon Upper and Lower Catchment.

Stage 1 SFRA is based on existing information on flood risk indicators based on historical evidence and computational models. **Appendices II** and **III** (pages 2-5) show the spatial distribution of County-wide historical and predictive flood risk indicators.

Appendix II also provides maps of these historical and predictive indicators for the Key Town of Cavan Town, the Self-Sustaining Growth Town of Virginia, the Self-Sustaining Towns of Ballyjamesduff, Bailieborough, Kingscourt and Cootehill and the Medium Towns of Belturbet, Mullagh and Ballyconnell. **Appendix III** provides similar maps for settlements including Small Towns and Villages (Ballinagh, Ballyhaise, Shercock, Killeshandra, Arva, Kilnaleck, Swanlinbar, Butlersbridge, Blacklion, Loch Gowna, Bawnboy, Crossdoney, Crosskeys, Dowra, Kilcogy, Mountnugent, Redhills and Stradone).

2.2 Drainage, Defences and Early Warning Systems

With regard to areas benefitting from drainage and defences (flood relief scheme works), there are various measures that have been implemented in County Cavan that will contribute towards flood risk management. These include the culverting of various streams and rivers in many urban areas.

Embankments and associated predicted benefitting lands under a number of historical government schemes are mapped in **Appendices II** and **III**.

Arterial Drainage Schemes were carried out by the Office of Public Works under the Arterial Drainage Act 1945 to improve land for agricultural purposes and to mitigate flooding. Arterial drainage maintenance and monitoring of these schemes is still carried out by OPW on rivers, lakes, weirs, bridges and embankments to maintain adequate conveyance and ensure that flood waters (of varying magnitude) are retained in bank by lowering water levels during the growing season thus reducing waterlogging on the adjacent land during wetter periods. Arterial drainage maintenance schemes are common in Cavan and as can be seen in **Appendices II** and **III**, various settlements and/or their surrounding areas benefit from these schemes.

The 2018 Flood Risk Management Plans identify various general measures under "Measures Applicable for all Areas"⁴.

With regard to Ballyconnell, the Erne River Catchment FRMP identifies:

- No structural Flood Relief Scheme is proposed at this time for Ballyconnell.
- There is a relatively low level of flood risk to this community from rivers and/or the sea, and no structural flood relief measures are therefore proposed at this time. The current level of risk will be reviewed, along with all areas, on a regular basis into the future

With regard to Cavan Town, the Erne River Catchment FRMP identifies:

- Progress a Flood Relief Scheme for Cavan.
- The Proposed Cavan Flood Relief Scheme, may include a series of flood embankments and walls. These hard defences are expected to provide protection to the 1% AEP flood event.

The provision of flood protection measures can significantly reduce flood risk. However, the Ministerial Guidelines require that the presence of flood protection structures should be ignored in determining flood zones. This is because of risks relating to failure and severe flood events that exceed design capacity (the risk of severe events is exacerbated with climate change). Notwithstanding this, new development can proceed in areas that are at elevated levels of flood risk subject to the Justification Test provided for by the Guidelines being passed, which takes into account proposals to manage flood risk, such as the development of defences. Although insurance can be challenging to attain in these instances.

Various rivers and their banks and culverts in the County are maintained by the Office of Public Works and Cavan County Council.

⁴ Under the headings of:

- Prevention: Sustainable Planning and Development Management
- Prevention: Sustainable Urban Drainage Systems
- Prevention: Voluntary Home Relocation
- Prevention: Local Adaptation Planning
- Prevention: Land Use Management and Natural Flood Risk Management Measures
- Protection: Minor Works Scheme Maintenance of Arterial Drainage Schemes and Existing Flood Relief Schemes
- Protection: Maintenance of Drainage Districts Maintenance of Channels Not Part of a Scheme Preparedness: Flood Forecasting
- Preparedness: Review of Emergency Response Plans for Severe Weather Preparedness: Individual and Community Resilience
- Preparedness: Individual Property Protection
- Preparedness: Flood-Related Data Collection
- Management of water levels on the River Shannon
- Operation and Maintenance of ESB and Waterways Ireland Infrastructure

As provided for under Plan Objective FRM 07 it is Council policy to “Protect water bodies and watercourses within the County from inappropriate development, including rivers, streams, associated undeveloped riparian strips, wetlands and natural floodplains. This will include buffers in riverine and wetland areas as appropriate. Consult with the OPW in relation to proposed developments in the vicinity of drainage channels and rivers for which the OPW are responsible, and retain a strip on either side of such channels where required, to facilitate maintenance access thereto. In addition, promote the sustainable management and uses of water bodies and avoid culverting or realignment of these features”. Such protection will, in combination with the direction of development within the existing footprints of settlements, safeguard flood plains from development throughout the County.

Met Éireann currently issues flood warnings for County Cavan. Met Éireann, in collaboration with the OPW, is currently engaged in the establishment of a National Flood Forecasting and Warnings Service to forecast for fluvial and coastal flood events.

2.3 Other Flood Studies

Other Flood Studies considered in the preparation of this assessment include:

- Flood Risk Management Plan (Boyne Catchment), 2018;
- Flood Risk Management Plan (Neagh Bann Catchment), 2018;
- Flood Risk Management Plan (Erne River Catchment), 2018;
- Flood Risk Management Plan (Shannon Upper and Lower Catchment), 2018; and
- Regional Flood Risk Assessment for the Northern and Western Regional Spatial and Economic Strategy, 2020.

2.4 Flood Risk Indicators

Indicators of flood risk that are based on historical flooding events are identified and described on Table 2 and mapped at county and settlement level in **Appendices II** and **III**.

Indicators of flood risk that are based on computational models – predictive flood risk indicators – are identified and described on Table 3 and, apart from the National Indicative Fluvial Mapping is available at floodinfo.ie, are mapped at county and settlement level in **Appendices II** and **III**.

Table 2 Historical Flood Risk Indicators

Information Source	Description	Strategic Limitations
Recorded Flood Events from the OPW	A flood event is the occurrence of recorded flooding at a given location on a given date. The flood event is derived from different types of information (reports, photographs etc.).	This dataset only provides a spot location
Recurring Flood Events	A flood event that has occurred more than once at a certain area is named a recurring flood event.	This dataset only provides a spot location
Alluvium Soils	Mineral alluvial soil mapping is indicative of recurrent or significant fluvial flooding at some point in the past and was generated by Teagasc with co-operation of the Forest Service, EPA and GSI. This project was completed May 2006.	Drainage may have changed significantly since these soils were deposited.
Benefitting lands (OPW)	Benefitting lands mapping is a dataset identifying land that might benefit from the implementation of Arterial (Major) Drainage Schemes (under the Arterial Drainage Act 1945) and indicating areas of land estimated or reported to be subject to flooding or poor drainage.	Identifies broad areas - low resolution for flood risk management
Drainage Districts (OPW)	This drainage scheme mapping dataset was prepared on behalf of the Drainage Districts (Local Authorities with statutory responsibility for maintenance under the Arterial Drainage Act, 1925). These maps identify land that might benefit from the implementation of Arterial (Major) Drainage Schemes and indicate areas of land subject to flooding or poor drainage.	Identifies large broad areas - very low resolution for flood risk management
Land Commission (OPW)	This dataset indicates areas of land defended to some degree against flooding that were formerly the responsibility of the Land Commission.	Identifies broad areas - low resolution for flood risk management
Historical groundwater flooding	Historic groundwater flood map: The historic groundwater flood map is a national-scale flood map presenting the maximum historic observed extent of karst groundwater flooding. The map is primarily based on the winter 2015/2016 flood event, which in most areas represented the largest groundwater flood event on record. The map	-

Information Source	Description	Strategic Limitations
	<p>was produced based on the SAR imagery of the 2015/2016 event as well as any available supplementary evidence. The floods were classified by flood type differentiating between floods dominated by groundwater (GW) and floods with significant contribution of groundwater and surface water (GWSW).</p> <p>In addition to the historic groundwater flood map, the flood mapping methodology was also adapted to produce a surface water flood map of the 2015/2016 flood event. This flood map encompasses fluvial and pluvial flooding in non-urban areas and has been developed as a separate product.</p>	

Table 3 Predictive Flood Risk Indicators

Information Source	Description	Strategic Limitations
CFRAM Study, Flood Extent Mapping, 2016	Following the undertaking of the PFRA, the OPW, through its engineering consultants and working with local authorities and other stakeholders, conducted extensive engineering assessments to better understand and detail the actual risk from flooding for areas that were at highest levels of risk. This was the subject of public consultation. The outcome of that work includes Predicted Flood Extent maps that were finalised in 2016. For fluvial flood levels, calibration and verification of the models make use of the best available data including hydrometric records, photographs, videos, press articles and anecdotal information.	Spatial spread is limited, including to the areas that are considered to be at most risk of flooding.
National Indicative Fluvial Mapping (NIFM) 2021	The OPW NIFM project has produced second generation indicative fluvial flood spatial data that are of a higher quality and accuracy to those produced for the first cycle PFRA. This project has covered 27,000 km of river reaches, separated into 37 drainage areas, consisting of 509 sub-catchments. Maps are available on www.floodinfo.ie .	Does not cover smaller sized catchments
OPW Preliminary Flood Risk Assessment (PFRA) Fluvial, Groundwater and Pluvial flood maps, 2012⁵	<p>The OPW PFRA mapping dataset has been arrived at by:</p> <ul style="list-style-type: none"> • Reviewing records of floods that have happened in the past; • Undertaking analysis to determine which areas might flood in the future, and what the impacts might be; and • Extensive consultation with each local authorities and other Government departments and agencies. <p>This assessment has considered all types of flooding, including that which can occur from rivers, the sea and estuaries, heavy rain, groundwater, the failure of infrastructure, and so on. It has also considered the impacts flooding can have on people, property, businesses, the environment and cultural assets. Further information on the purpose and development of the OPW PFRA Maps are available on www.floodinfo.ie.</p>	The PFRA is only a preliminary assessment, based on available or readily derivable information. Analysis has been undertaken to identify areas prone to flooding, and the risks associated with such flooding, but this analysis is purely indicative and undertaken for the purpose of completing the PFRA. The mapping has been developed using simple and cost-effective methods and is based on broad-scale simple analysis and may not be accurate for a specific location/use.

⁵ **Appendices II and III** of this assessment includes PFRA Fluvial mapping. Pluvial and groundwater flood risk is present in the County, however; it is not taken into account in the delineation of flood zones. Nonetheless, it has informed the development of recommendations detailed in Section 4.

Information Source	Description	Strategic Limitations
<p>Predictive groundwater flood map</p>	<p>The predictive groundwater flood map presents the probabilistic flood extents for locations of recurrent karst groundwater flooding. It consists of a series of stacked polygons at each site representing the flood extent for specific AEP's mapping floods that are expected to occur every 10, 100 and 1000 years (AEP of 0.1, 0.01, and 0.001 respectively). The map is focussed primarily (but not entirely) on flooding at seasonally inundated wetlands known as turloughs. Sites were chosen for inclusion in the predictive map based on existing turlough databases as well as manual interpretation of SAR imagery.</p> <p>The mapping process tied together the observed and SAR-derived hydrograph data, hydrological modelling, stochastic weather generation and extreme value analysis to generate predictive groundwater flood maps for over 400 qualifying sites.</p>	<p>Not all turloughs are included in the predictive map as some sites could not be successfully monitored with SAR and/or modelled.</p>

2.5 Conclusion of Stage 1 SFRA

The information detailed above indicates elevated levels of flood risk in various locations across the County; therefore, a Stage 2 SFRA has been proceeded to.

Section 3 Stage 2 SFRA - Flood Risk Assessment

3.1 Introduction

Stage 2 SFRA (flood risk assessment) has been undertaken to:

- Confirm the sources of flooding that may affect zoned and adjacent areas;
- Appraise the adequacy of existing information as identified by the Stage 1 SFRA; and
- Scope the extent of the risk of flooding through the preparation of flood zone maps.

3.2 Findings and Adequacy of Existing Information and Delineation of Flood Zones

Desk and in-field studies were undertaken taking into account the following factors:

- OPW's CFRAMS fluvial flood extent mapping (2016) and other predictive indicators;
- Historical indicators of flood risk;
- Aerial photography;
- Documented Council knowledge of lands;
- The potential source and direction of flood paths from rivers and streams;
- Vegetation indicative of flood risk; and
- The locations of topographic/built features that coincide with the flood indicator related boundaries/topographical survey.

Within the annual exceedance probabilities specified by the Flood Guidelines for Flood Zones A and B, there are elevated levels of flood risk within the majority of the County's settlements for which land use zoning is included in the Plan, as shown in **Appendices II** and **III**.

3.3 Flood Risk Zone Mapping

Flood Risk Zone maps have been produced taking into account the findings of the Stage 1 and Stage 2 SFRA desk and in field studies as identified above⁶.

The maps are provided in **Appendices II** and **III** and identify Flood Zone A (darker blue) and Flood Zone B⁷ (lighter blue). All other areas fall within Flood Zone C. As per the Guidelines, the flood zones in County Cavan are as follows:

- Flood Zone A – where the probability of flooding from rivers is highest (greater than 1% or 1 in 100 for river flooding);
- Flood Zone B – where the probability of flooding from rivers is moderate (between 0.1% or 1 in 1000 and 1% or 1 in 100 for river flooding); and
- Flood Zone C – where the probability of flooding from rivers is low (less than 0.1% or 1 in 1000 for river flooding).

⁶ Including taking into account predictive and historical indicators of flood risk, documented Council knowledge of lands, the potential source and direction of flood paths from rivers and streams, vegetation indicative of flood risk and the locations of topographic/built features that coincide with the flood indicator related boundaries/topographical survey.

⁷ As identified by the Guidelines, in rivers with a well-defined floodplain or where the coastal plain is well defined at its rear, the limits of Zones A and B will virtually coincide. Zone B will only be significantly different in spatial extent from Zone A where there is extensive land with a gentle gradient away from the river or the sea.

3.4 Sensitivity to Climate Change

'The Planning System and Flood Risk Management Guidelines for Planning Authorities and Technical Appendices, 2009' recommends that a precautionary approach to climate change is adopted due to the level of uncertainty involved in the potential effects. In this regard, the Guidelines recommends:

- Recognising that significant changes in the flood extent may result from an increase in rainfall or tide events and accordingly adopting a cautious approach to zoning land in these potential transitional areas;
- Ensuring that the levels of structures designed to protect against flooding such as flood defences⁸, 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 (normally 85-100 years); and
- Ensuring 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.

Advice on the expected impacts of climate change and the allowances to be provided for future flood risk management in Ireland is given in the OPW Draft Guidance on Assessment of Potential Future Scenarios for Flood Risk Management (2009). Two climate change scenarios are considered. These are the Mid-Range Future Scenario (MRFS) and the High-End Future Scenario (HEFS). The MRFS is intended to represent a "likely" future scenario based on the wide range of future predictions available. The HEFS represents a more "extreme" future scenario at the upper boundaries of future projections. Based on these two scenarios the OPW recommended allowances for climate change in relation to river flows and sea levels are given in Table 4. These climate change allowances are particularly important at the development management stage of planning, and will ensure that proposed development is designed and constructed to take into account best current knowledge. Climate change allowances have been integrated into the recommendations provided at Section 4 of this report and MRFS and HEFS mapping is available from the OPW for certain areas, including AFAs.

Table 4 Allowances for Future Scenarios (100-Year Time Horizon)⁹

Criteria	MRFS – to be considered for most development scenarios	HEFS – to be considered in relation to high value, high vulnerability development which cannot be relocated
Extreme Rainfall Depths	+20%	+30%
Flood Flows	+20%	+30%
Mean Sea Level Rise	+500mm	+1000mm

3.5 Sustainable Drainage Systems

As provided for by Foul Drainage and Wastewater Development Objective FDW 06, the Plan requires new developments to "Incorporate the requirement for Sustainable Urban Drainage Systems where appropriate in local authority projects and private development sites".

SuDS are effective technologies, which aim to reduce flood risk, improve water quality and enhance biodiversity and amenity.

The systems should aim to mimic the natural drainage of the application site to minimise the effect of a development on flooding and pollution of existing waterways. SuDS include devices such as swales,

⁸ Defended areas are highly sensitive to climate change as the likelihood of defence failure and resulting flooding increases.

⁹ OPW Draft Guidance on Assessment of Potential Future Scenarios for Flood Risk Management (2009)

permeable pavements, filter drains, storage ponds, constructed wetlands, soakways and green roofs. The integration of nature-based solutions, such as amenity areas, ecological corridors and attenuation ponds, into public and private development initiatives, is applicable within the provisions of the Plan and should be encouraged.

In some exceptional cases, and at the discretion of the Council, where it is demonstrated that SuDS devices are not feasible, approval may be given to install underground attenuation tanks or enlarged pipes in conjunction with other devices to achieve the required water quality. Such alternative measures will only be considered as a last resort. Proposals for surface water attenuation systems should include maintenance proposals and procedures.

Urban developments, both within developments and within the public realm, should seek to minimise and limit the extent of hard surfacing and paving and require the use of sustainable drainage techniques for new development or for extensions to existing developments, in order to reduce the potential impact of existing and predicted flood risk. Development proposals should be accompanied by a comprehensive SuDS assessment that addresses run-off rate, run-off quality and its impact on the existing habitat and water quality.

For larger sites (i.e. multiple dwellings or commercial units) master planning should ensure that existing flow routes are maintained, through the use of green infrastructure. In addition, where multiple individual proposals are being made SuDS should be integrated where appropriate and relevant.

All proposed development, should consider the impact of surface water flood risks on drainage design e.g. in the form of a section within the flood risk assessment (for sites in Flood Zone A or B) or part of a surface water management plan.

Areas vulnerable to ponding are indicated on the OPW's PFRA Pluvial mapping. Particular attention should be given to development in low-lying areas which may act as natural ponds for collection of run-off. The drainage design should ensure no increase in flood risk to the site, or the downstream catchment. Where possible, and particularly in areas of new development, floor levels should be at an appropriate height above adjacent roads and hard standing areas to reduce the consequences of any localised flooding. Where this is not possible, an alternative design appropriate to the location may be prepared.

Further to the above, proposals for development should consider Greater Dublin Strategic Drainage Study documents in designing SuDS solutions, including the New Development Policy, the Final Strategy Report, the Code of Practice and "Irish SuDS: guidance on applying the GSDS surface water drainage criteria".

Section 4 Recommendations

4.1 Introduction

In order to comply with *The Planning System and Flood Risk Management - Guidelines for Planning Authorities* (Department of the Environment, Heritage and Local Government and Office of Public Works, 2009) and Department of the Environment, Community and Local Government Circular (*PL 2/2014*) and contribute towards flood risk management within the Plan area, the recommendations below have been made by the SFRA process and integrated into the Plan.

4.2 Land Use Zoning

That the Flood Zones identified by the SFRA (see Appendices II and III of the SFRA report that accompanies the Plan) are used in line with the requirements provided for by the Flood Guidelines for land uses in **Flood Zones A** and **B**.

Text integrated into Chapter 8 Environment, Water and Drainage:

Land use zoning objectives provided for by the Plan are subject to the following strict conditions:

- Undeveloped land in Flood Zone A that is the subject of any zoning objective shall only be developed for water compatible uses as identified in the Guidelines.
- Undeveloped land in Flood Zone B that is the subject of any zoning objective shall only be developed for water compatible or less vulnerable uses as identified in the Guidelines.
- With respect to lands that have already been developed in Flood Zone A or B the potential conflict (between zoning and highly or less vulnerable development in Flood Zone A and between zoning and highly vulnerable development in Flood Zone B) will be avoided by applying the following zoning approach:
 - The Council will facilitate the appropriate management and sustainable use of these areas. This will mean generally limiting new development, but facilitating existing development uses that may require small scale development such as small extensions. Development proposals within these areas shall be accompanied by a detailed Flood Risk Assessment, carried out in accordance with The Planning System and Flood Risk Assessment Guidelines and Circular PL 2/2014 (or as updated), which shall assess the risks of flooding associated with the proposed development.
 - Proposals shall only be considered favourably where it is demonstrated to the satisfaction of the Planning Authority that they would not have adverse impacts or impede access to a watercourse, floodplain or flood protection and management facilities, or increase the risk of flooding to other locations and be in accordance with the proper planning and sustainable development of the area. The nature and design of structural and non-structural flood risk management measures required for development in such areas (please refer to the Development Management Chapter 13) will also be required to be demonstrated, to ensure that flood hazard and risk will not be increased. Measures proposed shall follow best practice in the management of health and safety for users and residents of the development.

Text integrated into Chapter 13 Development Management Standards:

13.7.1 Flood Zones and Appropriate Uses

The table below indicates the types of land uses that are appropriate in each of the Flood Zones identified within the Plan area, in accordance with the 2009 Flood Risk Management

Guidelines for Planning Authorities and Departmental Circular PL2/2014 (or any updated/superseding legislation or policy guidance).

Where developments/land uses are proposed that are considered inappropriate to the Flood Zone, then a Development Management Justification Test and site-specific Flood Risk Assessment will be required in accordance with The Planning System and Flood Risk Management Guidelines 2009 (and as updated).

Flood Zones	Overall probability	Planning implications for land uses		
		Highly Vulnerable Development	Less Vulnerable Development	Water Compatible Development
Flood Zone A	Highest	Inappropriate – if proposed then Justification Test and detailed Flood Risk Assessment is required	Inappropriate – if proposed then Justification Test and detailed Flood Risk Assessment is required	Appropriate – screen for flood risk
Flood zone B	Moderate	Inappropriate – if proposed then Justification Test and detailed Flood Risk Assessment is required	Inappropriate due to climate change – if proposed then Justification Test and detailed Flood Risk Assessment is required	Appropriate – screen for flood risk
Flood Zone C	Lowest	Appropriate – detailed Flood Risk Assessment may be required	Appropriate – detailed Flood Risk Assessment may be required	Appropriate – screen for flood risk

Note (refer to Flood Risk Management Guidelines 2009 and 'SFRA for the Cavan County Development Plan 2022-2028' for additional detail):

- Highly Vulnerable Development – Houses, schools, hospitals, residential institutions, emergency services, essential infrastructure, etc.
- Less Vulnerable Development – Economic uses (retail, leisure, warehousing, commercial, industrial, non-residential institutions, etc.), land and buildings used for agriculture or forestry, local transport infrastructure, etc.
- Water Compatible Development – Docks, marinas, wharves, water-based recreation and tourism (excluding sleeping accommodation), amenity open space, sports and recreation, flood control infrastructure, etc.

13.7.2 Structural and Non-Structural Risk Management Measures in Flood Vulnerable Zones

Applications for development in flood vulnerable zones shall provide details of structural and non-structural risk management measures to include, but not be limited to specifications of the following:

Floor Levels

In areas of limited flood depth, the specification of the threshold and floor levels of new structures shall be raised above expected flood levels to reduce the risk of flood losses to a building, by raising floor heights within the building structure using a suspended floor arrangement or raised internal concrete platforms.

When designing an extension or modification to an existing building, an appropriate flood risk reduction measure shall be specified to ensure the threshold levels into the building are above the design flood level. However, care must also be taken to ensure access for all is provided in compliance with Part M of the Building Regulations.

Where threshold levels cannot be raised to the street for streetscape, conservation or other reasons, the design shall specify a mixing of uses vertically in buildings – with less vulnerable uses located at ground floor level, along with other measures for dealing with residual flood risk.

Internal Layout

Internal layout of internal space shall be designed and specified to reduce the impact of flooding [for example, living accommodation, essential services, storage space for provisions and equipment shall be designed to be located above the predicted flood level]. In addition, designs and specifications shall ensure that, wherever reasonably practicable, the siting of living accommodation (particularly sleeping areas) shall be above flood level.

With the exception of single storey extensions to existing properties, new single storey accommodation shall not be deemed appropriate where predicted flood levels are above design floor levels. In all cases, specifications for safe access, refuge and evacuation shall be incorporated into the design of the development.

Flood-Resistant Construction

Developments in flood vulnerable zones shall specify the use of flood-resistant construction aimed at preventing water from entering buildings – to mitigate the damage floodwater caused to buildings.

Developments shall specify the use of flood resistant construction prepared using specialist technical input to the design and specification of the external building envelope – with measures to resist hydrostatic pressure (commonly referred to as “tanking”) specified for the outside of the building fabric.

The design of the flood resistant construction shall specify the need to protect the main entry points for floodwater into buildings – including doors and windows (including gaps in sealant around frames), vents, air-bricks and gaps around conduits or pipes passing through external building fabric.

The design of the flood resistant construction shall also specify the need to protect against flood water entry through sanitary appliances as a result of backflow through the drainage system.

Flood-Resilient Construction

Developments in flood vulnerable zones that are at risk of occasional inundation shall incorporate design and specification for flood resilient construction which accepts that floodwater will enter buildings and provides for this in the design and specification of internal building services and finishes. These measures limit damage caused by floodwater and allow relatively quick recovery.

This can be achieved by specifying wall and floor materials such as ceramic tiling that can be cleaned and dried relatively easily, provided that the substrate materials (e.g. blockwork) are also resilient. Electrics, appliances and kitchen fittings shall also be specified to be raised above floor level, and one-way valves shall be incorporated into drainage pipes.

Emergency Response Planning

In addition to considering physical design issues for developments in flood vulnerable zones, the developer shall specify that the planning of new development also takes account of the need for effective emergency response planning for flood events in areas of new development.

Applications for developments in flood vulnerable zones shall provide details that the following measures will be put in place and maintained:

- Provision of flood warnings, evacuation plans and ensuring public awareness of flood risks to people where they live and work;
- Coordination of responses and discussion with relevant emergency services i.e. Local Authorities, Fire and Rescue, Civil Defence and An Garda Síochána through the SFRA; and
- Awareness of risks and evacuation procedures and the need for family flood plans.

Access and Egress During Flood Events

Applications for developments in flood vulnerable zones shall include details of arrangements for access and egress during flood events. Such details shall specify that: • flood escape routes have been kept to publicly accessible land; • such routes will have signage and other flood awareness measures in place, to inform local communities what to do in case of flooding; and this information will be provided in a welcome pack to new occupants.

Further Information

Further and more detailed guidance and advice can be found at <http://www.flooding.ie> and in the Building Regulations.

Text integrated into Chapter 14 Land Use:

14.2.1 Land Uses and Flooding

Flood Zones A and B have been identified by the Strategic Flood Risk Assessment. These zones generally limit new development, but facilitate existing development uses that may require small scale development such as small extensions. Development proposals within these zones shall be accompanied by a detailed Flood Risk Assessment, carried out in accordance with The Planning System and Flood Risk Assessment Guidelines and Circular PL 2/2014 (or as updated), which shall assess the risks of flooding associated with the proposed development.

Proposals shall only be considered favourably where it is demonstrated to the satisfaction of the Planning Authority that they would not have adverse impacts or impede access to a watercourse, floodplain or flood protection and management facilities, or increase the risk of flooding to other locations and be in accordance with the proper planning and sustainable

development of the area. The nature and design of structural and non-structural flood risk management measures required for development in such areas will also be required to be demonstrated, to ensure that flood hazard and risk will not be increased. Measures proposed shall follow best practice in the management of health and safety for users and residents of the development.

Proposals seeking to change the use of existing buildings from a less vulnerable use to a more vulnerable use to the effects of flooding will not normally be considered acceptable to the Planning Authority whilst some change of use proposals not increasing the vulnerability to the effects of flooding or small scale extensions to such buildings will be considered on their individual merits but are acceptable in principle.

An existing dwelling or building that is not located within an area at risk of flooding but has a large rear garden / curtilage that is located within Flood Zone A or B would not be suitable for a more in-depth residential development proposal which would propose a residential use within a designated constrained land use area.

Land Uses and Flooding Objective CLU 01

Facilitate the appropriate management and sustainable use of Flood Zones A and B identified by the Strategic Flood Risk Assessment.

4.3 Integration of other provisions relating to flood risk management into the Plan

Other provisions relating to flood risk management, including the following, have also been integrated into the Plan.

Table 5 Other Plan Provisions relating to Flood Risk Management

No.	Reference	Provision
1	CSD 02	Restrict development in areas at risk of flooding in accordance with the Flood Risk Management Guidelines for Planning Authorities (DoECLG/OPW 2009).
2	Cavan Town Local Area Plan 2022-2028 Map Based Specific Objectives 29.	With respect to lands within Flood Zones A and B (with underlying zoning as Proposed Residential), permissible Uses shall be constrained to those water compatible and less vulnerable uses as relevant to the particular Flood Zone, (refer to the accompanying Strategic Flood Risk Assessment and Plan Section 13.7)
3	CP12	Encourage the use of materials and engineering solutions that optimise natural surface water drainage as part of Sustainable Urban Drainage Systems (SuDS) (Refer to Strategic Flood Risk Assessment) associated with large scale car parks.
4	RIC 19	Seek to implement the principals of the 'Green Street' concept for all future, urban regeneration of streets, prioritising the integration of Sustainable Drainage Systems (SuDS) (Refer to Strategic Flood Risk Assessment).
5	RIC 21	Require the incorporation of Sustainable Drainage Schemes (SuDS) (Refer to Strategic Flood Risk Assessment) for all future developments with an identified need.
6	FDW 16	Ensure new developments provide adequate storm water infrastructure in order to accommodate the planned levels of growth and ensure there is appropriate flood management measures implemented to protect property and infrastructure.
7	FRM 01	Support, in co-operation with the OPW, the implementation of the EU Flood Risk Directive, the Flood Risk Regulations (S.I. No. 122 of 2010) and the 'The Planning System and Flood Risk Management Guidelines for Planning Authorities (2009) and Department Circular PL2/2014 or any updated / superseding version. This will include the following: <ul style="list-style-type: none"> • Avoid, reduce and/or mitigate, as appropriate in accordance with the Guidelines, the risk of flooding within the flood risk areas indicated in the accompanying Strategic Flood Risk Assessment report, including fluvial, pluvial and groundwater flooding, and any other flood risk areas that may be identified during the period of the plan or in relation to a planning application. • Development proposals in areas where there is an identified or potential risk of flooding or that could give rise to a risk of flooding elsewhere will be required to carry out a site-specific Flood Risk

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		<p>Assessment, and Justification Test where appropriate, in accordance with the provisions of The Planning System and Flood Risk Management Guidelines for Planning Authorities 2009, (or any superseding document) and Circular PL2/2014 (as updated/superseded). Any flood risk assessment should include an assessment of the potential impacts of climate change, such as an increase in the extent or probability of flooding, and any associated measures necessary to address these impacts.</p> <ul style="list-style-type: none"> • Development that would be subject to an inappropriate risk of flooding or that would cause or exacerbate such a risk at other locations shall not normally be permitted. • Where certain measures proposed to mitigate or manage the risk of flooding associated with new developments are likely to result in significant effects to the environment or European sites downstream, such measures will undergo environmental assessment and Appropriate Assessment, as appropriate.
8	FRM 02	Protect Flood Zone A and Flood Zone B from inappropriate development and direct developments/land uses into the appropriate Flood Zone in accordance with The Planning System and Flood Risk Management Guidelines for Planning Authorities 2009 (or any superseding document) and the guidance contained in Development Management Chapter.
9	FRM 03	Site-specific Flood Risk Assessment (FRA) is required for all planning applications in areas at risk of flooding (fluvial, coastal, pluvial or groundwater), even for developments appropriate to the particular Flood Zone. The detail of these site specific FRAs will depend on the level of risk and scale of development. A detailed site-specific FRA should quantify the risks, the effects of selected mitigation and the management of any residual risks. The assessments shall consider and provide information on the implications of climate change with regard to flood risk in relevant locations. The 2009 OPW Draft Guidance on Assessment of Potential Future Scenarios for Flood Risk Management (or any superseding document) and available information from the CFRAM Studies shall be consulted with to this effect.
10	FRM 04	Development proposals will need to be accompanied by a Development Management Justification Test when required by the Guidelines in addition to the site-specific Flood Risk Assessment. Where only a small proportion of a site is at risk of flooding, the sequential approach shall be applied in site planning, in order to seek to ensure that no encroachment onto or loss of the flood plain occurs and/or that only water compatible development, such as Open Space, would be permitted for the lands which are identified as being at risk of flooding within that site.
11	FRM 05	In Flood Zone C, where the probability of flooding is low (less than 0.1%, Flood Zone C), site-specific Flood Risk Assessment may be required and the developer should satisfy themselves that the probability of flooding is appropriate to the development being proposed. The County Plan SFRA datasets and the most up to date CFRAM Programme climate scenario mapping should be consulted by prospective applicants for developments in this regard and will be made available to lower-tier Development Management processes in the Council.
12	FRM 06	Applications for development in flood vulnerable zones, including those at risk under the OPW's Mid-Range Future Scenario, shall provide details of structural and non-structural risk management measures, such as those relating to floor levels, internal layout, flood-resistant construction, flood-resilient construction, emergency response planning and access and egress during flood events.
13	FRM 07	Protect water bodies and watercourses within the County from inappropriate development, including rivers, streams, associated undeveloped riparian strips, wetlands and natural floodplains. This will include buffers in riverine and wetland areas as appropriate. Consult with the OPW in relation to proposed developments in the vicinity of drainage channels and rivers for which the OPW are responsible, and retain a strip on either side of such channels where required, to facilitate maintenance access thereto. In addition, promote the sustainable management and uses of water bodies and avoid culverting or realignment of these features.
14	FRM 08	Recognise the important role of peatland and other wetland areas in flooding patterns. Development in these areas shall therefore be subject to a Flood Risk Assessment.
15	FRM 09	Work with other bodies and organisations, as appropriate, to help protect critical infrastructure, including water and wastewater, within the county, from risk of flooding and to ensure the sustainable development of flood risk management infrastructure and practices.
16	FRM 10	Where resources are available and subject to compliance with the Habitats and Birds Directives, the Council will contribute towards the improvement and / or restoration of the natural flood risk management functions of flood plains.
17	FRM 11	Take account of and incorporate into local planning policy and decision making, including possible future variations to this plan, CFRAM measures that may be published in the future, including planned investment measures for managing and reducing flood risk.
18	FRM 12	Ensure each flood risk management activity is examined to determine actions required to embed and provide for effective climate change adaptation as set out in the OPW Climate Change Sectoral Adaptation Plan for Flood Risk Management applicable at the time.
19	FRM 13	Any potential future variations to the Plan shall consider, as appropriate any new and/or emerging data, including, when available, any relevant information contained in the CFRAMS Flood Risk Management Plans and as recommended in the SFRA for the Plan.
20	FRM 14	Applications for development on land identified as benefitting land may be prone to flooding, and as such site-specific flood risk assessments may be required in these areas.
21	FRM 15	Co-operate with the Office of Public Works (OPW) in the delivery of Flood Relief Schemes. The Council will seek to ensure that zoning and development proposals support and do not impede or prevent the progression of schemes. The Council will also seek to ensure that existing and future key flood risk infrastructure will be protected from interference and removal.

22	WL4	Protect wetlands, floodplains and watercourses for biodiversity and flood protection value.
23	WL5	Ensure land zonings carefully consider appropriate riparian setback distances that support high ecological status of water bodies, the conservation of biodiversity, healthy ecosystems and buffer zones from flood plains.
24	14.10.1 Objective	White Lands: Provide for appropriate mixed-use development within the development envelopes of small towns and villages of the county. With respect to lands within Flood Zones A and B, permissible Uses shall be constrained to those water compatible and less vulnerable uses as relevant to the particular Flood Zone, (please refer to the accompanying Strategic Flood Risk Assessment and Plan Section 13.7.2).

4.4 Justification Test

Table 6 overleaf addresses the Justification Test outlined in the Flood Risk Management Guidelines (see Appendix I)

Potential conflict between zonings and *highly* and *less vulnerable* development will be avoided by applying the measures which have been integrated into the Plan, including those detailed under Section 4.2 "Land Use Zoning" and Table 5.

Table 6 Justification of the Zoning Approach for Previously Developed Lands

Settlement	Zoning in Draft Plan	Is the settlement targeted for growth under the RSES, existing CDP and/or Draft CDP?	Justification Test (Fails, if one of the following fails; All must be passed for the test to be passed)	Overall Result	
			Is the zoning of the lands required to achieve the proper planning and sustainable development of the settlement? All sub-criteria ¹⁰ must be satisfied	Is the zoning of the lands required to achieve the proper planning and sustainable development of the settlement? All sub-criteria ¹⁰ must be satisfied	
Cavan Town	Various – refer to SFRA Appendices and land use zoning maps. Note that the meaning of zoning objectives has been influenced by the SFRA process and these meanings are explained in the Draft Plan, including through the provisions repeated under Section 4.2 "Land Use Zoning" (including "Text integrated into Chapter 8 Environment, Water and Drainage" and "14.2.1 Land Uses and Flooding") and No. 2 "Map Based Specific Objectives 29." and 24 "14.10.1 Objective" on Table 5.	Yes	This land use zoning proposal fulfils all sub-criteria and would contribute towards overall sustainable, compact and balanced regional development by inclusion as part of the Development Plan - as confirmed by the Planning Department.	Yes, see Plan provisions reproduced above, including those under Section 4.2 "Land Use Zoning" and Table 5.	Pass
Virginia	Various – refer to SFRA Appendices and land use zoning maps. Note that the meaning of zoning objectives has been influenced by the SFRA process and these meanings are explained in the Draft Plan, including through the provisions repeated under Section 4.2 "Land Use Zoning" (including "Text integrated into Chapter 8 Environment, Water and Drainage" and "14.2.1 Land Uses and Flooding") and No. 2 "Map Based Specific Objectives 29." and 24 "14.10.1 Objective" on Table 5.	Yes	This land use zoning proposal fulfils all sub-criteria and would contribute towards overall sustainable, compact and balanced regional development by inclusion as part of the Development Plan - as confirmed by the Planning Department.	Yes, see Plan provisions reproduced above, including those under Section 4.2 "Land Use Zoning" and Table 5.	Pass
Ballyjamesduff	Various – refer to SFRA Appendices and land use zoning maps. Note that the meaning of zoning objectives has been influenced by the SFRA process and these meanings are explained in the Draft Plan, including through the provisions repeated under Section 4.2 "Land Use Zoning" (including "Text integrated into Chapter 8 Environment, Water and Drainage" and "14.2.1 Land Uses and Flooding") and No. 2 "Map Based Specific Objectives 29." and 24 "14.10.1 Objective" on Table 5.	Yes	This land use zoning proposal fulfils all sub-criteria and would contribute towards overall sustainable, compact and balanced regional development by inclusion as part of the Development Plan - as confirmed by the Planning Department.	Yes, see Plan provisions reproduced above, including those under Section 4.2 "Land Use Zoning" and Table 5.	Pass
Bailieborough	Various – refer to SFRA Appendices and land use zoning maps. Note that the meaning of zoning objectives has been influenced by the SFRA process and these meanings are explained in the Draft Plan, including through the provisions repeated under Section 4.2 "Land Use Zoning" (including "Text integrated into Chapter 8 Environment, Water and Drainage" and "14.2.1 Land Uses and Flooding") and No. 2 "Map Based Specific Objectives 29." and 24 "14.10.1 Objective" on Table 5.	Not applicable – no such overlaps			
Kingscourt	Various – refer to SFRA Appendices and land use zoning maps. Note that the meaning of zoning objectives has been influenced by the SFRA process and these meanings are explained in the Draft Plan, including through the provisions repeated under Section 4.2 "Land Use Zoning" (including "Text integrated into Chapter 8 Environment, Water and Drainage" and "14.2.1 Land Uses and Flooding") and No. 2 "Map Based Specific Objectives 29." and 24 "14.10.1 Objective" on Table 5.	Yes	This land use zoning proposal fulfils all sub-criteria and would contribute towards overall sustainable, compact and balanced regional development by inclusion as part of the Development Plan - as confirmed by the Planning Department.	Yes, see Plan provisions reproduced above, including those under Section 4.2 "Land Use Zoning" and Table 5.	Pass
Cootehill	Various – refer to SFRA Appendices and land use zoning maps. Note that the meaning of zoning objectives has been influenced by the SFRA process and these meanings are explained in the Draft Plan, including through the provisions repeated under Section 4.2 "Land Use Zoning" (including "Text integrated into Chapter 8 Environment, Water and Drainage" and "14.2.1 Land Uses and Flooding") and No. 2 "Map Based Specific Objectives 29." and 24 "14.10.1 Objective" on Table 5.	Yes	This land use zoning proposal fulfils all sub-criteria and would contribute towards overall sustainable, compact and balanced regional development by inclusion as part of the Development Plan - as confirmed by the Planning Department.	Yes, see Plan provisions reproduced above, including those under Section 4.2 "Land Use Zoning" and Table 5.	Pass
Belturbet	Various – refer to SFRA Appendices and land use zoning maps. Note that the meaning of zoning objectives has been influenced by the SFRA process and these meanings are explained in the Draft Plan, including through the provisions repeated under Section 4.2 "Land Use Zoning" (including "Text integrated into Chapter 8 Environment, Water and Drainage" and "14.2.1 Land Uses and Flooding") and No. 2 "Map Based Specific Objectives 29." and 24 "14.10.1 Objective" on Table 5.	Yes	This land use zoning proposal fulfils all sub-criteria and would contribute towards overall sustainable, compact and balanced regional development by inclusion as part of the Development Plan - as confirmed by the Planning Department.	Yes, see Plan provisions reproduced above, including those under Section 4.2 "Land Use Zoning" and Table 5.	Pass

¹⁰ (i) Is essential to facilitate regeneration and/or expansion of the centre of the urban settlement;
(ii) Comprises significant previously developed and/or under-utilised lands;
(iii) Is within or adjoining the core of an established or designated urban settlement;
(iv) Will be essential in achieving compact and sustainable urban growth; and
(v) There are no suitable alternative lands for the particular use or development type, in areas at lower risk of flooding within or adjoining the core of the urban settlement.

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Settlement	Zoning in Draft Plan	Is the settlement targeted for growth under the RSES, existing CDP and/or Draft CDP?	Justification Test (Fails, if one of the following fails; All must be passed for the test to be passed)	Overall Result
Mullagh	Various – refer to SFRA Appendices and land use zoning maps. Note that the meaning of zoning objectives has been influenced by the SFRA process and these meanings are explained in the Draft Plan, including through the provisions repeated under Section 4.2 "Land Use Zoning" (including "Text integrated into Chapter 8 Environment, Water and Drainage" and "14.2.1 Land Uses and Flooding") and No. 2 "Map Based Specific Objectives 29." and 24 "14.10.1 Objective" on Table 5.	Yes	This land use zoning proposal fulfils all sub-criteria and would contribute towards overall sustainable, compact and balanced regional development by inclusion as part of the Development Plan - as confirmed by the Planning Department.	Pass
Ballyconnell	Various – refer to SFRA Appendices and land use zoning maps. Note that the meaning of zoning objectives has been influenced by the SFRA process and these meanings are explained in the Draft Plan, including through the provisions repeated under Section 4.2 "Land Use Zoning" (including "Text integrated into Chapter 8 Environment, Water and Drainage" and "14.2.1 Land Uses and Flooding") and No. 2 "Map Based Specific Objectives 29." and 24 "14.10.1 Objective" on Table 5.	Yes	This land use zoning proposal fulfils all sub-criteria and would contribute towards overall sustainable, compact and balanced regional development by inclusion as part of the Development Plan - as confirmed by the Planning Department.	Pass
Ballinagh	Various – refer to SFRA Appendices and land use zoning maps. Note that the meaning of zoning objectives has been influenced by the SFRA process and these meanings are explained in the Draft Plan, including through the provisions repeated under Section 4.2 "Land Use Zoning" (including "Text integrated into Chapter 8 Environment, Water and Drainage" and "14.2.1 Land Uses and Flooding") and No. 2 "Map Based Specific Objectives 29." and 24 "14.10.1 Objective" on Table 5.	Yes	This land use zoning proposal fulfils all sub-criteria and would contribute towards overall sustainable, compact and balanced regional development by inclusion as part of the Development Plan - as confirmed by the Planning Department.	Pass
Ballyhaise	Various – refer to SFRA Appendices and land use zoning maps. Note that the meaning of zoning objectives has been influenced by the SFRA process and these meanings are explained in the Draft Plan, including through the provisions repeated under Section 4.2 "Land Use Zoning" (including "Text integrated into Chapter 8 Environment, Water and Drainage" and "14.2.1 Land Uses and Flooding") and No. 2 "Map Based Specific Objectives 29." and 24 "14.10.1 Objective" on Table 5.	Not applicable – no such overlaps		
Shercock	Various – refer to SFRA Appendices and land use zoning maps. Note that the meaning of zoning objectives has been influenced by the SFRA process and these meanings are explained in the Draft Plan, including through the provisions repeated under Section 4.2 "Land Use Zoning" (including "Text integrated into Chapter 8 Environment, Water and Drainage" and "14.2.1 Land Uses and Flooding") and No. 2 "Map Based Specific Objectives 29." and 24 "14.10.1 Objective" on Table 5.	Yes	This land use zoning proposal fulfils all sub-criteria and would contribute towards overall sustainable, compact and balanced regional development by inclusion as part of the Development Plan - as confirmed by the Planning Department.	Pass
Killeshandra	Various – refer to SFRA Appendices and land use zoning maps. Note that the meaning of zoning objectives has been influenced by the SFRA process and these meanings are explained in the Draft Plan, including through the provisions repeated under Section 4.2 "Land Use Zoning" (including "Text integrated into Chapter 8 Environment, Water and Drainage" and "14.2.1 Land Uses and Flooding") and No. 2 "Map Based Specific Objectives 29." and 24 "14.10.1 Objective" on Table 5.	Yes	This land use zoning proposal fulfils all sub-criteria and would contribute towards overall sustainable, compact and balanced regional development by inclusion as part of the Development Plan - as confirmed by the Planning Department.	Pass
Arva	Various – refer to SFRA Appendices and land use zoning maps. Note that the meaning of zoning objectives has been influenced by the SFRA process and these meanings are explained in the Draft Plan, including through the provisions repeated under Section 4.2 "Land Use Zoning" (including "Text integrated into Chapter 8 Environment, Water and Drainage" and "14.2.1 Land Uses and Flooding") and No. 2 "Map Based Specific Objectives 29." and 24 "14.10.1 Objective" on Table 5.	Yes	This land use zoning proposal fulfils all sub-criteria and would contribute towards overall sustainable, compact and balanced regional development by inclusion as part of the Development Plan - as confirmed by the Planning Department.	Pass
Kilmealeck	Various – refer to SFRA Appendices and land use zoning maps. Note that the meaning of zoning objectives has been influenced by the SFRA process and these meanings are explained in the Draft Plan, including through the provisions repeated under Section 4.2 "Land Use Zoning" (including "Text integrated into Chapter 8 Environment, Water and Drainage" and "14.2.1 Land Uses and Flooding") and No. 2 "Map Based Specific Objectives 29." and 24 "14.10.1 Objective" on Table 5.	Not applicable – no such overlaps		

Strategic Flood Risk Assessment for the Cavan County Development Plan 2022-2028, incorporating the Cavan Town Local Area Plan 2022-2028

Settlement	Zoning in Draft Plan	Is the settlement targeted for growth under the RSES, existing CDP and/or Draft CDP?	Justification Test (Fails, if one of the following fails; All must be passed for the test to be passed)	Overall Result
Swanlinbar	Various – refer to SFRA Appendices and land use zoning maps. Note that the meaning of zoning objectives has been influenced by the SFRA process and these meanings are explained in the Draft Plan, including through the provisions repeated under Section 4.2 "Land Use Zoning" (including "Text integrated into Chapter 8 Environment, Water and Drainage" and "14.2.1 Land Uses and Flooding") and No. 2 "Map Based Specific Objectives 29." and 24 "14.10.1 Objective" on Table 5.	Yes	Is the zoning of the lands required to achieve the proper planning and sustainable development of the settlement? All sub-criteria ¹⁰ must be satisfied This land use zoning proposal fulfils all sub-criteria and would contribute towards overall sustainable, compact and balanced regional development by inclusion as part of the Development Plan - as confirmed by the Planning Department.	Pass Yes, see Plan provisions reproduced above, including those under Section 4.2 "Land Use Zoning" and Table 5.
Butlersbridge	Various – refer to SFRA Appendices and land use zoning maps. Note that the meaning of zoning objectives has been influenced by the SFRA process and these meanings are explained in the Draft Plan, including through the provisions repeated under Section 4.2 "Land Use Zoning" (including "Text integrated into Chapter 8 Environment, Water and Drainage" and "14.2.1 Land Uses and Flooding") and No. 2 "Map Based Specific Objectives 29." and 24 "14.10.1 Objective" on Table 5.	Yes	This land use zoning proposal fulfils all sub-criteria and would contribute towards overall sustainable, compact and balanced regional development by inclusion as part of the Development Plan - as confirmed by the Planning Department.	Pass Yes, see Plan provisions reproduced above, including those under Section 4.2 "Land Use Zoning" and Table 5.
Blacklion	Various – refer to SFRA Appendices and land use zoning maps. Note that the meaning of zoning objectives has been influenced by the SFRA process and these meanings are explained in the Draft Plan, including through the provisions repeated under Section 4.2 "Land Use Zoning" (including "Text integrated into Chapter 8 Environment, Water and Drainage" and "14.2.1 Land Uses and Flooding") and No. 2 "Map Based Specific Objectives 29." and 24 "14.10.1 Objective" on Table 5.	Yes	This land use zoning proposal fulfils all sub-criteria and would contribute towards overall sustainable, compact and balanced regional development by inclusion as part of the Development Plan - as confirmed by the Planning Department.	Pass Yes, see Plan provisions reproduced above, including those under Section 4.2 "Land Use Zoning" and Table 5.
Loch Gowra	Various – refer to SFRA Appendices and land use zoning maps. Note that the meaning of zoning objectives has been influenced by the SFRA process and these meanings are explained in the Draft Plan, including through the provisions repeated under Section 4.2 "Land Use Zoning" (including "Text integrated into Chapter 8 Environment, Water and Drainage" and "14.2.1 Land Uses and Flooding") and No. 2 "Map Based Specific Objectives 29." and 24 "14.10.1 Objective" on Table 5.	Yes	This land use zoning proposal fulfils all sub-criteria and would contribute towards overall sustainable, compact and balanced regional development by inclusion as part of the Development Plan - as confirmed by the Planning Department.	Pass Yes, see Plan provisions reproduced above, including those under Section 4.2 "Land Use Zoning" and Table 5.
Bawnboy	Various – refer to SFRA Appendices and land use zoning maps. Note that the meaning of zoning objectives has been influenced by the SFRA process and these meanings are explained in the Draft Plan, including through the provisions repeated under Section 4.2 "Land Use Zoning" (including "Text integrated into Chapter 8 Environment, Water and Drainage" and "14.2.1 Land Uses and Flooding") and No. 2 "Map Based Specific Objectives 29." and 24 "14.10.1 Objective" on Table 5.	Yes	This land use zoning proposal fulfils all sub-criteria and would contribute towards overall sustainable, compact and balanced regional development by inclusion as part of the Development Plan - as confirmed by the Planning Department.	Pass Yes, see Plan provisions reproduced above, including those under Section 4.2 "Land Use Zoning" and Table 5.
Crossdoney	Various – refer to SFRA Appendices and land use zoning maps. Note that the meaning of zoning objectives has been influenced by the SFRA process and these meanings are explained in the Draft Plan, including through the provisions repeated under Section 4.2 "Land Use Zoning" (including "Text integrated into Chapter 8 Environment, Water and Drainage" and "14.2.1 Land Uses and Flooding") and No. 2 "Map Based Specific Objectives 29." and 24 "14.10.1 Objective" on Table 5.	Yes	This land use zoning proposal fulfils all sub-criteria and would contribute towards overall sustainable, compact and balanced regional development by inclusion as part of the Development Plan - as confirmed by the Planning Department.	Pass Yes, see Plan provisions reproduced above, including those under Section 4.2 "Land Use Zoning" and Table 5.
Crosskeys	Various – refer to SFRA Appendices and land use zoning maps. Note that the meaning of zoning objectives has been influenced by the SFRA process and these meanings are explained in the Draft Plan, including through the provisions repeated under Section 4.2 "Land Use Zoning" (including "Text integrated into Chapter 8 Environment, Water and Drainage" and "14.2.1 Land Uses and Flooding") and No. 2 "Map Based Specific Objectives 29." and 24 "14.10.1 Objective" on Table 5.	Not applicable – no such overlaps		
Dowra	Various – refer to SFRA Appendices and land use zoning maps. Note that the meaning of zoning objectives has been influenced by the SFRA process and these meanings are explained in the Draft Plan, including through the provisions repeated under Section 4.2 "Land Use Zoning" (including "Text integrated into Chapter 8 Environment, Water and Drainage" and "14.2.1 Land Uses and Flooding") and No. 2 "Map Based Specific Objectives 29." and 24 "14.10.1 Objective" on Table 5.	Yes	This land use zoning proposal fulfils all sub-criteria and would contribute towards overall sustainable, compact and balanced regional development by inclusion as part of the Development Plan - as confirmed by the Planning Department.	Pass Yes, see Plan provisions reproduced above, including those under Section 4.2 "Land Use Zoning" and Table 5.

Strategic Flood Risk Assessment for the Cavan County Development Plan 2022-2028, incorporating the Cavan Town Local Area Plan 2022-2028

Settlement	Zoning in Draft Plan	Is the settlement targeted for growth under the RSES, existing CDP and/or Draft CDP?	Is the zoning of the lands required to achieve the proper planning and sustainable development of the settlement? All sub-criteria ¹⁰ must be satisfied	SFRA recommendation integrated into the Plan for management of risk?	Overall Result
Kilcoy	Various – refer to SFRA Appendices and land use zoning maps. Note that the meaning of zoning objectives has been influenced by the SFRA process and these meanings are explained in the Draft Plan, including through the provisions repeated under Section 4.2 "Land Use Zoning" (including "Text integrated into Chapter 8 Environment, Water and Drainage" and "14.2.1 Land Uses and Flooding") and No. 2 "Map Based Specific Objectives 29." and 24 "14.10.1 Objective" on Table 5.	Yes			
Mounthugent	Various – refer to SFRA Appendices and land use zoning maps. Note that the meaning of zoning objectives has been influenced by the SFRA process and these meanings are explained in the Draft Plan, including through the provisions repeated under Section 4.2 "Land Use Zoning" (including "Text integrated into Chapter 8 Environment, Water and Drainage" and "14.2.1 Land Uses and Flooding") and No. 2 "Map Based Specific Objectives 29." and 24 "14.10.1 Objective" on Table 5.	Yes	This land use zoning proposal fulfils all sub-criteria and would contribute towards overall sustainable, compact and balanced regional development by inclusion as part of the Development Plan - as confirmed by the Planning Department.	Yes, see Plan provisions reproduced above, including those under Section 4.2 "Land Use Zoning" and Table 5.	Pass
Redhills	Various – refer to SFRA Appendices and land use zoning maps. Note that the meaning of zoning objectives has been influenced by the SFRA process and these meanings are explained in the Draft Plan, including through the provisions repeated under Section 4.2 "Land Use Zoning" (including "Text integrated into Chapter 8 Environment, Water and Drainage" and "14.2.1 Land Uses and Flooding") and No. 2 "Map Based Specific Objectives 29." and 24 "14.10.1 Objective" on Table 5.	Yes	This land use zoning proposal fulfils all sub-criteria and would contribute towards overall sustainable, compact and balanced regional development by inclusion as part of the Development Plan - as confirmed by the Planning Department.	Yes, see Plan provisions reproduced above, including those under Section 4.2 "Land Use Zoning" and Table 5.	Pass
Stradone	Various – refer to SFRA Appendices and land use zoning maps. Note that the meaning of zoning objectives has been influenced by the SFRA process and these meanings are explained in the Draft Plan, including through the provisions repeated under Section 4.2 "Land Use Zoning" (including "Text integrated into Chapter 8 Environment, Water and Drainage" and "14.2.1 Land Uses and Flooding") and No. 2 "Map Based Specific Objectives 29." and 24 "14.10.1 Objective" on Table 5.	Not applicable – no such overlaps			

Section 5 Conclusion

Stage 2 SFRA has been undertaken as part of the Plan-preparation process and the SFRA has informed the preparation of the Plan.

The SFRA has mapped boundaries for Flood Risk Zones, taking into account factors including: predictive and historical indicators of flood risk; documented Council knowledge of lands; the potential source and direction of flood paths from rivers and streams; vegetation indicative of flood risk; and the locations of topographic/built features that coincide with the flood indicator related boundaries/topographical survey.

SFRA recommendations have been integrated into the Plan and the Plan complies with the Guidelines and associated Circular.

Appendix I: Summary of the requirements of the Flood Guidelines for land uses in Flood Zones

Requirements relating to land uses in Flood Zones as set out in the Department of Environment, Heritage and Local Government (DEHLG) and Office of Public Works (OPW) 2009 Flood Guidelines (including at Chapter 3 Principles and Key Mechanisms and Chapter 5 Flooding and Development Management) and Departmental Circular PL2/2014 should be adhered to.

- The Sequential Approach, including the Justification test -

The key principles of the Guidelines' risk-based sequential approach (see Figure 1) are:

- Avoid development in areas at risk of flooding. If this is not possible, consider substituting a land use that is less vulnerable to flooding. Only when both avoidance and substitution cannot take place should consideration be given to mitigation and management of risks.
- Inappropriate types of development that would create unacceptable risks from flooding should not be planned for or permitted.
- Exceptions to the restriction of development due to potential flood risks are provided for through the use of a Justification Test, where the planning need and the sustainable management of flood risk to an acceptable level must be demonstrated.

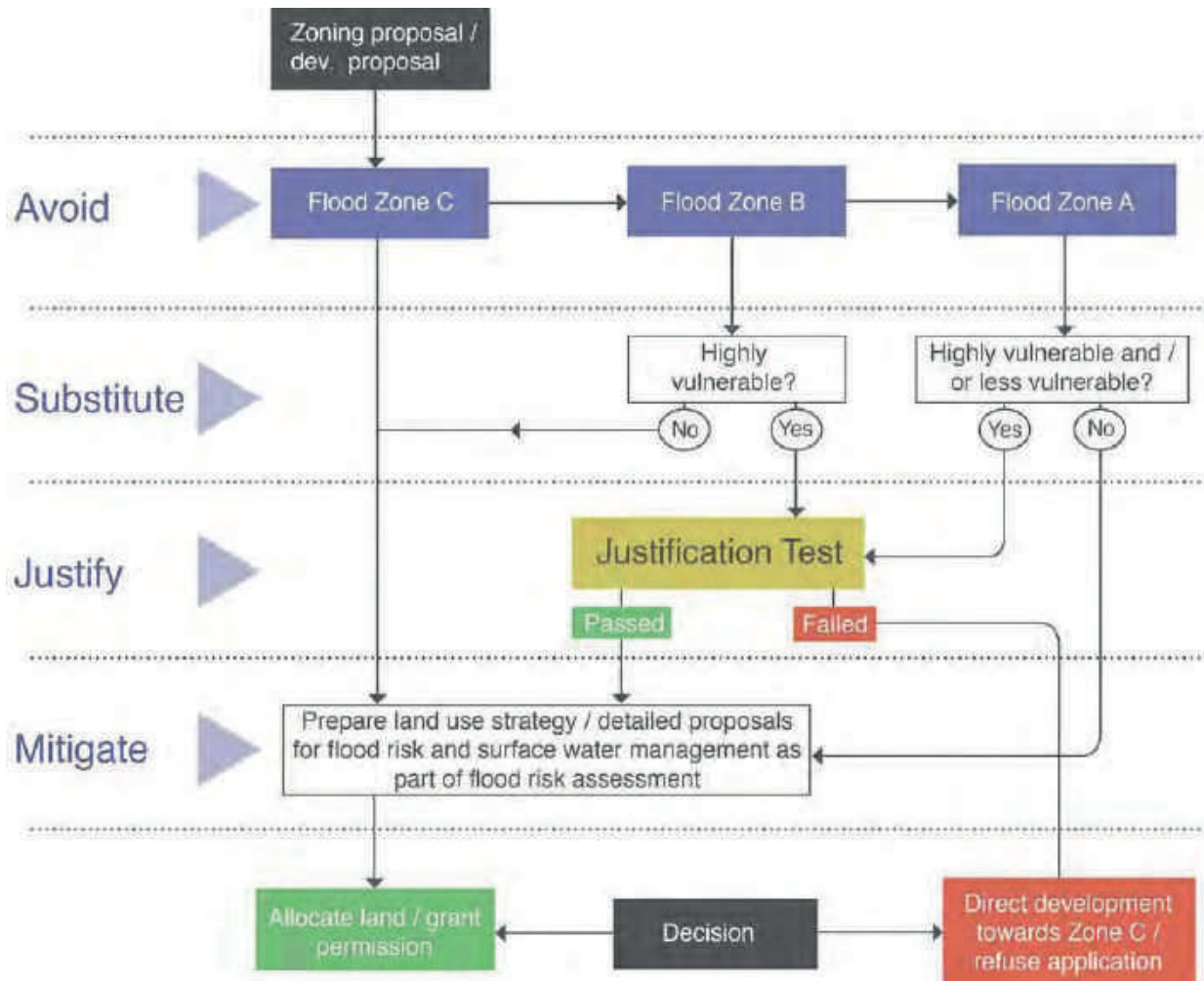


Figure 1 Sequential Approach Process¹¹

In summary, the **planning implications** for each of the flood zones are:

Zone A - High probability of flooding. Most types of development would be considered inappropriate in this zone. Development in this zone should be avoided and/or only considered in exceptional circumstances, such as in city and town centres, or in the case of essential infrastructure that cannot be located elsewhere, and where the Justification Test has been applied. Only water-compatible development, such as docks and marinas, dockside activities that require a waterside location, amenity open space, outdoor sports and recreation, would be considered appropriate in this zone.

Zone B - Moderate probability of flooding. Highly vulnerable development, such as hospitals, residential care homes, Garda, fire and ambulance stations, dwelling houses and primary strategic transport and utilities infrastructure, would generally be considered inappropriate in this zone, unless the requirements of the Justification Test can be met. Less vulnerable development, such as retail, commercial and industrial uses, sites used for short-let for caravans and camping and secondary strategic transport and utilities infrastructure, and water-compatible development might be considered appropriate in this zone. In general however, less vulnerable development should only be considered in this zone if adequate lands or sites are not available in Zone C and subject to a flood risk assessment to the appropriate level of detail to demonstrate that flood risk to and from the development can or will adequately be managed.

Zone C - Low probability of flooding. Development in this zone is appropriate from a flood risk perspective (subject to assessment of flood hazard from sources other than rivers and the coast) but

¹¹ Flood Zone C covers all areas outside of Zones A and B

would need to meet the normal range of other proper planning and sustainable development considerations.

Table 7 overleaf classifies the vulnerability of different types of development while Table 8 identifies the appropriateness of development belonging to each vulnerability class within each of the flood zones as well as identifying what instances in which the Justification Test should be undertaken. Inappropriate development that does not meet the criteria of the Justification Test should not be considered at the plan-making stage or approved within the development management process.

Table 7 Classification of vulnerability of different types of development

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

Table 8 Vulnerability Classes and Flood Zones

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

The **Justification Test** which is referred to as part of the Sequential Approach is an assessment of whether a development proposal within an area at risk of flooding meets specific criteria for proper planning and sustainable development and demonstrates that it will not be subject to unacceptable risk nor increase flood risk elsewhere. The Justification Test should be applied only where development is within flood risk areas that would be defined as inappropriate under the screening test of the sequential risk based approach outlined above. This Justification Test is shown below.

Where, as part of the preparation and adoption or variation and amendment of a development/local area plan¹, a planning authority is considering the future development of areas in an urban settlement that are at moderate or high risk of flooding, for uses or development vulnerable to flooding that would generally be inappropriate as set out in Table 3.2, all of the following criteria must be satisfied:

- 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 settlement²;
 - (ii) Comprises significant previously developed and/or under-utilised lands;
 - (iii) Is within or adjoining the core³ 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 settlement⁴
- 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.

Figure 2 Justification Test ¹²

¹² Footnotes: ¹ Including Strategic Development Zones and Section 25 Schemes in the area of the Dublin Docklands Development Authority ²In the case of Gateway planning authorities, where a number of strategic growth centres have been identified within the overall area of the authority, the Justification Test may be applied for vulnerable development within each centre. ³ See definition of the core of an urban settlement in Glossary of Terms. ⁴ This criterion may be set aside where section 4.27b applies.

Appendices II and III: Flood Mapping

Cavan County Development Plan 2022-2028

Strategic Flood Risk Assessment Cavan Upper Tier Settlements

Appendix II

28/09/2022



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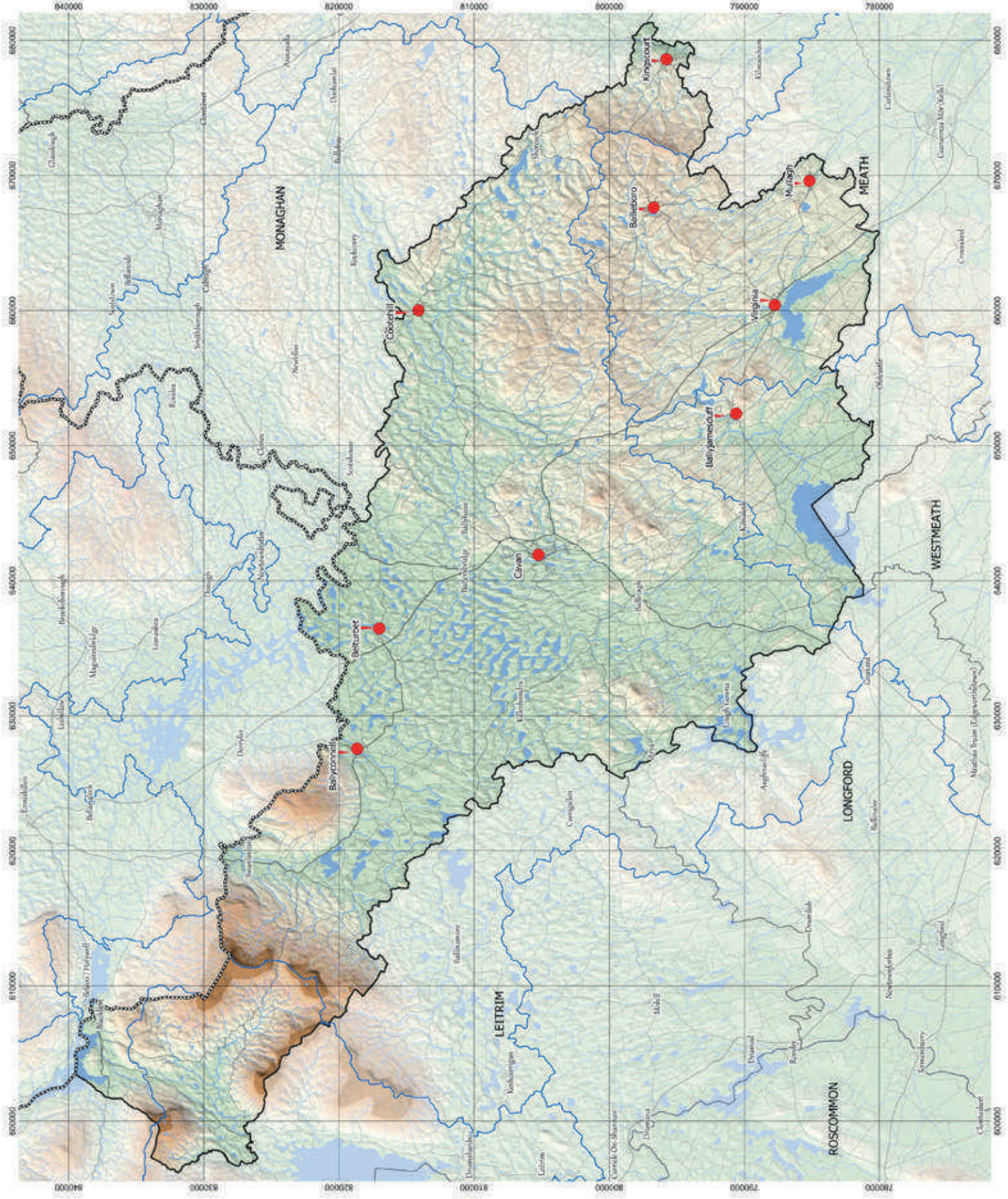
Cavan County Development Plan 2022-2028

SFRA Upper Tier Settlements

- Upper Tier Settlement
- County Cavan
- County Boundary
- Border Ireland/
Northern Ireland
- WFD Catchment
- Water
- River or Stream



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Cavan County Development Plan 2022-2028

OPW Historical Flood Data

- Upper Tier Settlement
- County Cavan
- County Boundary
- Border Ireland/
Northern Ireland
- WFD Catchment
- Water
- River or Stream

OPW Past Flood Events

- ▲ Single Flood Event
- ▲ Recurring Flood Event
- Past Flood Extent

Land Commission

- Benefited Lands

Drainage District

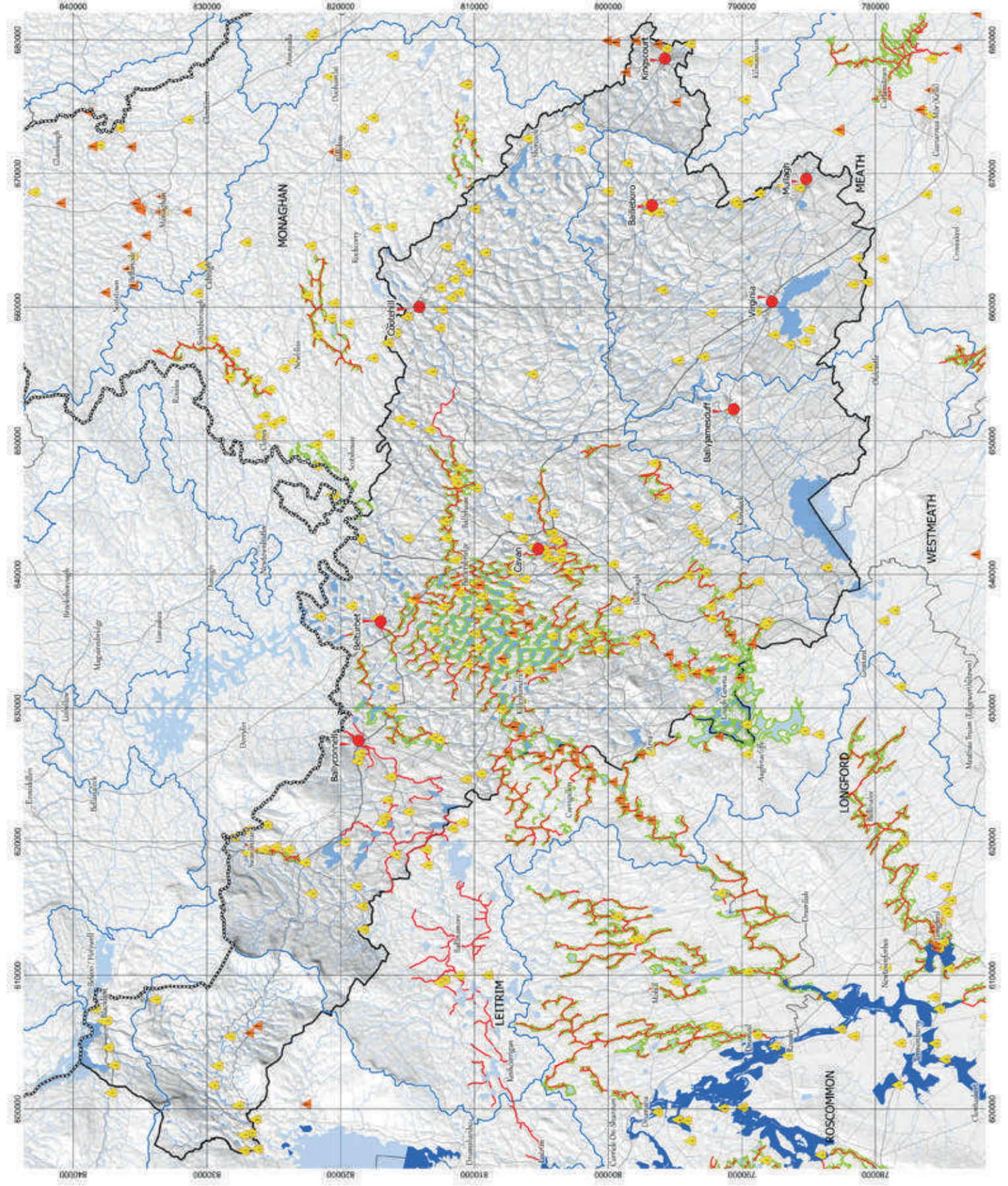
- Channel
- Embankment
- Benefited Lands

Arterial Drainage Scheme

- Channel
- Embankment
- Benefited Lands



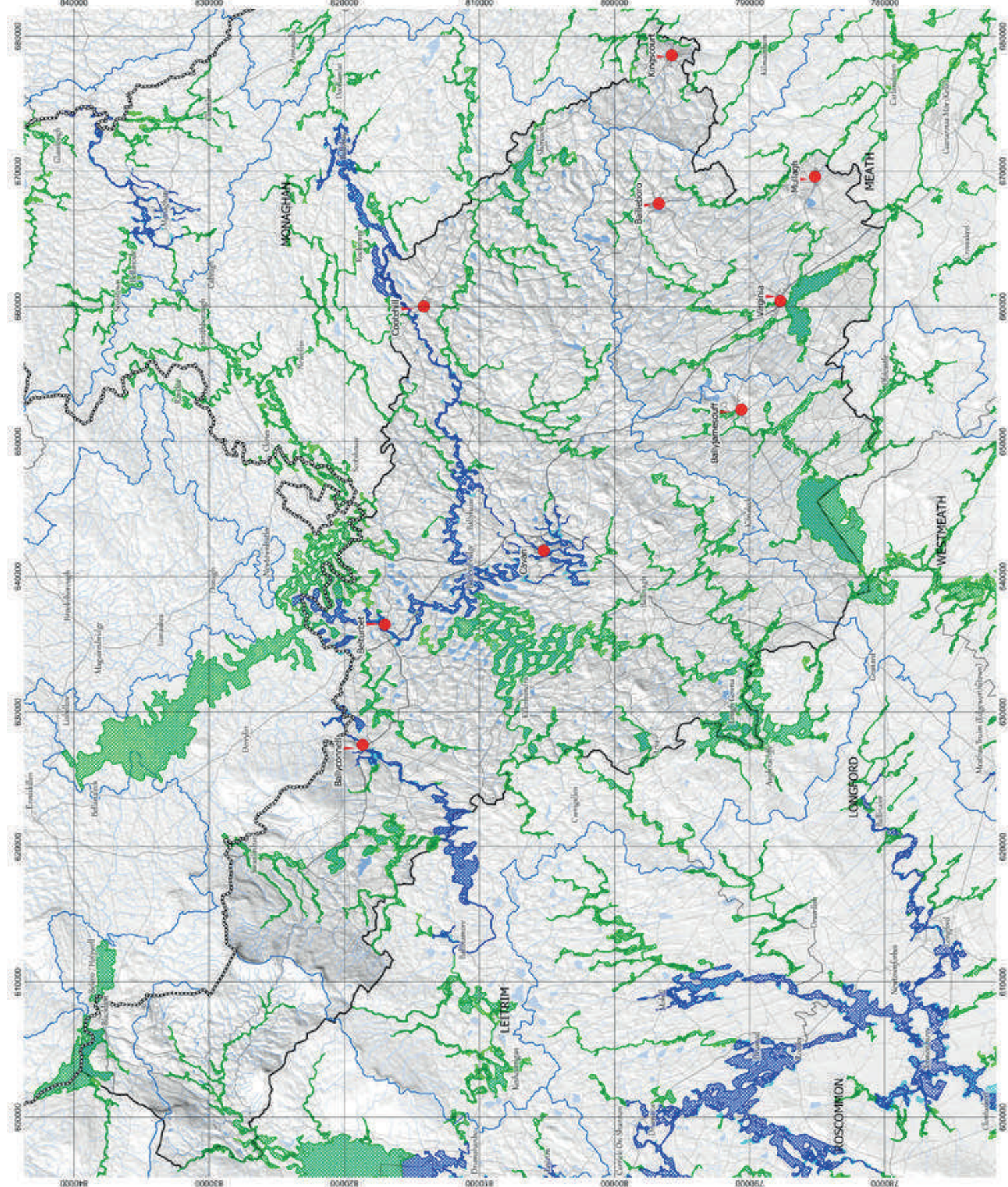
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Cavan County Development Plan 2022-2028

OPW Catchment Flood Risk Assessment & Management (CFRAM) & National Indicative Fluvial Mapping (NIFM) Present Day Scenario

- Upper Tier Settlement
 - County Cavan
 - County Boundary
 - Border (Ireland/Northern Ireland)
 - WFD Catchment
 - Water
 - River or Stream
- CFRAM Fluvial Present Day Scenario**
- 10% AEP
 - 0.1% AEP
- NIFM Present Day Scenario**
- 1% AEP
 - 0.1% AEP



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Cavan County Development Plan 2022-2028

OPW Catchment Flood Risk Assessment & Management (CFRAM) & National Indicative Fluvial Mapping (NIFM) Mid-Range Future Scenario

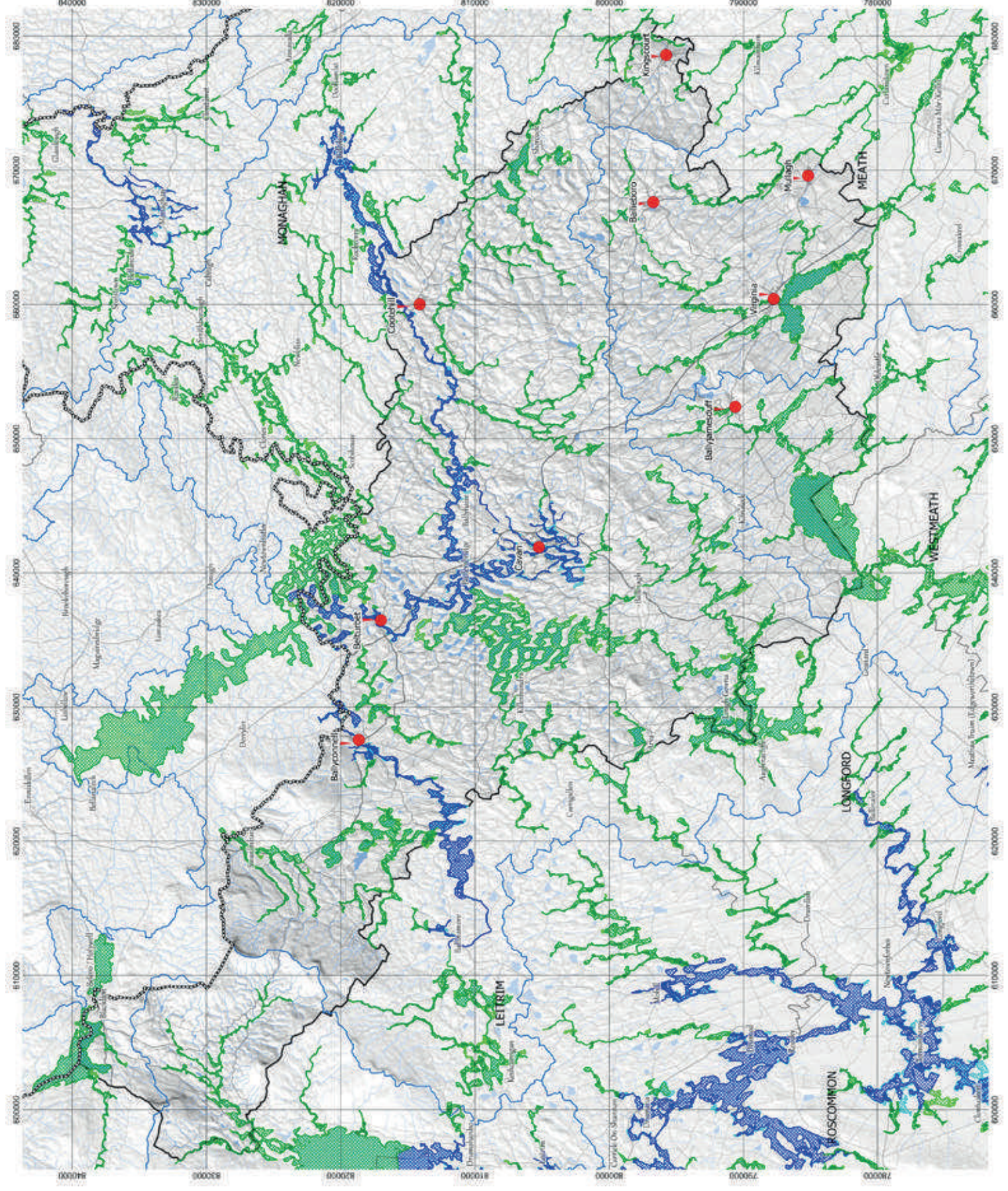
- Upper Tier Settlement
- County Cavan
- County Boundary
- Border Ireland/
Northern Ireland
- WFD Catchment
- Water
- River or Stream

CFRAM Fluvial Mid-Range Future Scenario

- 1% AEP
- 0.1% AEP

NIFM Mid-Range Future Scenario

- 1% AEP
- 0.1% AEP



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Cavan County Development Plan 2022-2028

GSI Historical Flood Data and Groundwater Predictive Modeling

- Upper Tier Settlement
- County/Cavan
- County Boundary
- Border Ireland/
Northern Ireland
- WFD Catchment
- Water
- River or Stream

GSI Groundwater Flooding Predictive Model

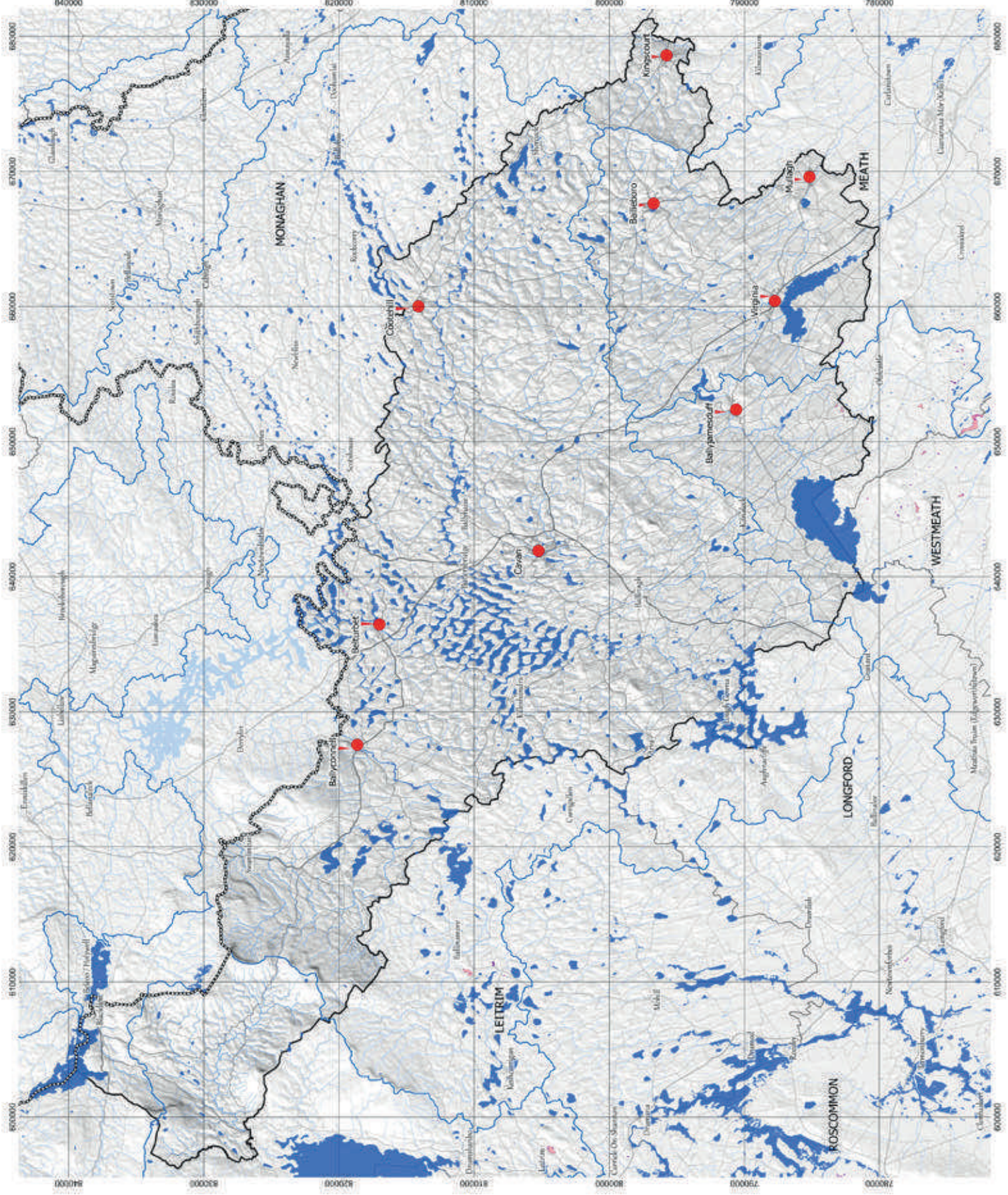
- High Probability
- Medium Probability
- Low Probability

GSI Historical Flood Data Surface Water Flooding

- Winter 2015-2016 Surface
Water Flooding
- Maximum Historic
Groundwater Flooding
- Groundwater
- Groundwater/Surface water

















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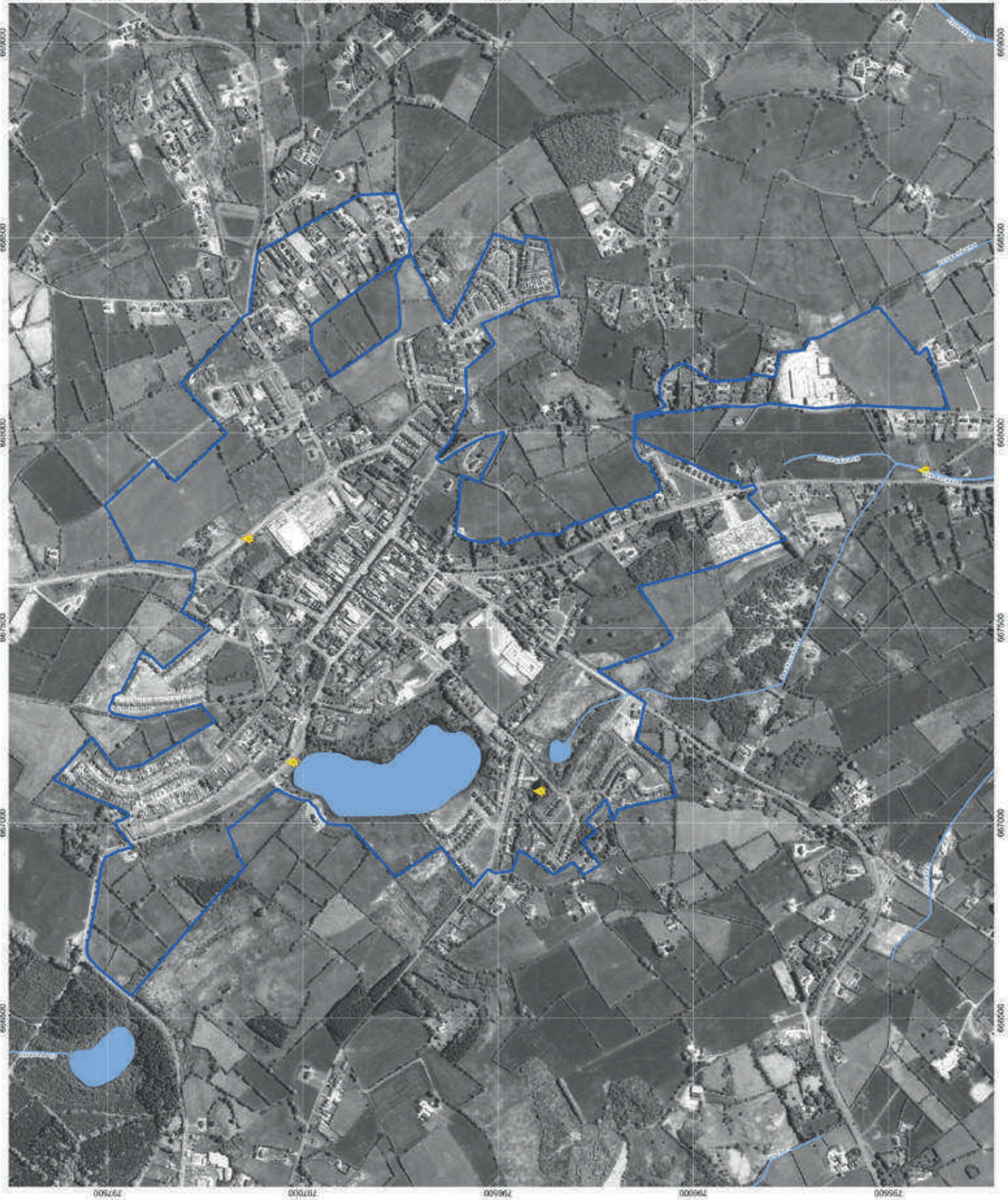
Cavan County Development Plan 2022-2028

Bailieborough
OPW Historical Flood
Data

-  Plan Boundary
-  County Boundary
-  Water
-  River or Stream
- OPW Past Flood Events**
-  Single Flood Event
-  Recurring Flood Event
-  Past Flood Extent
- Land Commission**
-  Benefited Lands
- Drainage District**
-  Channel
-  Embankment
-  Benefited Lands
- Arterial Drainage Scheme**
-  Channel
-  Embankment
-  Benefited Lands



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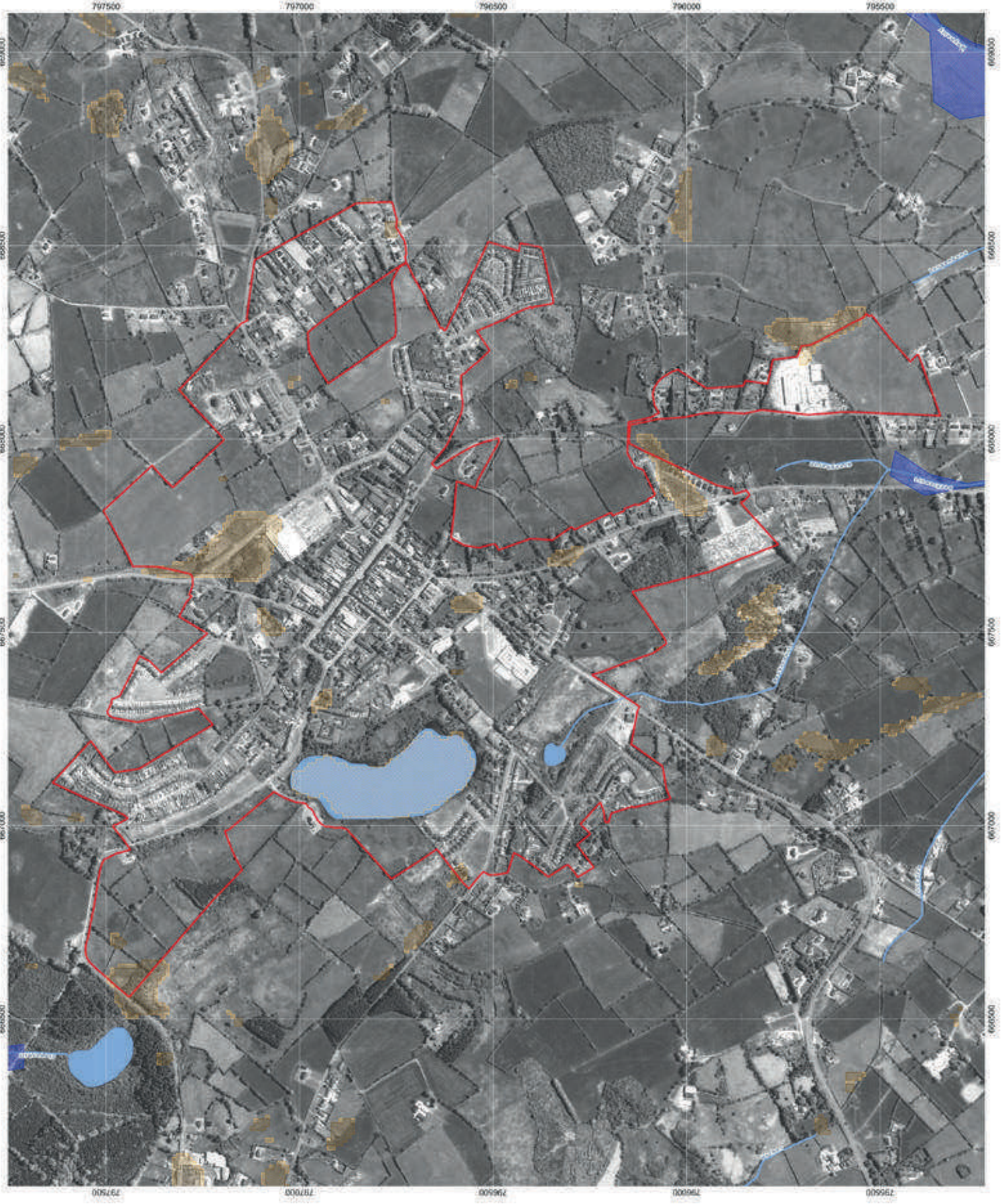
Cavan County Development Plan 2022-2028

Bailieborough OPW Preliminary Flood Risk Assessment (PFRA)

- Plan Boundary
 - County Boundary
 - Water
 - River or Stream
- PFRA**
- Fluvial 1% AEP
 - Fluvial 0.1% AEP
 - Pluvial 1% AEP
 - Pluvial 0.1% AEP

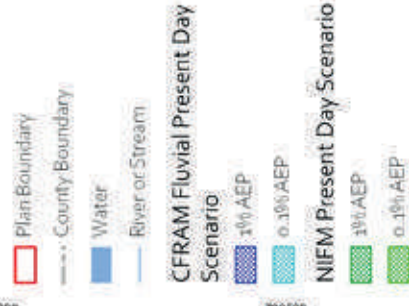


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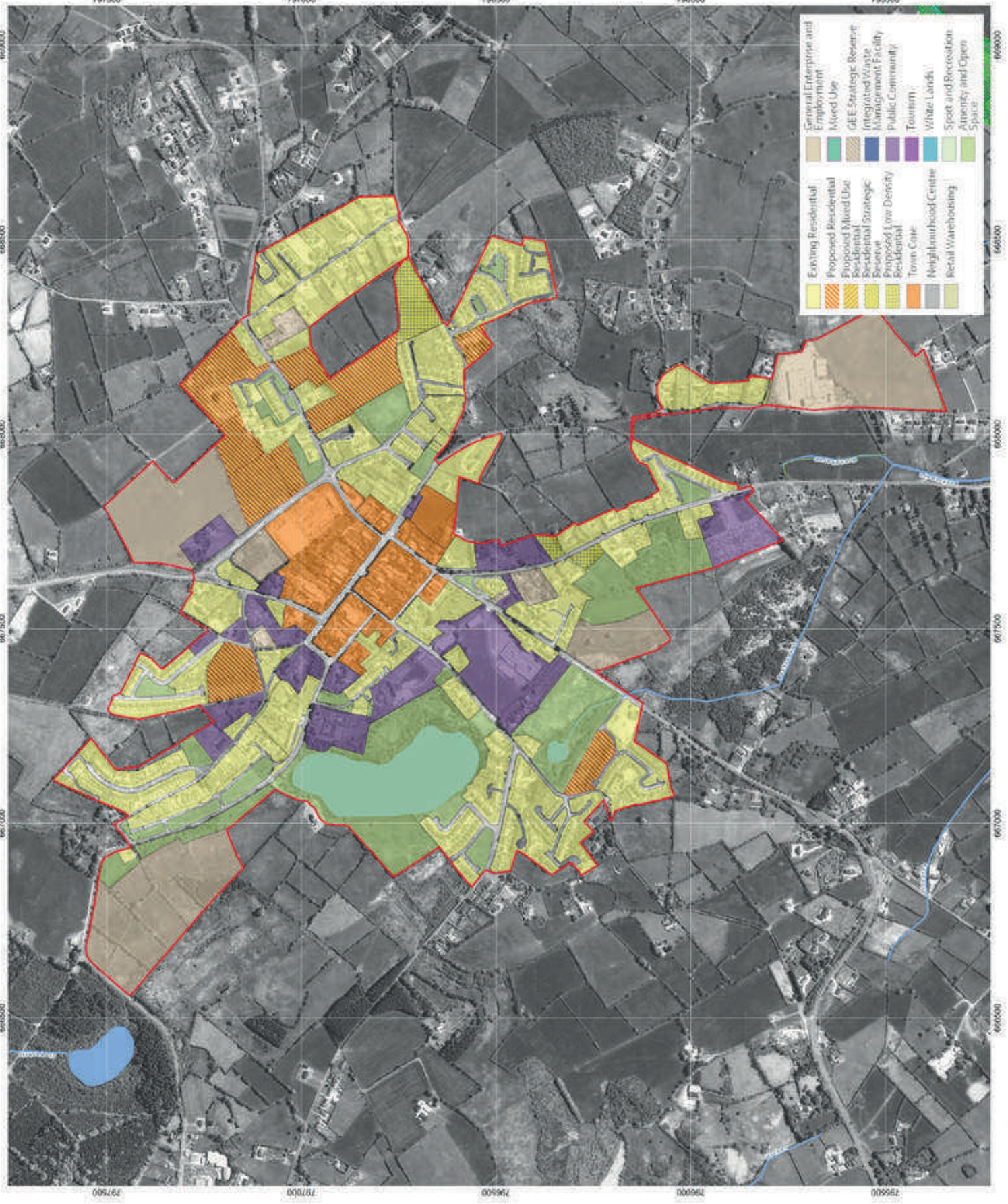


Cavan County Development Plan 2022-2028

Bailieborough
 OPW Catchment Flood Risk Assessment & Management (CFRAM) & National Indicative Fluvial Mapping (NIFM) Present Day Scenario



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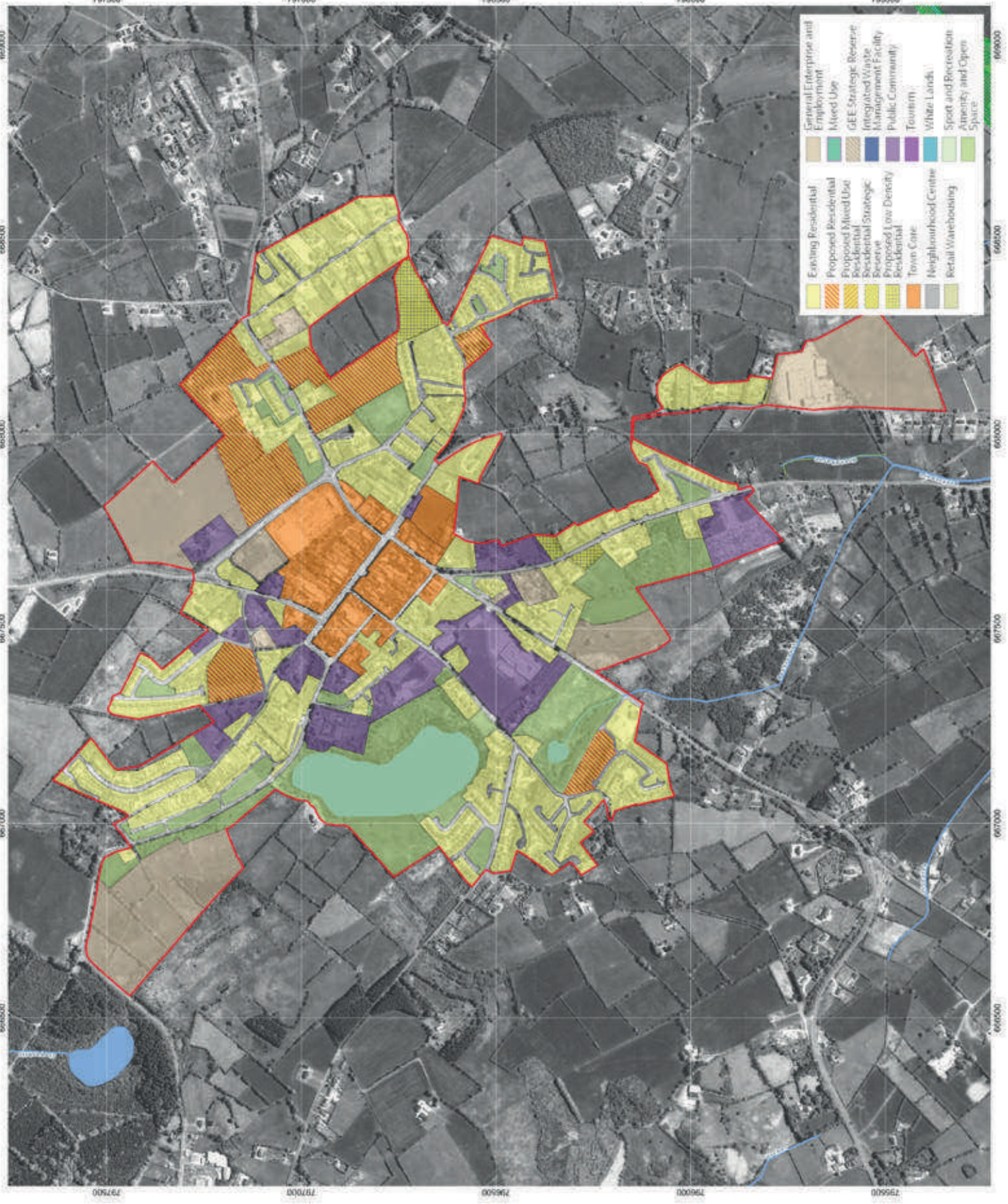
Cavan County Development Plan 2022-2028

Bailieborough
 OPW Catchment Flood Risk Assessment & Management (CFRAM) & National Indicative Fluvial Mapping (NIFM) Mid-Range Future Scenario

- Plan Boundary
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- Existing Residential
- Proposed Residential
- Proposed Mixed Use
- Residential Strategic Reserve
- Proposed Low Density Residential
- Town Core
- Neighbourhood Centre
- Retail Warehousing
- General Enterprise and Employment
- Mixed Use
- GEE Strategic Reserve
- Integrated Waste Management Facility
- Public Community
- Tourism
- White Lands
- Sport and Recreation
- Attractivity and Open Space

Cavan County Development Plan 2022-2028

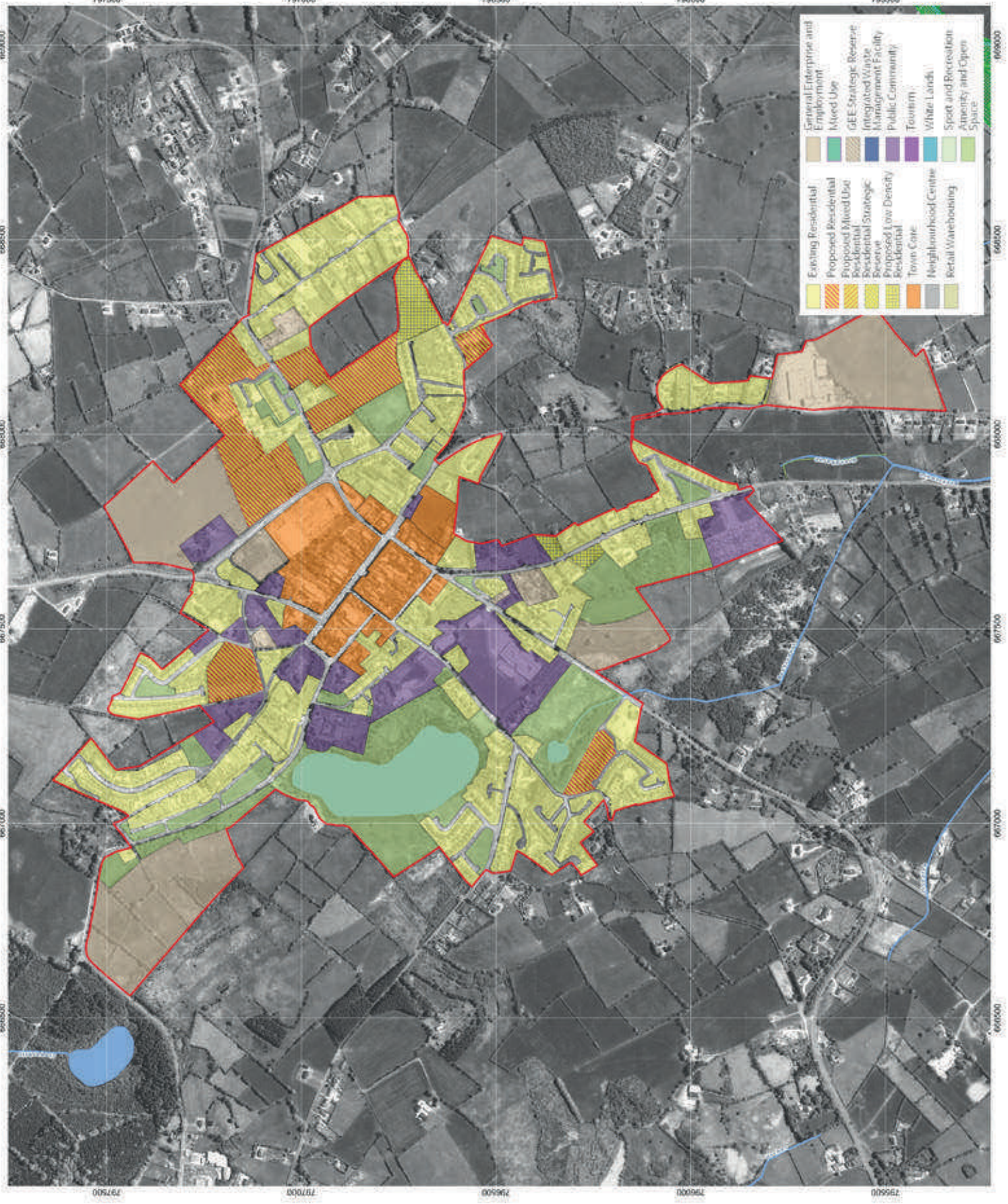
Bailieborough
 OPW Catchment Flood Risk Assessment & Management (CFRAM) & National Indicative Fluvial Mapping (NIFM) High-End Future Scenario

- Plan Boundary
- County Boundary
- Water
- River or Stream

- CFRAM Fluvial High-End Future Scenario
- 1% AEP
- 0.3% AEP
- NIFM High-End Future Scenario
- 1% AEP
- 0.3% AEP



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- Existing Residential
- Proposed Residential
- Proposed Mixed Use Residential
- Residential Strategic Reserve
- Proposed Low Density Residential
- Town Core
- Neighbourhood Centre
- Retail Warehousing
- General Enterprise and Employment
- Mixed Use
- GEE Strategic Reserve
- Integrated Waste Management Facility
- Public Community
- Tourism
- White Lands
- Sport and Recreation
- Attractancy and Open Space

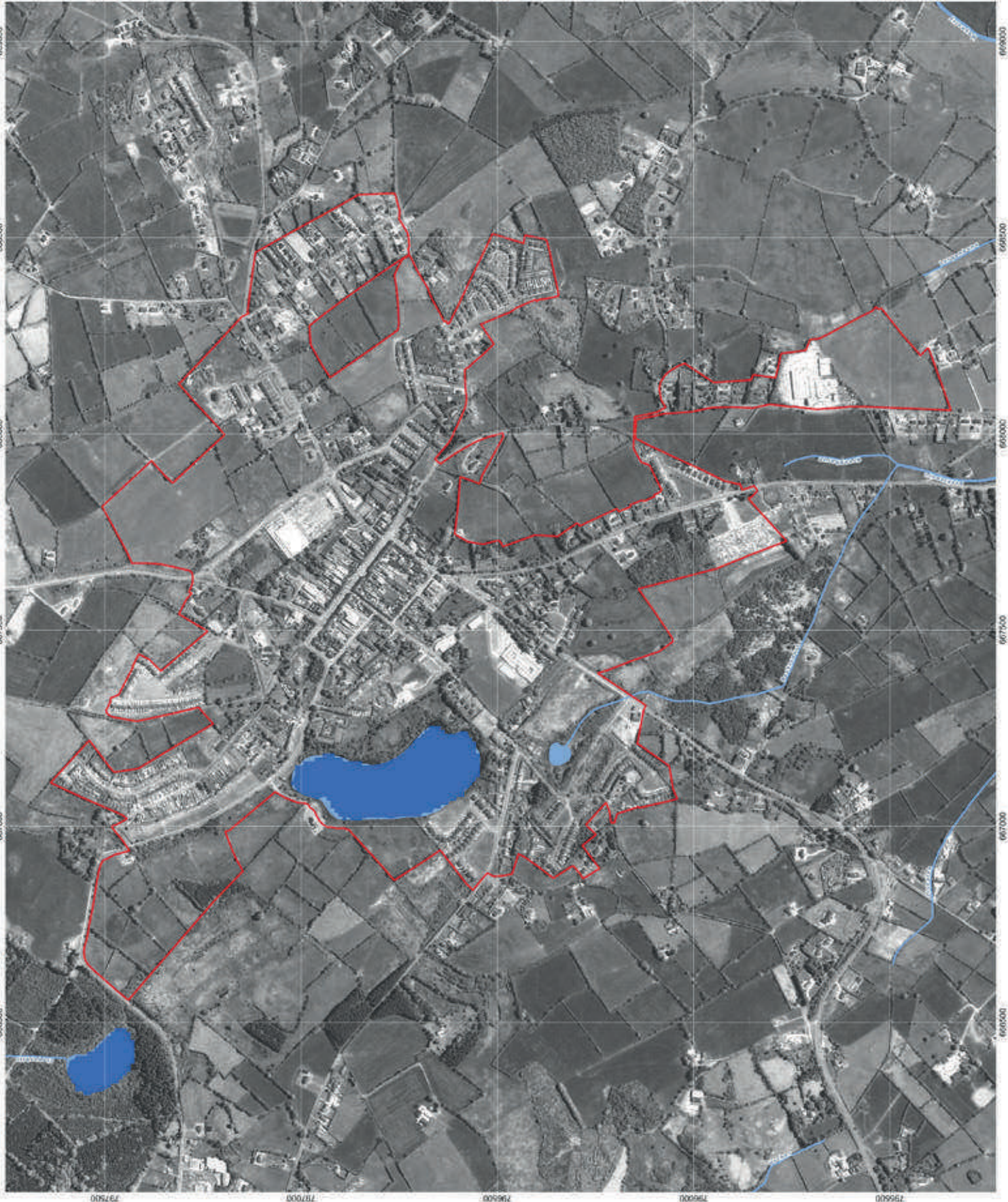
Cavan County Development Plan 2022-2028

Bailieborough
GSI Historical Flood Data
and Groundwater
Predictive Modeling

-  Plan Boundary
-  County Boundary
-  Water
-  River or Stream
-  GSI Groundwater Flooding Predictive Model
-  High Probability
-  Medium Probability
-  Low Probability
-  GSI Historical Flood Data
-  Surface Water Flooding
-  Winter 2015-2016 Surface Water Flooding
-  Maximum Historic Groundwater Flooding
-  Groundwater
-  Groundwater/Surface water



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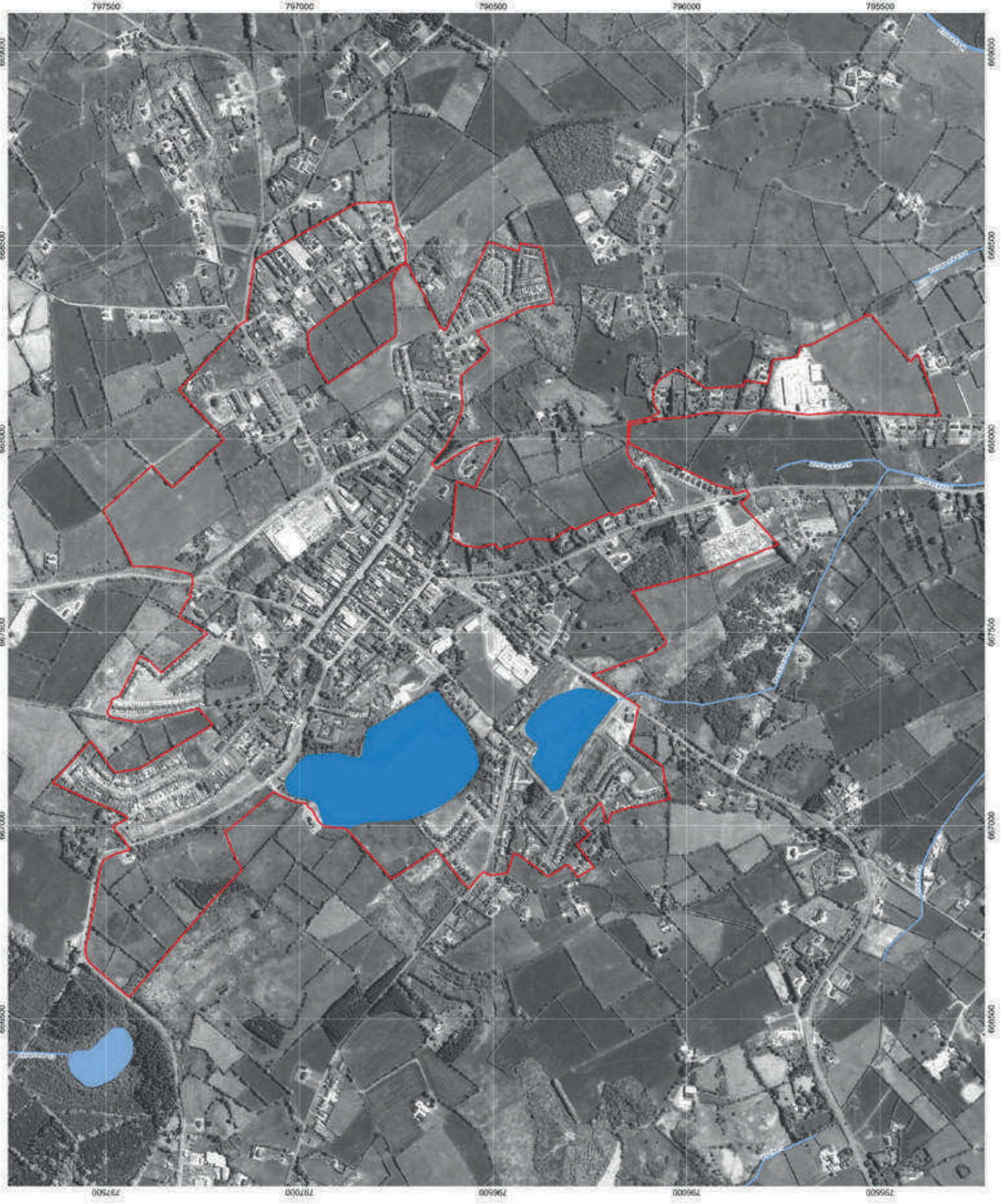
Cavan County Development Plan 2022-2028

Bailieborough Indicative Flood Zones

- Plan Boundary
- County Boundary
- Water
- River or Stream
- Indicative Flood Zones
 - Flood Zone A
 - Flood Zone B




















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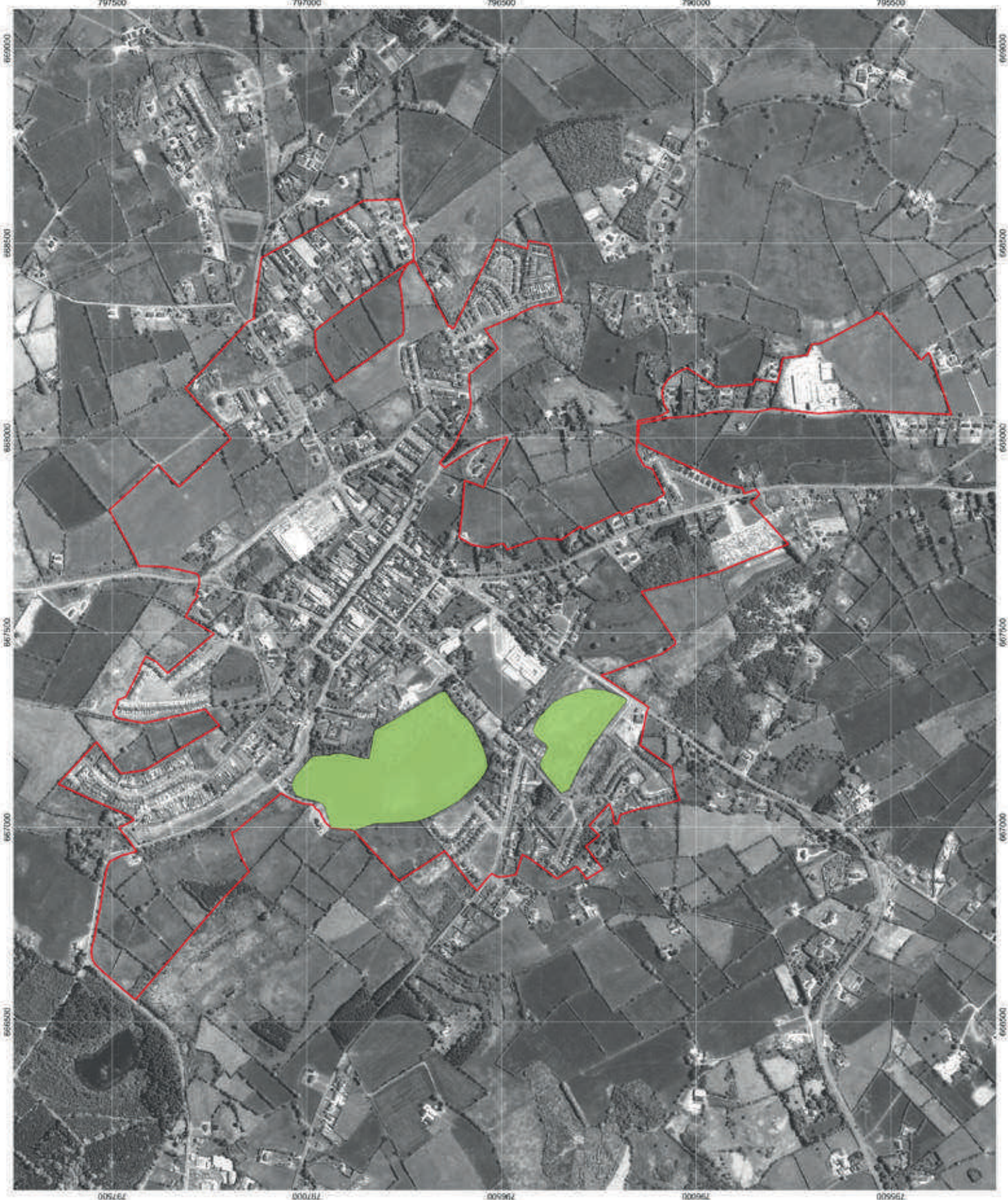
Cavan County Development Plan 2022-2028

Bailieborough Land Use Zoning that Interacts Indicative Flood Zones

-  Plan Boundary
-  County Boundary
-  Existing Residential
-  Proposed Residential
-  Proposed Mixed Use Residential
-  Residential Strategic Reserve
-  Proposed Low Density Residential
-  Town Core
-  Neighbourhood Centre
-  Retail Warehousing
-  General Enterprise and Employment
-  GEE Strategic Reserve
-  Integrated Waste Management Facility
-  Public Community
-  Tourism
-  Sport and Recreation
-  Amenity and Open Space

















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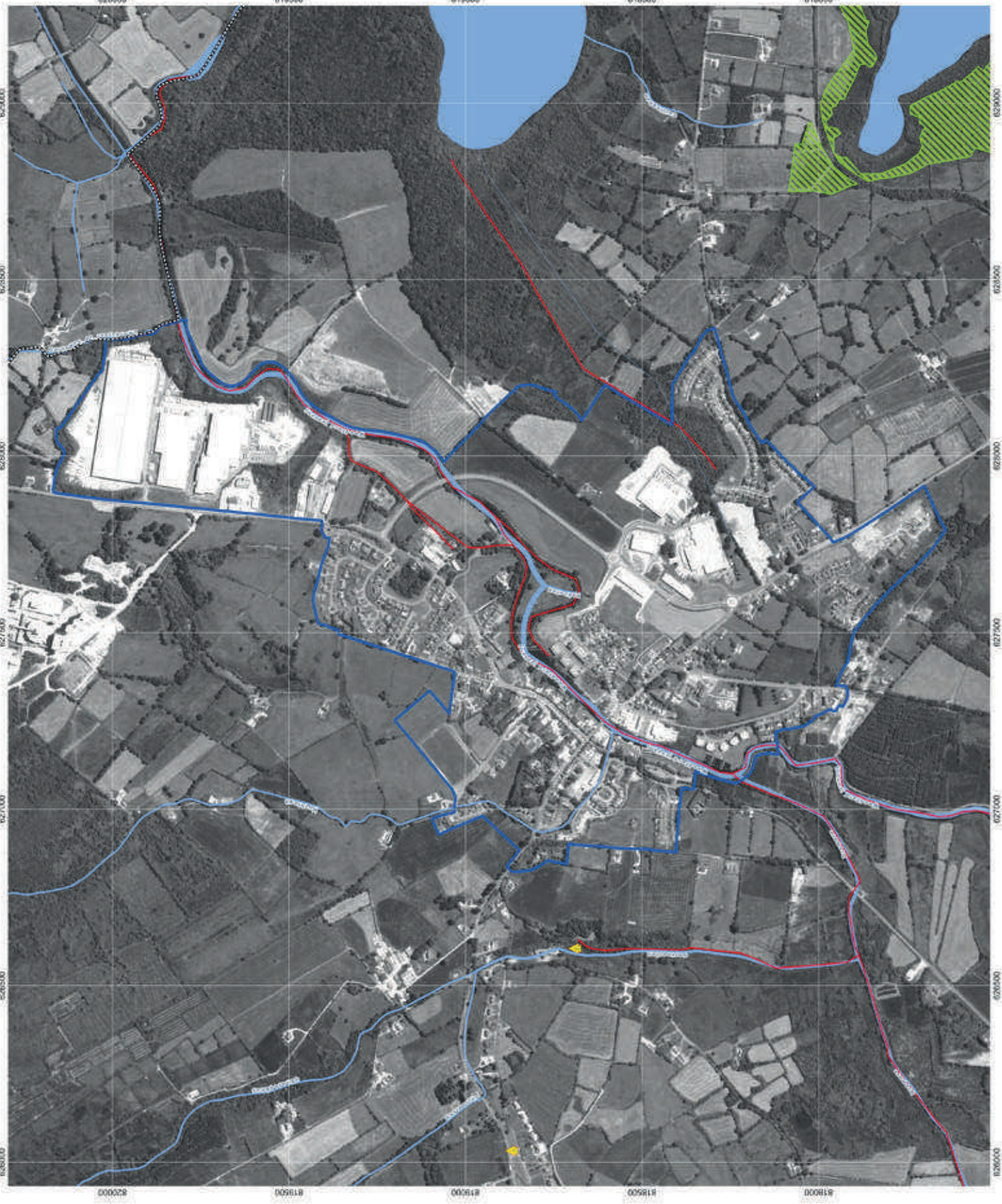
Cavan County Development Plan 2022-2028

Ballyconnell
OPW Historical Flood
Data

-  Plan Boundary
-  County Boundary
-  Water
-  River or Stream
- OPW Past Flood Events**
 -  Single Flood Event
 -  Recurring Flood Event
 -  Past Flood Extent
- Land Commission**
 -  Benefited Lands
- Drainage District**
 -  Channel
 -  Embankment
 -  Benefited Lands
- Arterial Drainage Scheme**
 -  Channel
 -  Embankment
 -  Benefited Lands



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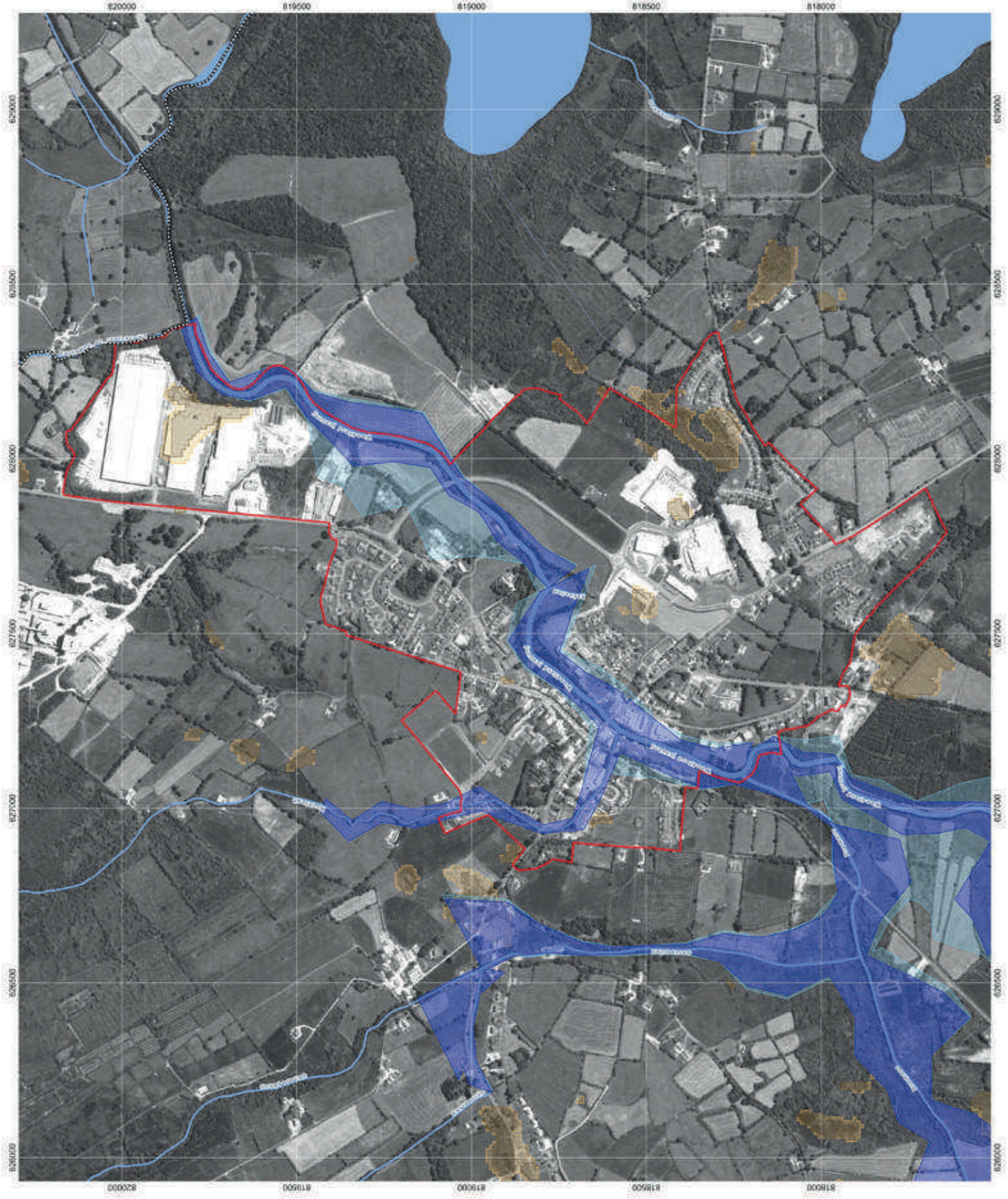
Cavan County Development Plan 2022-2028

Ballyconnell OPW Preliminary Flood Risk Assessment (PFRA)

- Plan Boundary
 - County Boundary
 - Water
 - River or Stream
- PFRA**
- Fluvial 1% AEP
 - Fluvial 0.1% AEP
 - Pluvial 1% AEP
 - Pluvial 0.1% AEP



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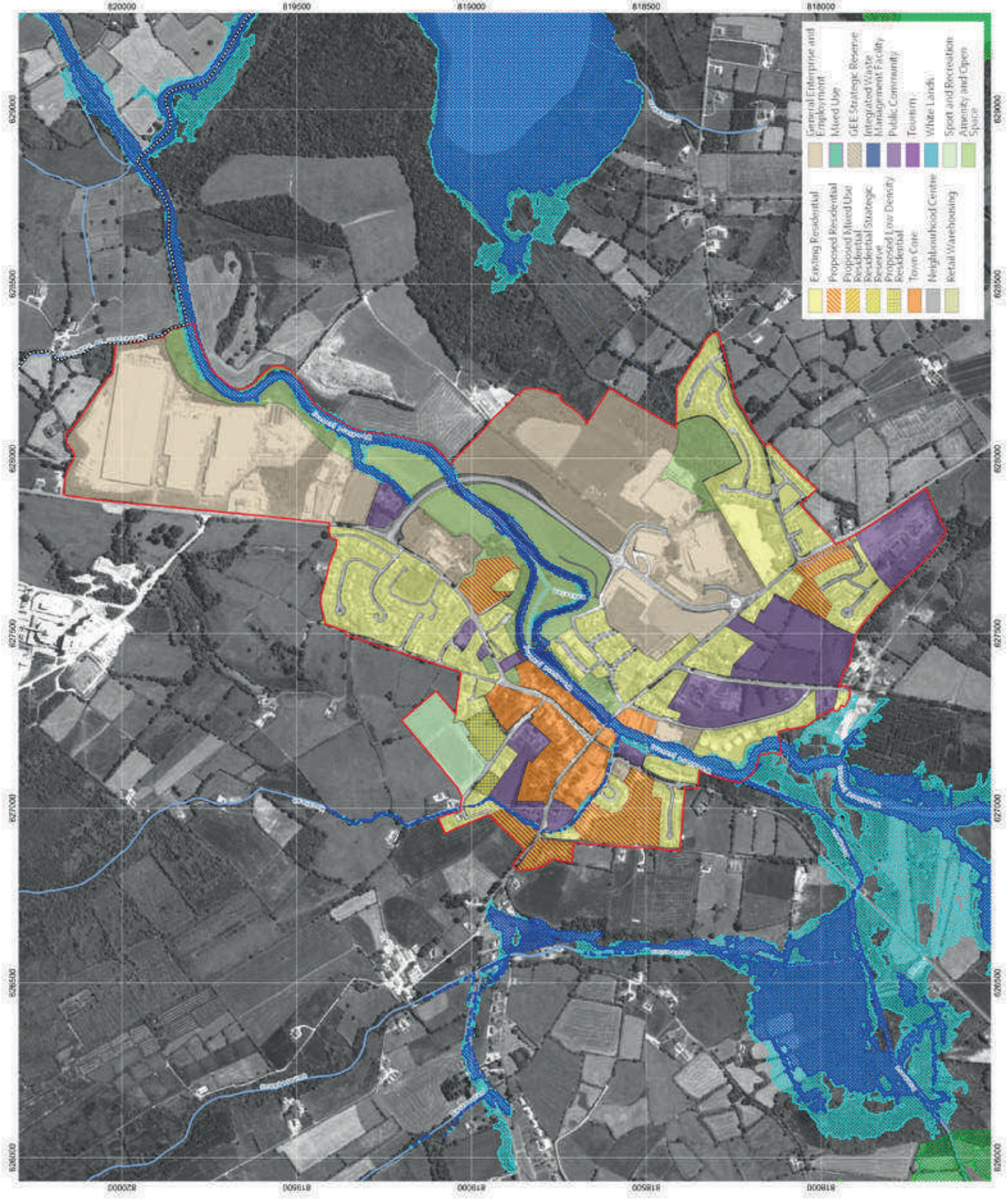
Cavan County Development Plan 2022-2028

Ballyconnell
OPW Catchment Flood
Risk Assessment &
Management (CFRAM)
& National Indicative
Fluvial Mapping (NIFM)
Present Day Scenario

- Plan Boundary
 - County Boundary
 - Water
 - River or Stream
- CFRAM Fluvial Present Day Scenario**
- 1% AEP
 - 0.1% AEP
- NIFM Present Day Scenario**
- 1% AEP
 - 0.1% AEP



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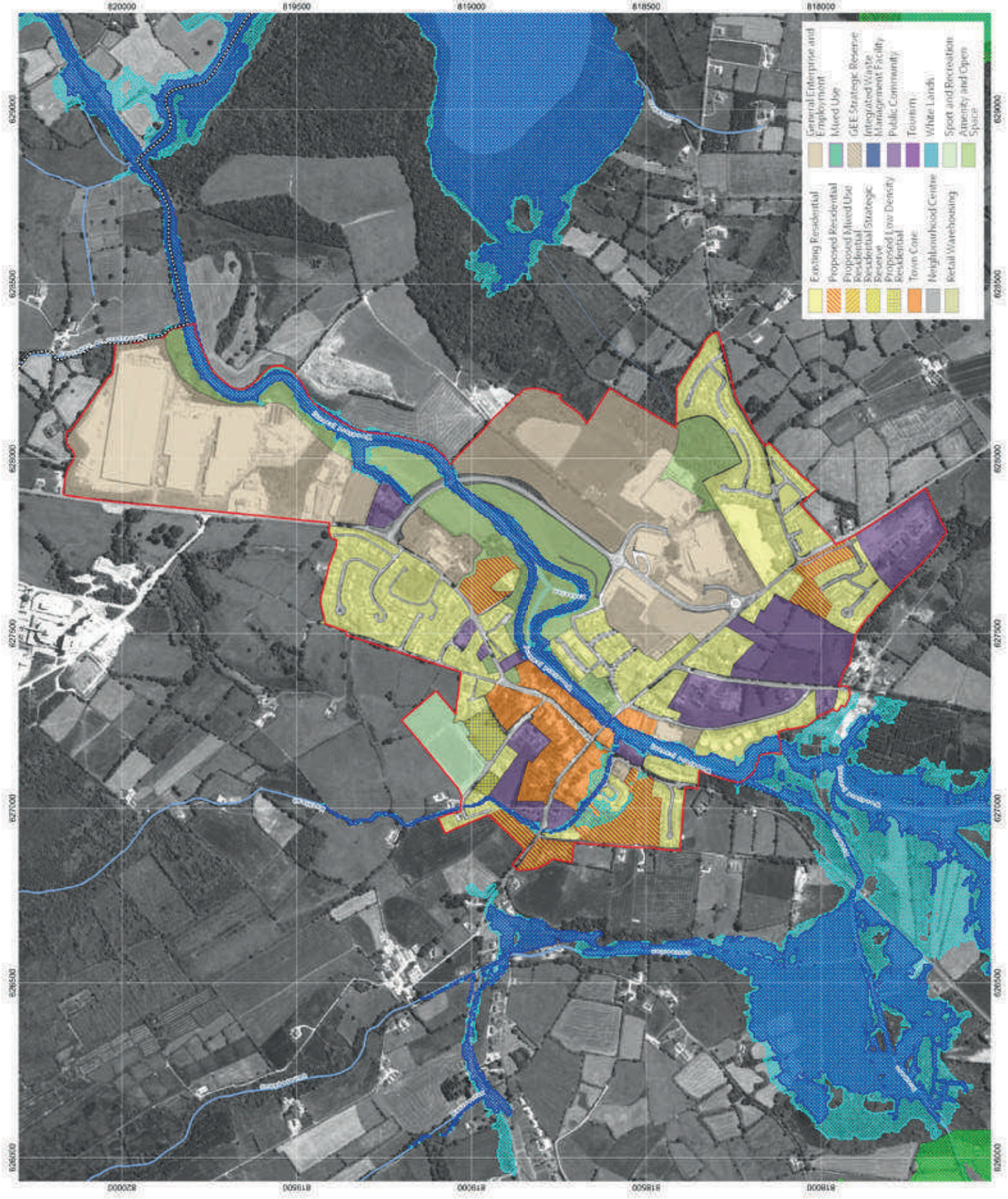
Cavan County Development Plan 2022-2028

Ballyconnell
OPW Catchment Flood
Risk Assessment &
Management (CFRAM)
& National Indicative
Fluvial Mapping (NIFM)
Mid-Range Future
Scenario

- Plan Boundary
 - County Boundary
 - Water
 - River or Stream
- CFRAM Fluvial Mid-Range Future Scenario**
- 1% AEP
 - 0.1% AEP
- NIFM Mid-Range Future Scenario**
- 1% AEP
 - 0.1% AEP



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- Existing Residential
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- General Enterprise and Employment
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- GEE Strategic Reserve
- Integrated Waste Management Facility
- Public Community
- Tourism
- White Lands
- Sport and Recreation
- Attraction and Open Space

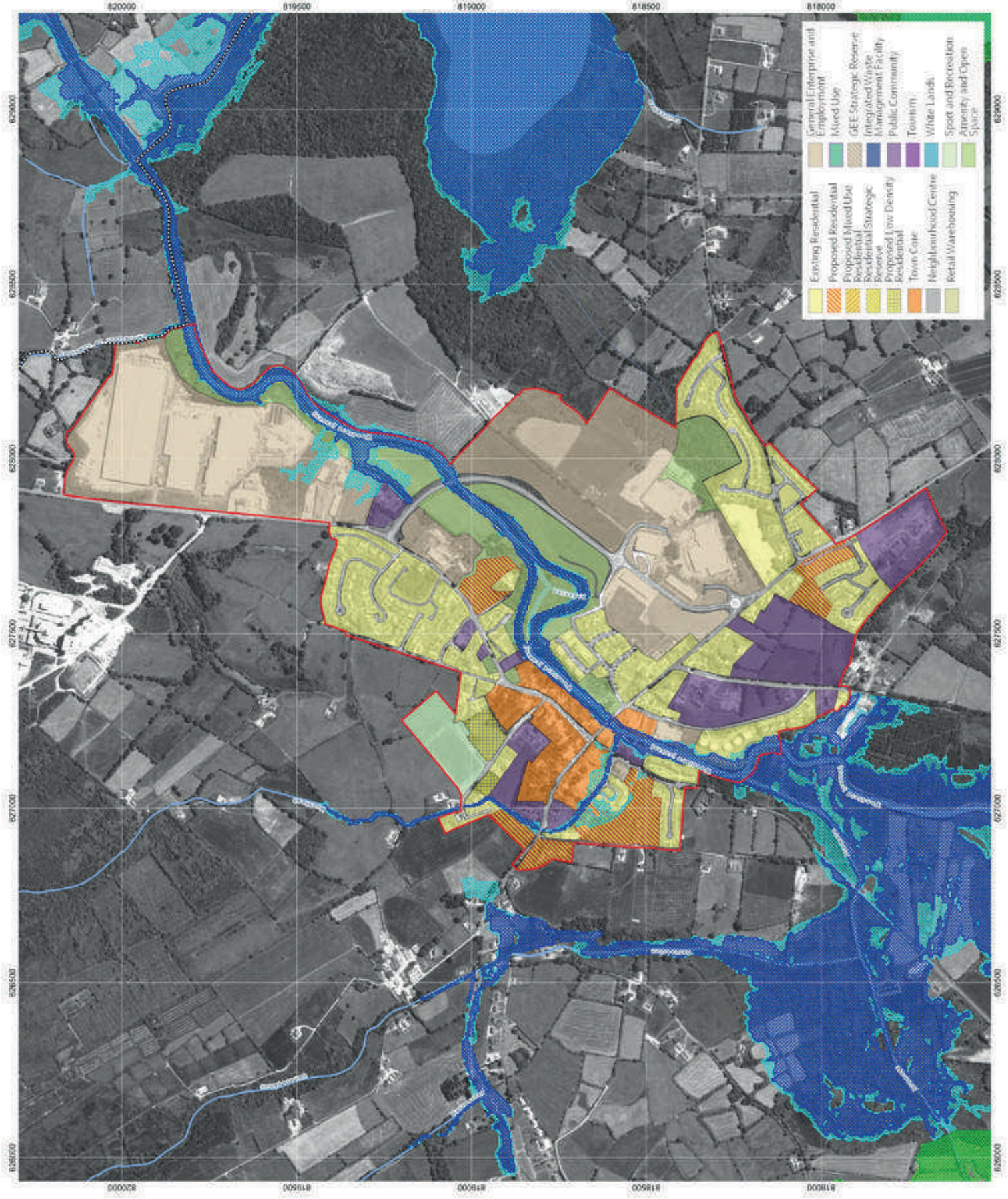
Cavan County Development Plan 2022-2028

Ballyconnell
OPW Catchment Flood
Risk Assessment &
Management (CFRAM)
& National Indicative
Fluvial Mapping (NIFM)
High-End Future
Scenario

- Plan Boundary
 - County Boundary
 - Water
 - River or Stream
- CFRAM Fluvial High-End
Future Scenario
- 1% AEP
 - 0.3% AEP
- NIFM High-End Future
Scenario
- 1% AEP
 - 0.3% AEP



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- Existing Residential
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- Mixed Use
- GEE Strategic Reserve
- Integrated Waste Management Facility
- Public Community
- Tourism
- White Lands
- Sport and Recreation
- Attractancy and Open Space

Cavan County Development Plan 2022-2028

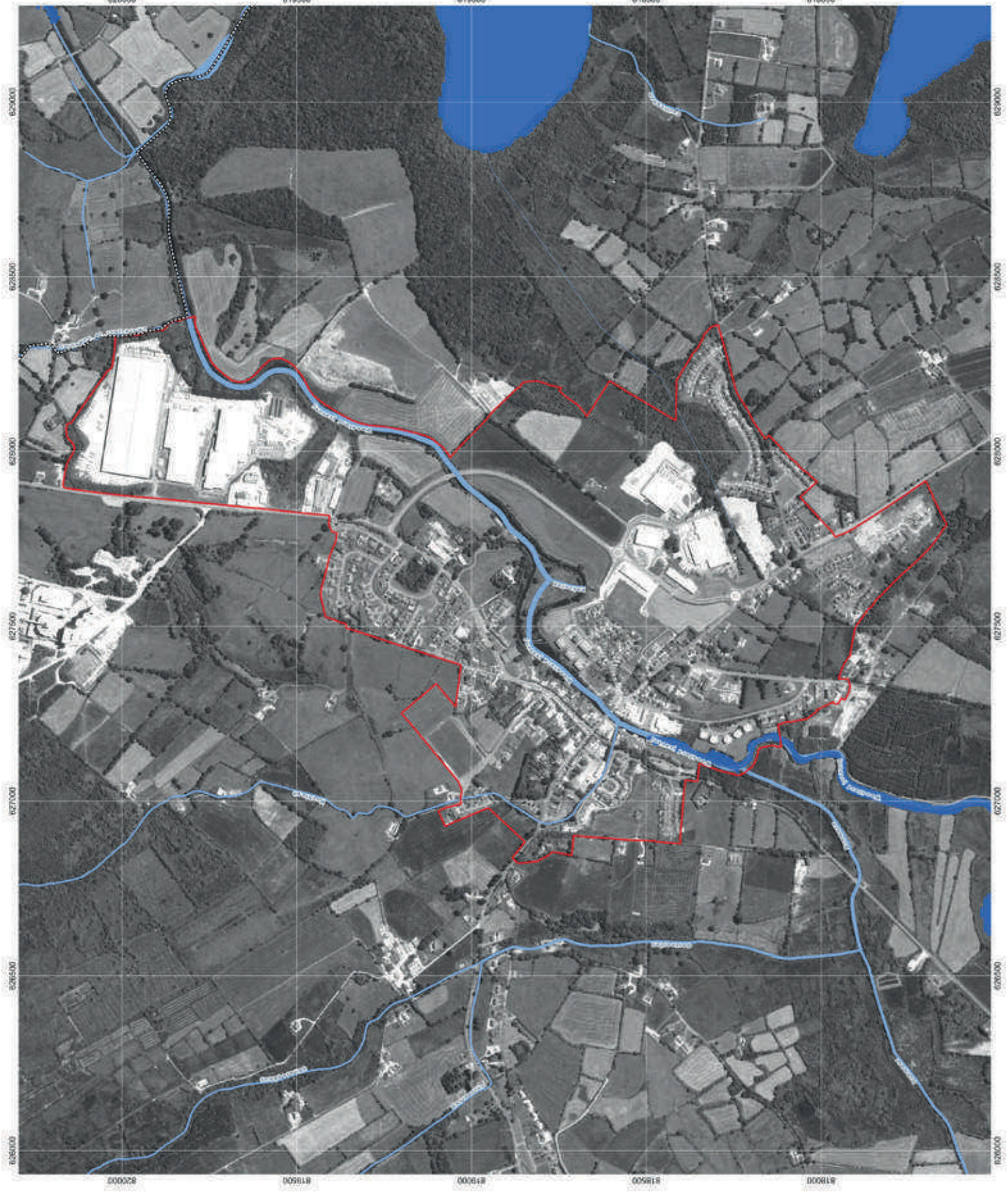
Ballyconnell

GSI Historical Flood Data and Groundwater Predictive Modeling

- Plan Boundary
- County Boundary
- Water
- River or Stream
- GSI Groundwater Flooding Predictive Model**
- High Probability
- Medium Probability
- Low Probability
- GSI Historical Flood Data**
- Surface Water Flooding**
- Winter 2015-2016 Surface Water Flooding
- Maximum Historic Groundwater Flooding**
- Groundwater
- Groundwater/Surface water





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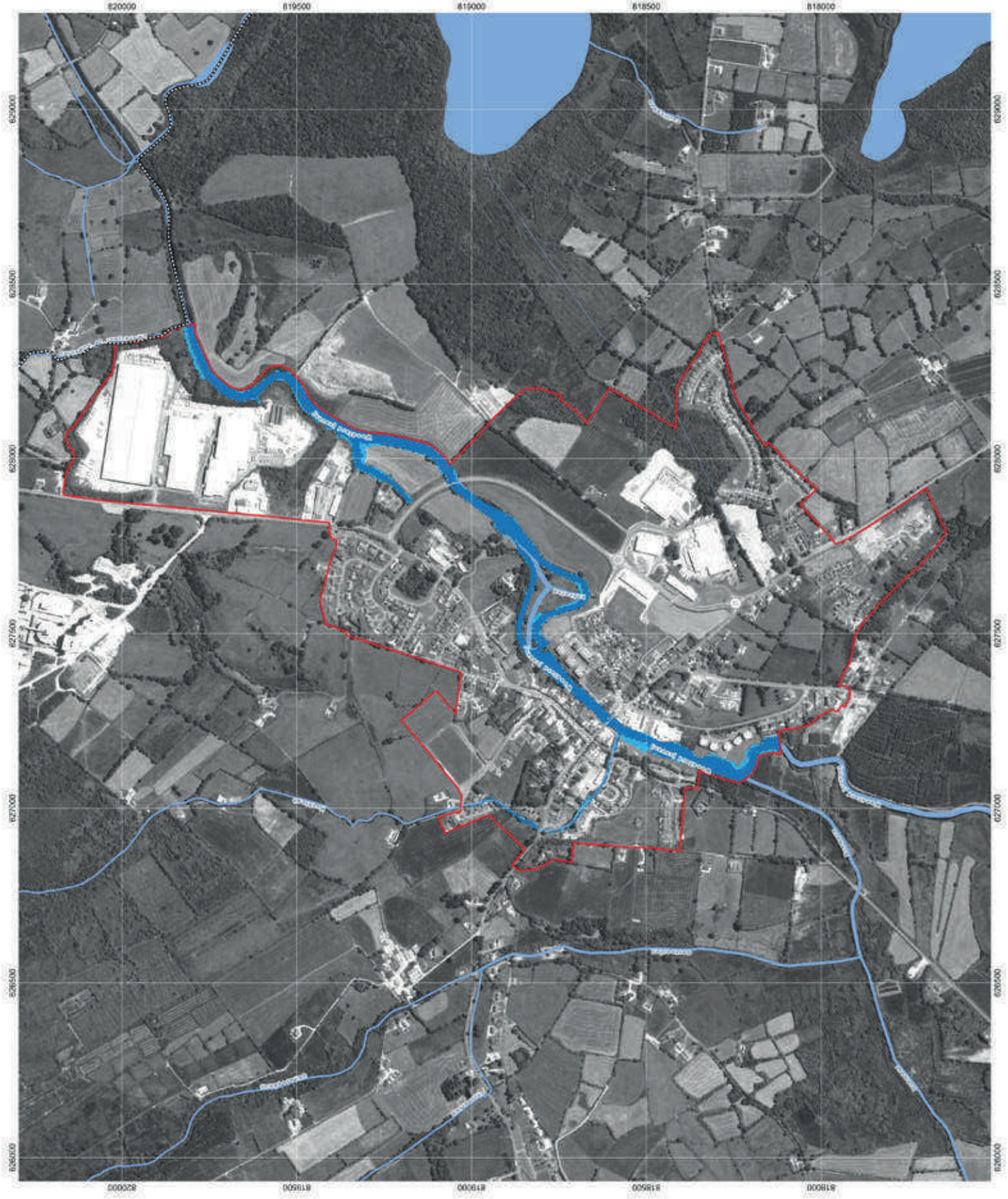
Cavan County Development Plan 2022-2028

Ballyconnell Indicative Flood Zones

-  Plan Boundary
 -  County Boundary
 -  Water
 -  River or Stream
- ### Indicative Flood Zones
-  Flood Zone A
 -  Flood Zone B



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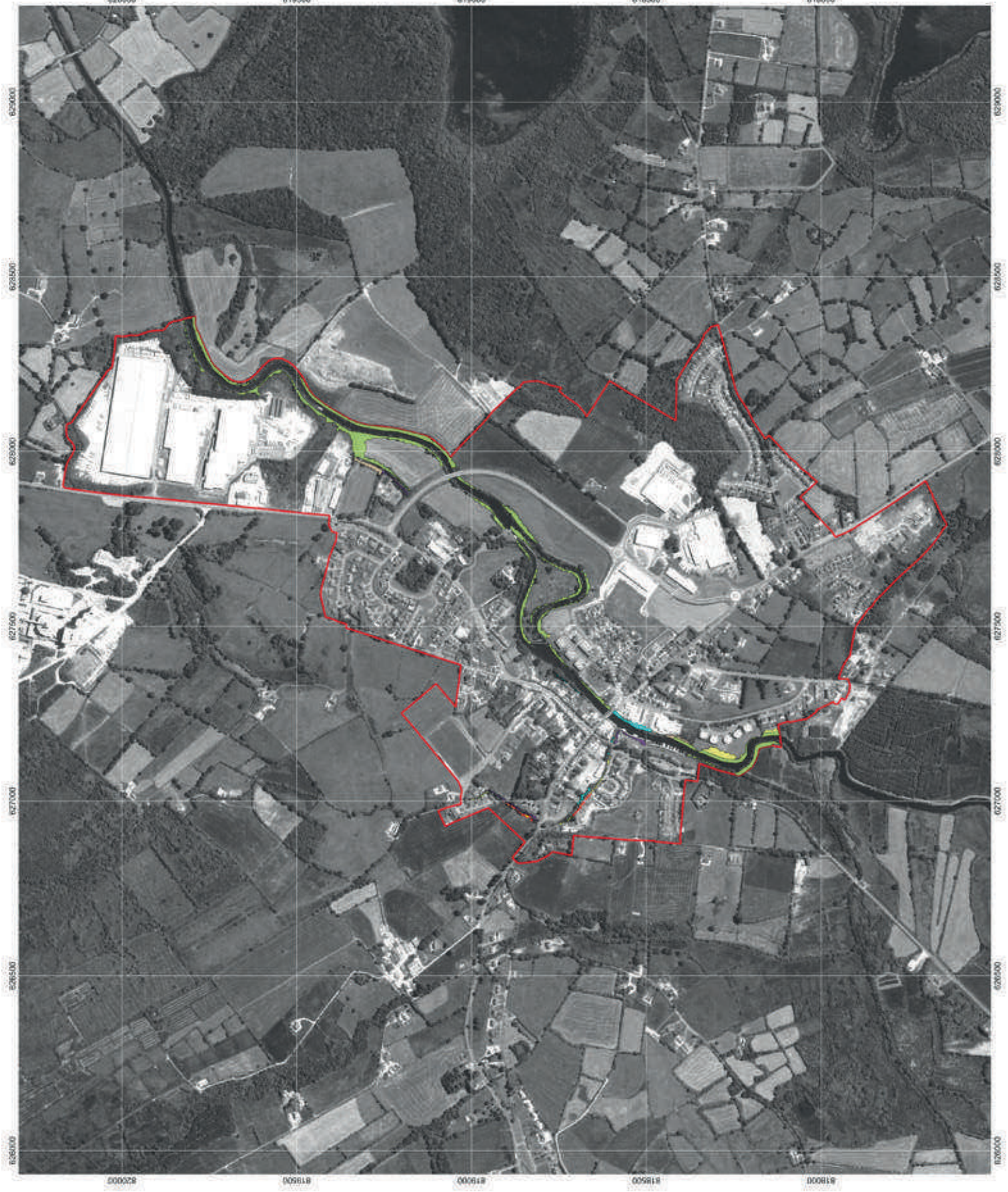
Cavan County Development Plan 2022-2028

Ballyconnell Land Use Zoning that Interacts Indicative Flood Zones

- Plan Boundary
- County Boundary
- Existing Residential
- Proposed Residential
- Proposed Mixed Use Residential
- Residential Strategic Reserve
- Proposed Low Density Residential
- Town Core
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- General Enterprise and Employment
- GEE Strategic Reserve
- Integrated Waste Management Facility
- Public Community
- Tourism
- Sport and Recreation
- Amenity and Open Space

















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Cavan County Development Plan 2022-2028

Ballyjamesduff
OPW Historical Flood
Data

-  Plan Boundary
-  County Boundary
-  Water
-  River or Stream
- OPW Past Flood Events**
-  Single Flood Event
-  Recurring Flood Event
-  Past Flood Extent
- Land Commission**
-  Benefitted Lands
- Drainage District**
-  Channel
-  Embankment
-  Benefitted Lands
- Arterial Drainage Scheme**
-  Channel
-  Embankment
-  Benefitted Lands



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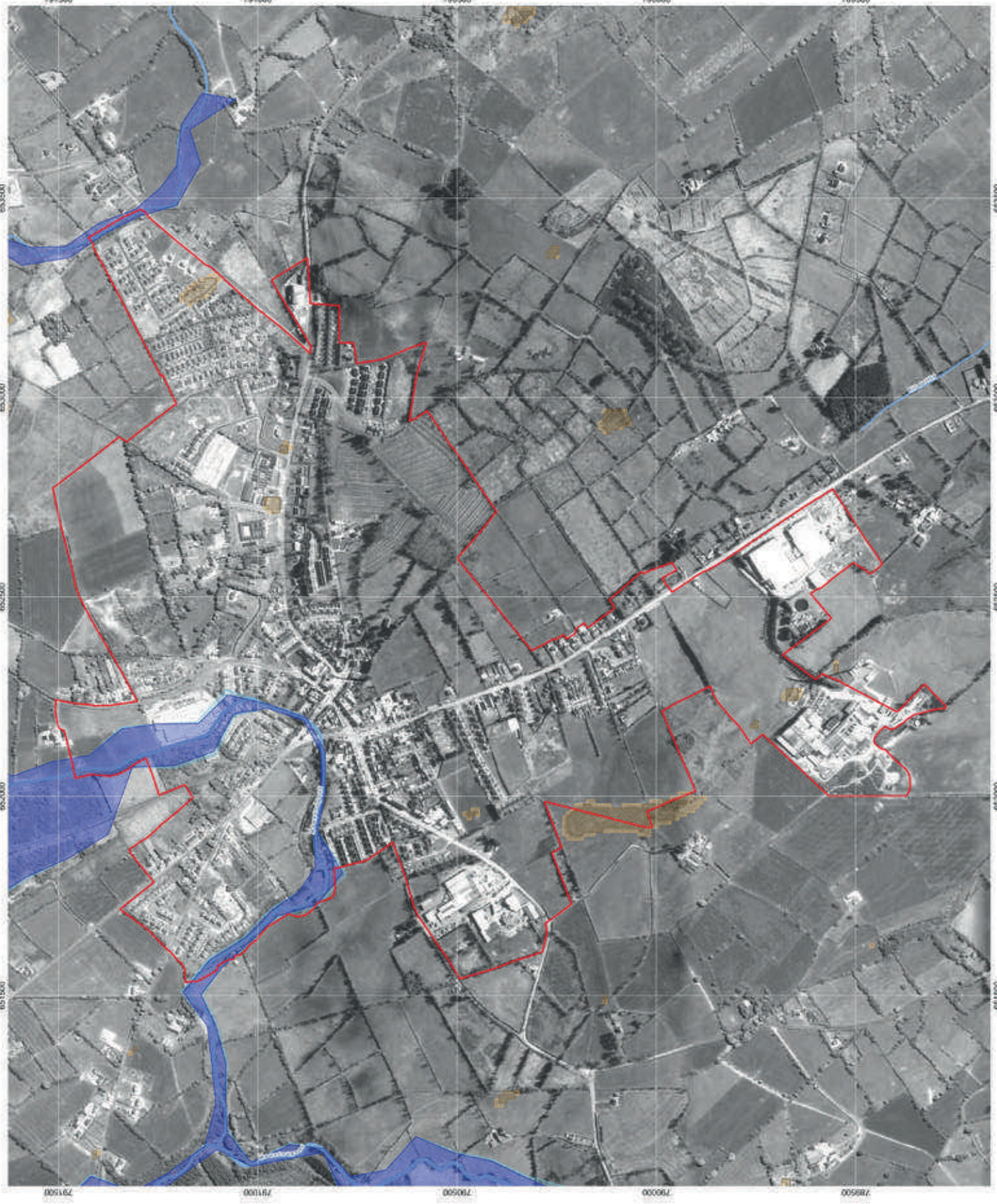
Cavan County Development Plan 2022-2028

Ballyjamesduff OPW Preliminary Flood Risk Assessment (PFRA)

- Plan Boundary
 - County Boundary
 - Water
 - River or Stream
- PFRA**
- Fluvial 1% AEP
 - Fluvial 0.1% AEP
 - Pluvial 1% AEP
 - Pluvial 0.1% AEP

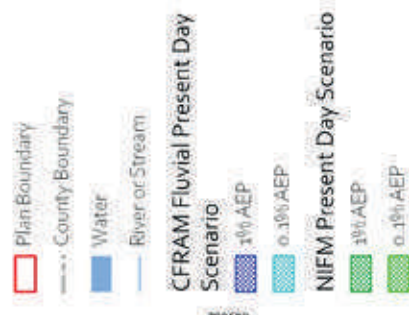


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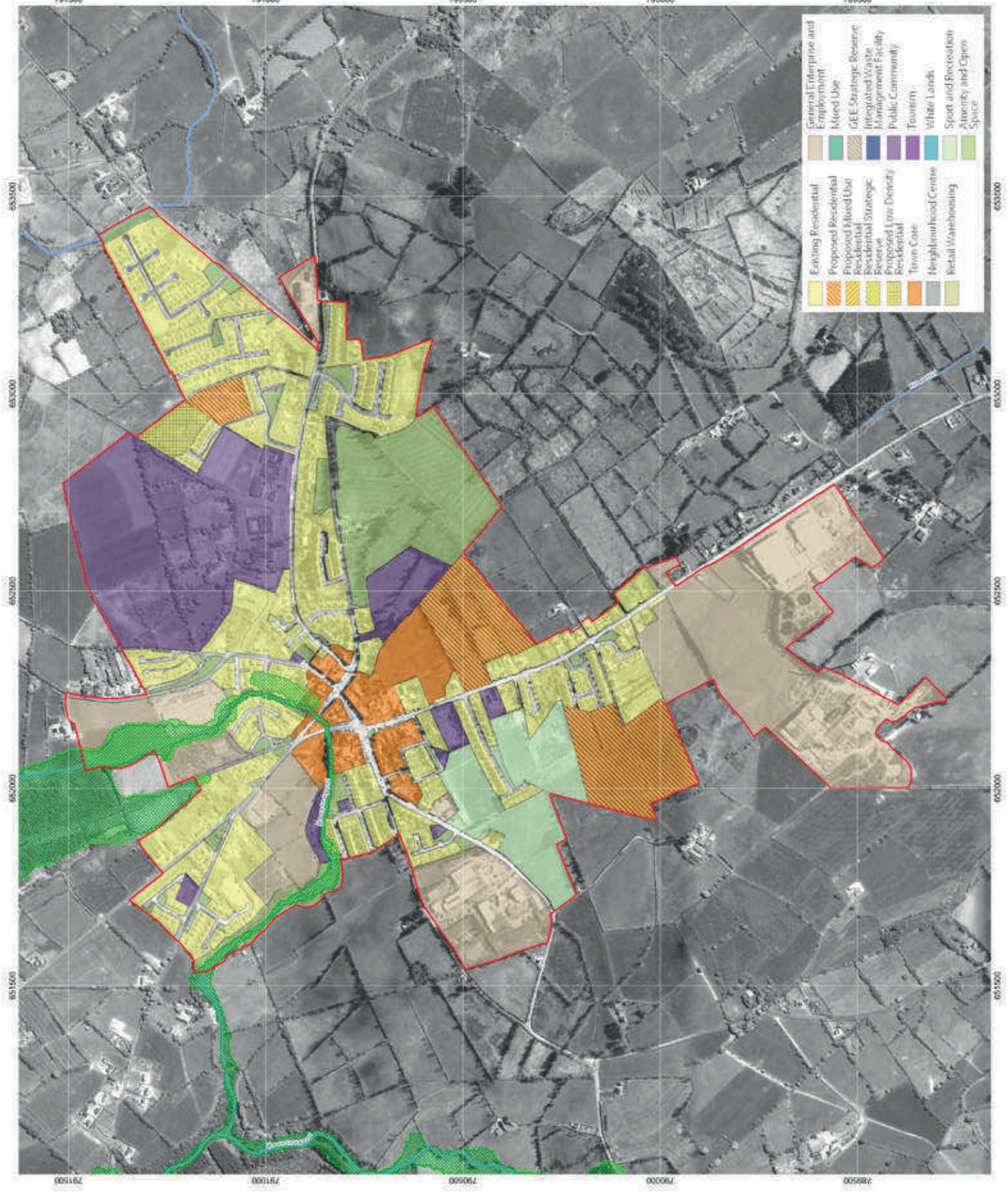


Cavan County Development Plan 2022-2028

Ballyjamesduff
OPW Catchment Flood
Risk Assessment &
Management (CFRAM)
& National Indicative
Fluvial Mapping (NIFM)
Present Day Scenario



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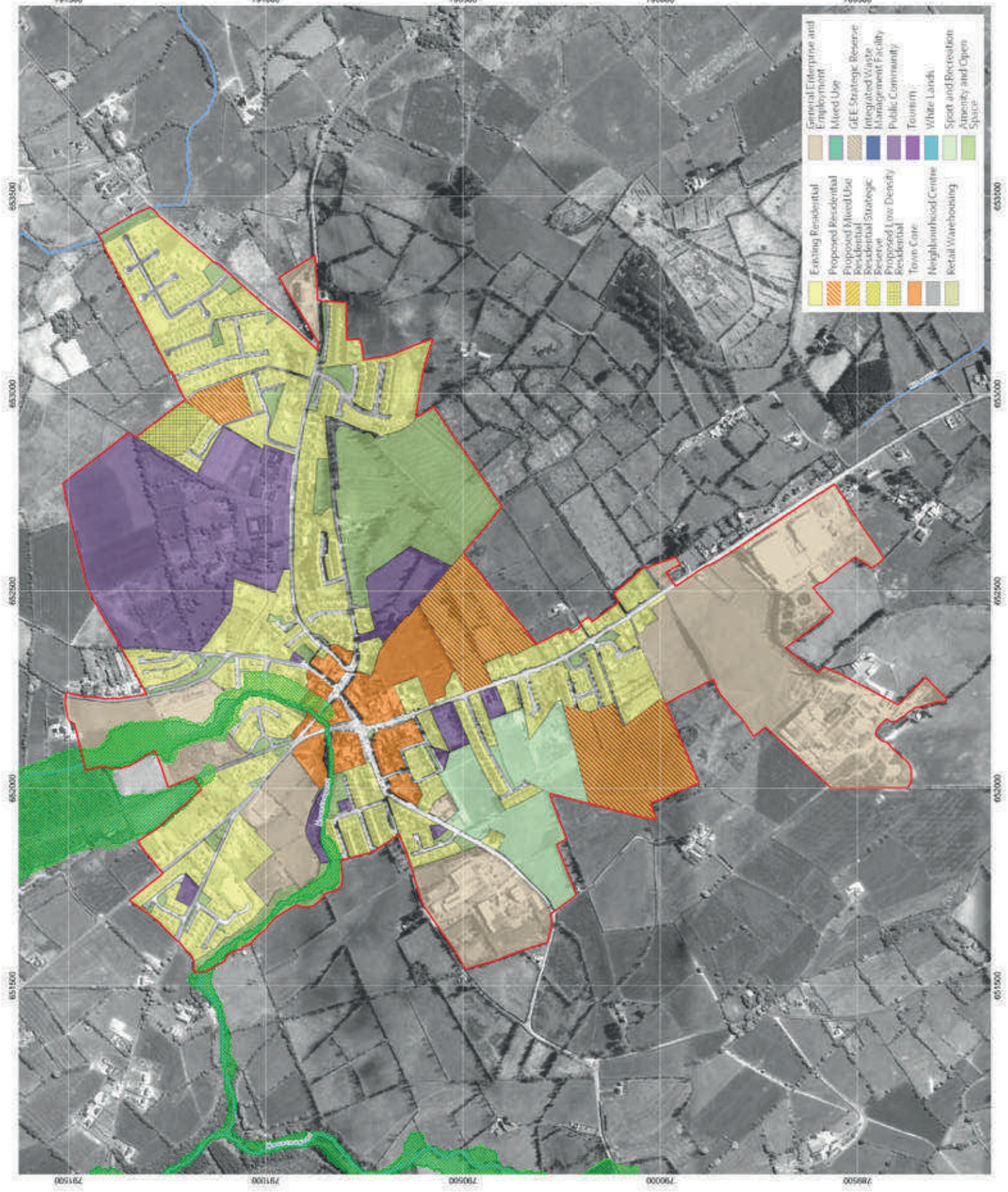
Cavan County Development Plan 2022-2028

Ballyjamesduff
OPW Catchment Flood
Risk Assessment &
Management (CFRAM)
& National Indicative
Fluvial Mapping (NIFM)
Mid-Range Future
Scenario

- Plan Boundary
- County Boundary
- Water
- River or Stream
- CFRAM Fluvial Mid-Range Future Scenario 1% AEP
- 0.1% AEP
- NIFM Mid-Range Future Scenario 1% AEP
- 0.1% AEP



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- General Enterprise and Employment
- Mixed Use
- GEE Strategic Reserve
- Integrated Waste Management Facility
- Public Community
- Tourism
- White Lands
- Sport and Recreation
- Amenity and Open Space
- Existing Residential
- Proposed Residential
- Proposed Mixed Use
- Residential Strategic Reserve
- Proposed Low Density Residential
- Town Core
- Neighbourhood Centre
- Retail Warehousing

Cavan County Development Plan 2022-2028

Ballyjamesduff
OPW Catchment Flood
Risk Assessment &
Management (CFRAM)
& National Indicative
Fluvial Mapping (NIFM)
High-End Future
Scenario

- Plan Boundary
- County Boundary
- Water
- River or Stream

CFRAM Fluvial High-End
Future Scenario

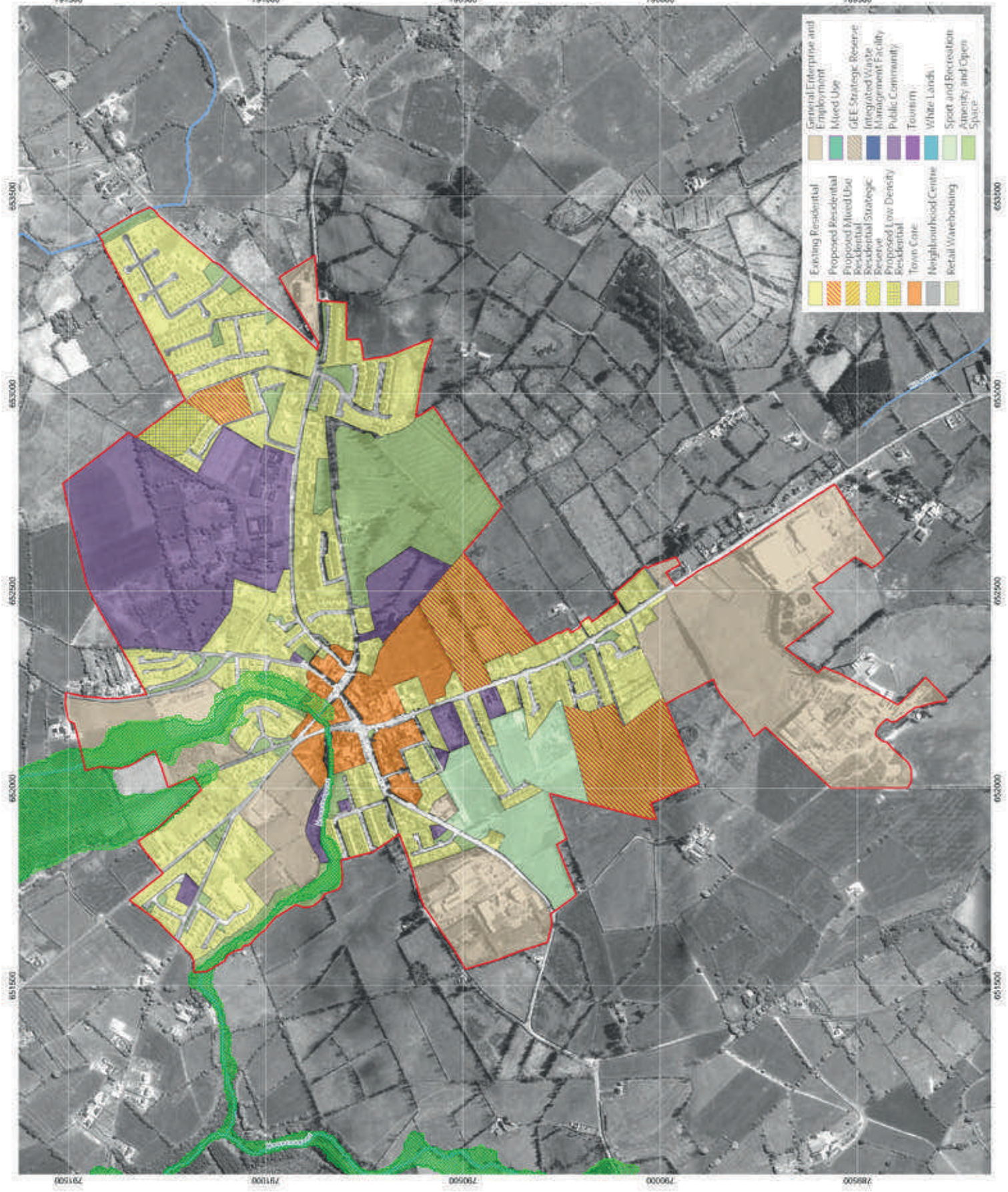
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- 0.3% AEP

NIFM High-End Future
Scenario

- 1% AEP
- 0.3% AEP



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- General Enterprise and Employment
- Mixed Use
- GEE Strategic Reserve
- Integrated Waste Management Facility
- Public Community
- Tourism
- White Lands
- Sport and Recreation
- Attractivity and Open Space
- Existing Residential
- Proposed Residential
- Proposed Mixed Use
- Residential Strategic Reserve
- Proposed Low Density Residential
- Town Core
- Neighbourhood Centre
- Retail Warehousing

Cavan County Development Plan 2022-2028

Ballyjamesduff GSI Historical Flood Data and Groundwater Predictive Modeling

-  Plan Boundary
-  County Boundary
-  Water
-  River or Stream
-  GSI Groundwater Flooding Predictive Model
-  High Probability
-  Medium Probability
-  Low Probability
-  GSI Historical Flood Data
-  Surface Water Flooding
-  Winter 2015-2016 Surface Water Flooding
-  Maximum Historic Groundwater Flooding
-  Groundwater
-  Groundwater/Surface water



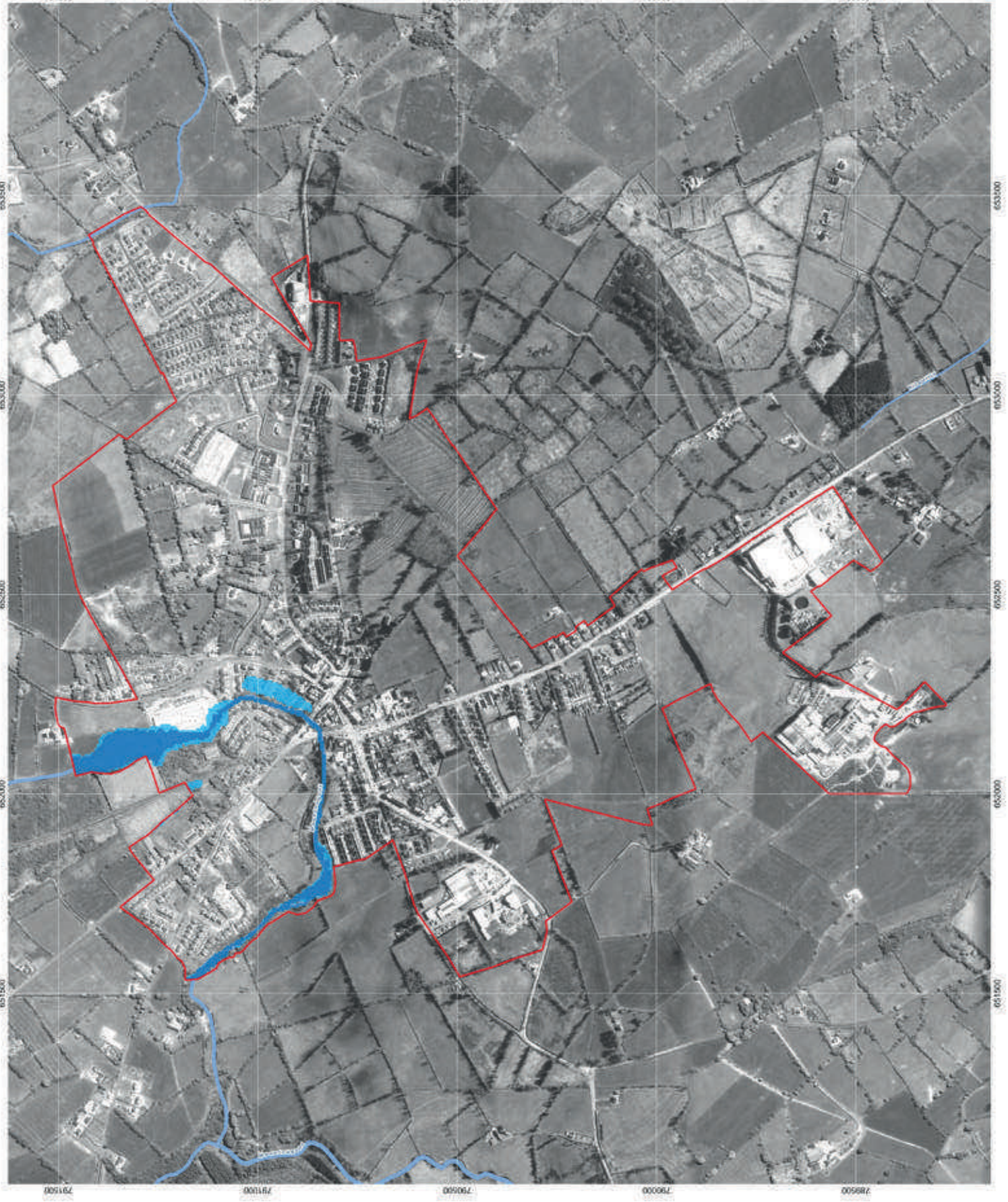
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Cavan County Development Plan 2022-2028

Ballyjamesduff Indicative Flood Zones

- Plan Boundary
- County Boundary
- Water
- River or Stream
- Indicative Flood Zones
 - Flood Zone A
 - Flood Zone B



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Ballyjamesduff Land Use Zoning that Interacts Indicative Flood Zones

- Plan Boundary
- County Boundary
- Existing Residential
- Proposed Residential
- Proposed Mixed Use Residential
- Residential Strategic Reserve
- Proposed Low Density Residential
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- General Enterprise and Employment
- GEE Strategic Reserve
- Integrated Waste Management Facility
- Public Community
- Tourism
- Sport and Recreation
- Amenity and Open Space

















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Cavan County Development Plan 2022-2028

Belturbet
OPW Historical Flood
Data

-  Plan Boundary
-  County Boundary
-  Water
-  River or Stream
- OPW Past Flood Events**
 -  Single Flood Event
 -  Recurring Flood Event
 -  Past Flood Extent
- Land Commission**
 -  Benefited Lands
- Drainage District**
 -  Channel
 -  Embankment
 -  Benefited Lands
- Arterial Drainage Scheme**
 -  Channel
 -  Embankment
 -  Benefited Lands



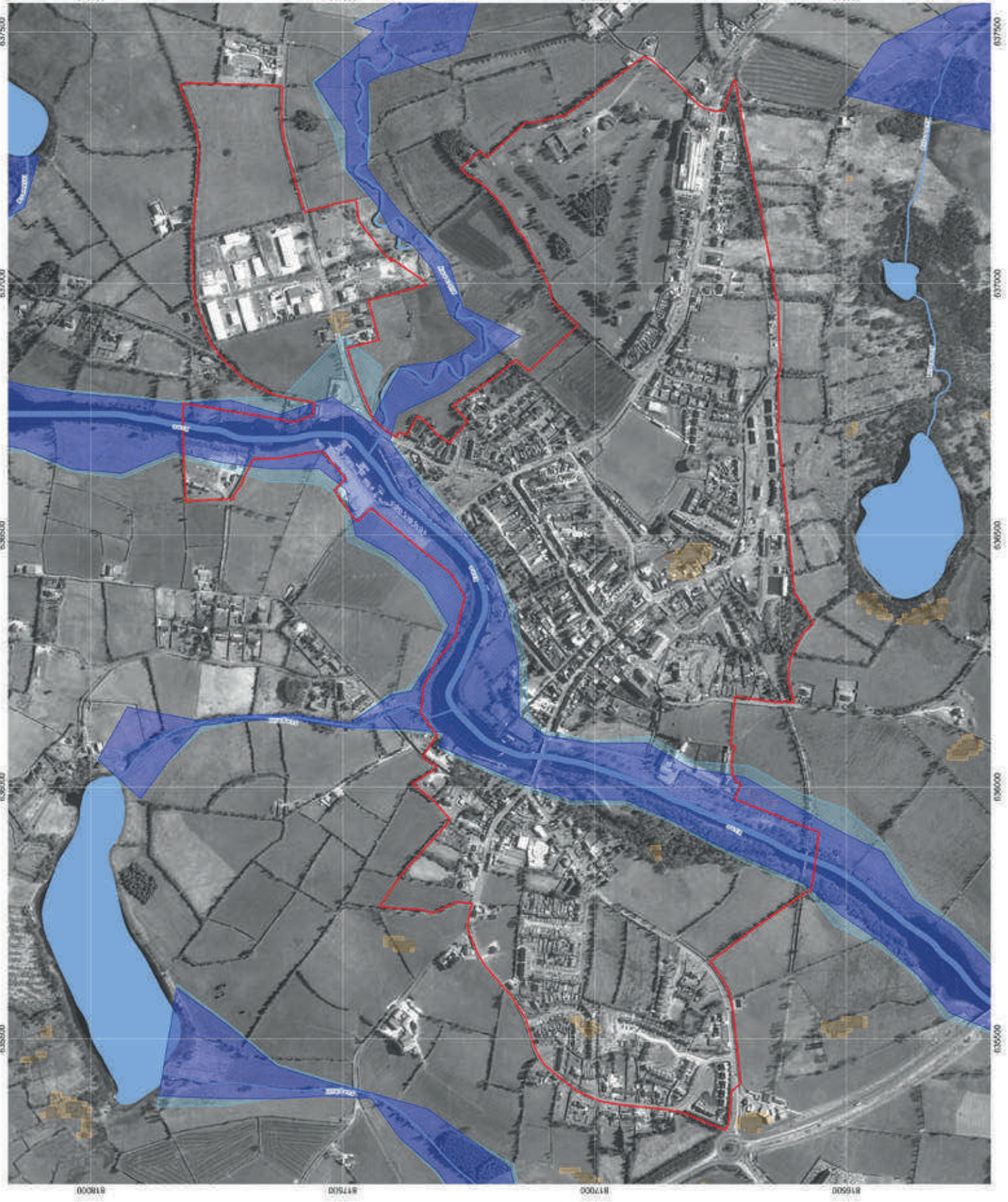
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Cavan County Development Plan 2022-2028

Belturbet OPW Preliminary Flood Risk Assessment (PFRA)

- Plan Boundary
 - County Boundary
 - Water
 - River or Stream
- PFRA**
- Fluvial 1% AEP
 - Fluvial 0.1% AEP
 - Pluvial 1% AEP
 - Pluvial 0.1% AEP



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Cavan County Development Plan 2022-2028

Belturbet

OPW Catchment Flood
Risk Assessment &
Management (CFRAM)
& National Indicative
Fluvial Mapping (NIFM)
Present Day Scenario

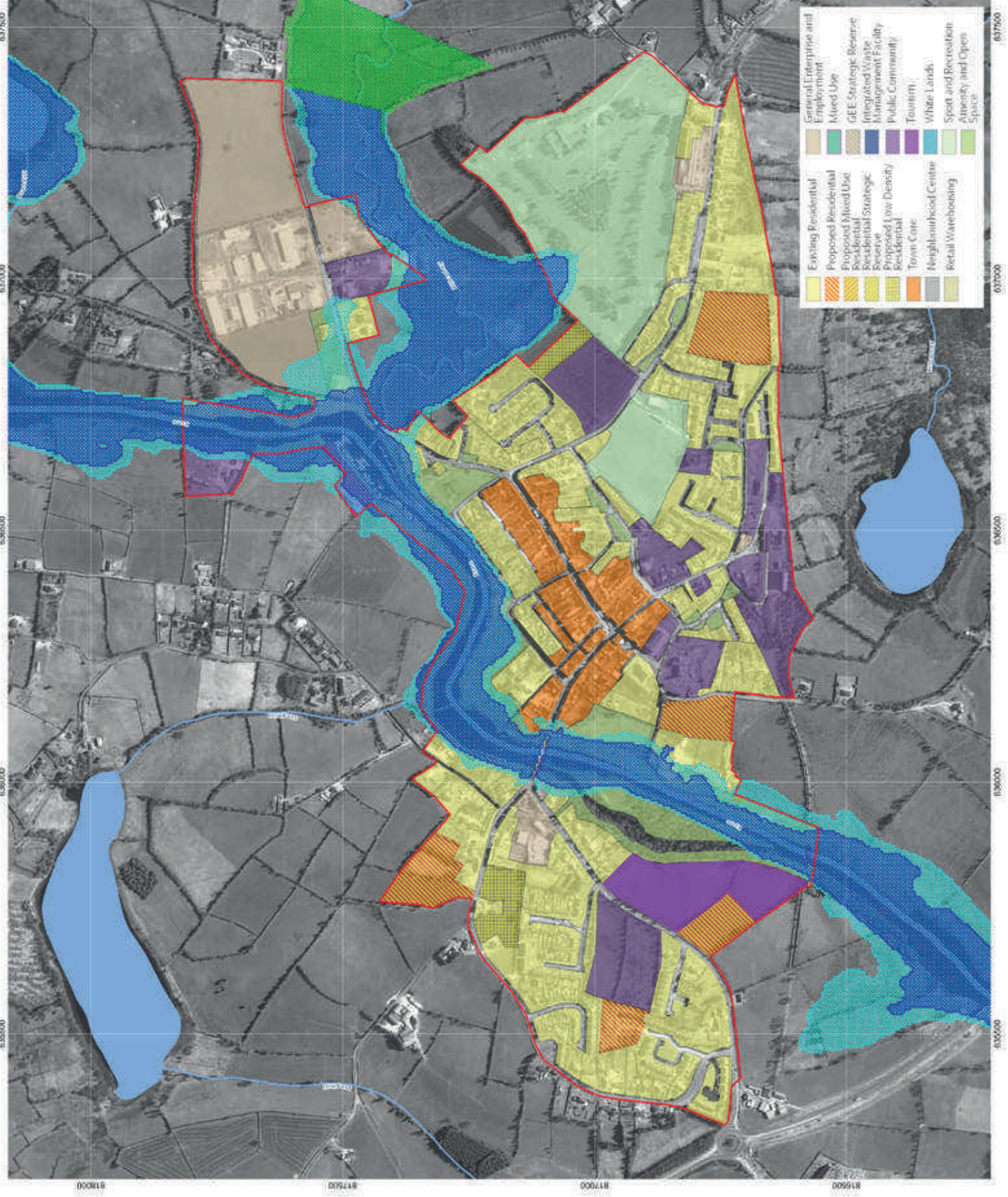
- Plan Boundary
- County Boundary
- Water
- River or Stream

CFRAM Fluvial Present Day Scenario

- 1% AEP
- 0.1% AEP

NIFM Present Day Scenario

- 1% AEP
- 0.1% AEP



- General Enterprise and Employment
- Mixed Use
- GEE Strategic Reserve
- Integrated Waste Management Facility
- Public Community
- Tourism
- White Lands
- Sport and Recreation Attraction and Open Space
- Existing Residential
- Proposed Residential
- Proposed Mixed Use
- Proposed Strategic Residential
- Proposed Low Density Residential
- Town Core
- Neighbourhood Centre
- Retail Warehousing



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County Cavan SP6A
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Cavan County Development Plan 2022-2028

Beiturbet
OPW Catchment Flood
Risk Assessment &
Management (CFRAM)
& National Indicative
Fluvial Mapping (NIFM)
Mid-Range Future
Scenario

- Plan Boundary
- County Boundary
- Water
- River or Stream

**CFRAM Fluvial Mid-Range
Future Scenario**

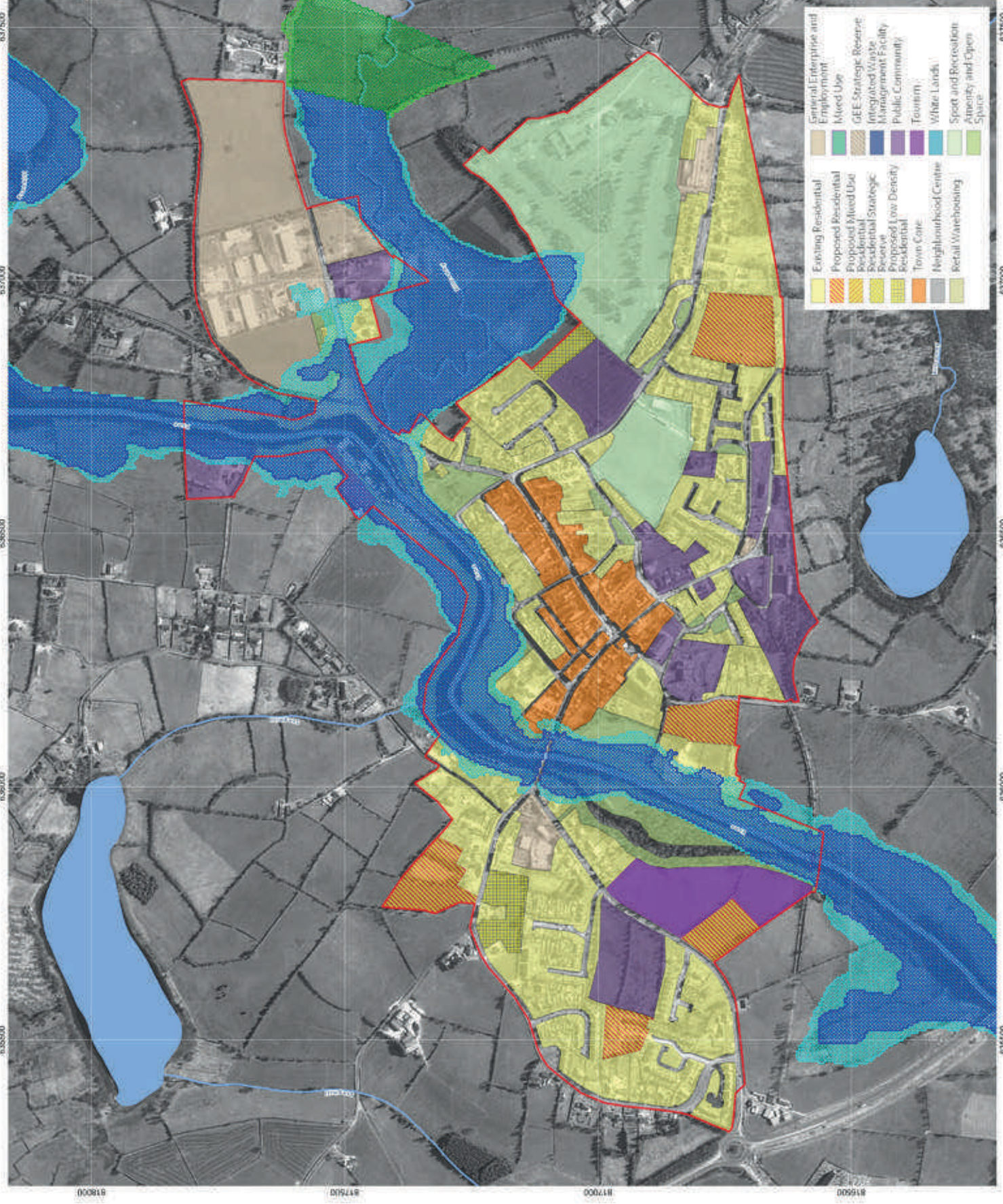
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- 0.1% AEP

**NIFM Mid-Range Future
Scenario**

- 1% AEP
- 0.1% AEP



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Cavan County Development Plan 2022-2028

Beiturbet

OPW Catchment Flood
Risk Assessment &
Management (CFRAM)
& National Indicative
Fluvial Mapping (NIFM)
High-End Future
Scenario

- Plan Boundary
- County Boundary
- Water
- River or Stream

CFRAM Fluvial High-End
Future Scenario

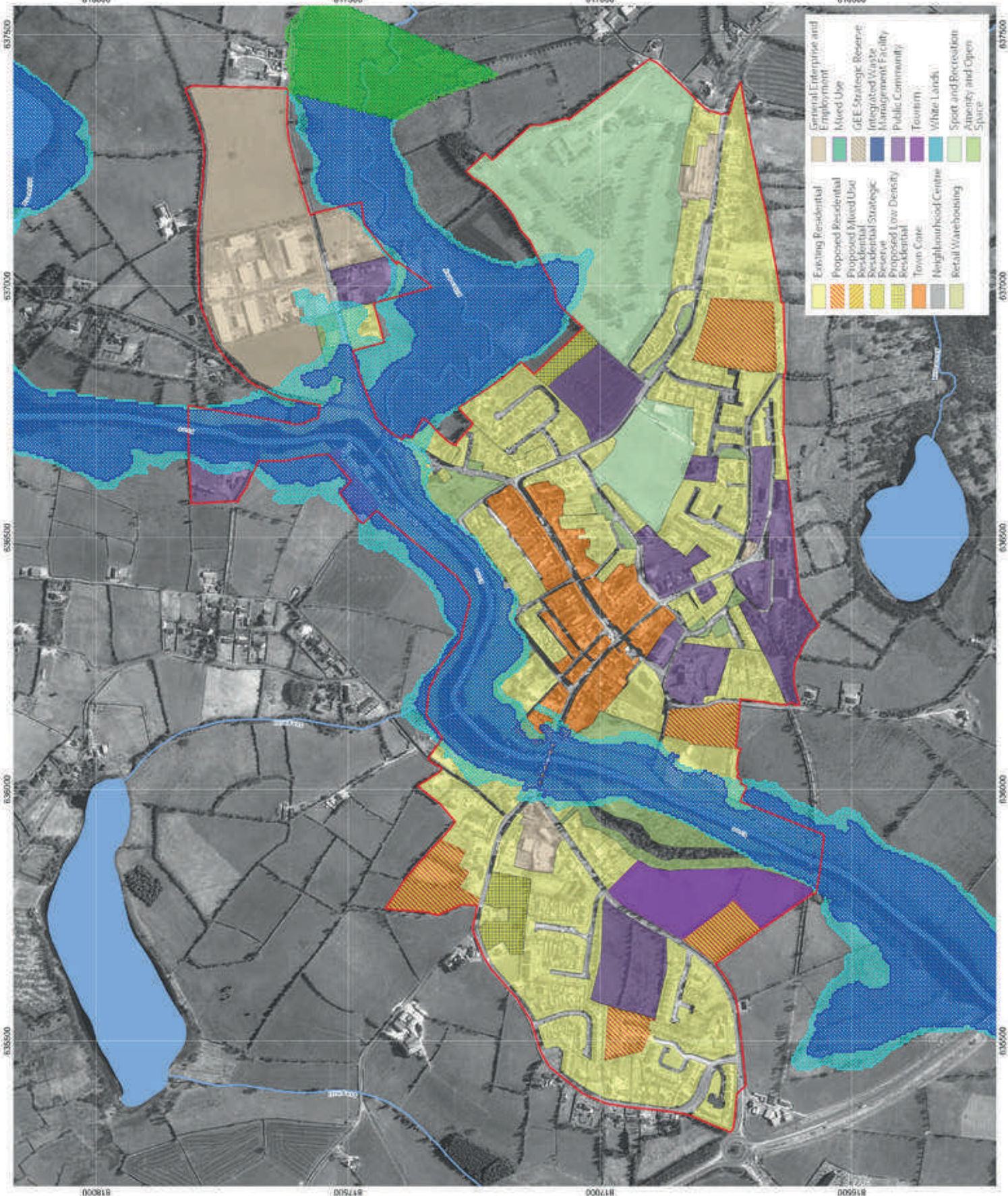
- 1% AEP
- 0.3% AEP

NIFM High-End Future
Scenario

- 1% AEP
- 0.3% AEP



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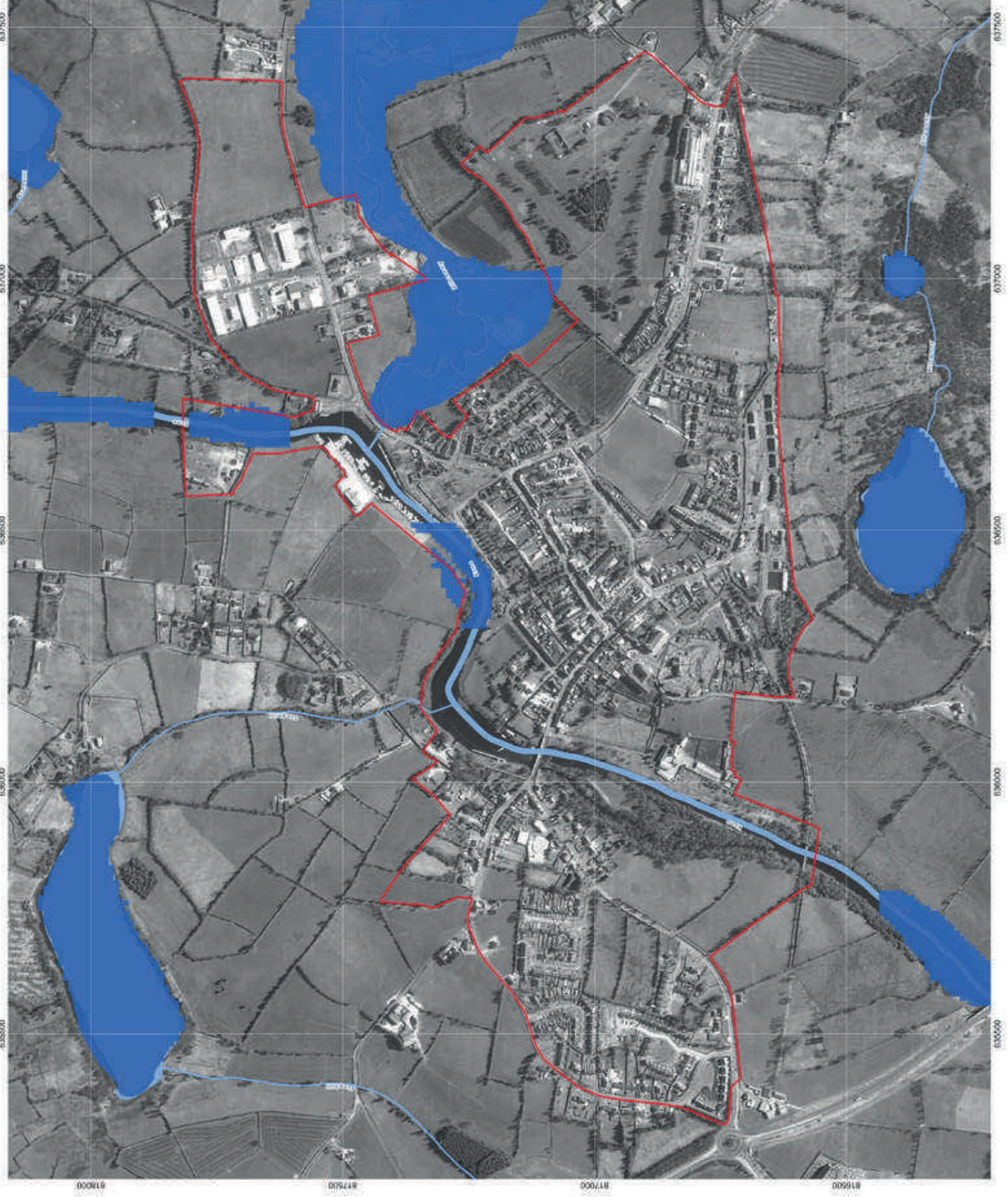
- Existing Residential
- Proposed Residential
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- White Lands
- Sport and Recreation
- Attraction and Open Space

Cavan County Development Plan 2022-2028

Belturbet

GSI Historical Flood Data and Groundwater Predictive Modeling

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- Winter 2015-2016 Surface Water Flooding
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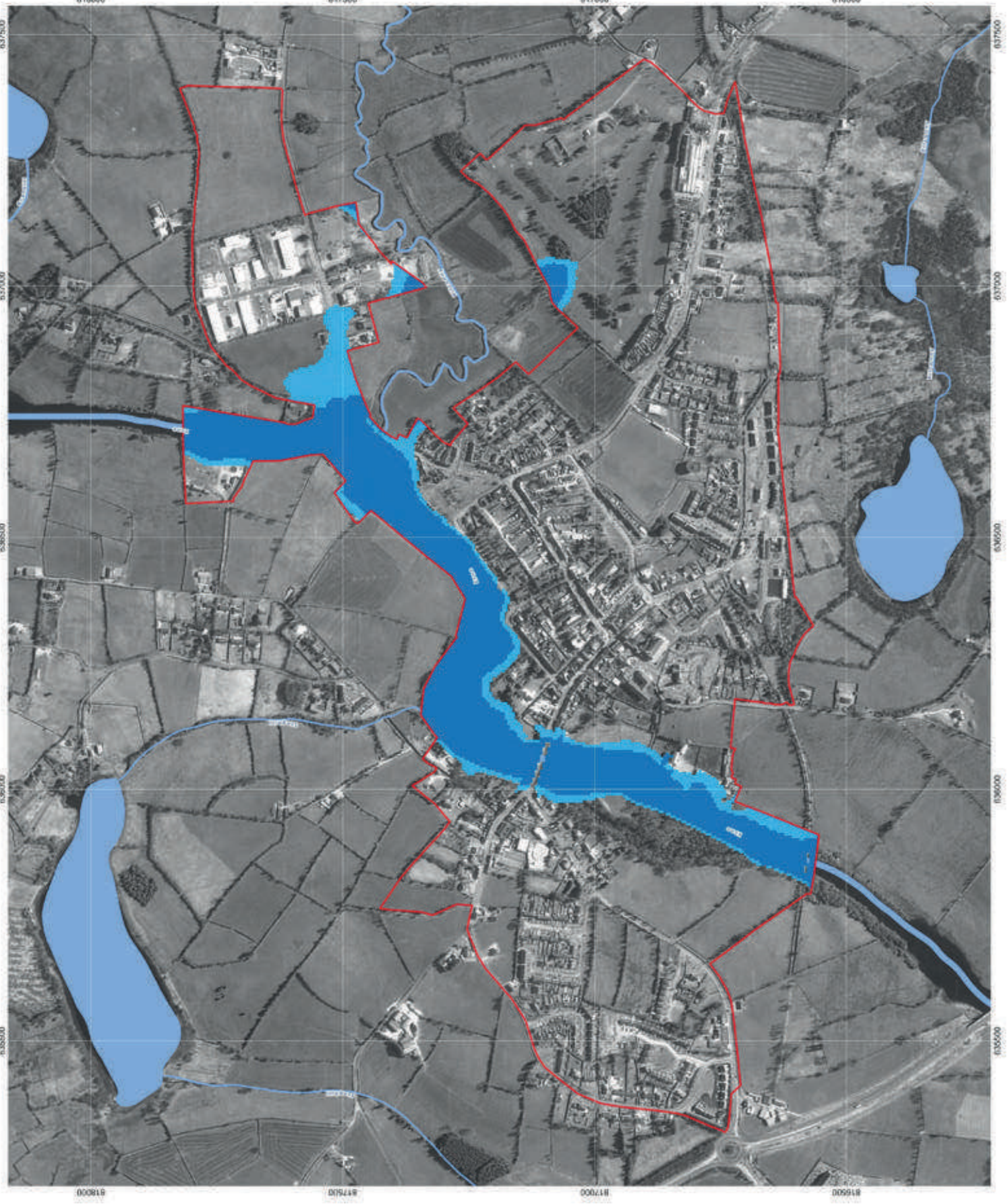
Cavan County Development Plan 2022-2028

Belturbet Indicative Flood Zones

- Plan Boundary
- County Boundary
- Water
- River or Stream
- Indicative Flood Zones
 - Flood_Zone_A
 - Flood_Zone_B



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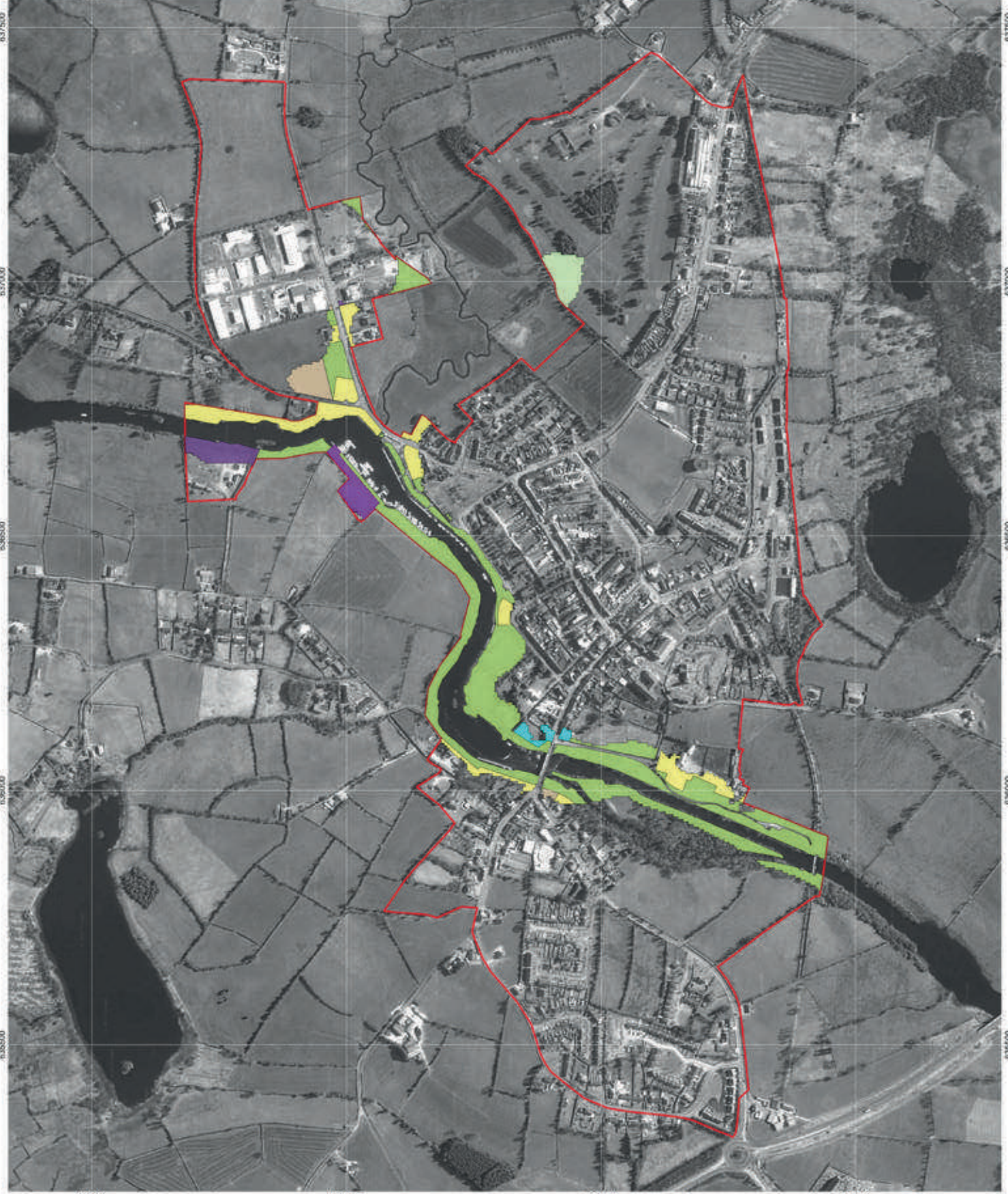
Cavan County Development Plan 2022-2028

**Beiturbet
Land Use Zoning that
Interacts Indicative Flood
Zones**

- Plan Boundary
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- Amenity and Open Space










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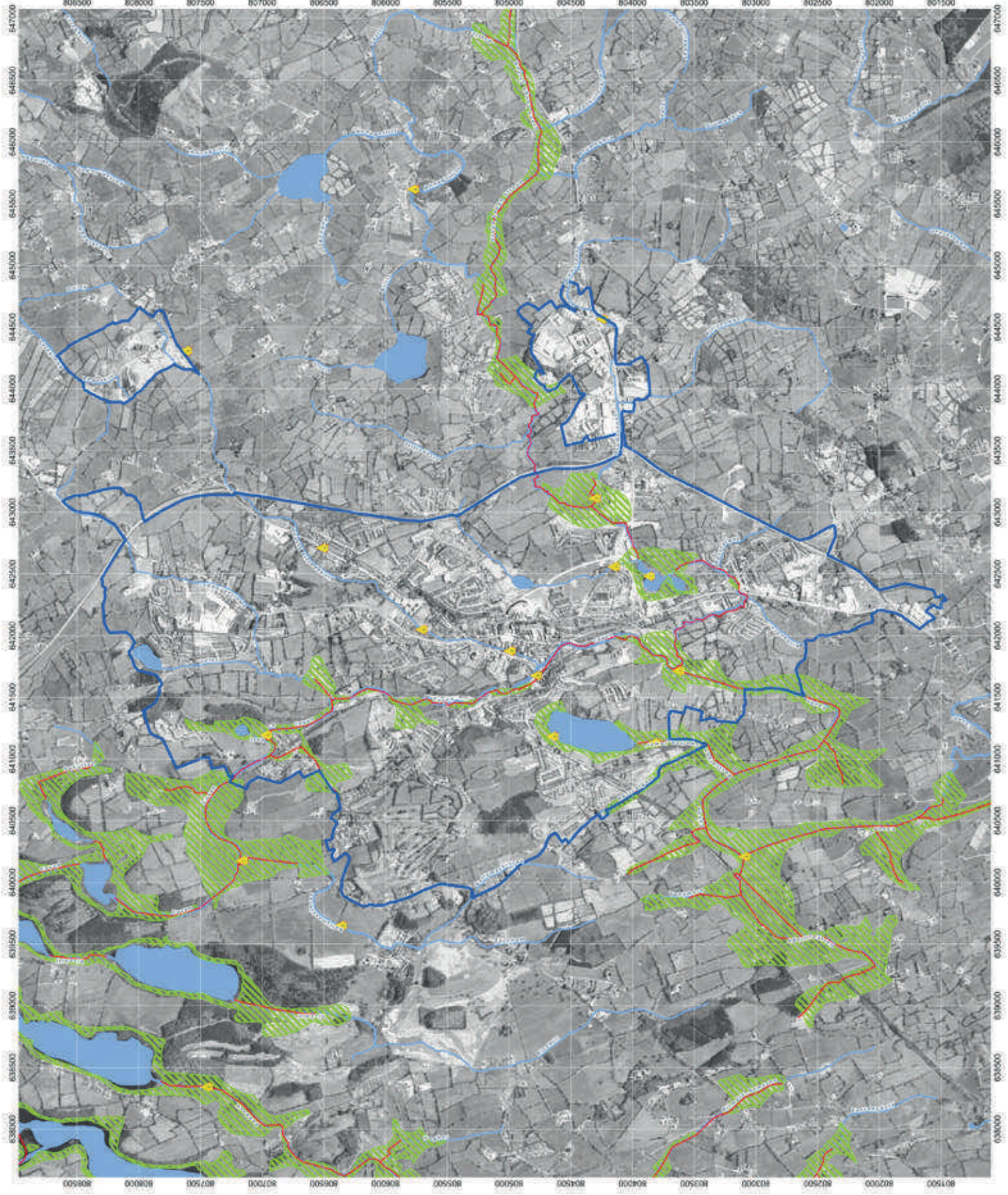
Cavan County Development Plan 2022-2028

Cavan Town and Environs
OPW Historical Flood
Data

-  Plan Boundary
-  County Boundary
-  Water
-  River or Stream
- OPW Past Flood Events**
 -  Single Flood Event
 -  Recurring Flood Event
 -  Past Flood Extent
- Land Commission**
 -  Benefited Lands
- Drainage District**
 -  Channel
 -  Embankment
 -  Benefited Lands
- Arterial Drainage Scheme**
 -  Channel
 -  Embankment
 -  Benefited Lands

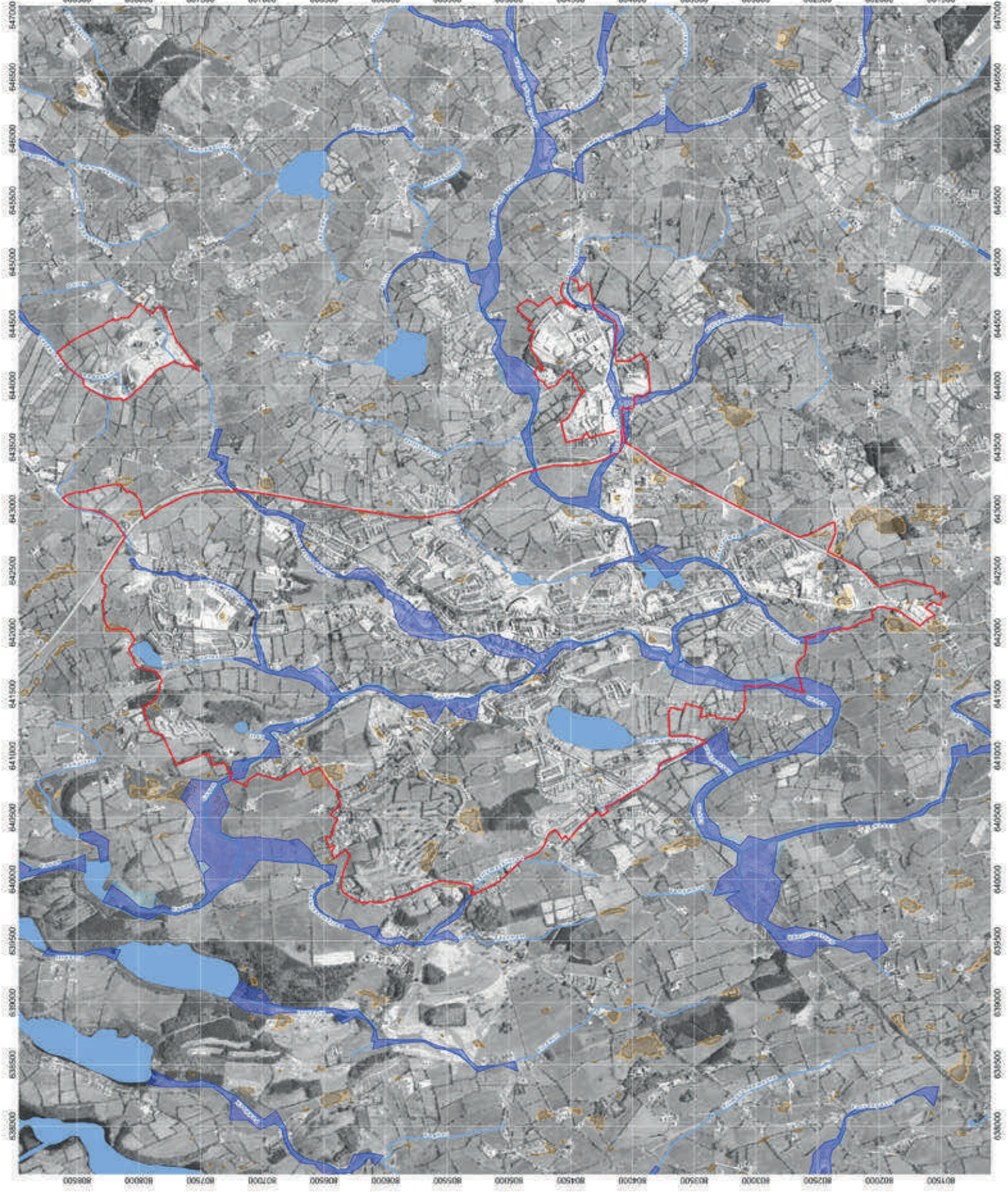
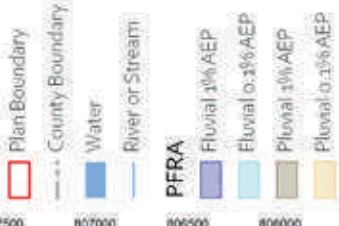


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Cavan County Development Plan 2022-2028

Cavan Town and Environs OPW Preliminary Flood Risk Assessment (PFRA)



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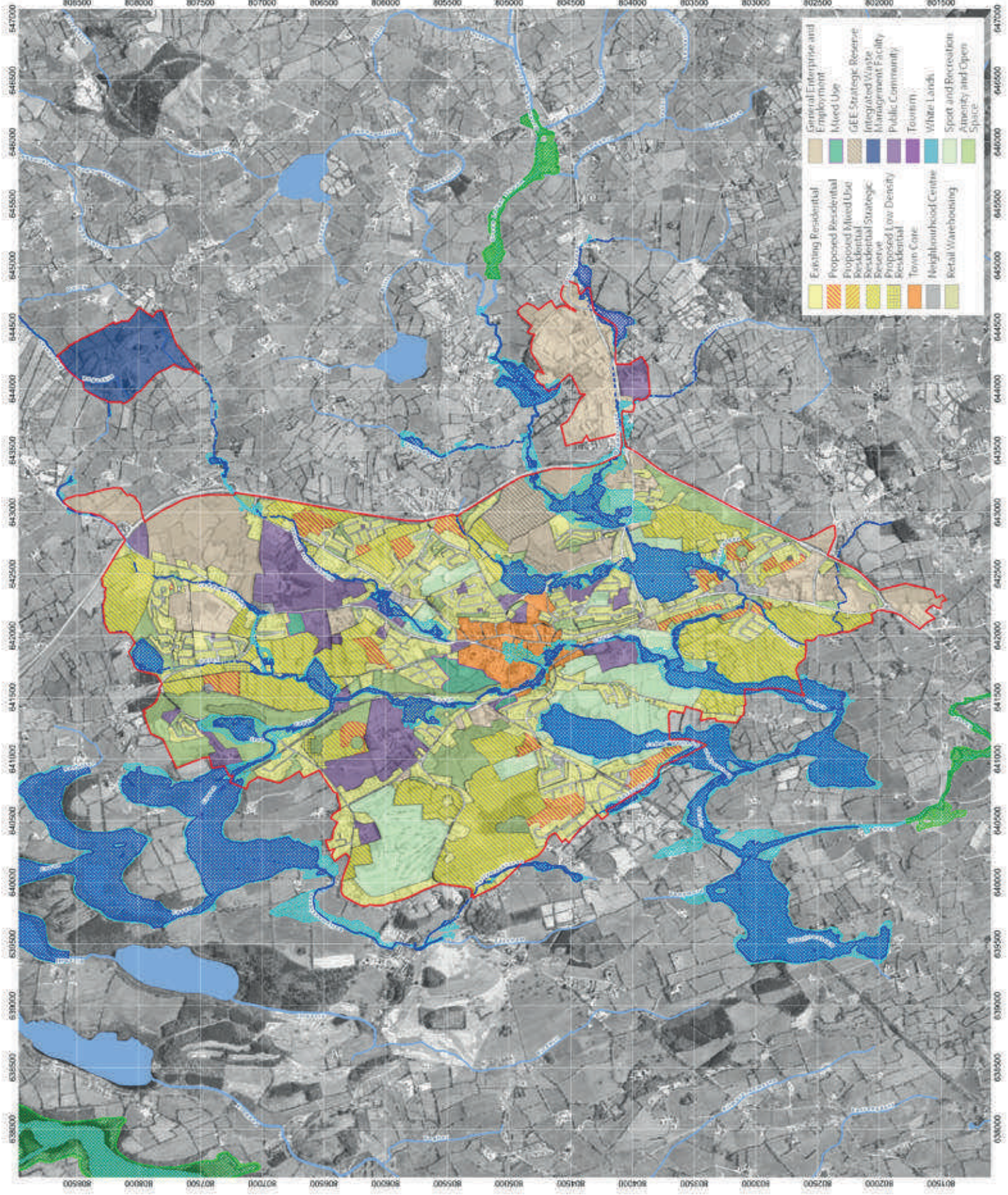
Cavan County Development Plan 2022-2028

Cavan Town and Environs OPW Catchment Flood Risk Assessment & Management (CFRAM) & National Indicative Fluvial Mapping (NIFM) Present Day Scenario

Plan Boundary
 County Boundary
 Water
 River or Stream
CFRAM Fluvial Present Day Scenario
 1% AEP
 0.1% AEP
NIFM Present Day Scenario
 1% AEP
 0.1% AEP



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Cavan County Development Plan 2022-2028

Cavan Town and Environs
OPW Catchment Flood
Risk Assessment &
Management (CFRAM)
& National Indicative
Fluvial Mapping (NIFM)
Mid-Range Future
Scenario

- Plan Boundary
- County Boundary
- Water
- River or Stream

CFRAM Fluvial Mid-Range
Future Scenario

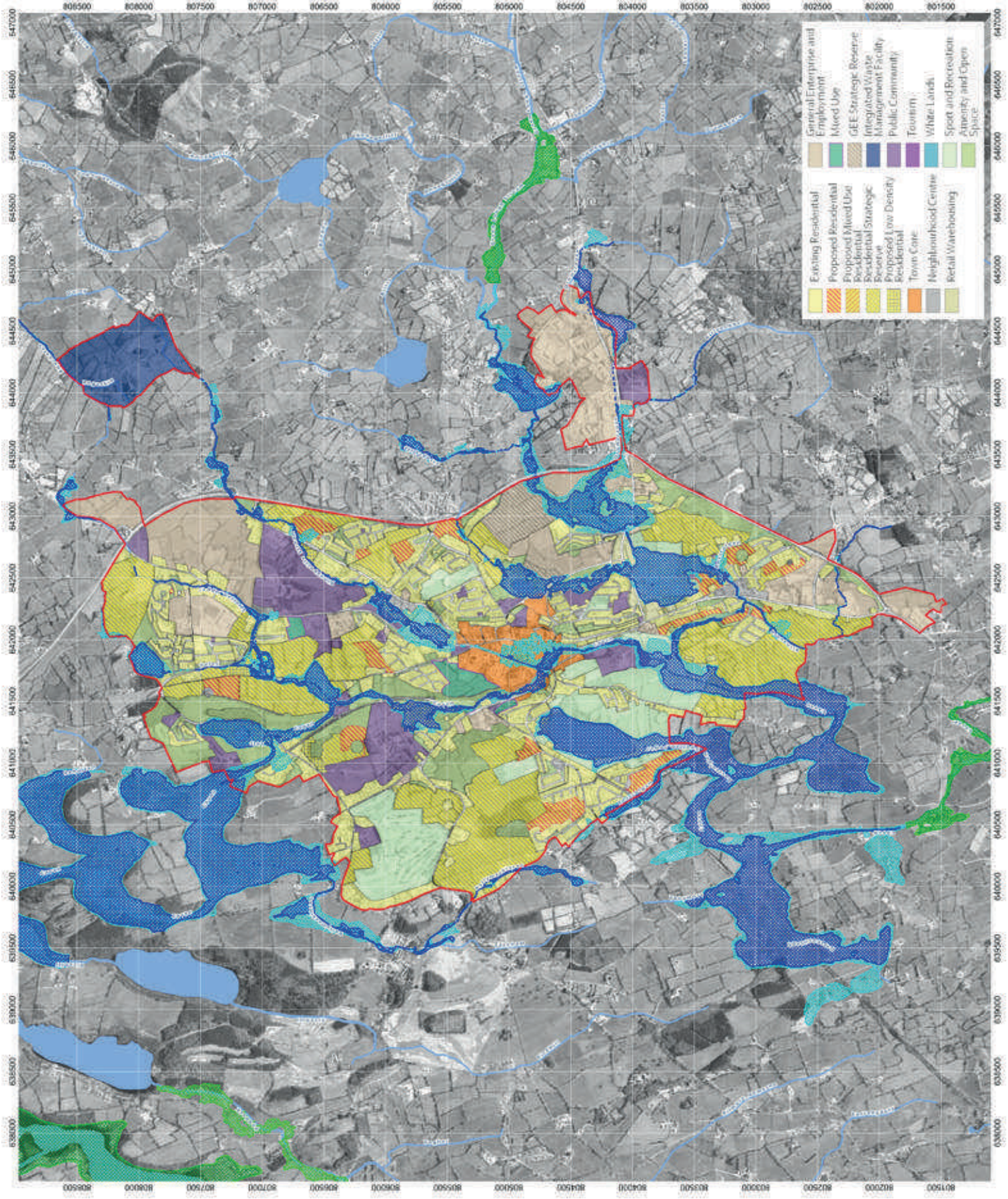
- 1% AEP
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NIFM Mid-Range Future
Scenario

- 1% AEP
- 0.1% AEP



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General Enterprise and Employment	Proposed Residential
Mixed Use	Proposed Residential
GEE Strategic Reserve	Proposed Mixed Use
Integrated Waste Management Facility	Residential
Public Community	Residential Strategic Reserve
Tourism	Proposed Low Density Residential
White Lands	Town Core
Sport and Recreation	Neighbourhood Centre
Amenity and Open Space	Retail Warehousing

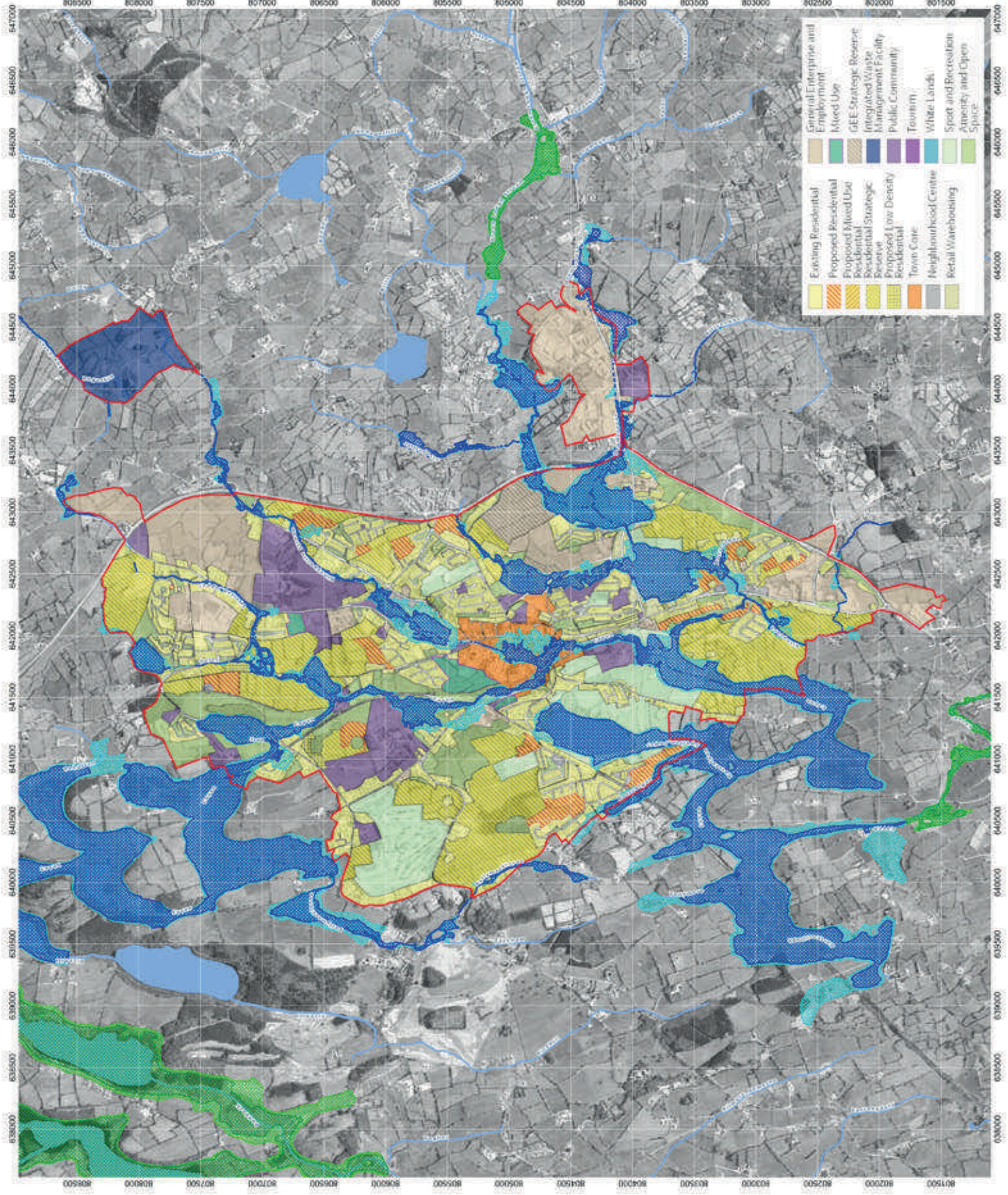
Cavan County Development Plan 2022-2028

Cavan Town and Environs OPW Catchment Flood Risk Assessment & Management (CFRAM) & National Indicative Fluvial Mapping (NIFM) High-End Future Scenario

- Plan Boundary
- County Boundary
- Water
- River or Stream
- CFRAM Fluvial High-End Future Scenario**
- 1% AEP
- 0.3% AEP
- NIFM High-End Future Scenario**
- 1% AEP
- 0.3% AEP

















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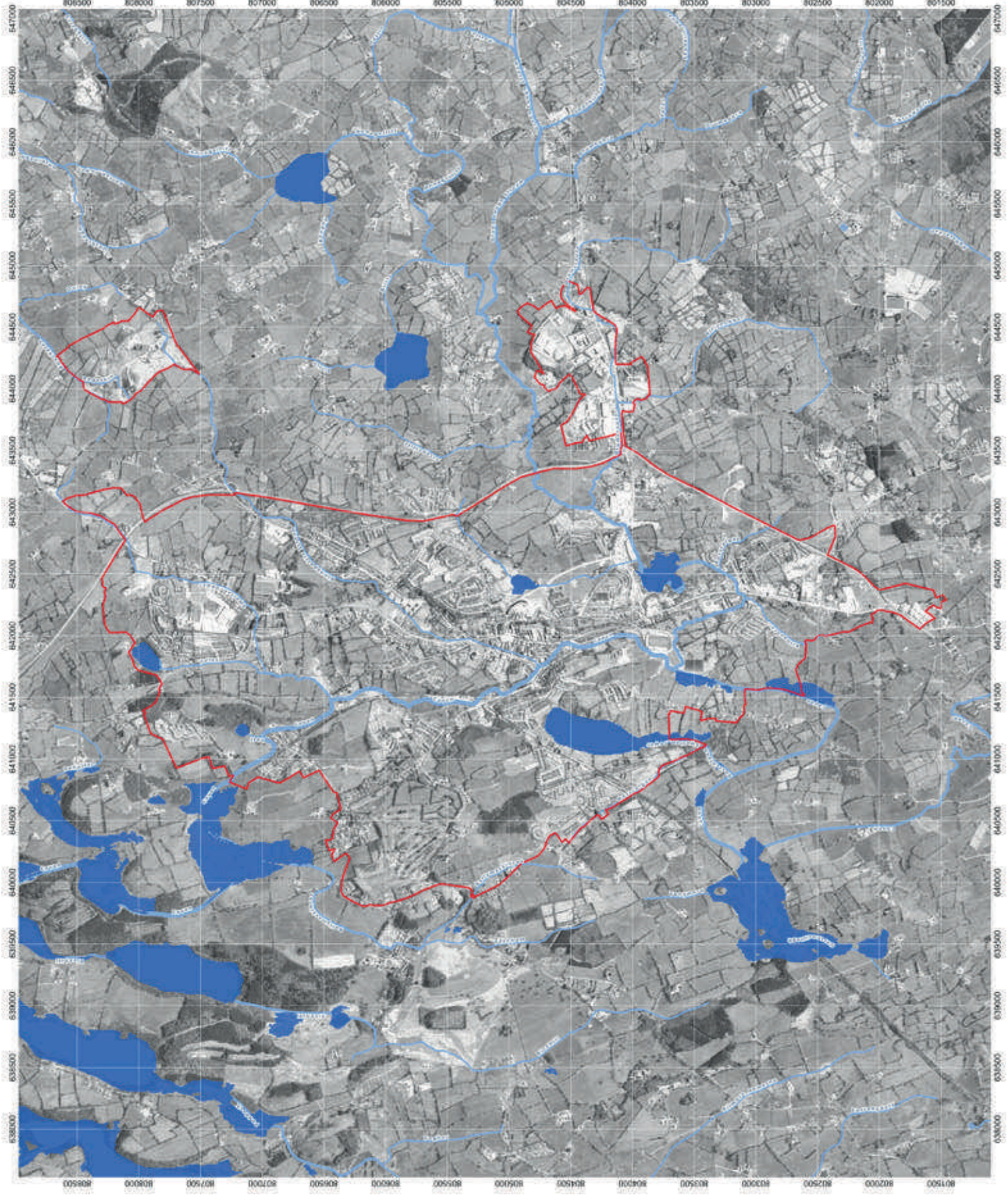
Cavan County Development Plan 2022-2028

Cavan Town and Environs
GSI Historical Flood Data
and Groundwater
Predictive Modeling

-  Plan Boundary
-  County Boundary
-  Water
-  River or Stream
-  GSI Groundwater Flooding Predictive Model
-  High Probability
-  Medium Probability
-  Low Probability
-  GSI Historical Flood Data
-  Surface Water Flooding
-  Winter 2015-2016 Surface Water Flooding
-  Maximum Historic Groundwater Flooding
-  Groundwater
-  Groundwater/Surface water



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Cavan County Development Plan 2022-2028

Cavan Town and Environs

Indicative Flood Zones

Plan Boundary

County Boundary

Water

River or Stream

Indicative Flood Zones

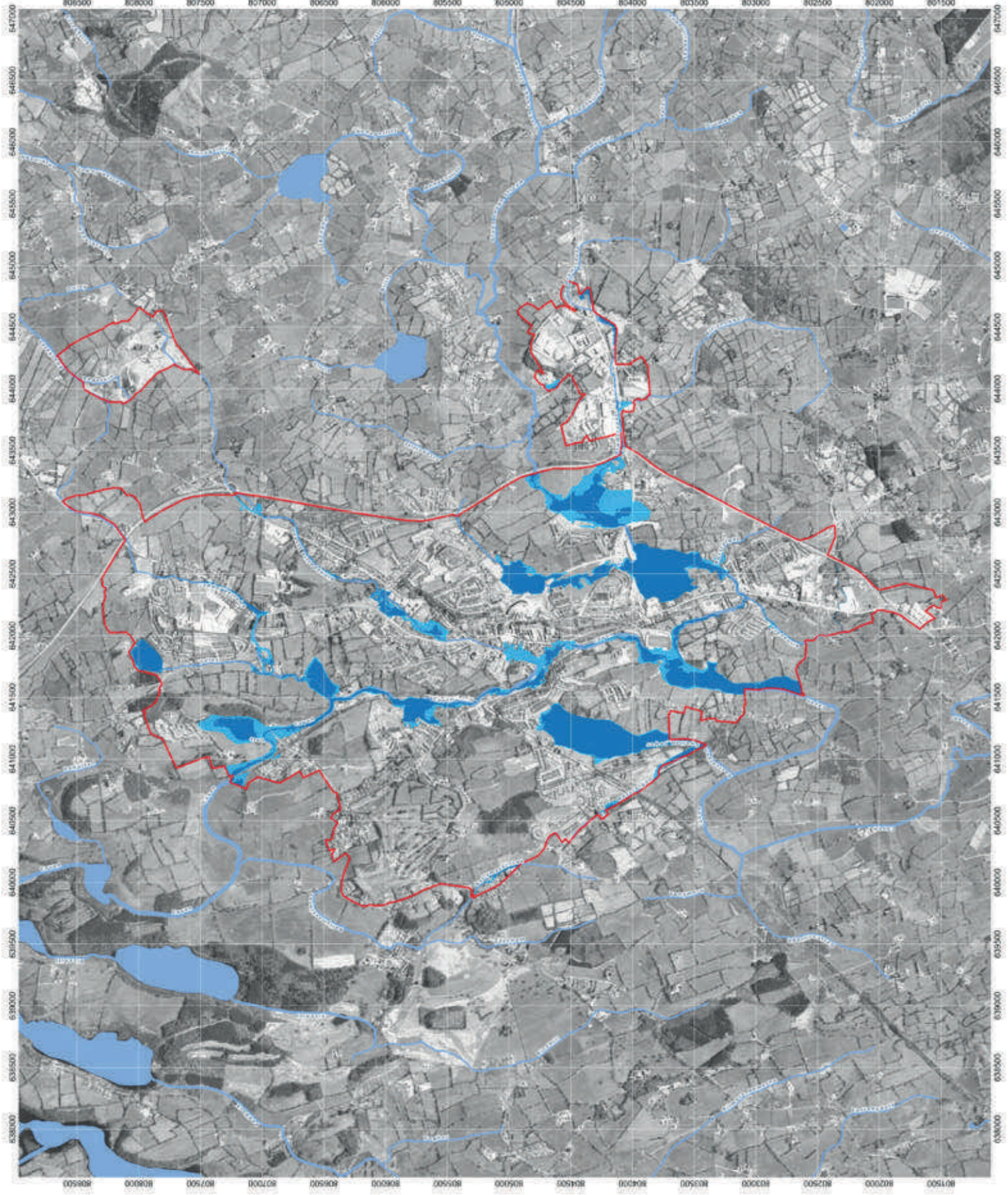
Flood Zone A

Flood Zone B



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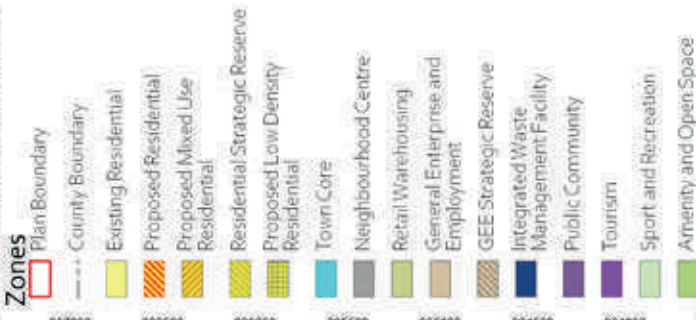
County Cavan SP6A
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Page 46



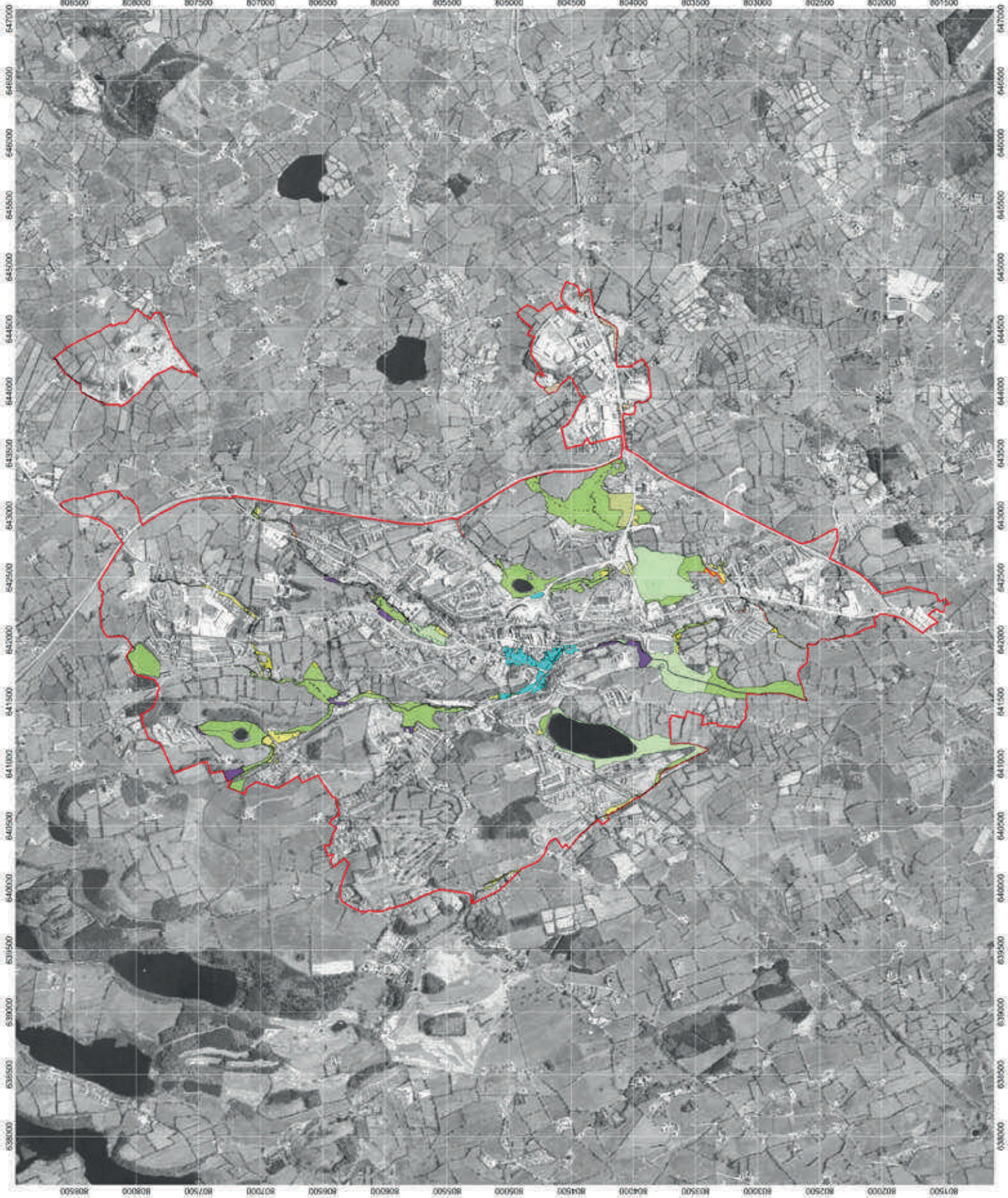
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Cavan Town and Environs

Land Use Zoning that Interacts Indicative Flood Zones
















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Cavan County Development Plan 2022-2028

Cootehill
OPW Historical Flood
Data

-  Plan Boundary
-  County Boundary
-  Water
-  River or Stream
- OPW Past Flood Events**
-  Single Flood Event
-  Recurring Flood Event
-  Past Flood Extent
- Land Commission**
-  Benefited Lands
- Drainage District**
-  Channel
-  Embankment
-  Benefited Lands
- Arterial Drainage Scheme**
-  Channel
-  Embankment
-  Benefited Lands







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Cavan County Development Plan 2022-2028

Cootehill

OPW Preliminary Flood Risk Assessment (PFRA)

-  Plan Boundary
 -  County Boundary
 -  Water
 -  River or Stream
- PFRA**
-  Fluvial 1% AEP
 -  Fluvial 0.1% AEP
 -  Pluvial 1% AEP
 -  Pluvial 0.1% AEP



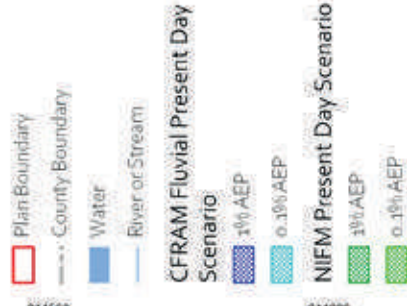
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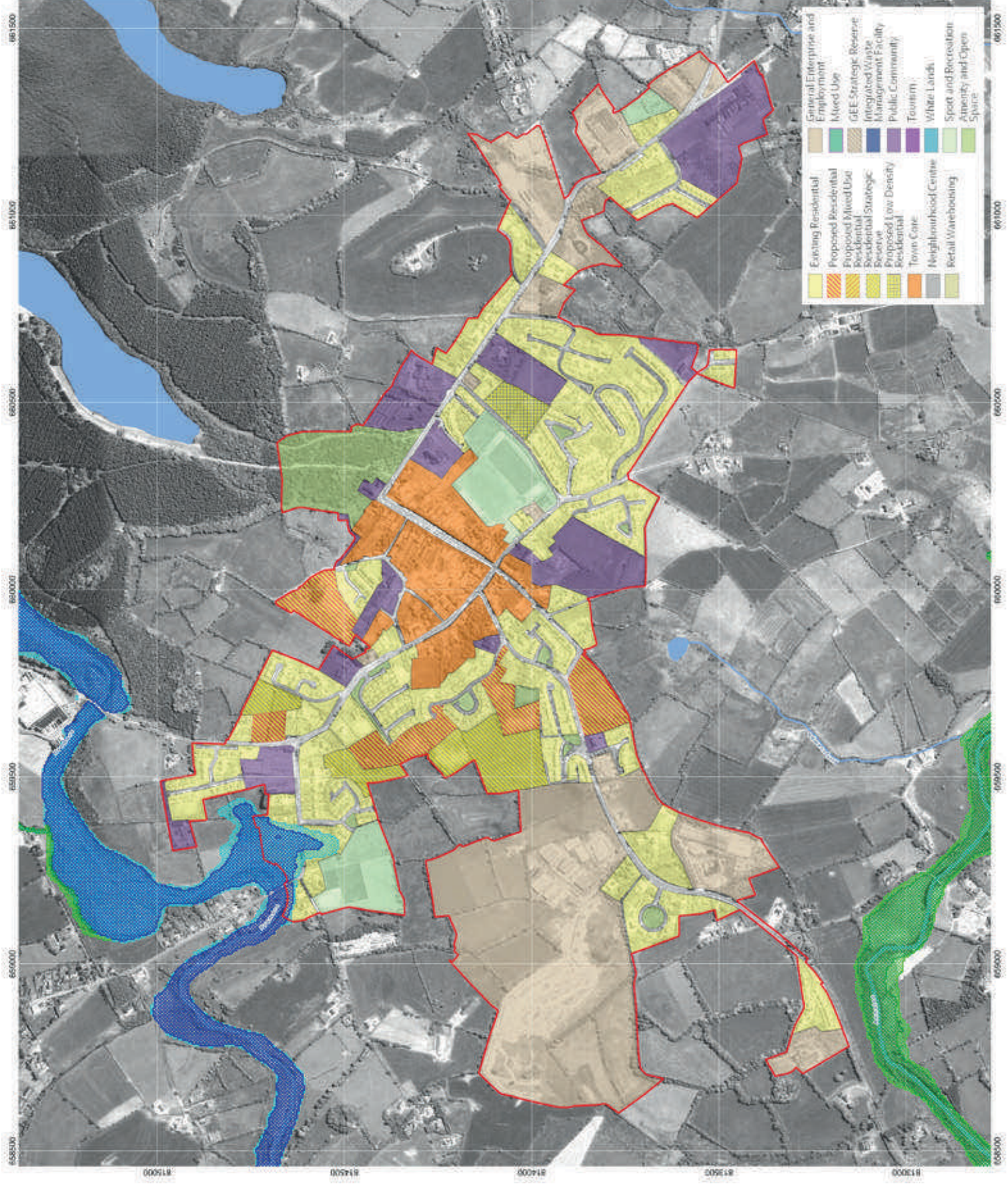
Cavan County Development Plan 2022-2028

Cootehill

OPW Catchment Flood
Risk Assessment &
Management (CFRAM)
& National Indicative
Fluvial Mapping (NIFM)
Present Day Scenario



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Cavan County Development Plan 2022-2028

Cootehill

OPW Catchment Flood
Risk Assessment &
Management (CFRAM)
& National Indicative
Fluvial Mapping (NIFM)
Mid-Range Future
Scenario

- Plan Boundary
- County Boundary
- Water
- River or Stream

CFRAM Fluvial Mid-Range Future Scenario

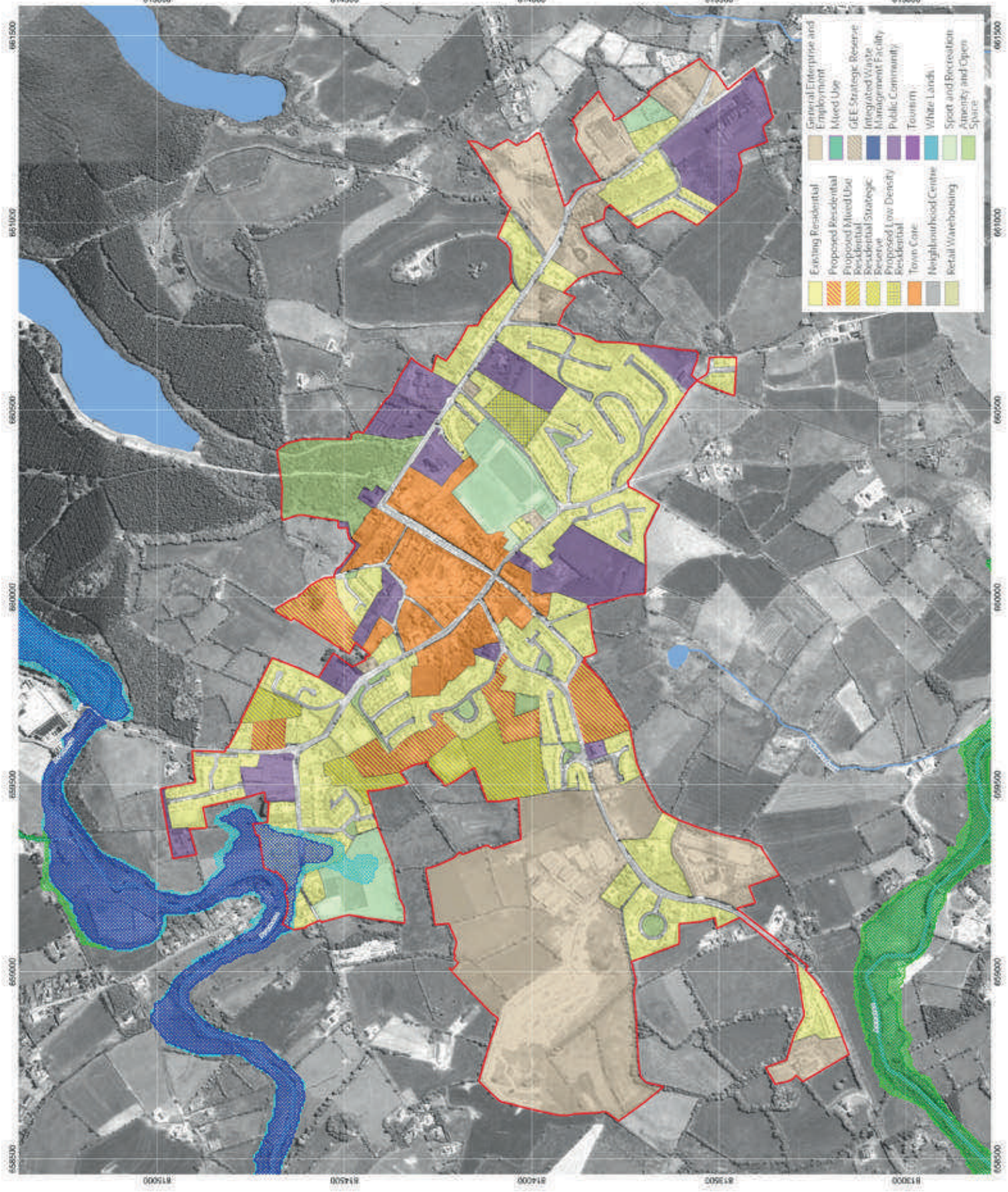
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NIFM Mid-Range Future Scenario

- 1% AEP
- 0.1% AEP



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- Existing Residential
- Proposed Residential
- Proposed Mixed Use
- Residential
- Residential Strategic Reserve
- Proposed Low Density Residential
- Town Core
- Neighbourhood Centre
- Retail Warehousing
- General Enterprise and Employment
- Mixed Use
- GEE Strategic Reserve
- Integrated Waste Management Facility
- Public Community
- Tourism
- White Lands
- Sport and Recreation
- Attraction and Open Space

Cavan County Development Plan 2022-2028

Cootehill

OPW Catchment Flood
Risk Assessment &
Management (CFRAM)
& National Indicative
Fluvial Mapping (NIFM)
High-End Future
Scenario

- Plan Boundary
- County Boundary
- Water
- River or Stream

CFRAM Fluvial High-End Future Scenario

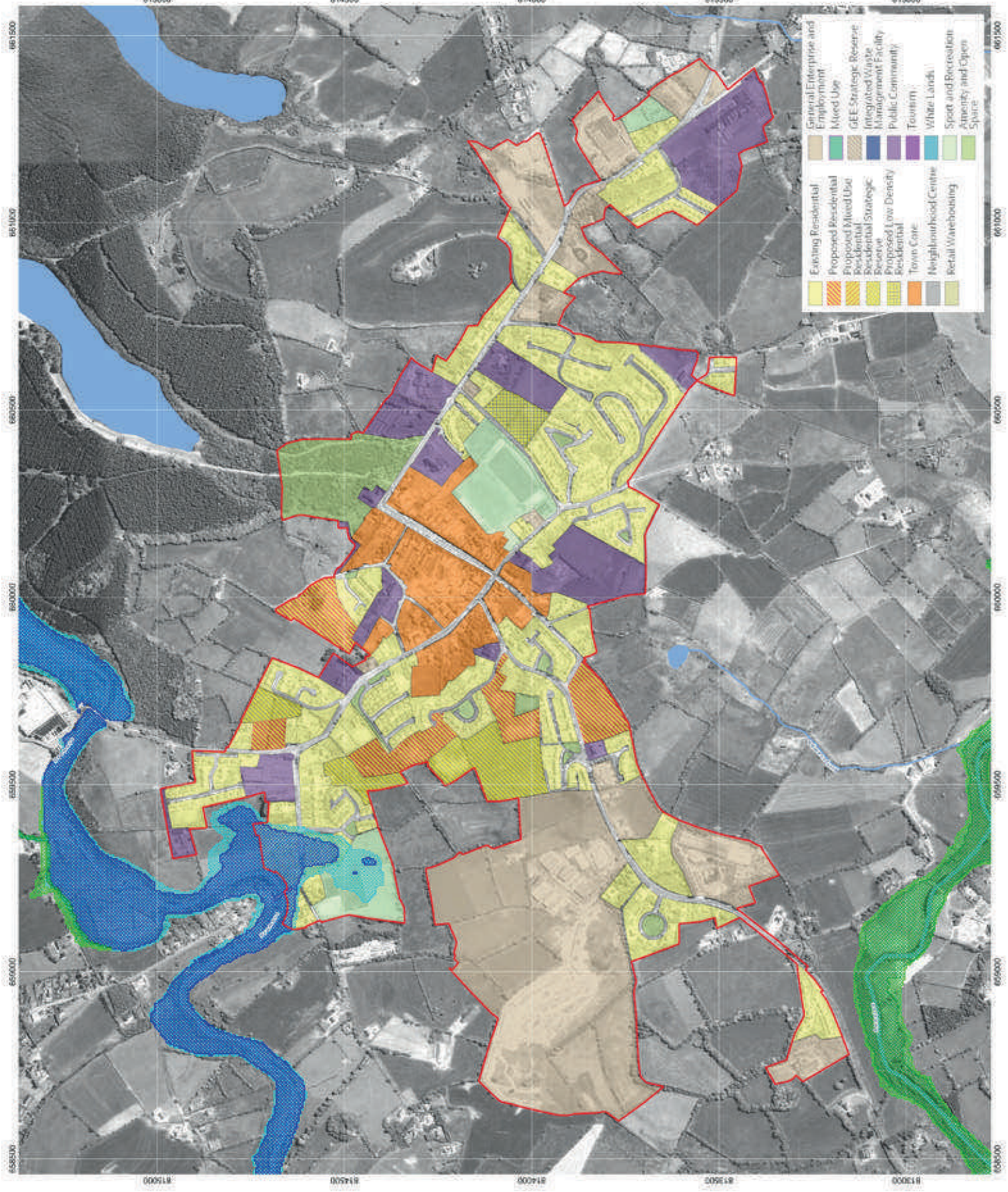
- 10% AEP
- 0.3% AEP

NIFM High-End Future Scenario

- 10% AEP
- 0.3% AEP













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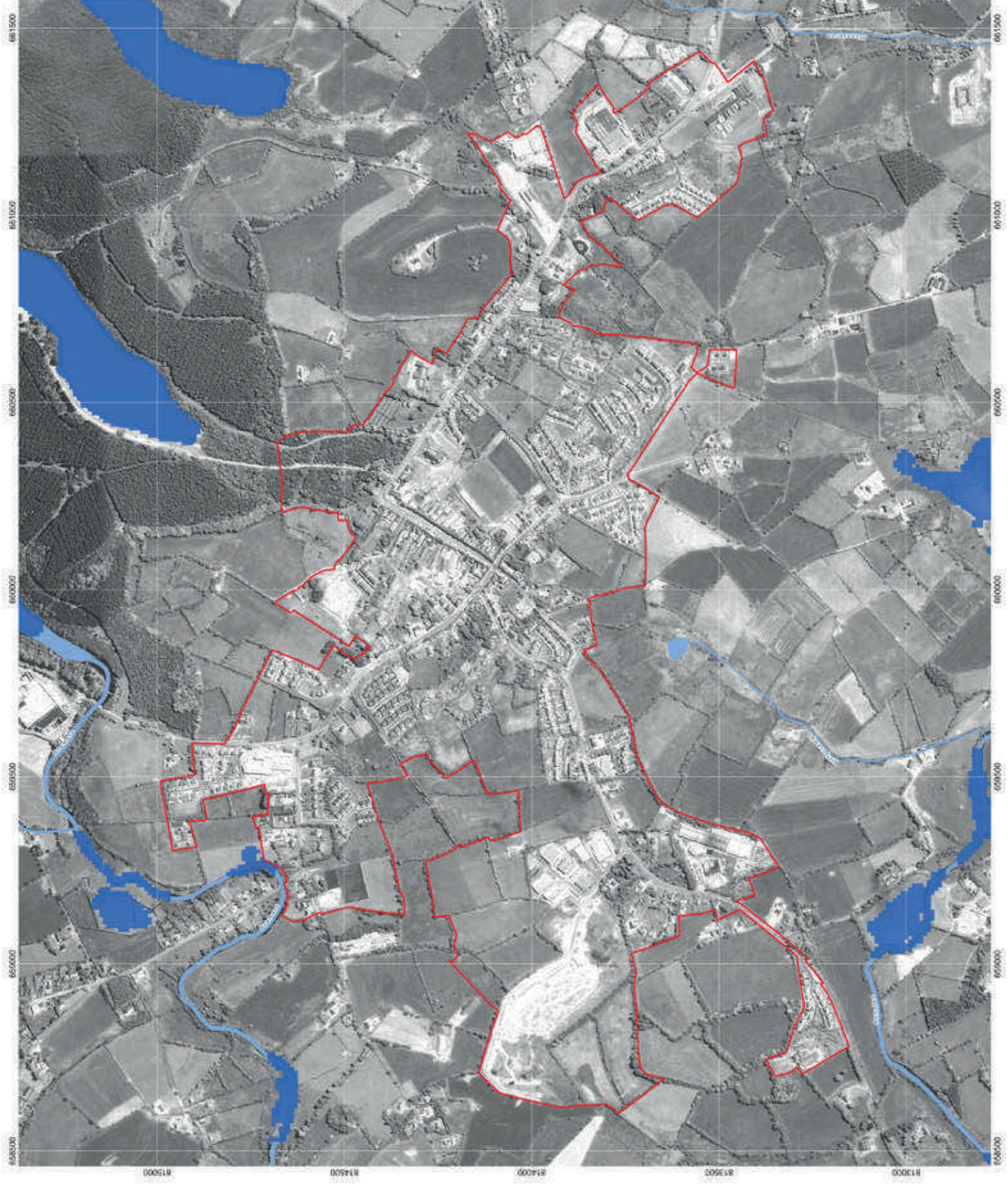
Cootehill

GSI Historical Flood Data
and Groundwater
Predictive Modeling

-  Plan Boundary
-  County Boundary
-  Water
-  River or Stream
- GSI Groundwater Flooding Predictive Model**
-  High Probability
-  Medium Probability
-  Low Probability
- GSI Historical Flood Data**
- Surface Water Flooding**
-  Winter 2015-2016 Surface Water Flooding
- Maximum Historic Groundwater Flooding**
-  Groundwater
-  Groundwater/Surface water



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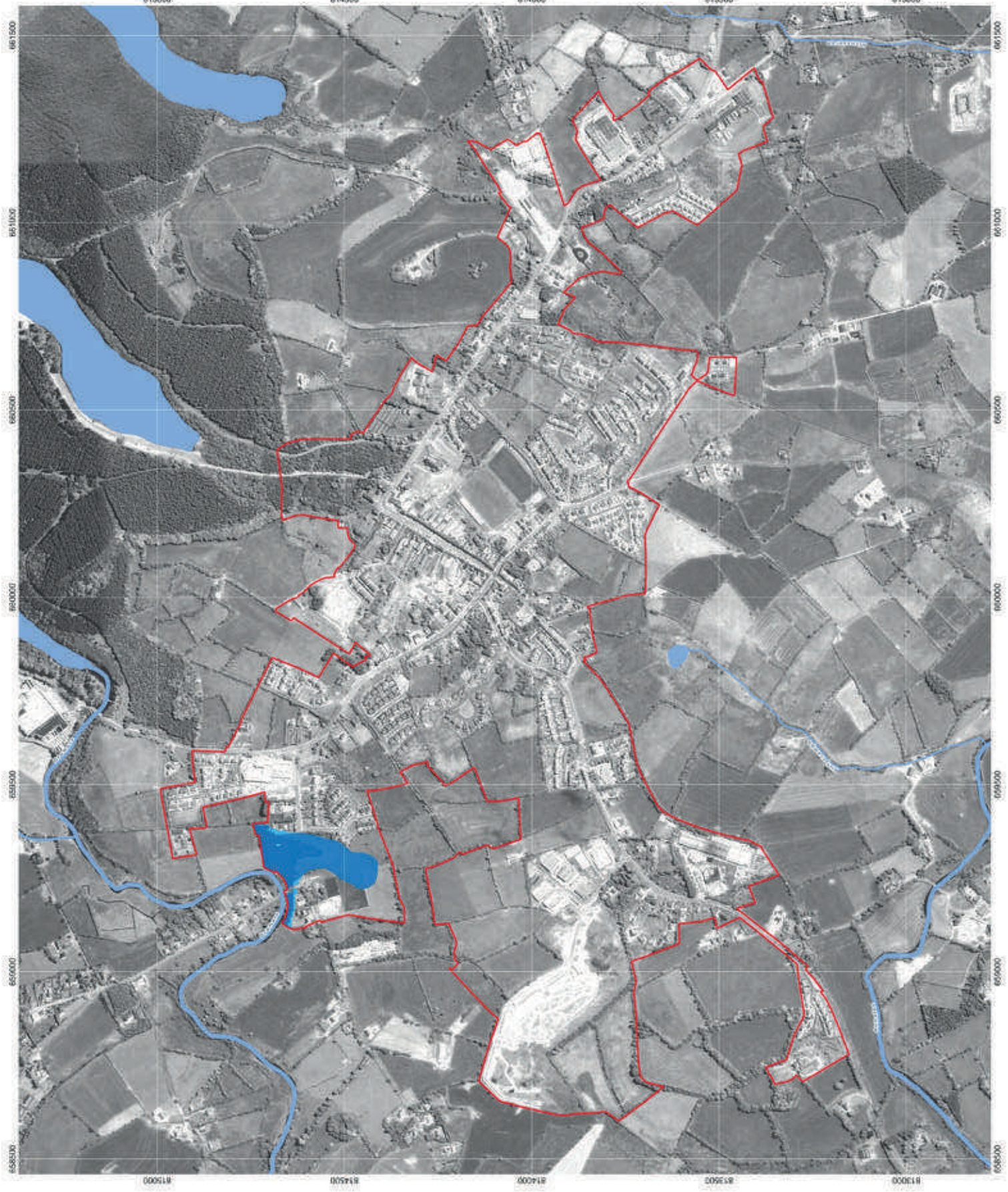
Cavan County Development Plan 2022-2028

Cootehill Indicative Flood Zones

- Plan Boundary
- County Boundary
- Water
- River or Stream
- Indicative Flood Zones
 - Flood_Zone_A
 - Flood_Zone_B



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County Cavan SFFA
Appendix II - Stage 2022
Page 34



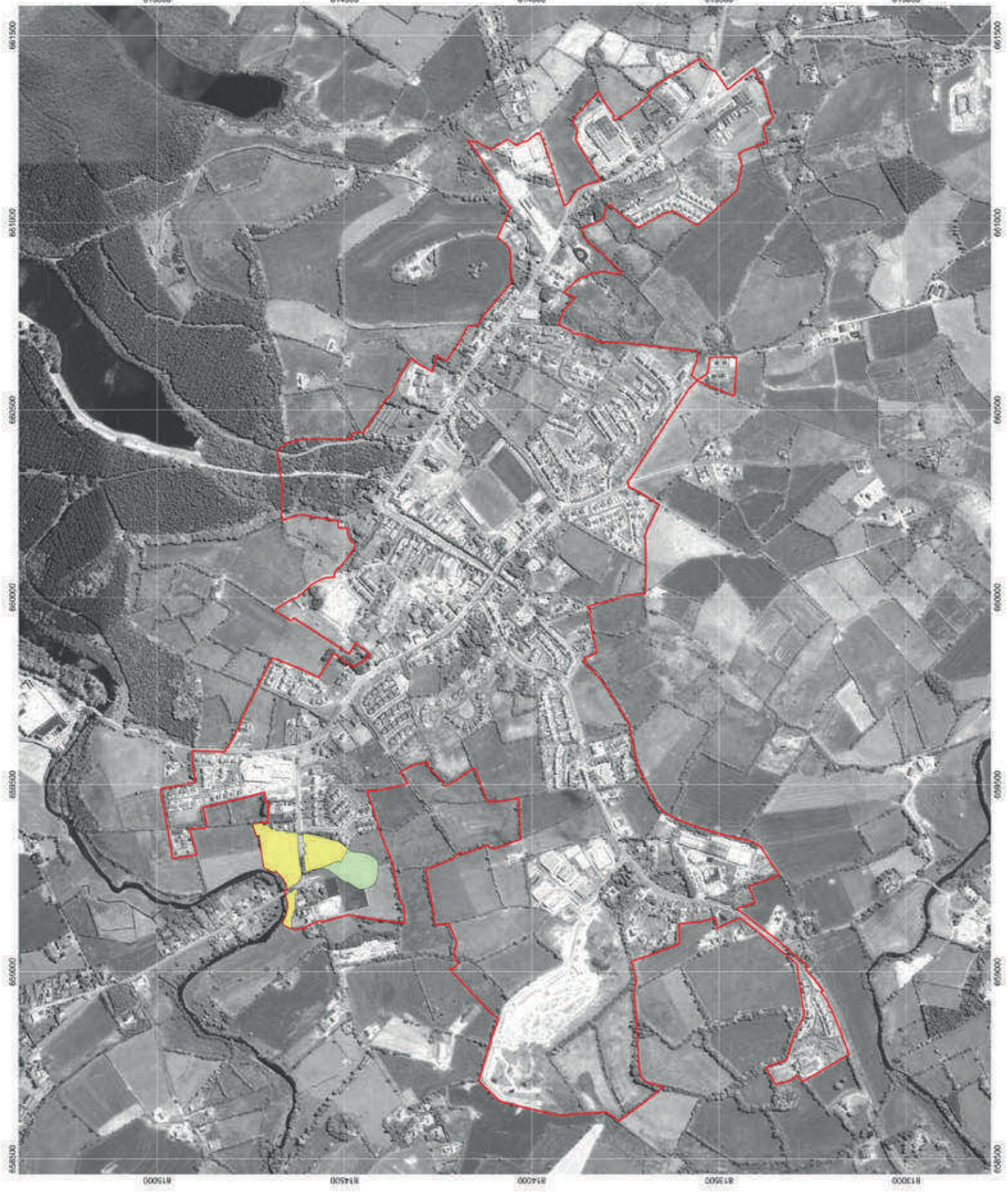
Cavan County Development Plan 2022-2028

Cootehill
Land Use Zoning that
Interacts Indicative Flood
Zones

- Plan Boundary
- County Boundary
- Existing Residential
- Proposed Residential
- Proposed Mixed Use Residential
- Residential Strategic Reserve
- Proposed Low Density Residential
- Town Core
- Neighbourhood Centre
- Retail Warehousing
- General Enterprise and Employment
- GEE Strategic Reserve
- Integrated Waste Management Facility
- Public Community
- Tourism
- Sport and Recreation
- Amenity and Open Space



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Cavan County Development Plan 2022-2028

Kingscourt

OPW Historical Flood

Data

- Plan Boundary
- County Boundary
- Water
- River or Stream
- OPW Past Flood Events**
- Single Flood Event
- Recurring Flood Event
- Past Flood Extent
- Land Commission**
- Benefited Lands
- Drainage District**
- Channel
- Embankment
- Benefited Lands
- Arterial Drainage Scheme**
- Channel
- Embankment
- Benefited Lands



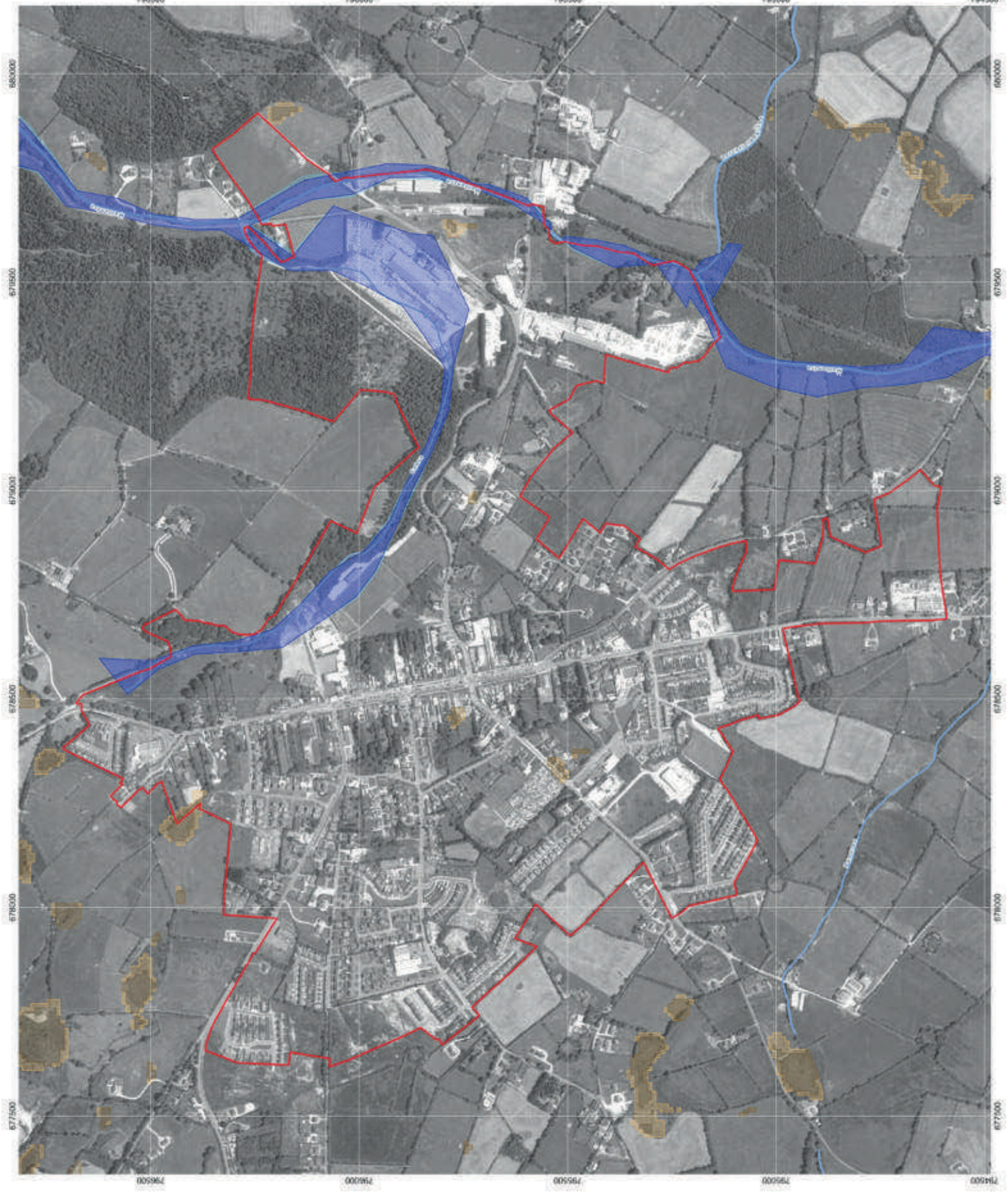
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Cavan County Development Plan 2022-2028

Kingscourt

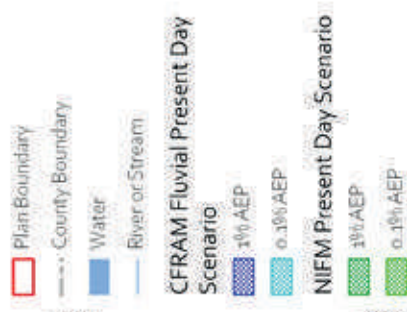
OPW Preliminary Flood Risk Assessment (PFRA)



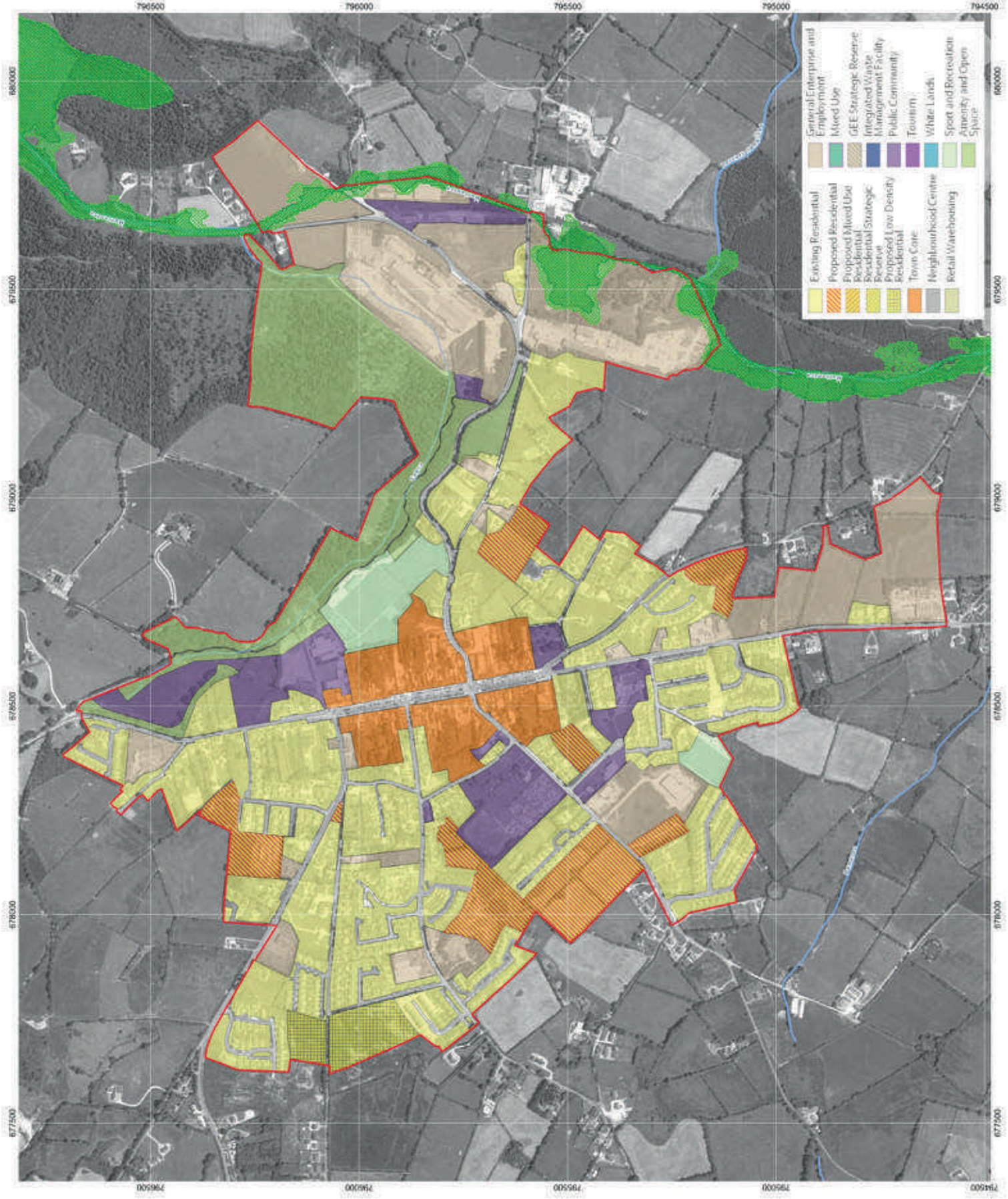
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Cavan County Development Plan 2022-2028

**Kingscourt
OPW Catchment Flood
Risk Assessment &
Management (CFRAM)
& National Indicative
Fluvial Mapping (NIFM)
Present Day Scenario**



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Cavan County Development Plan 2022-2028

Kingscourt

OPW Catchment Flood
Risk Assessment &
Management (CFRAM)
& National Indicative
Fluvial Mapping (NIFM)
Mid-Range Future
Scenario

- Plan Boundary
- County Boundary
- Water
- River or Stream

CFRAM Fluvial Mid-Range
Future Scenario

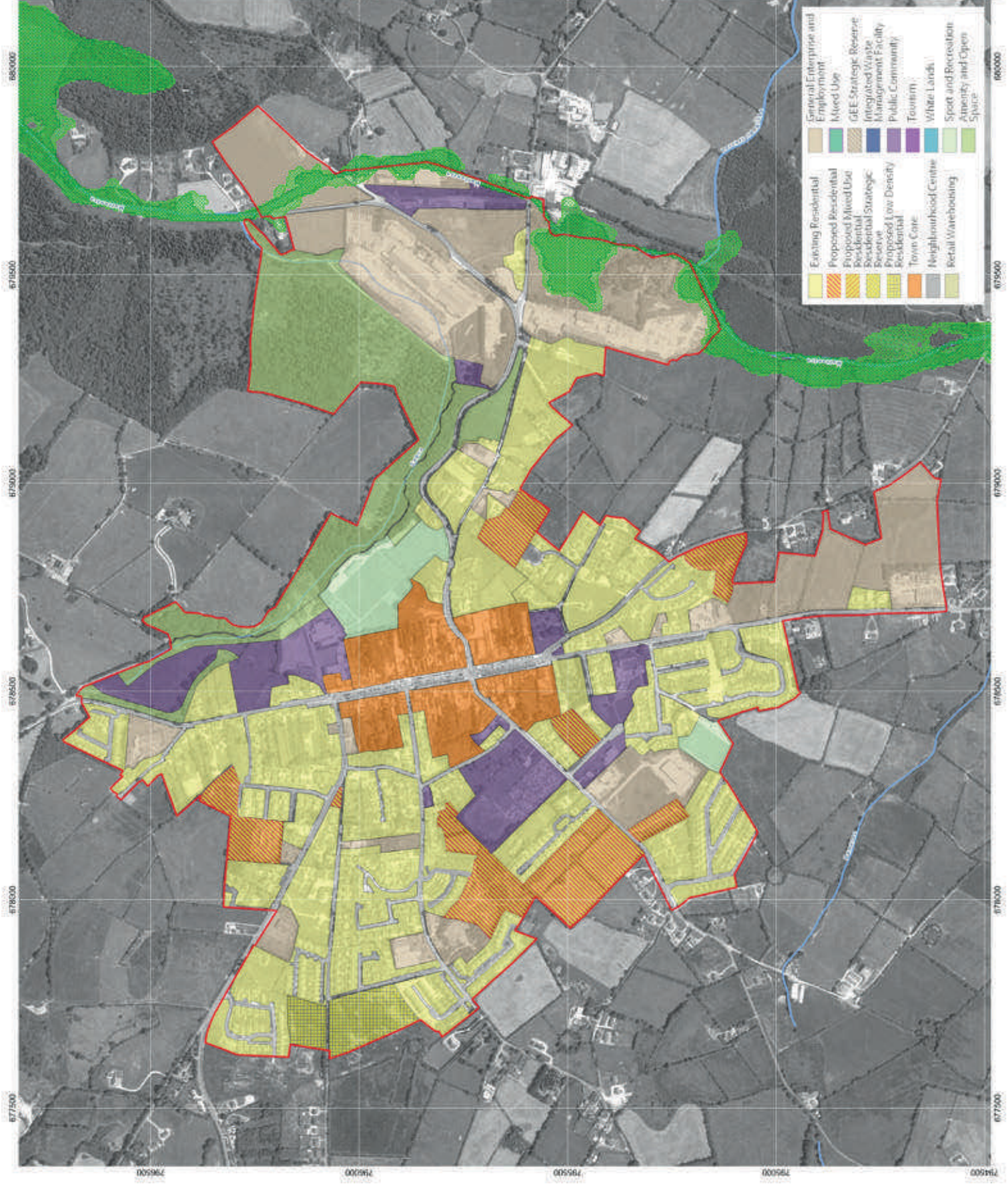
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- 0.1% AEP

NIFM Mid-Range Future
Scenario

- 1% AEP
- 0.1% AEP



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- General Enterprise and Employment
- Mixed Use
- GEE Strategic Reserve
- Integrated Waste Management Facility
- Public Community
- Tourism
- White Lands
- Sport and Recreation
- Attraction and Open Space
- Existing Residential
- Proposed Residential
- Proposed Mixed Use
- Residential Strategic Reserve
- Proposed Low Density Residential
- Town Core
- Neighbourhood Centre
- Retail Warehousing

Cavan County Development Plan 2022-2028

Kingscourt

OPW Catchment Flood
Risk Assessment &
Management (CFRAM)
& National Indicative
Fluvial Mapping (NIFM)
High-End Future
Scenario

- Plan Boundary
- County Boundary
- Water
- River or Stream

CFRAM Fluvial High-End
Future Scenario

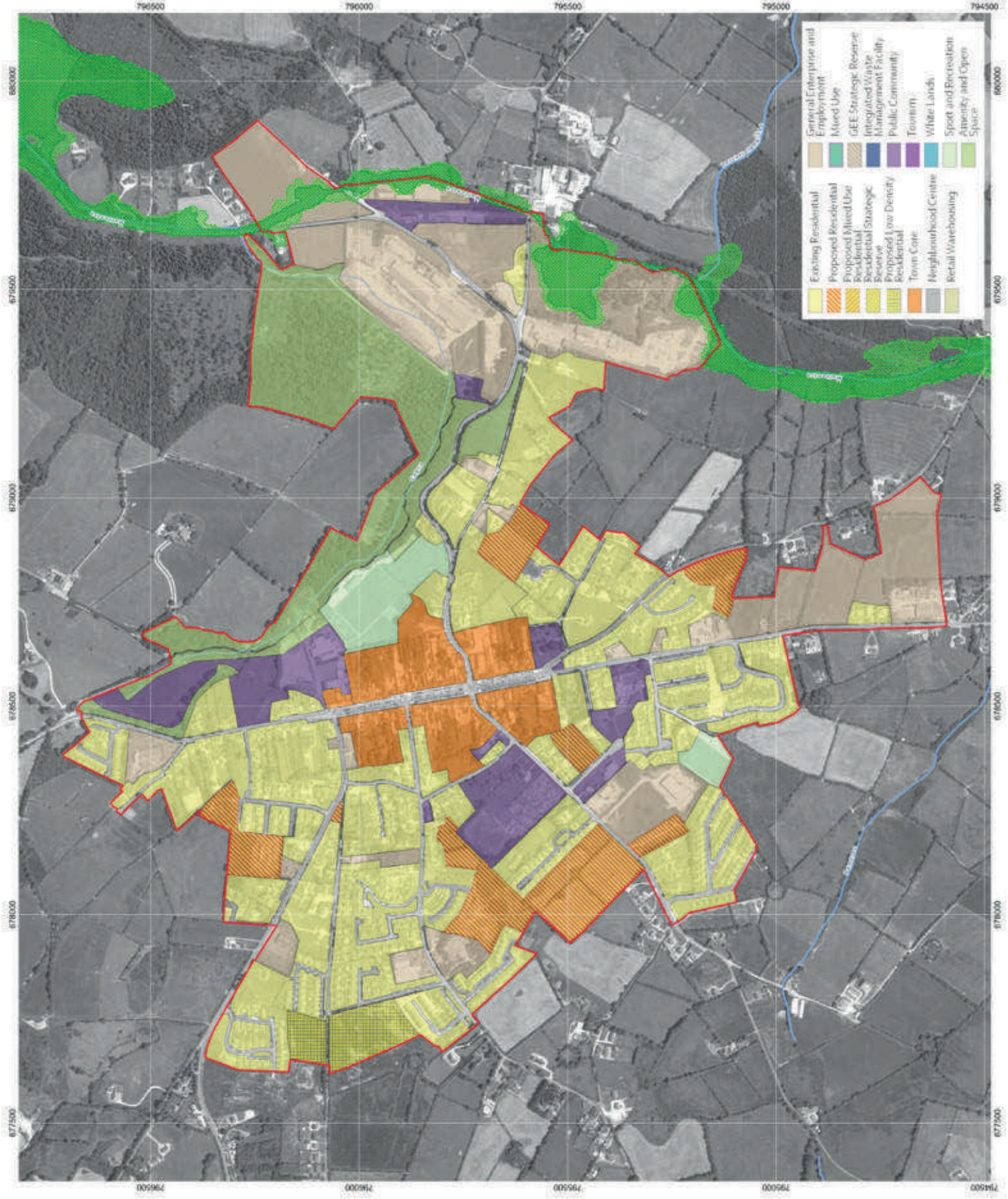
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NIFM High-End Future
Scenario

- 1% AEP
- 0.3% AEP



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- General Enterprise and Employment
- Mixed Use
- GEE Strategic Reserve
- Integrated Waste Management Facility
- Public Community
- Tourism
- White Lands
- Sport and Recreation
- Attraction and Open Space
- Existing Residential
- Proposed Residential
- Proposed Mixed Use
- Residential Strategic Reserve
- Proposed Low Density Residential
- Town Core
- Neighbourhood Centre
- Retail Warehousing

Cavan County Development Plan 2022-2028

Kingscourt

GSI Historical Flood Data
and Groundwater
Predictive Modeling

- Plan Boundary
- County Boundary
- Water
- River or Stream
- GSI Groundwater Flooding Predictive Model
- High Probability
- Medium Probability
- Low Probability
- GSI Historical Flood Data
- Surface Water Flooding
- Winter 2015-2016 Surface Water Flooding
- Maximum Historic Groundwater Flooding
- Groundwater
- Groundwater/Surface water



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Cavan County Development Plan 2022-2028

Kingscourt Indicative Flood Zones

- Plan Boundary
- County Boundary
- Water
- River or Stream
- Indicative Flood Zones
 - Flood Zone A
 - Flood Zone B



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County Cavan SP6A
Appendix II - Stage 2022
Page 63



Cavan County Development Plan 2022-2028

Kingscourt Land Use Zoning that Interacts Indicative Flood Zones

- Plan Boundary
- County Boundary
- Existing Residential
- Proposed Residential
- Proposed Mixed Use Residential
- Residential Strategic Reserve
- Proposed Low Density Residential
- Town Core
- Neighbourhood Centre
- Retail/Warehousing
- General Enterprise and Employment
- GEE Strategic Reserve
- Integrated Waste Management Facility
- Public Community
- Tourism
- Sport and Recreation
- Amenity and Open Space

















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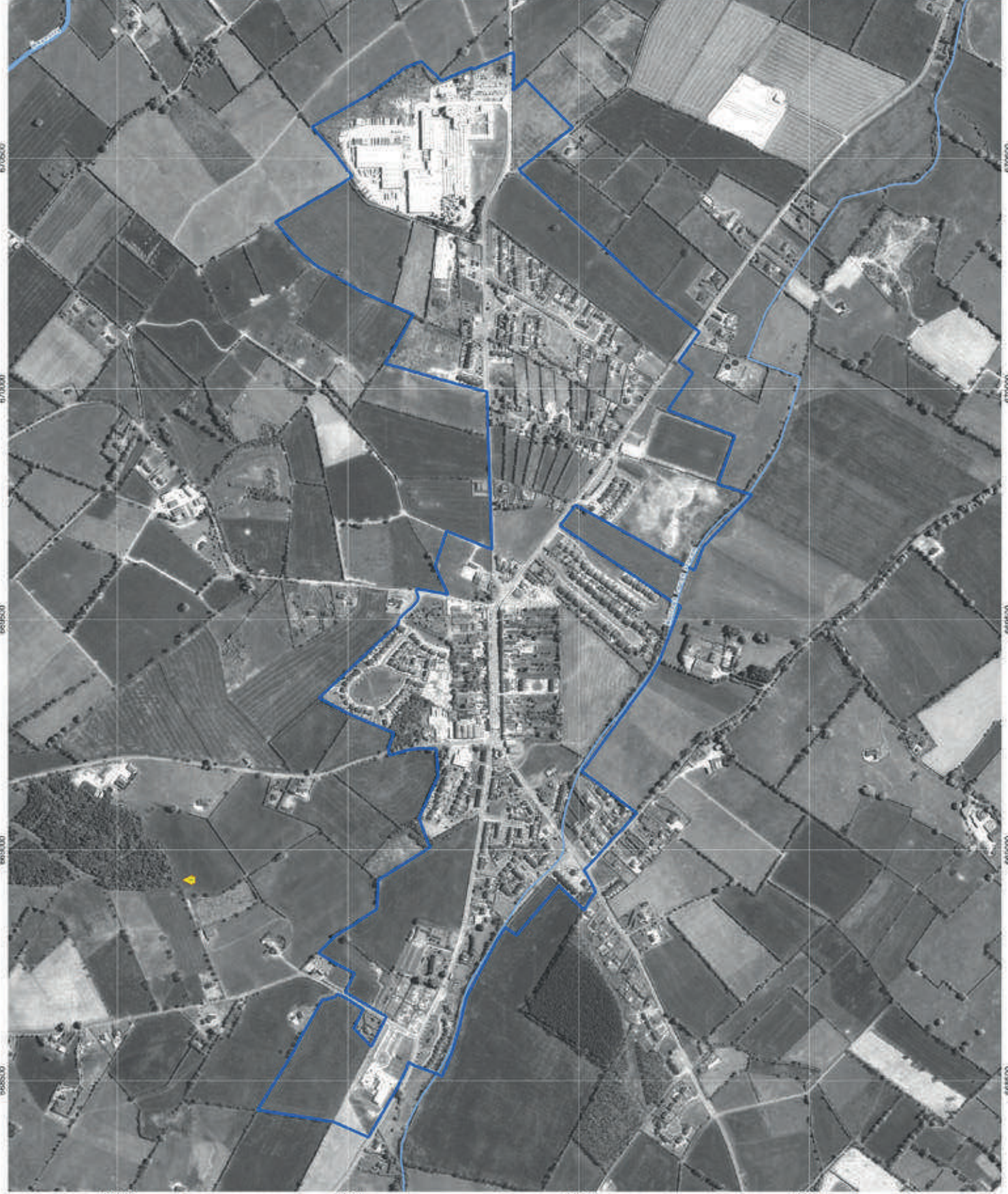
Cavan County Development Plan 2022-2028

Mullagh
OPW Historical Flood
Data

-  Plan Boundary
-  County Boundary
-  Water
-  River or Stream
- OPW Past Flood Events**
 -  Single Flood Event
 -  Recurring Flood Event
 -  Past Flood Extent
- Land Commission**
 -  Benefited Lands
- Drainage District**
 -  Channel
 -  Embankment
 -  Benefited Lands
- Arterial Drainage Scheme**
 -  Channel
 -  Embankment
 -  Benefited Lands



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Cavan County Development Plan 2022-2028

Mullagh
OPW Preliminary Flood
Risk Assessment (PFRA)

- Plan Boundary
 - County Boundary
 - Water
 - River or Stream
- PFRA**
- Fluvial 1% AEP
 - Fluvial 0.1% AEP
 - Pluvial 1% AEP
 - Pluvial 0.1% AEP



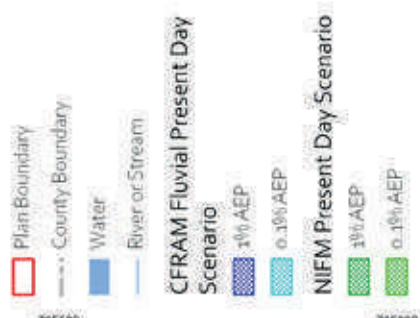
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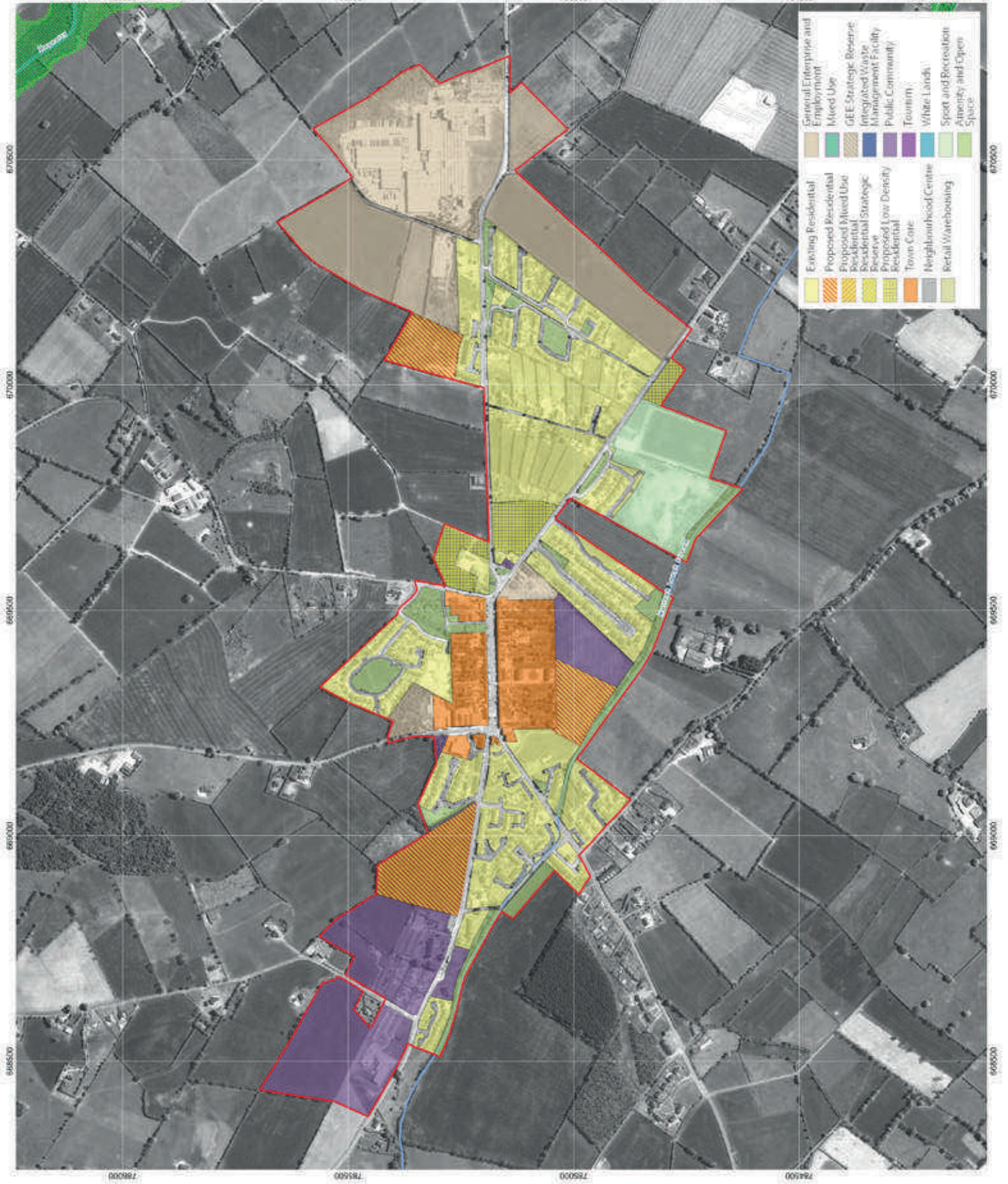
Cavan County Development Plan 2022-2028

Mullagh

OPW Catchment Flood
Risk Assessment &
Management (CFRAM)
& National Indicative
Fluvial Mapping (NIFM)
Present Day Scenario



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Cavan County Development Plan 2022-2028

Mullagh

OPW Catchment Flood
Risk Assessment &
Management (CFRAM)
& National Indicative
Fluvial Mapping (NIFM)
Mid-Range Future
Scenario

- Plan Boundary
- County Boundary
- Water
- River or Stream

CFRAM Fluvial Mid-Range
Future Scenario

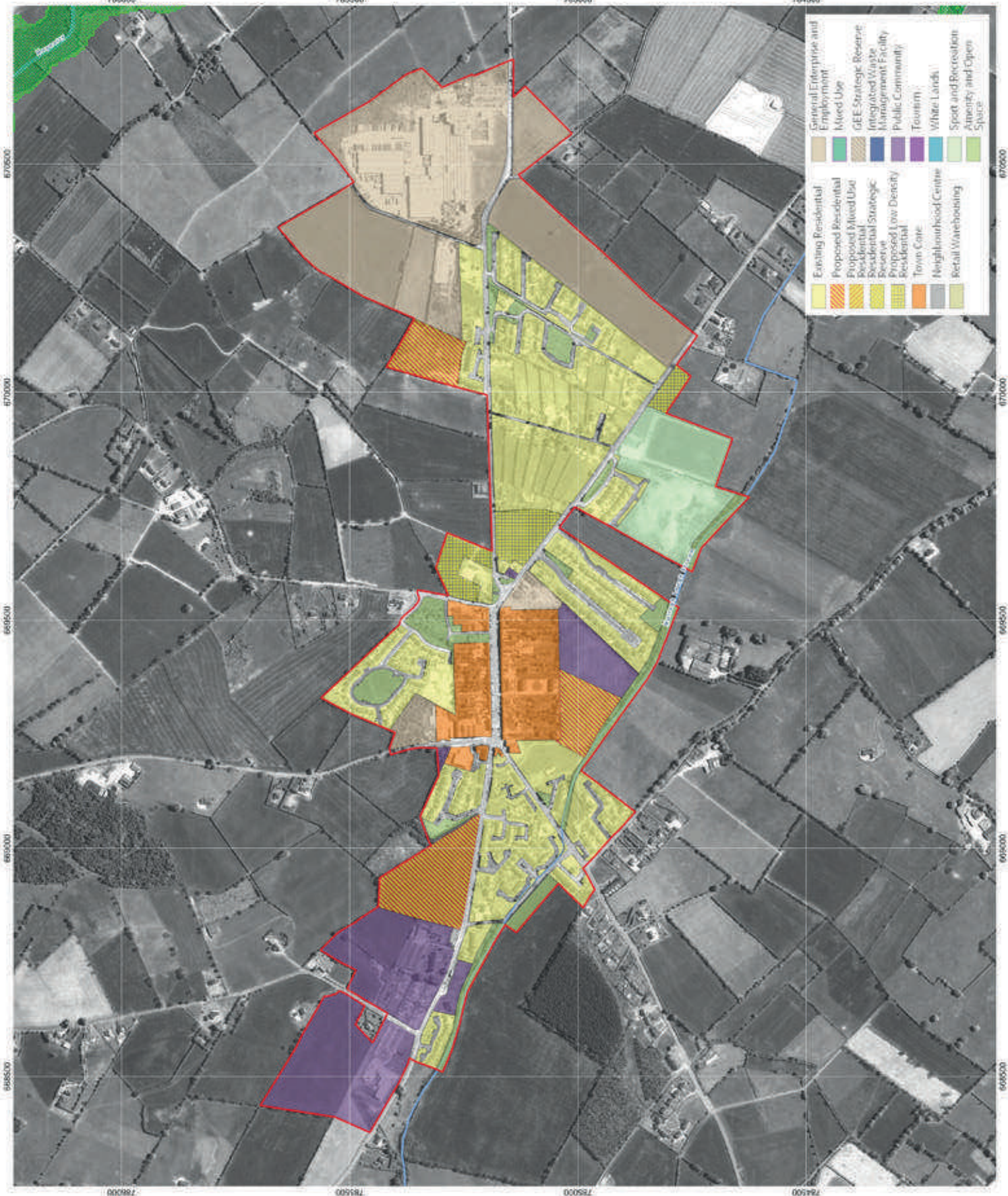
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- 0.1% AEP

NIFM Mid-Range Future
Scenario

- 1% AEP
- 0.1% AEP



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- Existing Residential
- Proposed Residential
- Proposed Mixed Use
- Residential Strategic Reserve
- Proposed Strategic Reserve
- Proposed Low Density Residential
- Town Core
- Neighbourhood Centre
- Retail Warehousing
- General Enterprise and Employment
- Mixed Use
- GEE Strategic Reserve
- Integrated Waste Management Facility
- Public Community
- Tourism
- White Lands
- Sport and Recreation
- Attraction and Open Space

Cavan County Development Plan 2022-2028

Mullagh

OPW Catchment Flood
Risk Assessment &
Management (CFRAM)
& National Indicative
Fluvial Mapping (NIFM)
High-End Future
Scenario

- Plan Boundary
- County Boundary
- Water
- River or Stream

CFRAM Fluvial High-End
Future Scenario

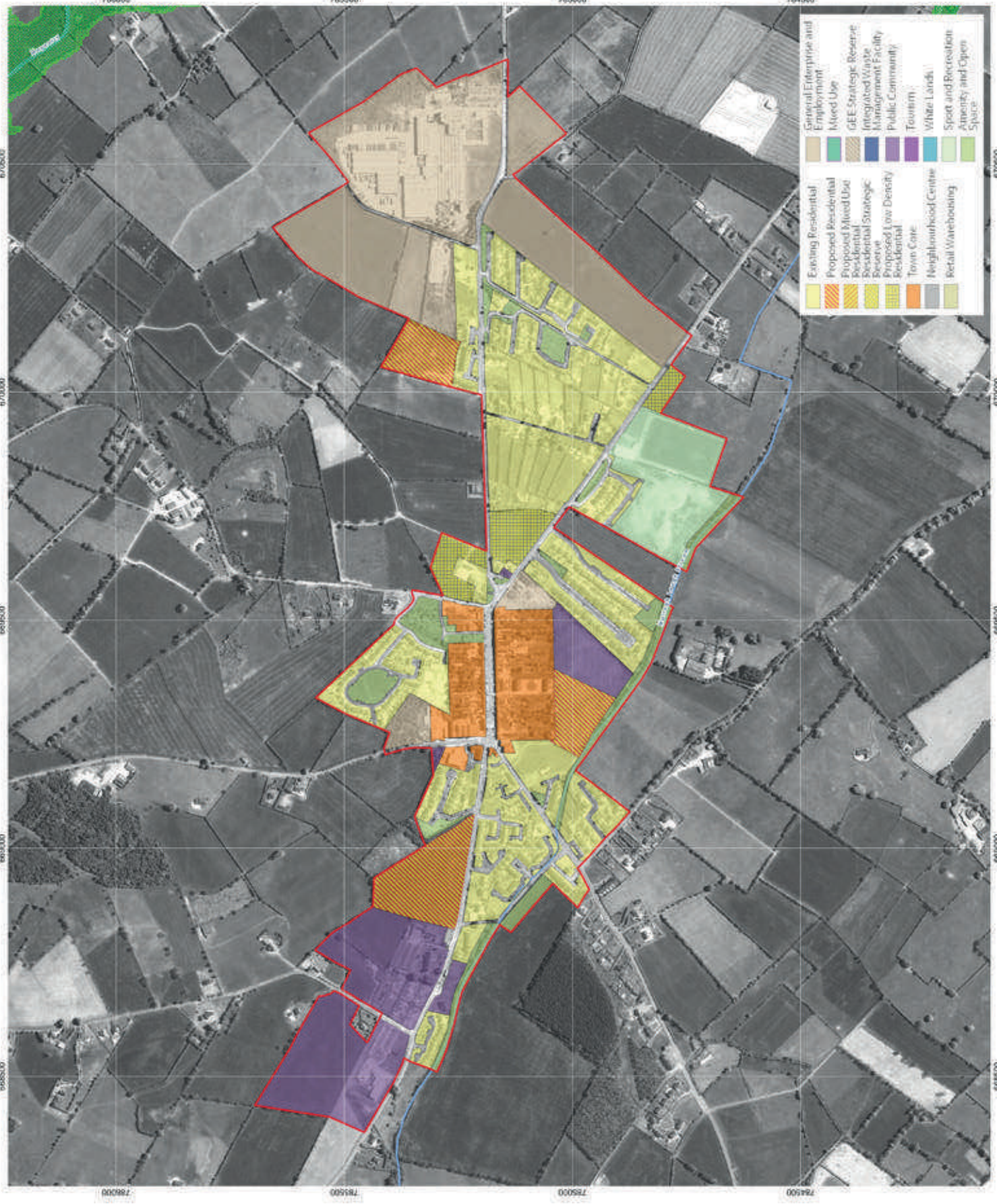
- 1% AEP
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NIFM High-End Future
Scenario

- 1% AEP
- 0.3% AEP



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- | | | |
|--|---|---|
| General Enterprise and Employment | Moved Use | Existing Residential |
| GEE Strategic Reserve | Integrated Waste Management Facility | Proposed Residential |
| Public Community | Tourism | Proposed Mixed Use |
| White Lands | Sport and Recreation Attraction and Open Space | Residential Strategic Reserve |
| Neighbourhood Centre | Retail Warehousing | Residential |
| Attraction and Open Space | | Proposed Low Density Residential |
| | | Town Core |
| | | Neighbourhood Centre |

766000 765500 765000 764500
670500 670000 669500 669000 668500 668000 667500 667000

Cavan County Development Plan 2022-2028

Mullagh

GSI Historical Flood Data
and Groundwater
Predictive Modeling

- Plan Boundary
- County Boundary
- Water
- River or Stream
- GSI Groundwater Flooding Predictive Model High Probability
- Medium Probability
- Low Probability
- GSI Historical Flood Data Surface Water Flooding
- Winter 2015-2016 Surface Water Flooding
- Maximum Historic Groundwater Flooding
- Groundwater
- Groundwater/Surface water



Coordinates in ITM
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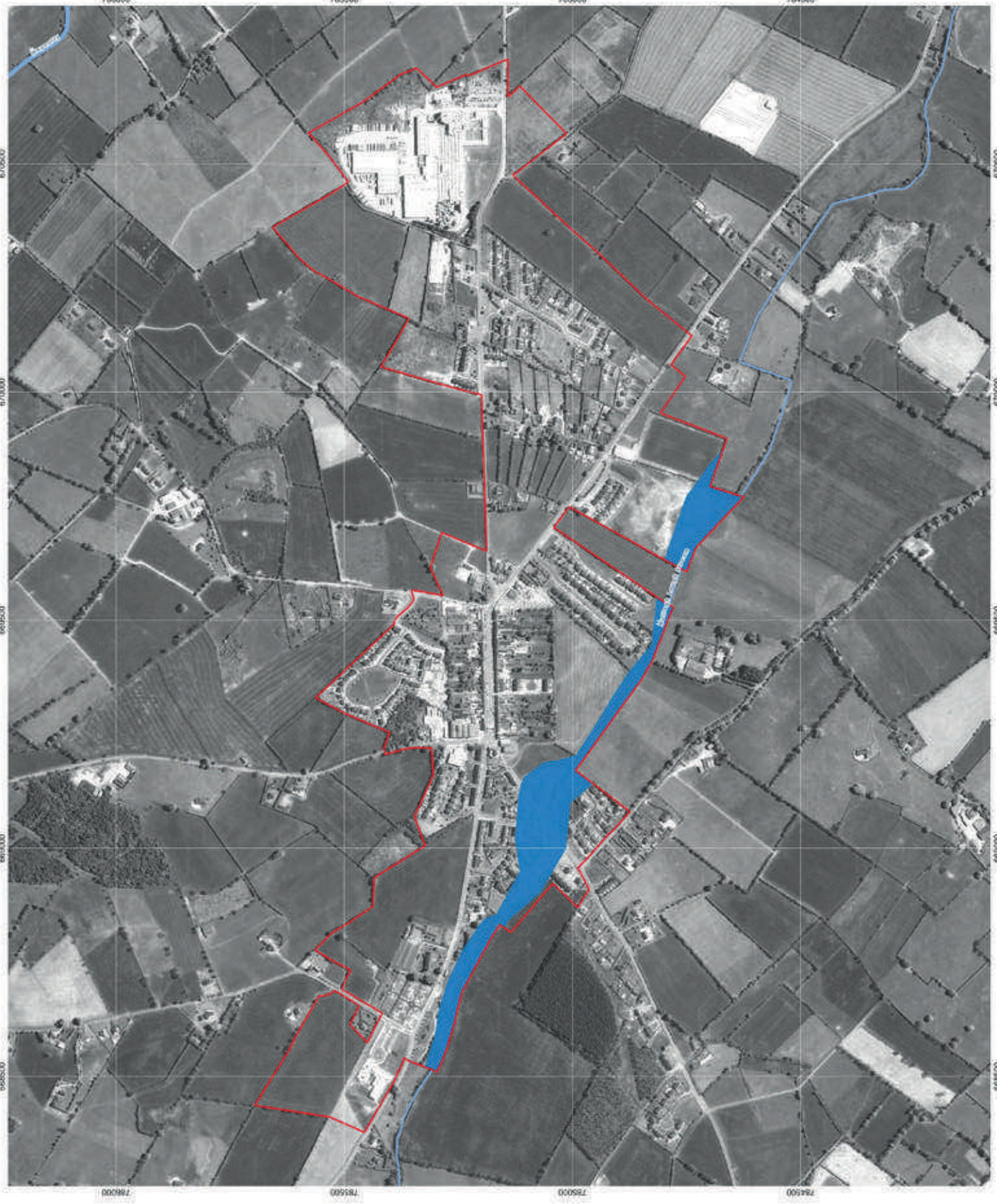
Cavan County Development Plan 2022-2028

Mullagh Indicative Flood Zones

- Plan Boundary
- County Boundary
- Water
- River or Stream
- Indicative Flood Zones
 - Flood Zone A
 - Flood Zone B



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County Cavan SP6A
Appendix II - Stage 2a
Page 76



Cavan County Development Plan 2022-2028

Mullagh
Land Use Zoning that
Interacts Indicative Flood
Zones

- Plan Boundary
- County Boundary
- Existing Residential
- Proposed Residential
- Proposed Mixed Use Residential
- Residential Strategic Reserve
- Proposed Low Density Residential
- Town Core
- Neighbourhood Centre
- Retail Warehousing
- General Enterprise and Employment
- GEE Strategic Reserve
- Integrated Waste Management Facility
- Public Community
- Tourism
- Sport and Recreation
- Amenity and Open Space



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Cavan County Development Plan 2022-2028

Virginia
OPW Historical Flood
Data

-  Plan Boundary
-  County Boundary
-  Water
-  River or Stream
- OPW Past Flood Events**
 -  Single Flood Event
 -  Recurring Flood Event
-  Past Flood Extent
- Land Commission**
 -  Benefited Lands
- Drainage District**
 - Channel
 - Embankment
 -  Benefited Lands
- Arterial Drainage Scheme**
 - Channel
 - Embankment
 -  Benefited Lands

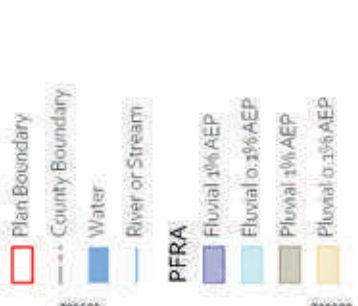


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Cavan County Development Plan 2022-2028

Virginia
OPW Preliminary Flood
Risk Assessment (PFRA)

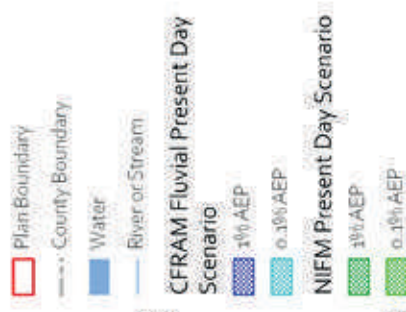


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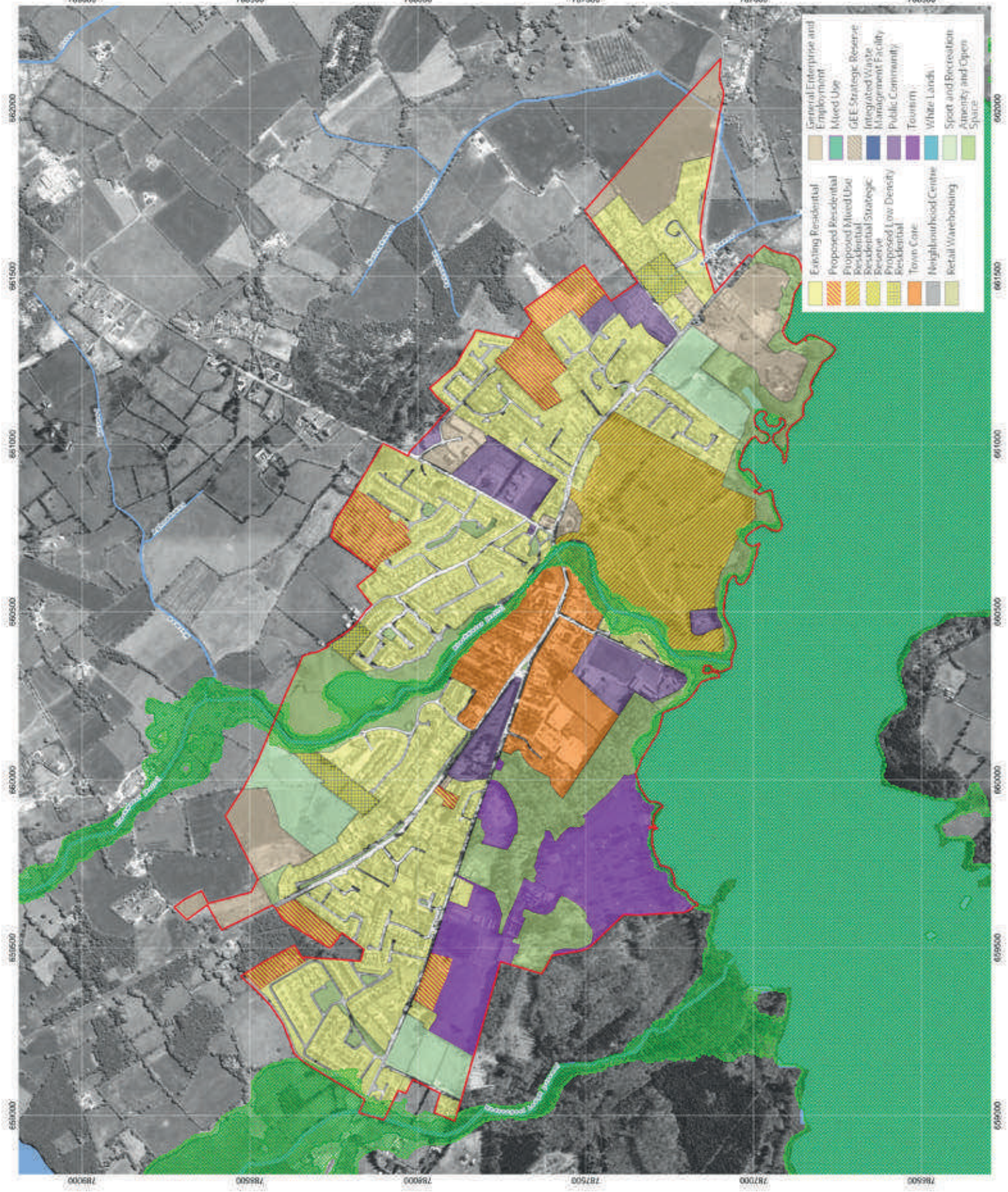


Cavan County Development Plan 2022-2028

Virginia
OPW Catchment Flood
Risk Assessment &
Management (CFRAM)
& National Indicative
Fluvial Mapping (NIFM)
Present Day Scenario



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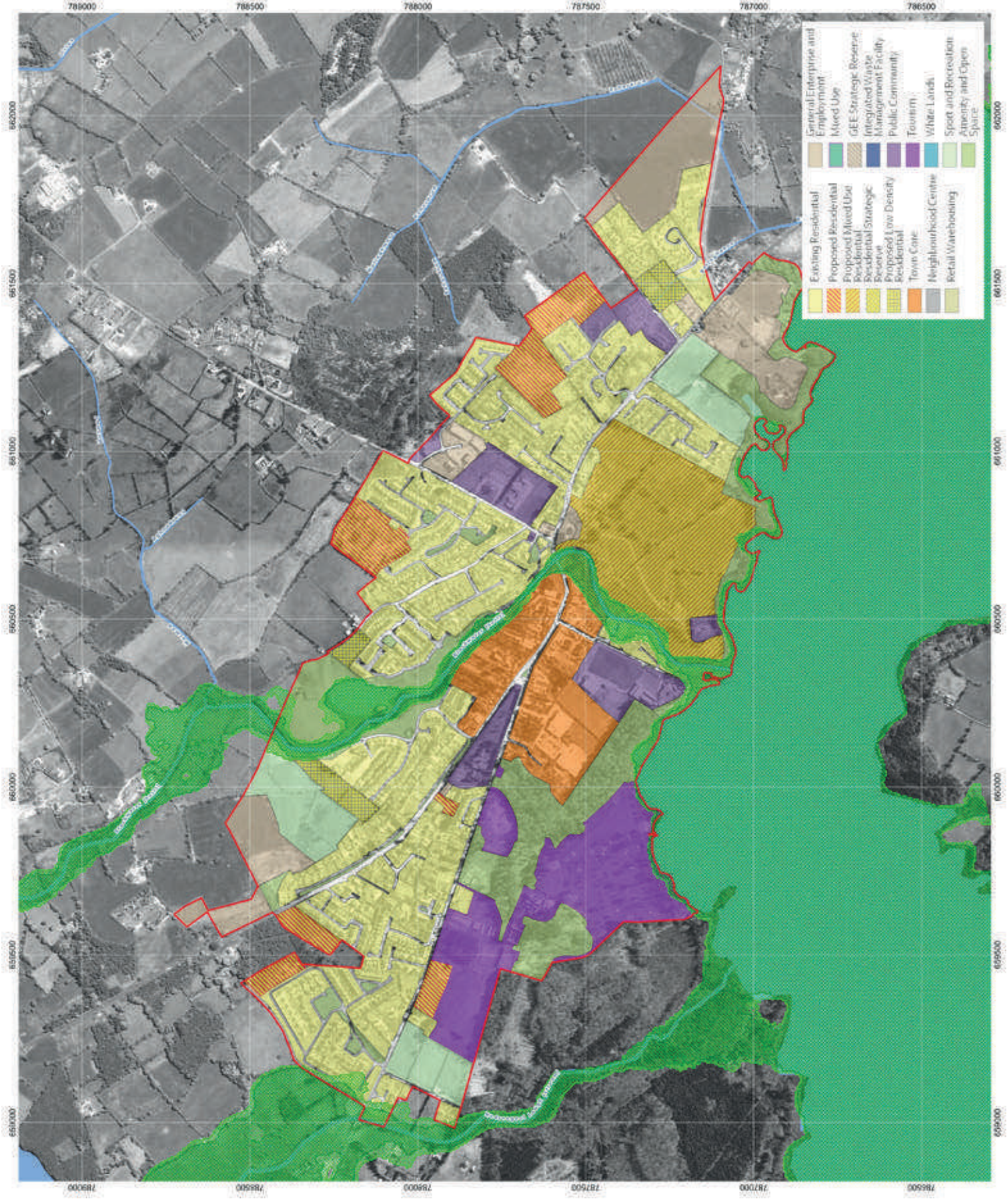
Cavan County Development Plan 2022-2028

Virginia
OPW Catchment Flood
Risk Assessment &
Management (CFRAM)
& National Indicative
Fluvial Mapping (NIFM)
Mid-Range Future
Scenario

- Plan Boundary
- County Boundary
- Water
- River or Stream
- CFRAM Fluvial Mid-Range Future Scenario 1% AEP
- CFRAM Fluvial Mid-Range Future Scenario 0.1% AEP
- NIFM Mid-Range Future Scenario 1% AEP
- NIFM Mid-Range Future Scenario 0.1% AEP



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Cavan County Development Plan 2022-2028

Virginia

OPW Catchment Flood
Risk Assessment &
Management (CFRAM)
& National Indicative
Fluvial Mapping (NIFM)
High-End Future
Scenario

- Plan Boundary
- County Boundary
- Water
- River or Stream

CFRAM Fluvial High-End
Future Scenario

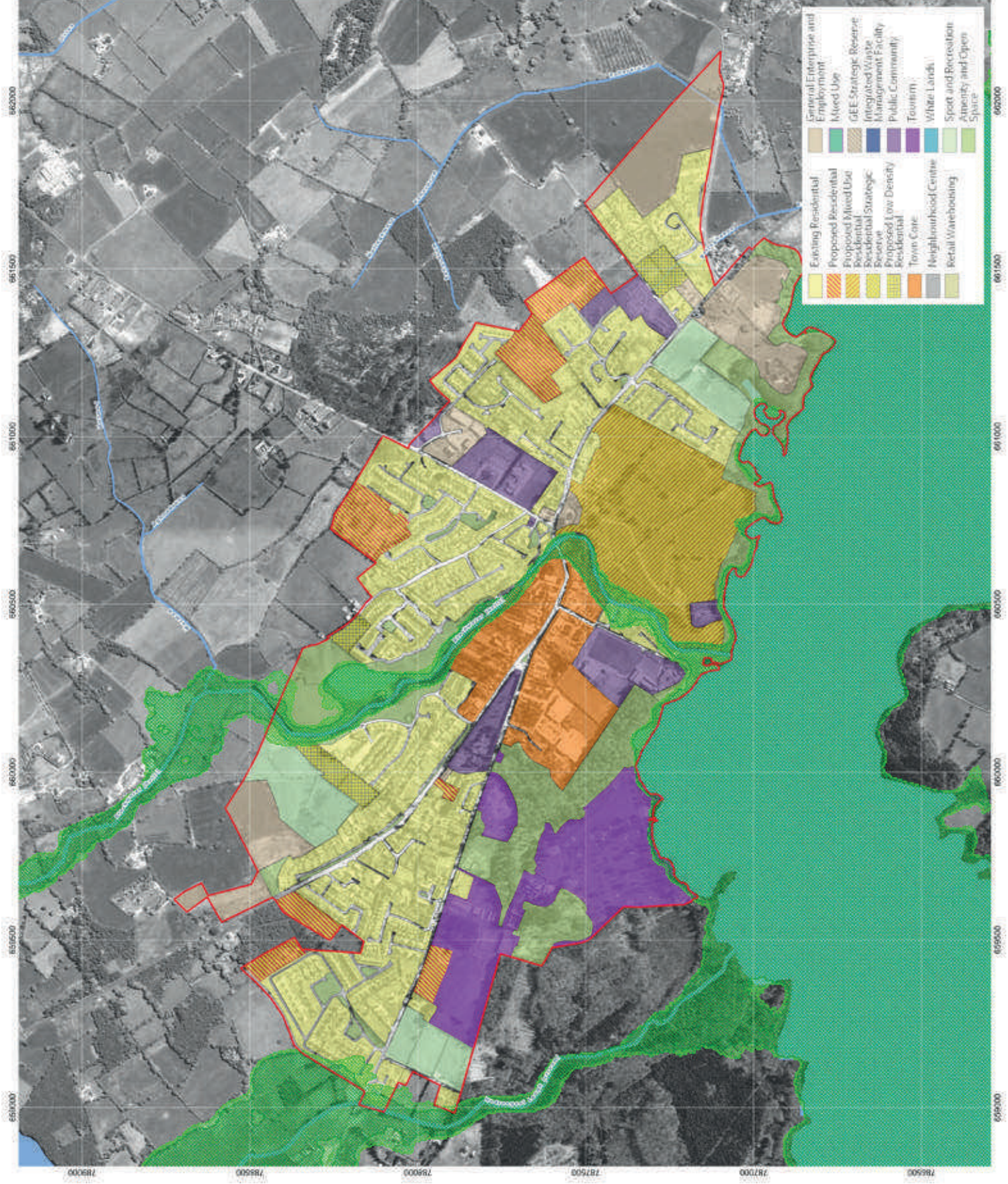
- 1% AEP
- 0.3% AEP

NIFM High-End Future
Scenario

- 1% AEP
- 0.3% AEP



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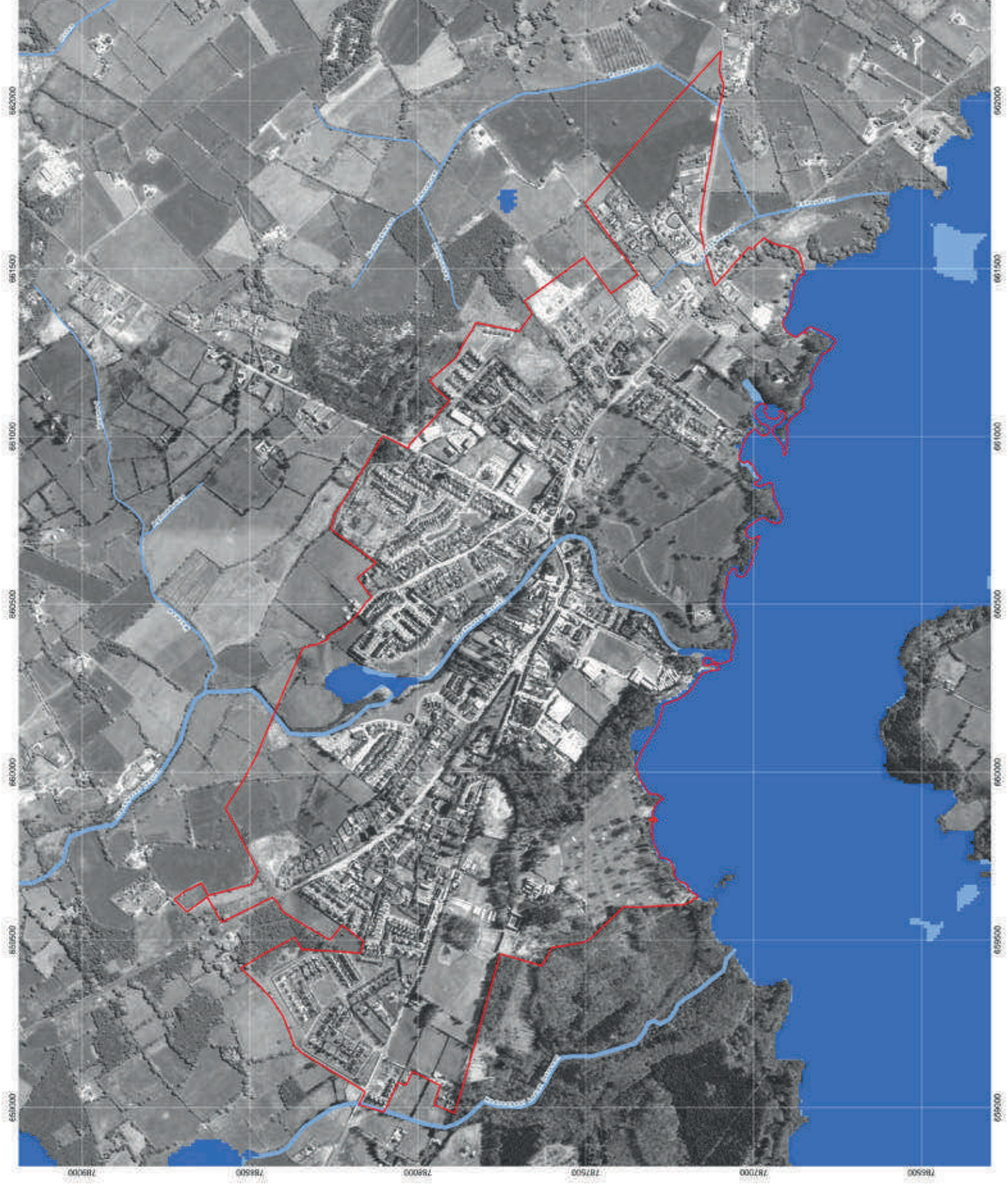
Cavan County Development Plan 2022-2028

Virginia GSI Historical Flood Data and Groundwater Predictive Modeling

-  Plan Boundary
-  County Boundary
-  Water
-  River or Stream
-  GSI Groundwater Flooding Predictive Model
-  High Probability
-  Medium Probability
-  Low Probability
-  GSI Historical Flood Data
-  Surface Water Flooding
-  Winter 2015-2016 Surface Water Flooding
-  Maximum Historic Groundwater Flooding
-  Groundwater
-  Groundwater/Surface water



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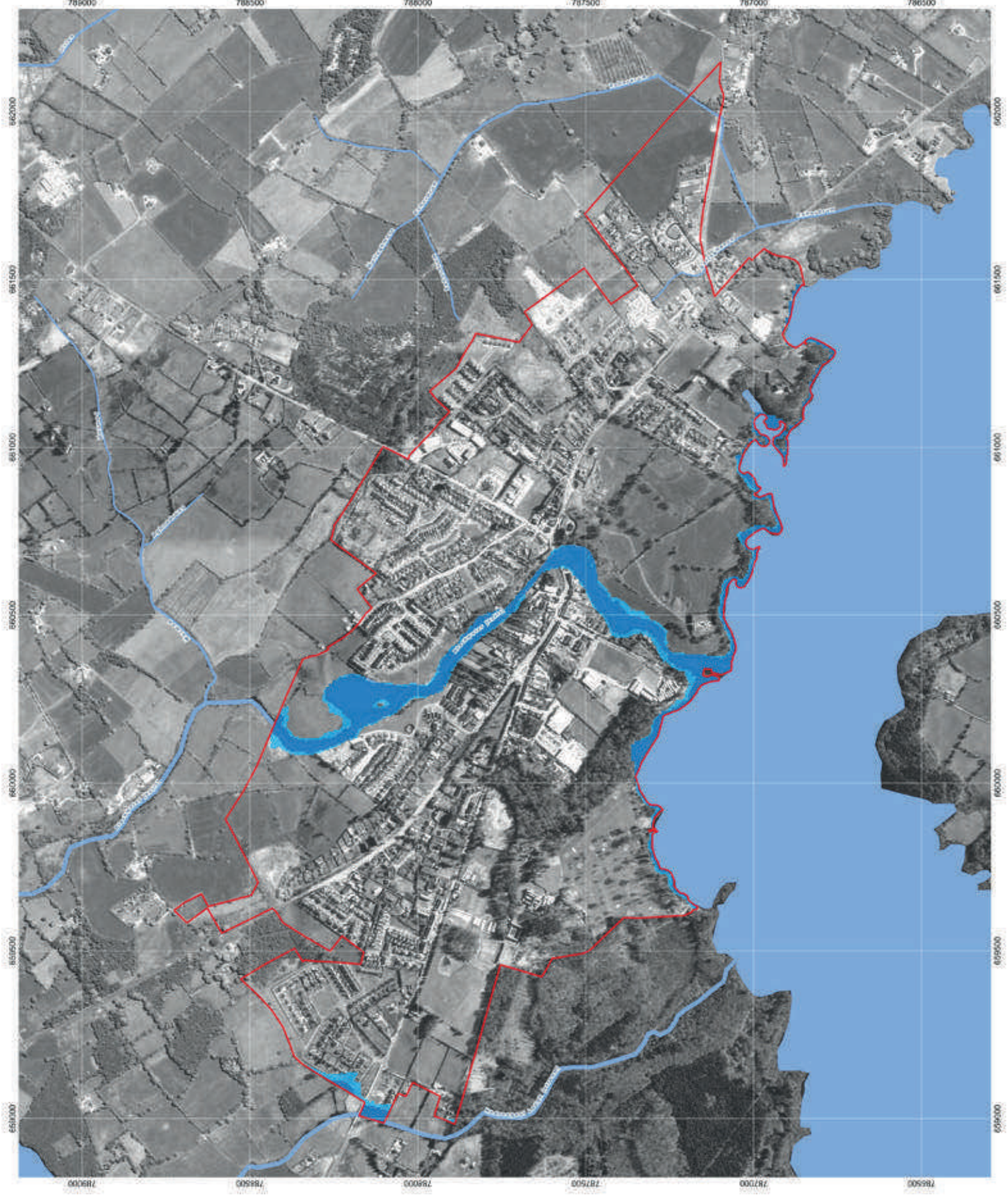
Virginia
Indicative Flood Zones

- Plan Boundary
- County Boundary
- Water
- River or Stream
- Indicative Flood Zones
 - Flood Zone A
 - Flood Zone B



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County Cavan SP6A
Appendix II - Stage 2022
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Cavan County Development Plan 2022-2028

Virginia
Land Use Zoning that
Interacts Indicative Flood
Zones

- Plan Boundary
- County Boundary
- Existing Residential
- Proposed Residential
- Proposed Mixed Use Residential
- Residential Strategic Reserve
- Proposed Low Density Residential
- Town Core
- Neighbourhood Centre
- Retail Warehousing
- General Enterprise and Employment
- GEE Strategic Reserve
- Integrated Waste Management Facility
- Public Community
- Tourism
- Sport and Recreation
- Amenity and Open Space



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Cavan

Comhairle Contae an Chabháin
Cavan County Council



This report was created using



Cavan County Development Plan 2022-2028

Strategic Flood Risk Assessment Cavan Small Towns & Villages

Appendix III

28/09/2022



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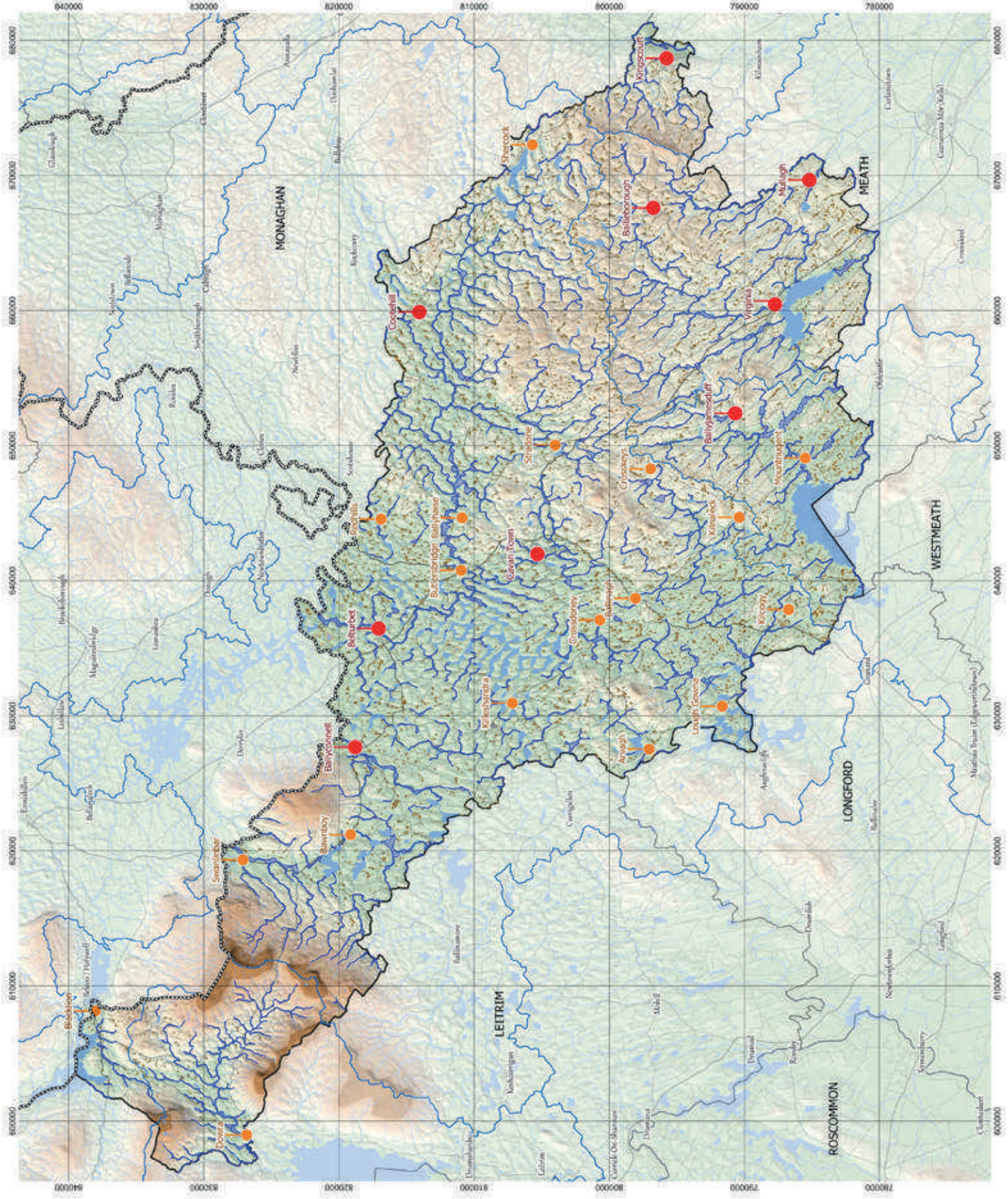
Cavan County Development Plan 2022-2028

OPW Preliminary Flood Risk Assessment (PFRA)

- Upper Tier Settlement
 - Small Town or Village
 - County Cavan
 - County Boundary
 - Border Ireland/
Northern Ireland
 - WFD Catchment
 - Water
 - River or Stream
- PFRA**
- Fluvial 1% AEP
 - Fluvial 0.1% AEP
 - Fluvial 1% AEP
 - Fluvial 0.1% AEP


















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Cavan County Development Plan 2022-2028

Arvagh
OPW Historical Flood
Data

-  Plan Boundary
-  County Boundary
-  Border Ireland/Northern Ireland
-  Water
-  River or Stream
- OPW Past Flood Events**
 -  Single Flood Event
 -  Recurring Flood Event
 -  Past Flood Extent
- Land Commission**
 -  Benefited Lands
- Drainage District**
 -  Channel
 -  Embankment
 -  Benefited Lands
- Arterial Drainage Scheme**
 -  Channel
 -  Embankment
 -  Benefited Lands












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Arvagh OPW Preliminary Flood Risk Assessment (PFRA)

-  Plan Boundary
 -  County Boundary
 -  Border Ireland/
Northern Ireland
 -  Water
 -  River or Stream
- PFRA**
-  Fluvial 1% AEP
 -  Fluvial 0.1% AEP
 -  Pluvial 1% AEP
 -  Pluvial 0.1% AEP



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Cavan County Development Plan 2022-2028

Arvagh
OPW Catchment Flood
Risk Assessment &
Management (CFRAM)
& National Indicative
Fluvial Mapping (NIFM)
Present Day Scenario

- Plan Boundary
 - County Boundary
 - Border Ireland/
Northern Ireland
 - Water
 - River or Stream
- CFRAM Fluvial Present Day Scenario**
- 1% AEP
 - 0.1% AEP
- NIFM Present Day Scenario**
- 1% AEP
 - 0.1% AEP
- Land Use Zoning**
- Town Core
 - White Lands



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Cavan County Development Plan 2022-2028

Arvagh
OPW Catchment Flood
Risk Assessment &
Management (CFRAM)
& National Indicative
Fluvial Mapping (NIFM)
Mid-Range Future
Scenario

- Plan Boundary
- County Boundary
- Border Ireland/
Northern Ireland
- Water
- River or Stream

CFRAM Fluvial Mid-Range
Future Scenario

- 1% AEP
- 0.1% AEP

NIFM Mid-Range Future
Scenario

- 1% AEP
- 0.1% AEP

Land Use Zoning

- Town Core
- White Lands



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Cavan County Development Plan 2022-2028

Arvagh
OPW Catchment Flood
Risk Assessment &
Management (CFRAM)
& National Indicative
Fluvial Mapping (NIFM)
High-End Future
Scenario

- Plan Boundary
- County Boundary
- Border Ireland/
Northern Ireland
- Water
- River or Stream

CFRAM Fluvial High-End Future Scenario

- 1% AEP
- 0.1% AEP

NIFM High-End Future Scenario

- 1% AEP
- 0.1% AEP

Land Use Zoning

- Town Core
- White Lands



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Cavan County Development Plan 2022-2028

Arvagh

GSI Historical Flood Data and Groundwater Predictive Modeling

- Plan Boundary
- County Boundary
- Border Ireland/
Northern Ireland
- Water
- River or Stream
- GSI Groundwater Flooding
Predictive Model**
- High Probability
- Medium Probability
- Low Probability
- GSI Historical Flood Data**
- Surface Water Flooding**
- Winter 2015-2016 Surface
Water Flooding
- Maximum Historic
Groundwater Flooding**
- Groundwater
- Groundwater/Surface water









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Cavan County Development Plan 2022-2028

Arvagh Flood Zones

-  Plan Boundary
 -  County Boundary
 -  Border Ireland/
Northern Ireland
 -  Water
 -  River or Stream
- Indicative Flood Zones**
-  Flood Zone A
 -  Flood Zone B



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Cavan County Development Plan 2022-2028

Arvagh
Land Use Zoning that
Interacts Indicative Flood
Zones

- Plan Boundary
- County Boundary
- Town Core
- White Lands



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Cavan County Development Plan 2022-2028

**Ballinagh
OPW Historical Flood
Data**

-  Plan Boundary
-  County Boundary
-  Border Ireland/
Northern Ireland
-  Water
-  River or Stream
- OPW Past Flood Events**
 -  Single Flood Event
 -  Recurring Flood Event
 -  Past Flood Extent
- Land Commission**
 -  Benefitted Lands
- Drainage District**
 -  Channel
 -  Embankment
 -  Benefitted Lands
- Arterial Drainage Scheme**
 -  Channel
 -  Embankment
 -  Benefitted Lands



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Cavan County Development Plan 2022-2028

Ballinagh OPW Preliminary Flood Risk Assessment (PFRA)

- Plan Boundary
 - County Boundary
 - Border Ireland/
Northern Ireland
 - Water
 - River or Stream
- PFRA**
- Fluvial 1% AEP
 - Fluvial 0.1% AEP
 - Pluvial 1% AEP
 - Pluvial 0.1% AEP

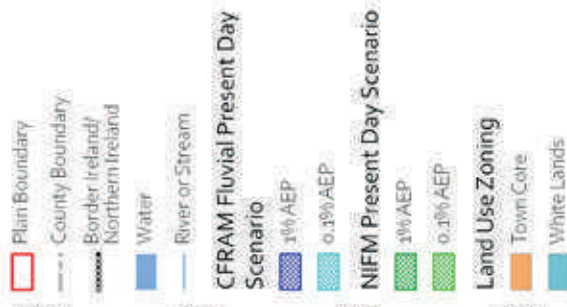


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Cavan County Development Plan 2022-2028

Ballinagh
OPW Catchment Flood
Risk Assessment &
Management (CFRAM)
& National Indicative
Fluvial Mapping (NIFM)
Present Day Scenario

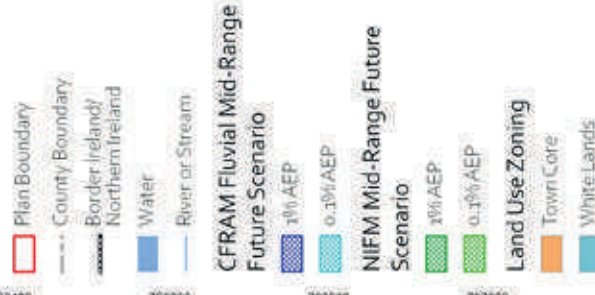


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Ballinagh
OPW Catchment Flood
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& National Indicative
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Mid-Range Future
Scenario



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Ballinagh
OPW Catchment Flood
Risk Assessment &
Management (CFRAM)
& National Indicative
Fluvial Mapping (NIFM)
High-End Future
Scenario

Plan Boundary

County Boundary

Border-Ireland/
Northern Ireland

Water

River or Stream

CFRAM Fluvial High-End
Future Scenario

1% AEP

0.1% AEP

NIFM High-End Future
Scenario

1% AEP

0.1% AEP

Land Use Zoning

Town Core

White Lands



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Cavan County Development Plan 2022-2028

Ballinagh

GSI Historical Flood Data and Groundwater Predictive Modeling



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Cavan County Development Plan 2022-2028

Ballinagh Flood Zones

-  Plan Boundary
 -  County Boundary
 -  Border Ireland/
Northern Ireland
 -  Water
 -  River or Stream
- Indicative Flood Zones**
-  Flood Zone A
 -  Flood Zone B



Cavan County Development Plan 2022-2028

**Ballinagh
Land Use Zoning that
Interacts Indicative Flood
Zones**

- Plan Boundary
- County Boundary
- Town Core
- White Lands


















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County Cavan SP6A
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Page 23



Cavan County Development Plan 2022-2028

Ballyhaise
OPW Historical Flood
Data

-  Plan Boundary
-  County Boundary
-  Border Ireland/
Northern Ireland
-  Water
-  River or Stream
- OPW Past Flood Events**
 -  Single Flood Event
 -  Recurring Flood Event
 -  Past Flood Extent
- Land Commission**
 -  Benefited Lands
- Drainage District**
 -  Channel
 -  Embankment
 -  Benefited Lands
- Arterial Drainage Scheme**
 -  Channel
 -  Embankment
 -  Benefited Lands



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Cavan County Development Plan 2022-2028

Ballyhaise OPW Preliminary Flood Risk Assessment (PFRA)

- Plan Boundary
 - County Boundary
 - Border Ireland/
Northern Ireland
 - Water
 - River or Stream
- PFRA**
- Fluvial 1% AEP
 - Fluvial 0.1% AEP
 - Pluvial 1% AEP
 - Pluvial 0.1% AEP



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Cavan County Development Plan 2022-2028

Ballyhaise
OPW Catchment Flood
Risk Assessment &
Management (CFRAM)
& National Indicative
Fluvial Mapping (NIFM)
Present Day Scenario



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Cavan County Development Plan 2022-2028

Ballyhaise
OPW Catchment Flood
Risk Assessment &
Management (CFRAM)
& National Indicative
Fluvial Mapping (NIFM)
Mid-Range Future
Scenario

- Plan Boundary
- County Boundary
- Border Ireland/
Northern Ireland
- Water
- River or Stream
- CFRAM Fluvial Mid-Range
Future Scenario**
- 1% AEP
- 0.1% AEP
- NIFM Mid-Range Future
Scenario**
- 1% AEP
- 0.1% AEP
- Land Use Zoning**
- Town Core
- White Lands



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Cavan County Development Plan 2022-2028

Ballyhaise
OPW Catchment Flood
Risk Assessment &
Management (CFRAM)
& National Indicative
Fluvial Mapping (NIFM)
High-End Future
Scenario

Plan Boundary
County Boundary
Border Ireland/
Northern Ireland
Water
River or Stream

CFRAM Fluvial High-End
Future Scenario
1% AEP
0.1% AEP

NIFM High-End Future
Scenario
1% AEP
0.1% AEP

Land Use Zoning
Town Core
White Lands



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Cavan County Development Plan 2022-2028

Ballyhaise

GSI Historical Flood Data and Groundwater Predictive Modeling

- Plan Boundary
- County Boundary
- Border Ireland/
Northern Ireland
- Water
- River or Stream
- GSI Groundwater Flooding
Predictive Model
- High Probability
- Medium Probability
- Low Probability
- GSI Historical Flood Data
- Surface Water Flooding
- Winter 2015-2016 Surface
Water Flooding
- Maximum Historic
Groundwater Flooding
- Groundwater
- Groundwater/Surface water



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Cavan County Development Plan 2022-2028

Ballyhaise Flood Zones

- Plan Boundary
 - County Boundary
 - Border Ireland/
Northern Ireland
 - Water
 - River or Stream
- Indicative Flood Zones**
- Flood Zone A
 - Flood Zone B



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Ballyhaize
Land Use Zoning that
Interacts Indicative Flood
Zones
















- Plan Boundary
- County Boundary
- Town Core
- White Lands



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Cavan County Development Plan 2022-2028

Bawnboy OPW Historical Flood Data

-  Plan Boundary
-  County Boundary
-  Border Ireland/
Northern Ireland
-  Water
-  River or Stream
- OPW Past Flood Events**
 -  Single Flood Event
 -  Recurring Flood Event
 -  Past Flood Extent
- Land Commission**
 -  Benefited Lands
- Drainage District**
 -  Channel
 -  Embankment
 -  Benefited Lands
- Arterial Drainage Scheme**
 -  Channel
 -  Embankment
 -  Benefited Lands



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Bawnboy OPW Preliminary Flood Risk Assessment (PFRA)

- Plan Boundary
 - County Boundary
 - Border Ireland/
Northern Ireland
 - Water
 - River or Stream
- PFRA**
- Fluvial 1% AEP
 - Fluvial 0.1% AEP
 - Pluvial 1% AEP
 - Pluvial 0.1% AEP



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Bawnboy
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Risk Assessment &
Management (CFRAM)
& National Indicative
Fluvial Mapping (NIFM)
Present Day Scenario

- Plan Boundary
- County Boundary
- Border Ireland/
Northern Ireland

- Water
- River or Stream

- CFRAM Fluvial Present Day Scenario**
- 1% AEP
 - 0.1% AEP

- NIFM Present Day Scenario**
- 1% AEP
 - 0.1% AEP

- Land Use Zoning**
- Town Core
 - White Lands



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Bawnboy
OPW Catchment Flood
Risk Assessment &
Management (CFRAM)
& National Indicative
Fluvial Mapping (NIFM)
Mid-Range Future
Scenario

- Plan Boundary
 - County Boundary
 - Border Ireland/
Northern Ireland
 - Water
 - River or Stream
- CFRAM Fluvial Mid-Range
Future Scenario**
- 1% AEP
 - 0.1% AEP
- NIFM Mid-Range Future
Scenario**
- 1% AEP
 - 0.1% AEP
- Land Use Zoning**
- Town Core
 - White Lands



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Cavan County Development Plan 2022-2028

Bawnboy
OPW Catchment Flood
Risk Assessment &
Management (CFRAM)
& National Indicative
Fluvial Mapping (NIFM)
High-End Future
Scenario

- Plan Boundary
 - County Boundary
 - Border Ireland/
Northern Ireland
 - Water
 - River or Stream
- CFRAM Fluvial High-End
Future Scenario**
- 1% AEP
 - 0.1% AEP
- NIFM High-End Future
Scenario**
- 1% AEP
 - 0.1% AEP
- Land Use Zoning**
- Town Core
 - White Lands



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Cavan County Development Plan 2022-2028

Bawnboy

GSI Historical Flood Data and Groundwater Predictive Modeling

- Plan Boundary
- County Boundary
- Border Ireland/
Northern Ireland
- Water
- River or Stream
- GSI Groundwater Flooding
Predictive Model
- High Probability
- Medium Probability
- Low Probability
- GSI Historical Flood Data
- Surface Water Flooding
- Winter 2015-2016 Surface
Water Flooding
- Maximum Historic
Groundwater Flooding
- Groundwater
- Groundwater/Surface water



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Bawnboy Flood Zones

-  Plan Boundary
 -  County Boundary
 -  Border Ireland/
Northern Ireland
 -  Water
 -  River or Stream
- Indicative Flood Zones**
-  Flood Zone A
 -  Flood Zone B



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








Bawnboy
Land Use Zoning that
Interacts Indicative Flood
Zones

- Plan Boundary
- County Boundary
- Town Core
- White Lands



Cavan County Development Plan 2022-2028

Blacklion
OPW Historical Flood
Data

-  Plan Boundary
-  County Boundary
-  Border Ireland/
Northern Ireland
-  Water
-  River or Stream
- OPW Past Flood Events**
 -  Single Flood Event
 -  Recurring Flood Event
 -  Past Flood Extent
- Land Commission**
 -  Benefited Lands
- Drainage District**
 -  Channel
 -  Embankment
 -  Benefited Lands
- Arterial Drainage Scheme**
 -  Channel
 -  Embankment
 -  Benefited Lands

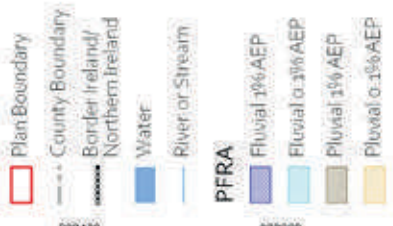


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Blacklion OPW Preliminary Flood Risk Assessment (PFRA)



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Cavan County Development Plan 2022-2028

Blacklion
OPW Catchment Flood
Risk Assessment &
Management (CFRAM)
& National Indicative
Fluvial Mapping (NIFM)
Present Day Scenario



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Cavan County Development Plan 2022-2028

Blacklion
OPW Catchment Flood
Risk Assessment &
Management (CFRAM)
& National Indicative
Fluvial Mapping (NIFM)
Mid-Range Future
Scenario

Plan Boundary

County Boundary

Border Ireland/
Northern Ireland

Water

River or Stream

CFRAM Fluvial Mid-Range
Future Scenario

1% AEP

0.1% AEP

NIFM Mid-Range Future
Scenario

1% AEP

0.1% AEP

Land Use Zoning

Town Core

White Lands



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Cavan County Development Plan 2022-2028

Blacklion
OPW Catchment Flood
Risk Assessment &
Management (CFRAM)
& National Indicative
Fluvial Mapping (NIFM)
High-End Future
Scenario

- Plan Boundary
 - County Boundary
 - Border Ireland/
Northern Ireland
 - Water
 - River or Stream
- CFRAM Fluvial High-End
Future Scenario**
- 1% AEP
 - 0.1% AEP
- NIFM High-End Future
Scenario**
- 1% AEP
 - 0.1% AEP
- Land Use Zoning**
- Town Core
 - White Lands



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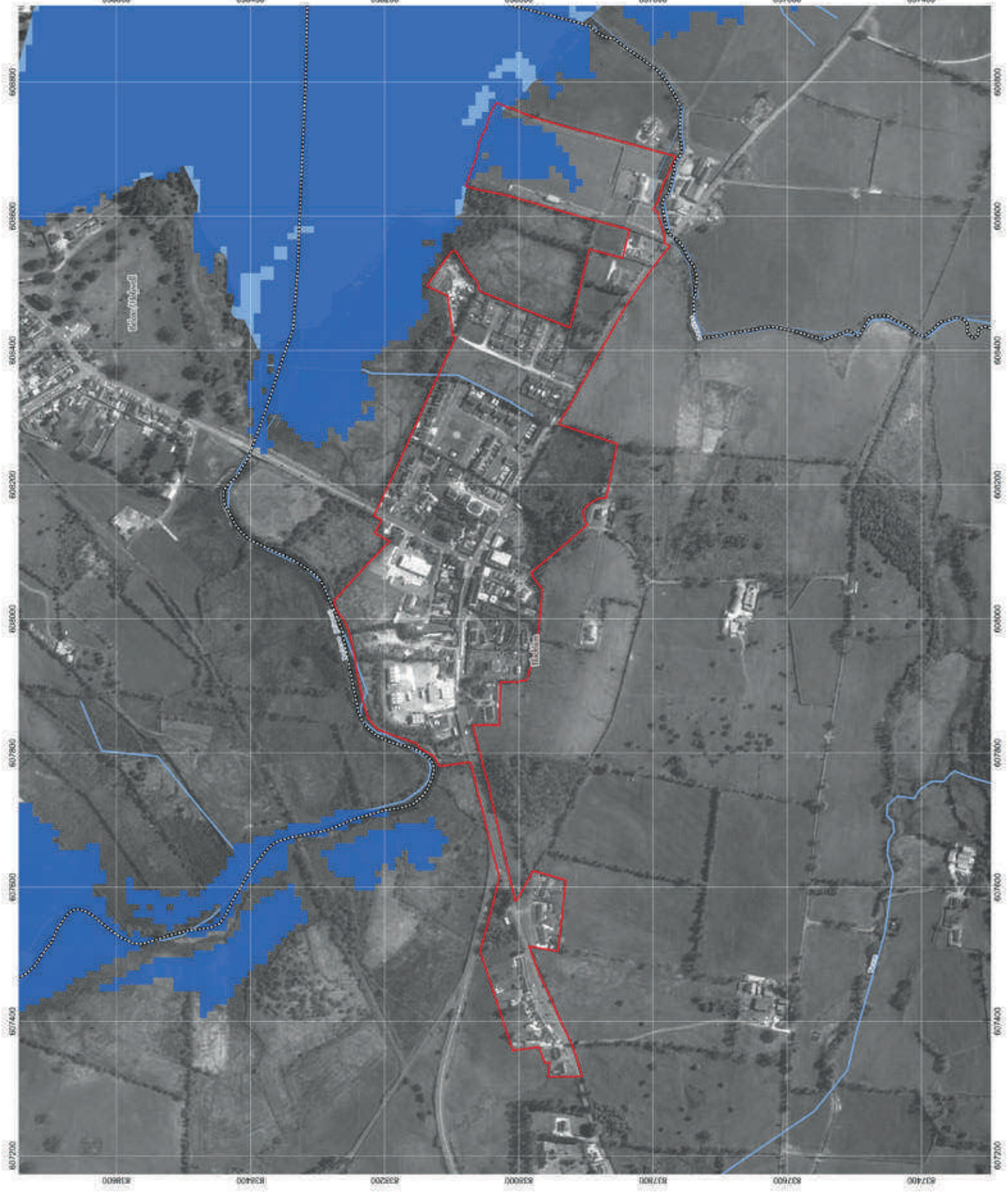
Blacklion

GSI Historical Flood Data and Groundwater Predictive Modeling

- Plan Boundary
- County Boundary
- Border/Ireland/
Northern Ireland
- Water
- River or Stream
- GSI Groundwater Flooding
Predictive Model
- High Probability
- Medium Probability
- Low Probability
- GSI Historical Flood Data
- Surface Water Flooding
- Winter 2015-2016 Surface
Water Flooding
- Maximum Historic
Groundwater Flooding
- Groundwater
- Groundwater/Surface water



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Cavan County Development Plan 2022-2028

Blacklion Flood Zones

-  Plan Boundary
 -  County Boundary
 -  Border Ireland/
Northern Ireland
 -  Water
 -  River or Stream
- ### Indicative Flood Zones
-  Flood Zone A
 -  Flood Zone B



Cavan County Development Plan 2022-2028
















Blacklion
Land Use Zoning that
Intersects Indicative Flood
Zones

- Plan Boundary
- County Boundary
- Town Core
- White Lands



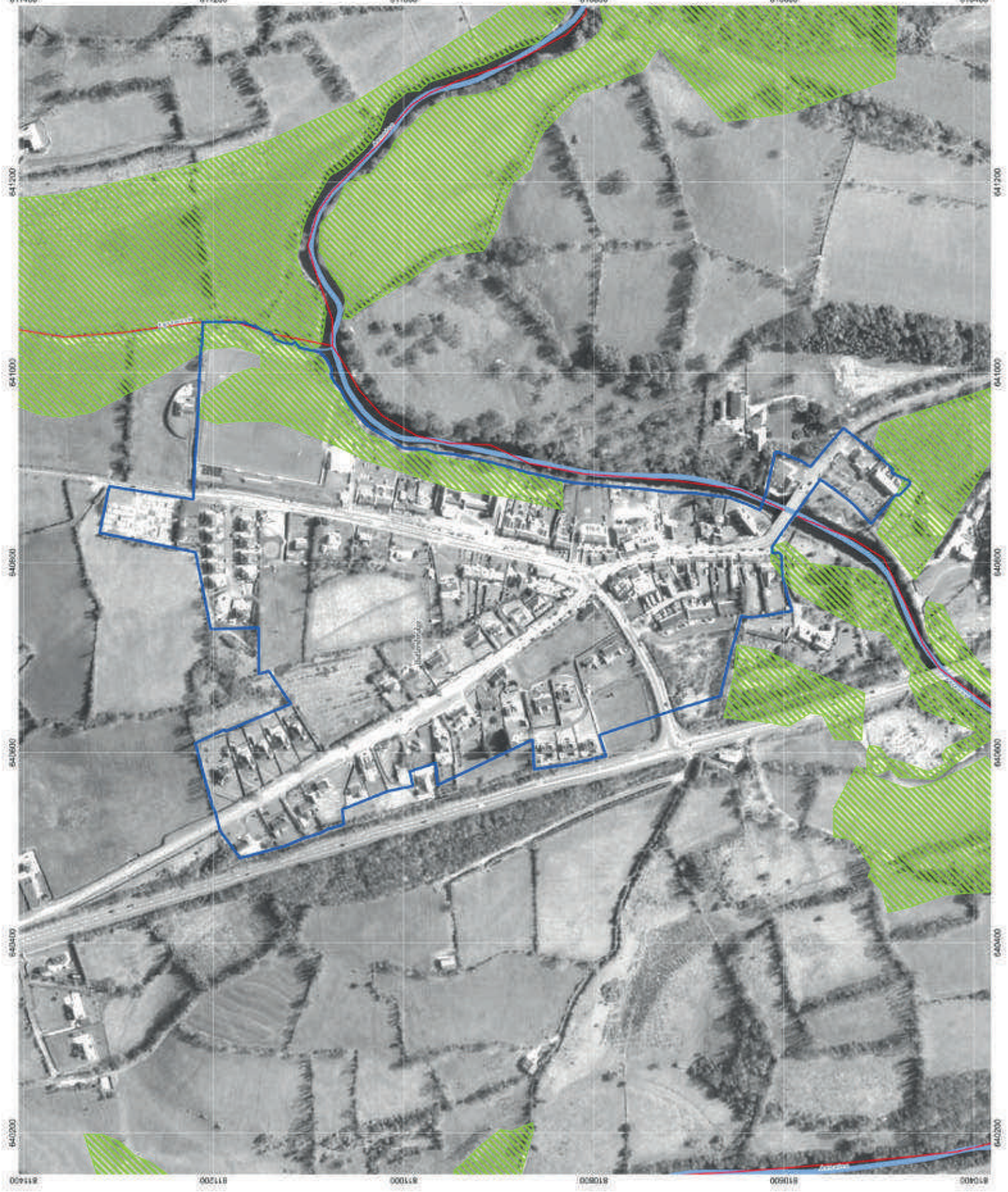
Cavan County Development Plan 2022-2028

Butlersbridge
OPW Historical Flood
Data

-  Plan Boundary
-  County Boundary
-  Border Ireland/
Northern Ireland
-  Water
-  River or Stream
- OPW Past Flood Events**
 -  Single Flood Event
 -  Recurring Flood Event
 -  Past Flood Extent
- Land Commission**
 -  Benefited Lands
- Drainage District**
 -  Channel
 -  Embankment
 -  Benefited Lands
- Arterial Drainage Scheme**
 -  Channel
 -  Embankment
 -  Benefited Lands



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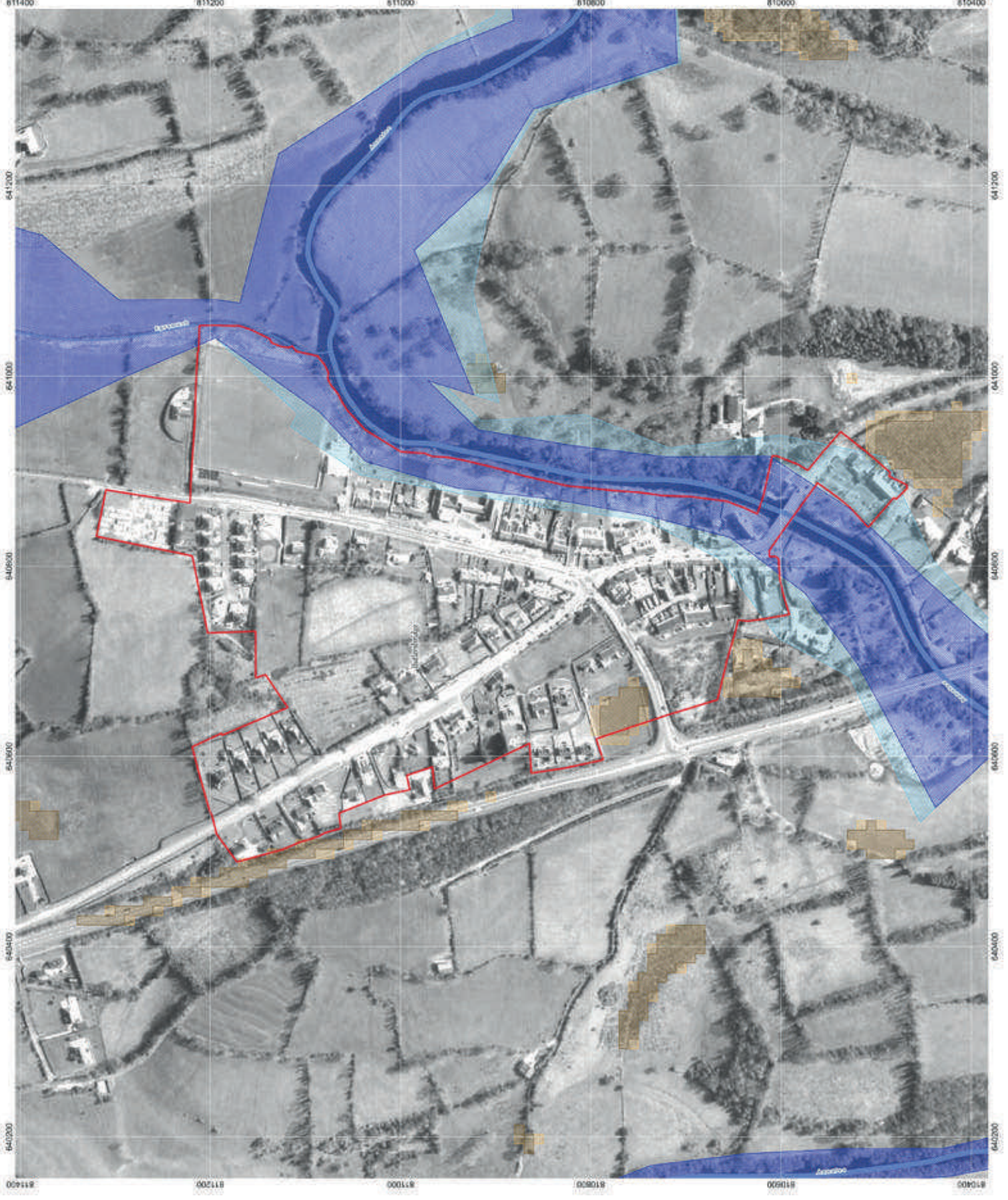
Butlersbridge OPW Preliminary Flood Risk Assessment (PFRA)

- Plan Boundary
 - County Boundary
 - Border Ireland/
Northern Ireland
 - Water
 - River or Stream
- PFRA**
- Fluvial 1% AEP
 - Fluvial 0.1% AEP
 - Pluvial 1% AEP
 - Pluvial 0.1% AEP



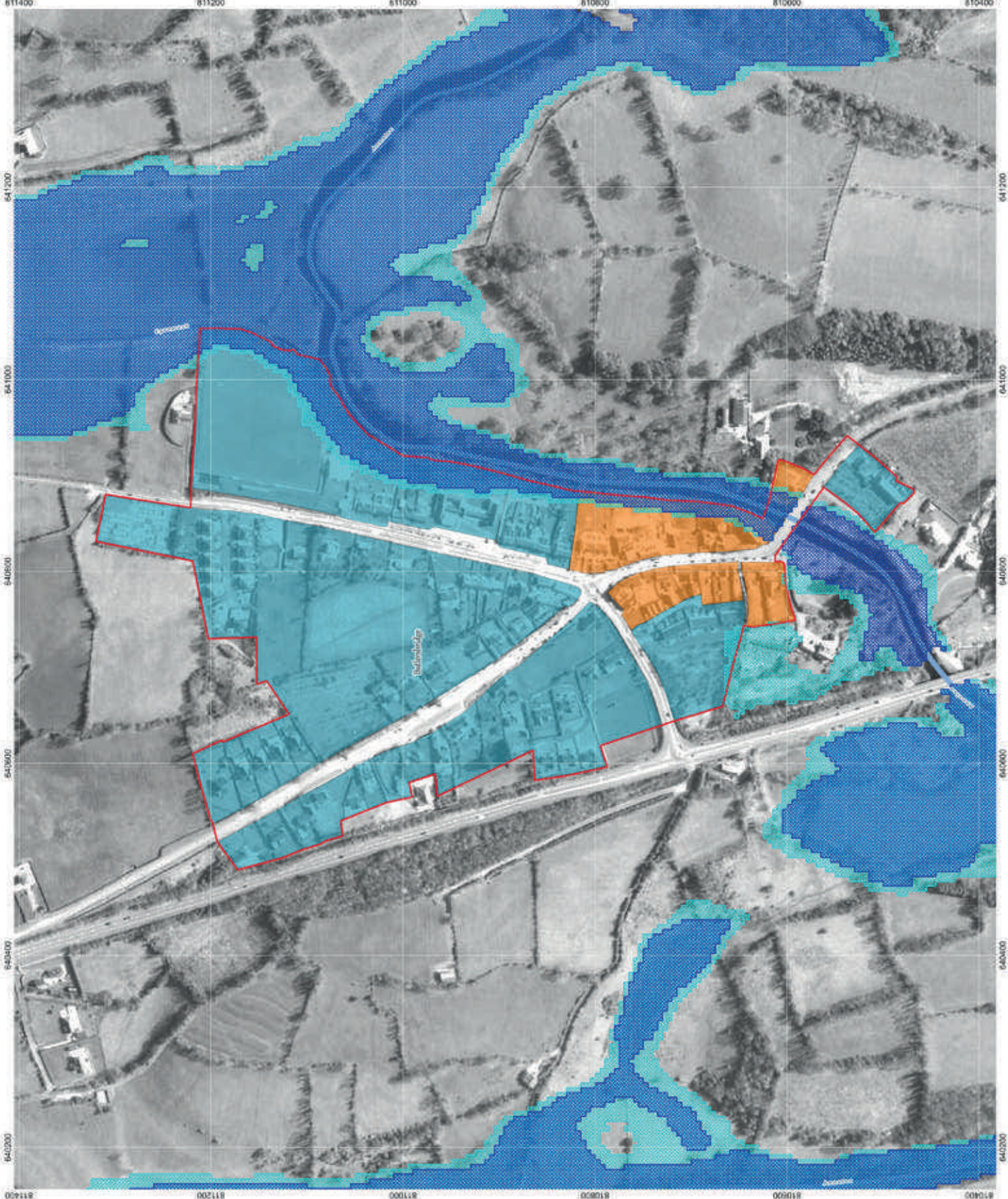
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County Cavan PFRA
Appendix III - 28/06/2022
Page A9



Cavan County Development Plan 2022-2028

Butlersbridge
OPW Catchment Flood
Risk Assessment &
Management (CFRAM)
& National Indicative
Fluvial Mapping (NIFM)
Present Day Scenario



- Plan Boundary
 - County Boundary
 - Border Ireland/
Northern Ireland
 - Water
 - River or Stream
- CFRAM Fluvial Present Day Scenario**
- 1% AEP
 - 0.1% AEP
- NIFM Present Day Scenario**
- 1% AEP
 - 0.1% AEP
- Land Use Zoning**
- Town Core
 - White Lands



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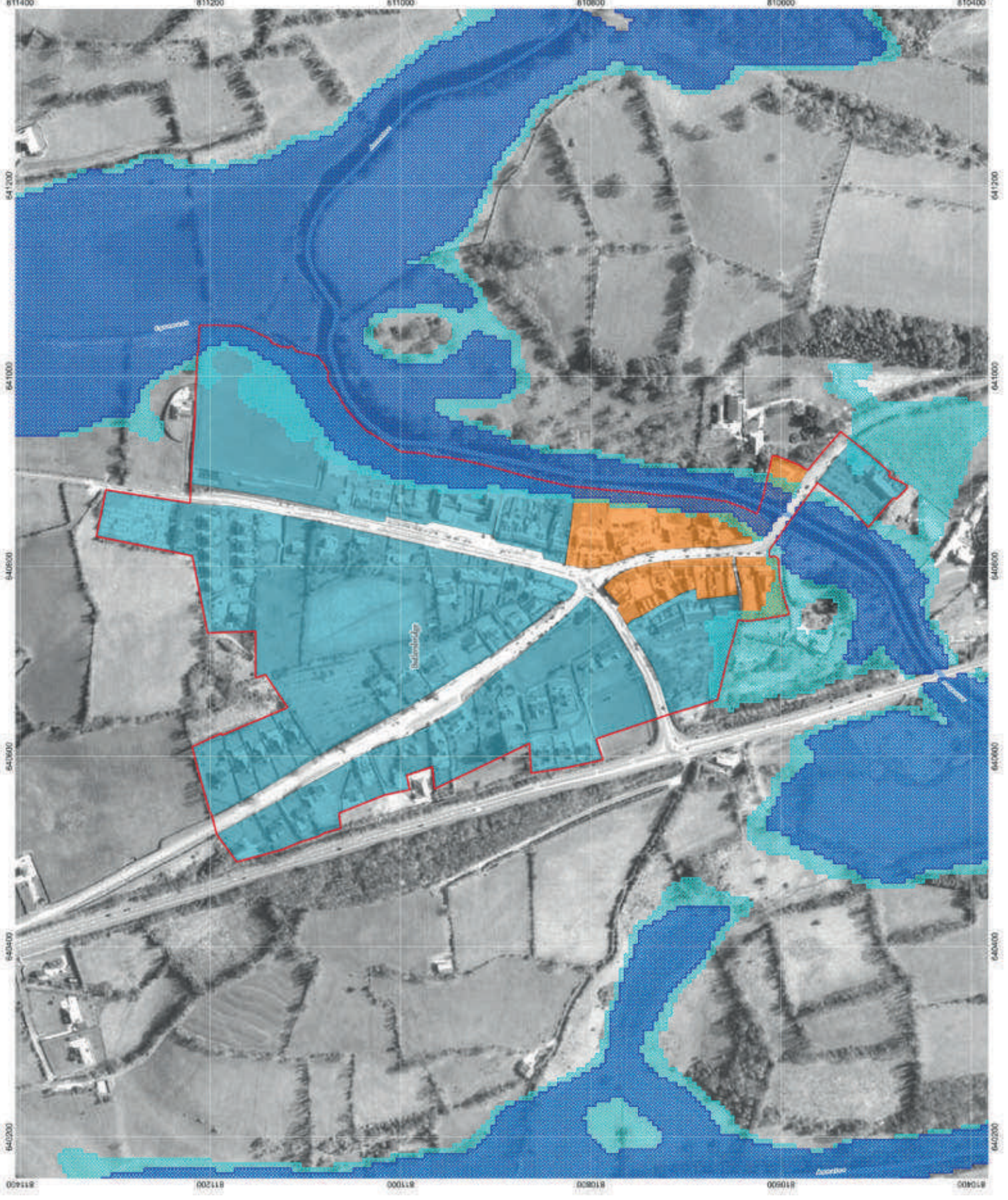
Cavan County Development Plan 2022-2028

Butlersbridge
OPW Catchment Flood
Risk Assessment &
Management (CFRAM)
& National Indicative
Fluvial Mapping (NIFM)
Mid-Range Future
Scenario

- Plan Boundary
 - County Boundary
 - Border Ireland/
Northern Ireland
 - Water
 - River or Stream
- CFRAM Fluvial Mid-Range
Future Scenario**
- 1% AEP
 - 0.1% AEP
- NIFM Mid-Range Future
Scenario**
- 1% AEP
 - 0.1% AEP
- Land Use Zoning**
- Town Core
 - White Lands



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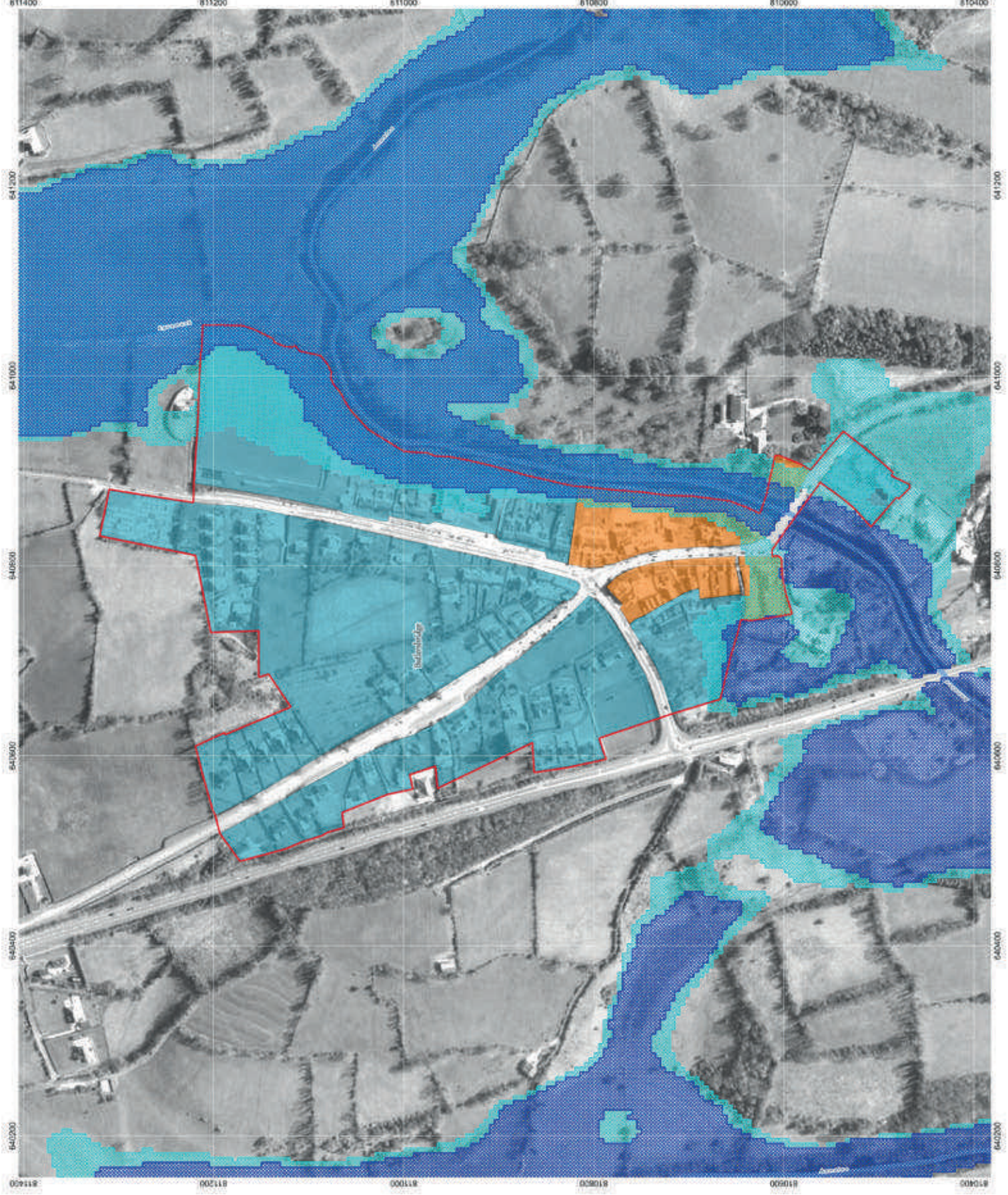
Cavan County Development Plan 2022-2028

Butlersbridge
OPW Catchment Flood
Risk Assessment &
Management (CFRAM)
& National Indicative
Fluvial Mapping (NIFM)
High-End Future
Scenario

- Plan Boundary
 - County Boundary
 - Border Ireland/
Northern Ireland
 - Water
 - River or Stream
- CFRAM Fluvial High-End
Future Scenario**
- 1% AEP
 - 0.1% AEP
- NIFM High-End Future
Scenario**
- 1% AEP
 - 0.1% AEP
- Land Use Zoning**
- Town Core
 - White Lands



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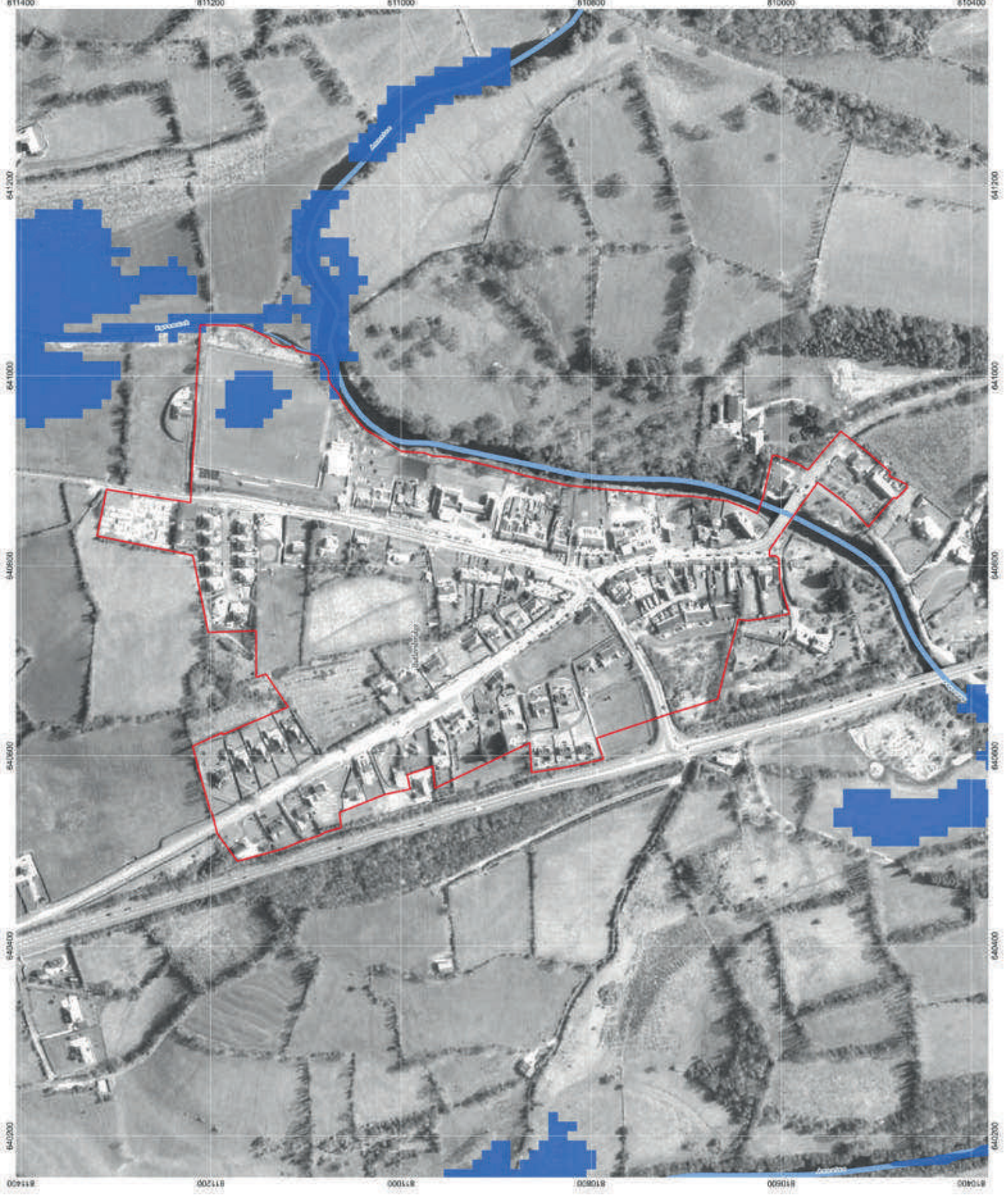
Cavan County Development Plan 2022-2028

Butlersbridge GSI Historical Flood Data and Groundwater Predictive Modeling

- Plan Boundary
- County Boundary
- Border Ireland/
Northern Ireland
- Water
- River or Stream
- GSI Groundwater Flooding
Predictive Model
- High Probability
- Medium Probability
- Low Probability
- GSI Historical Flood Data
- Surface Water Flooding
- Winter 2015-2016 Surface
Water Flooding
- Maximum Historic
Groundwater Flooding
- Groundwater
- Groundwater/Surface water










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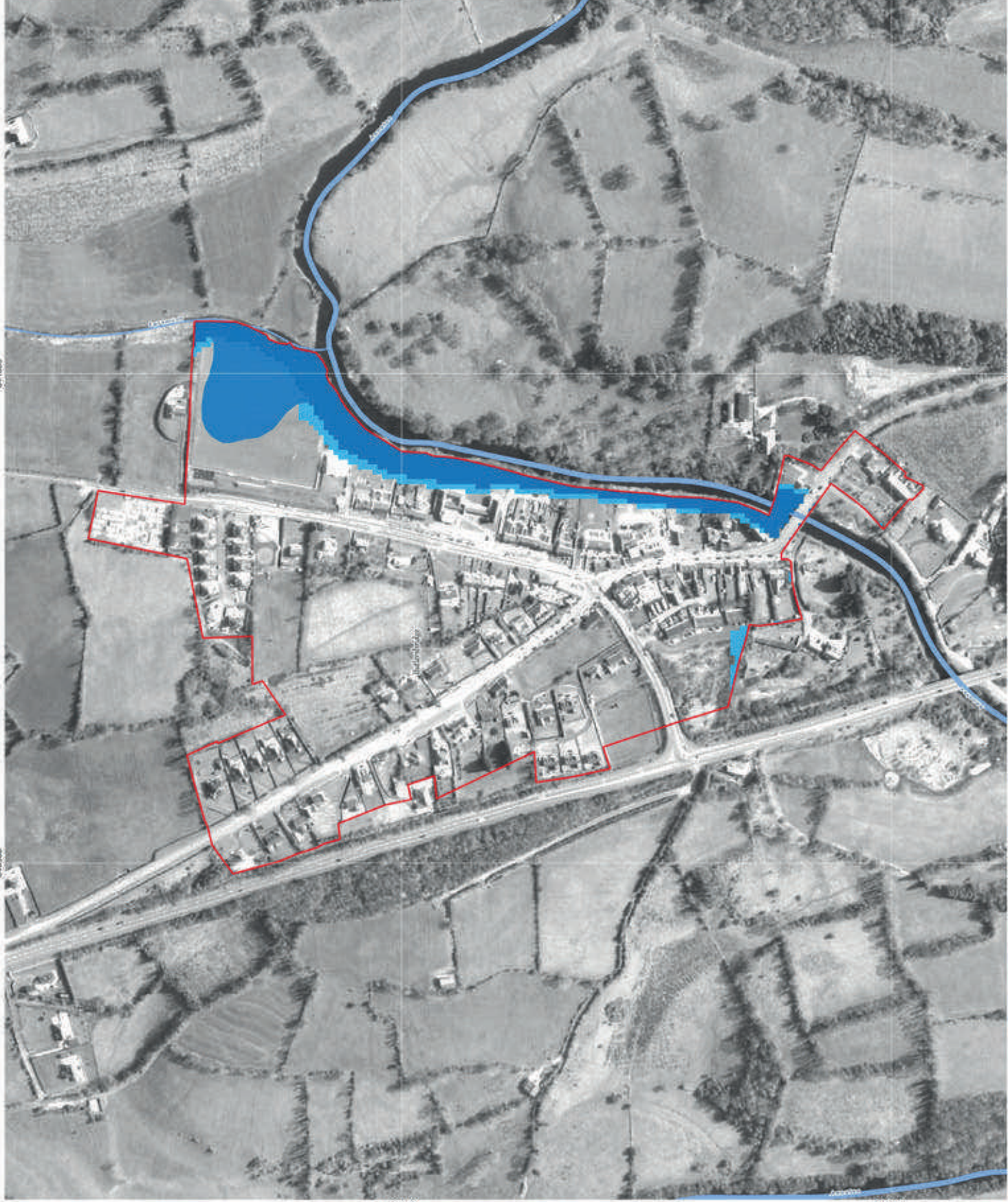
Cavan County Development Plan 2022-2028

Butlersbridge Flood Zones

-  Plan Boundary
 -  County Boundary
 -  Border Ireland/
Northern Ireland
 -  Water
 -  River or Stream
- Indicative Flood Zones**
-  Flood Zone A
 -  Flood Zone B

811000

810500



641000

641000

640500

640500

811000

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Cavan County Development Plan 2022-2028

Butlersbridge
Land Use Zoning that
Interacts Indicative Flood
Zones

- Plan Boundary
- County Boundary
- Town Core
- White Lands

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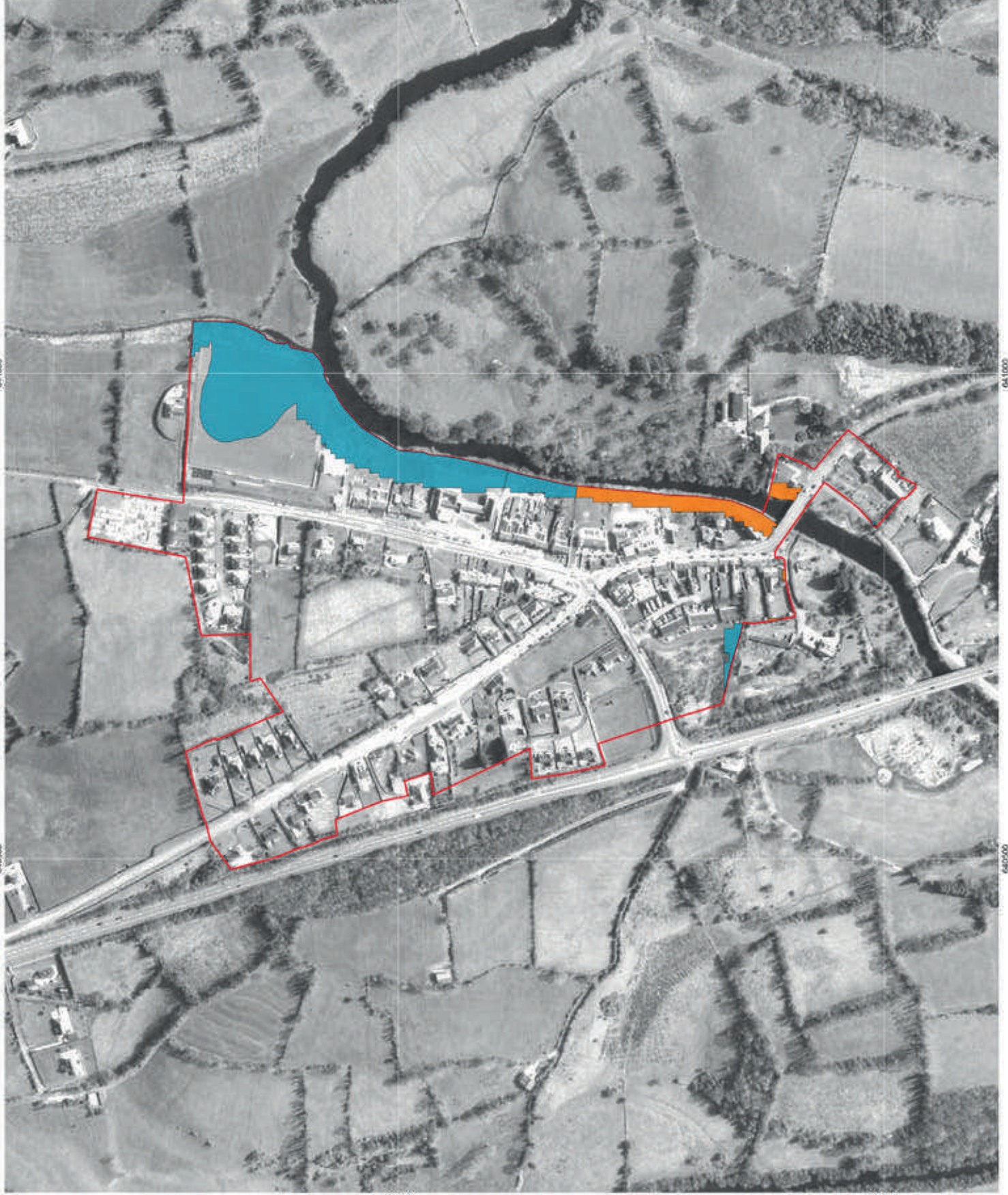
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County Cavan SP6A
Appendix II - SBog/2022
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Cavan County Development Plan 2022-2028

Crossdoney
OPW Historical Flood
Data

-  Plan Boundary
-  County Boundary
-  Border Ireland/
Northern Ireland
-  Water
-  River or Stream
- OPW Past Flood Events**
-  Single Flood Event
-  Recurring Flood Event
-  Past Flood Extent
- Land Commission**
-  Benefited Lands
- Drainage District**
-  Channel
-  Embankment
-  Benefited Lands
- Arterial Drainage Scheme**
-  Channel
-  Embankment
-  Benefited Lands

800800

800600



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Crossdoney OPW Preliminary Flood Risk Assessment (PFRA)

- Plan Boundary
 - County Boundary
 - Border Ireland/
Northern Ireland
 - Water
 - River or Stream
- PFRA**
- Fluvial 1% AEP
 - Fluvial 0.1% AEP
 - Pluvial 1% AEP
 - Pluvial 0.1% AEP



Cavan County Development Plan 2022-2028

Crossdoney
OPW Catchment Flood
Risk Assessment &
Management (CFRAM)
& National Indicative
Fluvial Mapping (NIFM)
Present Day Scenario

800800

Plan Boundary

County Boundary

Border Ireland/
Northern Ireland

Water

River or Stream

CFRAM Fluvial Present Day
Scenario

1% AEP

0.1% AEP

NIFM Present Day Scenario

1% AEP

0.1% AEP

Land Use Zoning

Town Core

White Lands

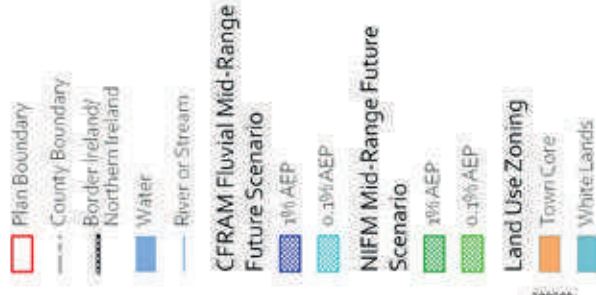
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Crossdoney
OPW Catchment Flood
Risk Assessment &
Management (CFRAM)
& National Indicative
Fluvial Mapping (NIFM)
Mid-Range Future
Scenario



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Crossdoney
OPW Catchment Flood
Risk Assessment &
Management (CFRAM)
& National Indicative
Fluvial Mapping (NIFM)
High-End Future
Scenario

Plan Boundary

County Boundary

Border Ireland/
Northern Ireland

Water

River or Stream

CFRAM Fluvial High-End
Future Scenario

1% AEP

0.1% AEP

NIFM High-End Future
Scenario

1% AEP

0.1% AEP

Land Use Zoning

Town Core

White Lands



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Page 66



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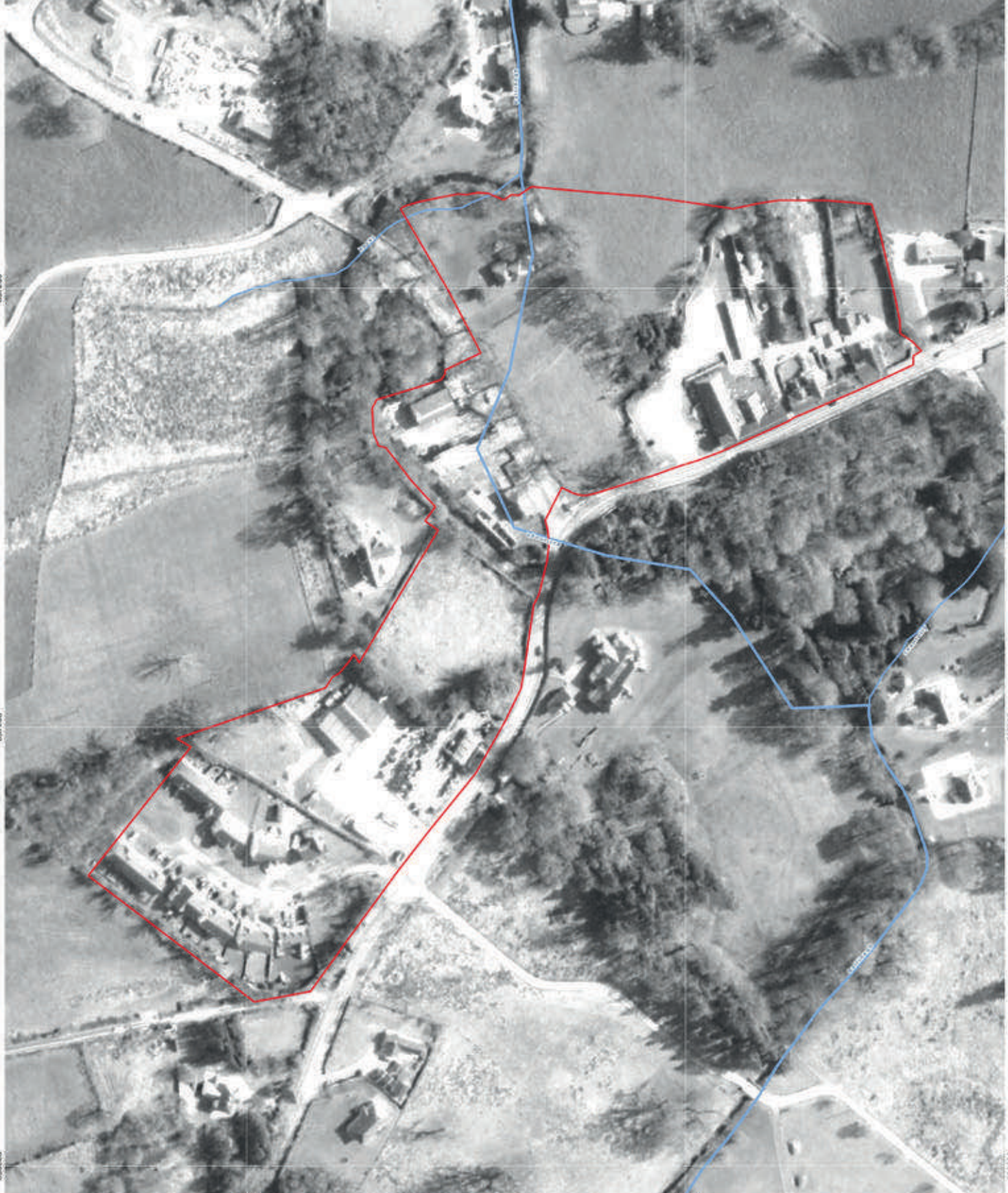
Crossdoney

GSI Historical Flood Data and Groundwater Predictive Modeling

- Plan Boundary
- County Boundary
- Border Ireland/
Northern Ireland
- Water
- River or Stream
- GSI Groundwater Flooding
Predictive Model**
- High Probability
- Medium Probability
- Low Probability
- GSI Historical Flood Data**
- Surface Water Flooding**
- Winter 2015-2016 Surface
Water Flooding
- Maximum Historic
Groundwater Flooding**
- Groundwater
- Groundwater/Surface water

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009000

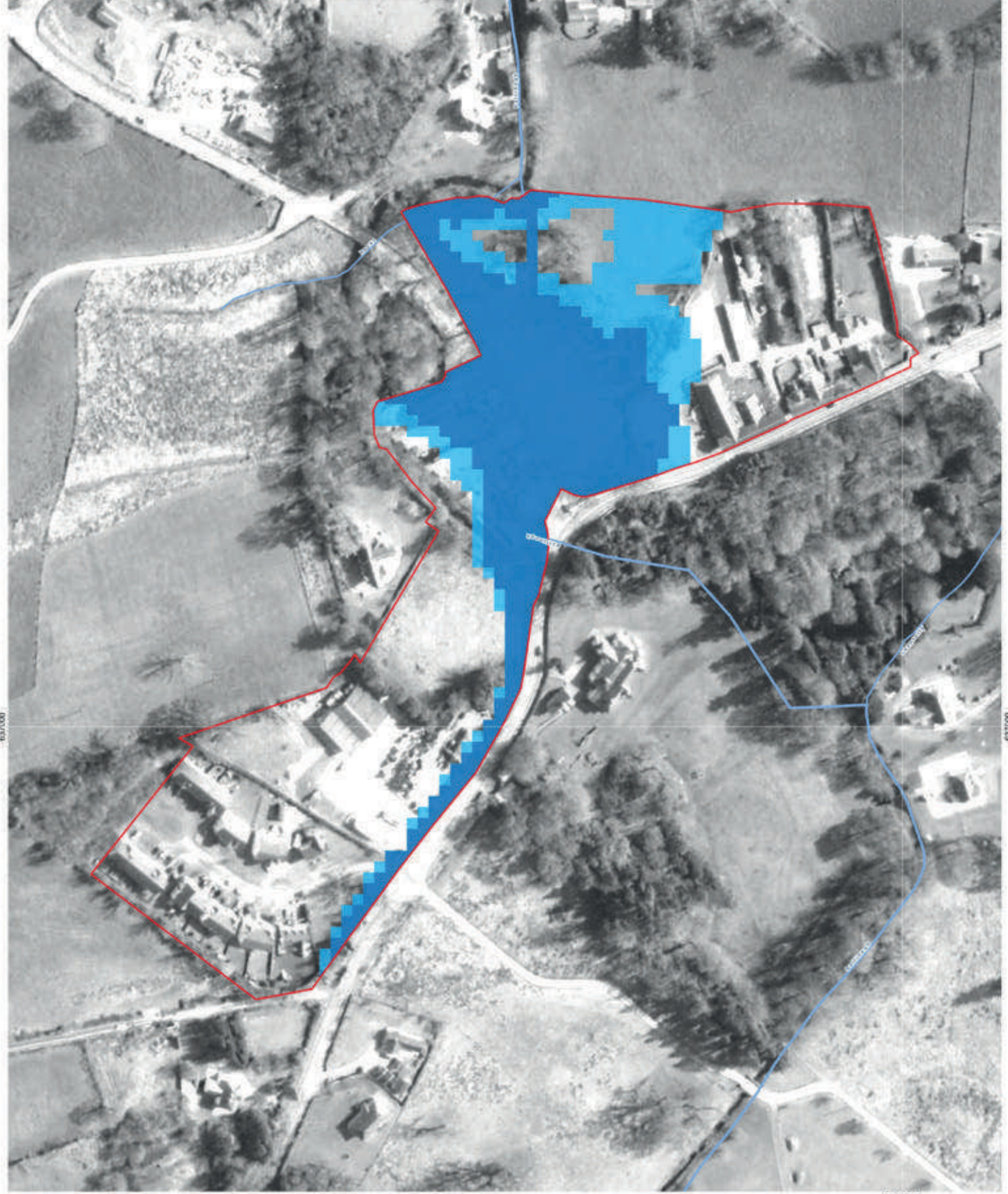


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Cavan County Development Plan 2022-2028

Crossdoney Flood Zones

-  Plan Boundary
 -  County Boundary
 -  Border Ireland/
Northern Ireland
 -  Water
 -  River or Stream
- Indicative Flood Zones**
-  Flood Zone A
 -  Flood Zone B



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Cavan County Development Plan 2022-2028

Crossdoney
Land Use Zoning that
Interacts Indicative Flood
Zones

- Plan Boundary
- County Boundary
- Town Core
- White Lands



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800500

637000

637000

000000

Cavan County Development Plan 2022-2028

Crosskeys
OPW Historical Flood
Data

Plan Boundary

County Boundary

Border Ireland/
Northern Ireland

Water

River or Stream

OPW Past Flood Events

Single Flood Event

Recurring Flood Event

Past Flood Extent

Land Commission

Benefited Lands

Drainage District

Channel

Embankment

Benefited Lands

Arterial Drainage Scheme

Channel

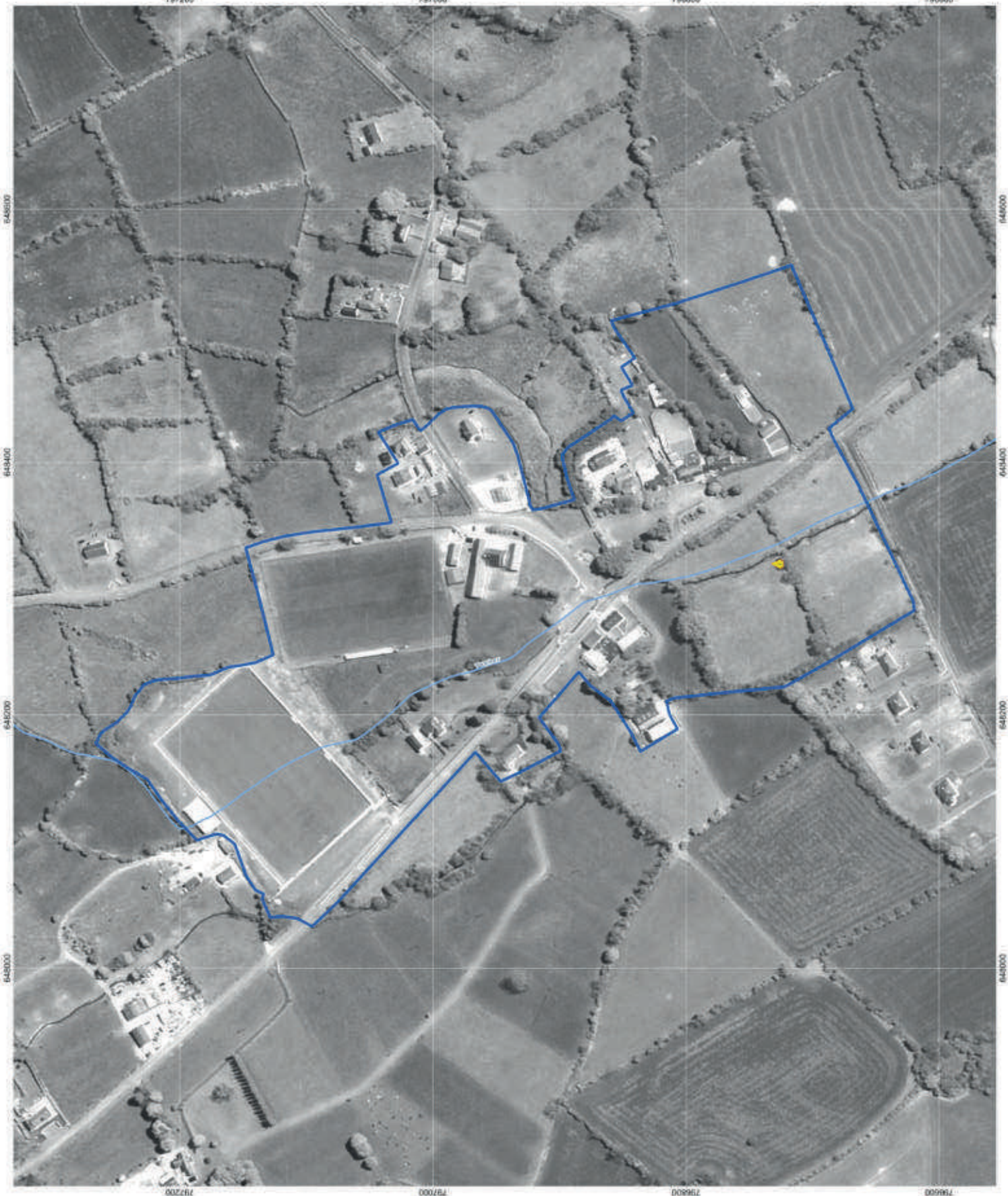
Embankment

Benefited Lands



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County Cavan SPDA
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Page 65



Cavan County Development Plan 2022-2028

Crosskeys

OPW Preliminary Flood Risk Assessment (PFRA)

-  Plan Boundary
 -  County Boundary
 -  Border Ireland/
Northern Ireland
 -  Water
 -  River or Stream
- PFRA**
-  Fluvial 1% AEP
 -  Fluvial 0.1% AEP
 -  Pluvial 1% AEP
 -  Pluvial 0.1% AEP



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County Cavan PFRA
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Page 65



Cavan County Development Plan 2022-2028

Crosskeys
OPW Catchment Flood
Risk Assessment &
Management (CFRAM)
& National Indicative
Fluvial Mapping (NIFM)
Present Day Scenario

Legend

- Plan Boundary
- County Boundary
- Border Ireland/Northern Ireland
- Water
- River or Stream

CFRAM Fluvial Present Day Scenario

- 1% AEP
- 0.1% AEP

NIFM Present Day Scenario

- 1% AEP
- 0.1% AEP

Land Use Zoning

- Town Core
- White Lands



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Cavan County Development Plan 2022-2028

Crosskeys
OPW Catchment Flood
Risk Assessment &
Management (CFRAM)
& National Indicative
Fluvial Mapping (NIFM)
Mid-Range Future
Scenario

- Plan Boundary
 - County Boundary
 - Border Ireland/
Northern Ireland
 - Water
 - River or Stream
- CFRAM Fluvial Mid-Range
Future Scenario**
- 1% AEP
 - 0.1% AEP
- NIFM Mid-Range Future
Scenario**
- 1% AEP
 - 0.1% AEP
- Land Use Zoning**
- Town Core
 - White Lands



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Crosskeys
OPW Catchment Flood
Risk Assessment &
Management (CFRAM)
& National Indicative
Fluvial Mapping (NIFM)
High-End Future
Scenario

Plan Boundary

County Boundary

Border Ireland/
Northern Ireland

Water

River or Stream

CFRAM Fluvial High-End
Future Scenario

1% AEP

0.1% AEP

NIFM High-End Future
Scenario

1% AEP

0.1% AEP

Land Use Zoning

Town Core

White Lands



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Cavan County Development Plan 2022-2028

Crosskeys

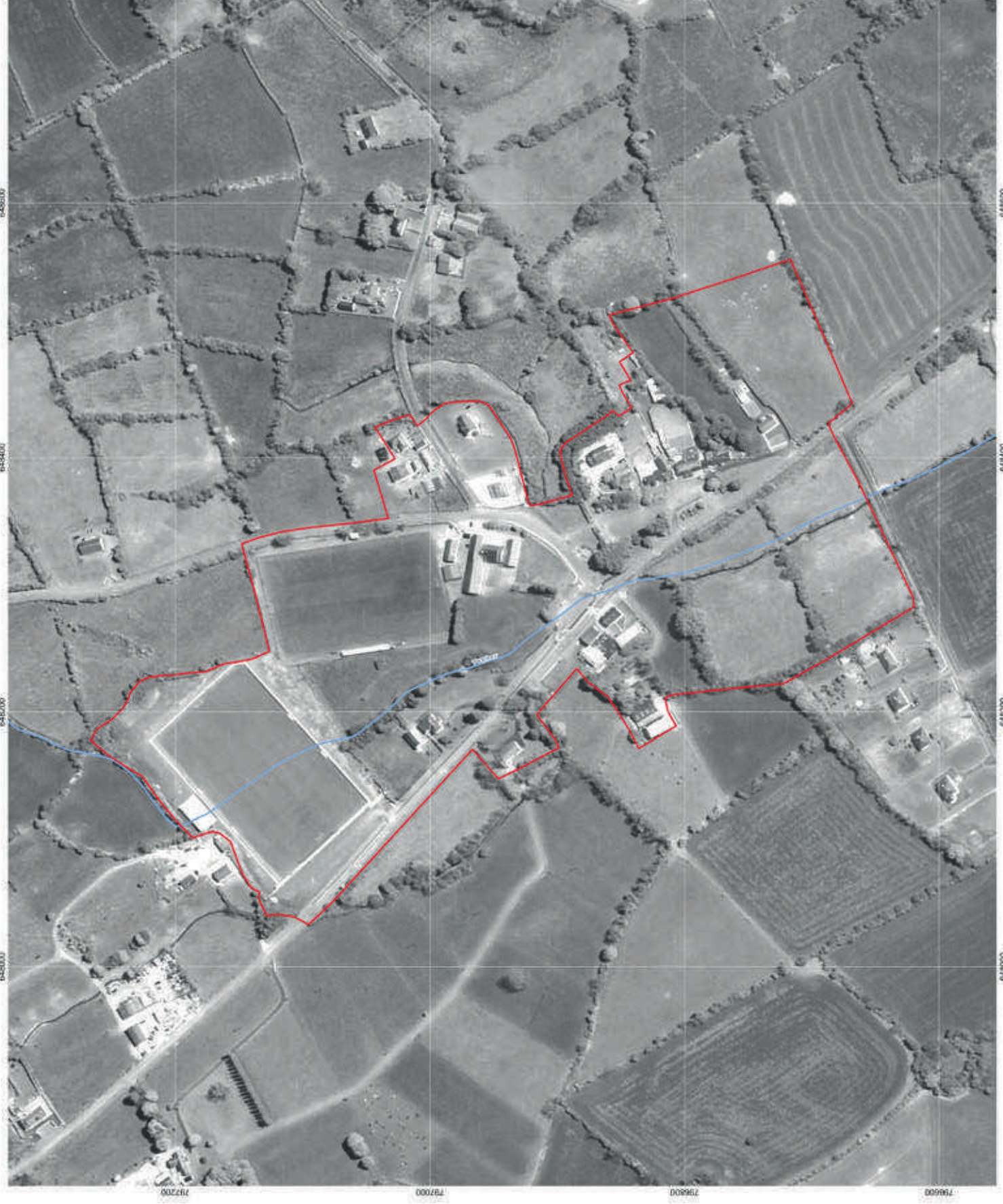
GSI Historical Flood Data
and Groundwater
Predictive Modeling

- Plan Boundary
- County Boundary
- Border Ireland/
Northern Ireland
- Water
- River or Stream
- GSI Groundwater Flooding
Predictive Model
- High Probability
- Medium Probability
- Low Probability
- GSI Historical Flood Data
- Surface Water Flooding
- Winter 2015-2016 Surface
Water Flooding
- Maximum Historic
Groundwater Flooding
- Groundwater
- Groundwater/Surface water



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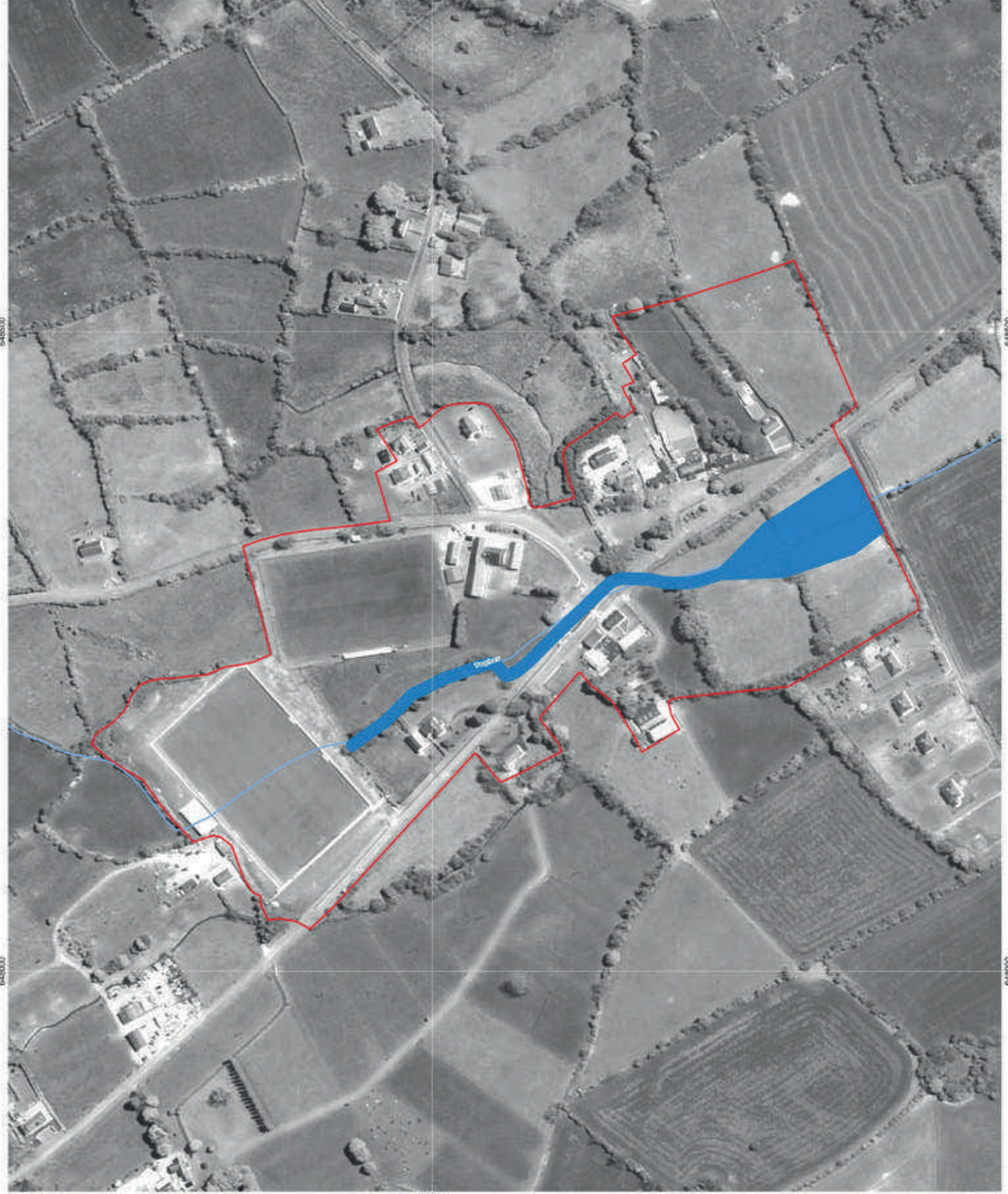
County Cavan SP6A
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Cavan County Development Plan 2022-2028

Crosskeys Flood Zones

- Plan Boundary
- County Boundary
- Border Ireland/
Northern Ireland
- Water
- River or Stream
- Indicative Flood Zones
 - Flood Zone A
 - Flood Zone B



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Cavan County Development Plan 2022-2028

Crosskeys
Land Use Zoning that
Interacts Indicative Flood
Zones
















- Plan Boundary
- County Boundary
- Town Core
- White Lands



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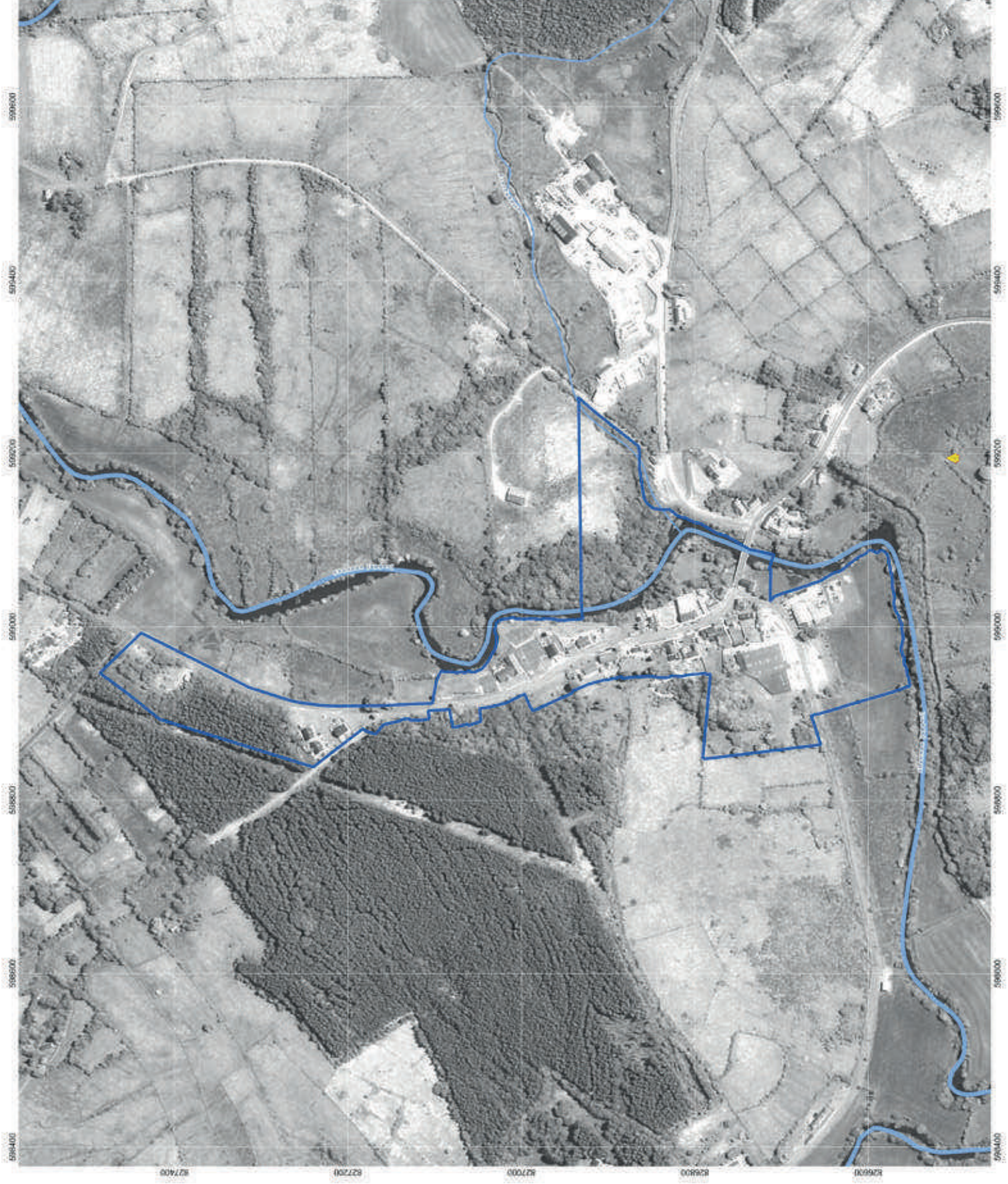
Cavan County Development Plan 2022-2028

Dowra
OPW Historical Flood
Data

-  Plan Boundary
-  County Boundary
-  Border Ireland/Northern Ireland
-  Water
-  River or Stream
- OPW Past Flood Events**
 -  Single Flood Event
 -  Recurring Flood Event
 -  Past Flood Extent
- Land Commission**
 -  Benefited Lands
- Drainage District**
 -  Channel
 -  Embankment
 -  Benefited Lands
- Arterial Drainage Scheme**
 -  Channel
 -  Embankment
 -  Benefited Lands












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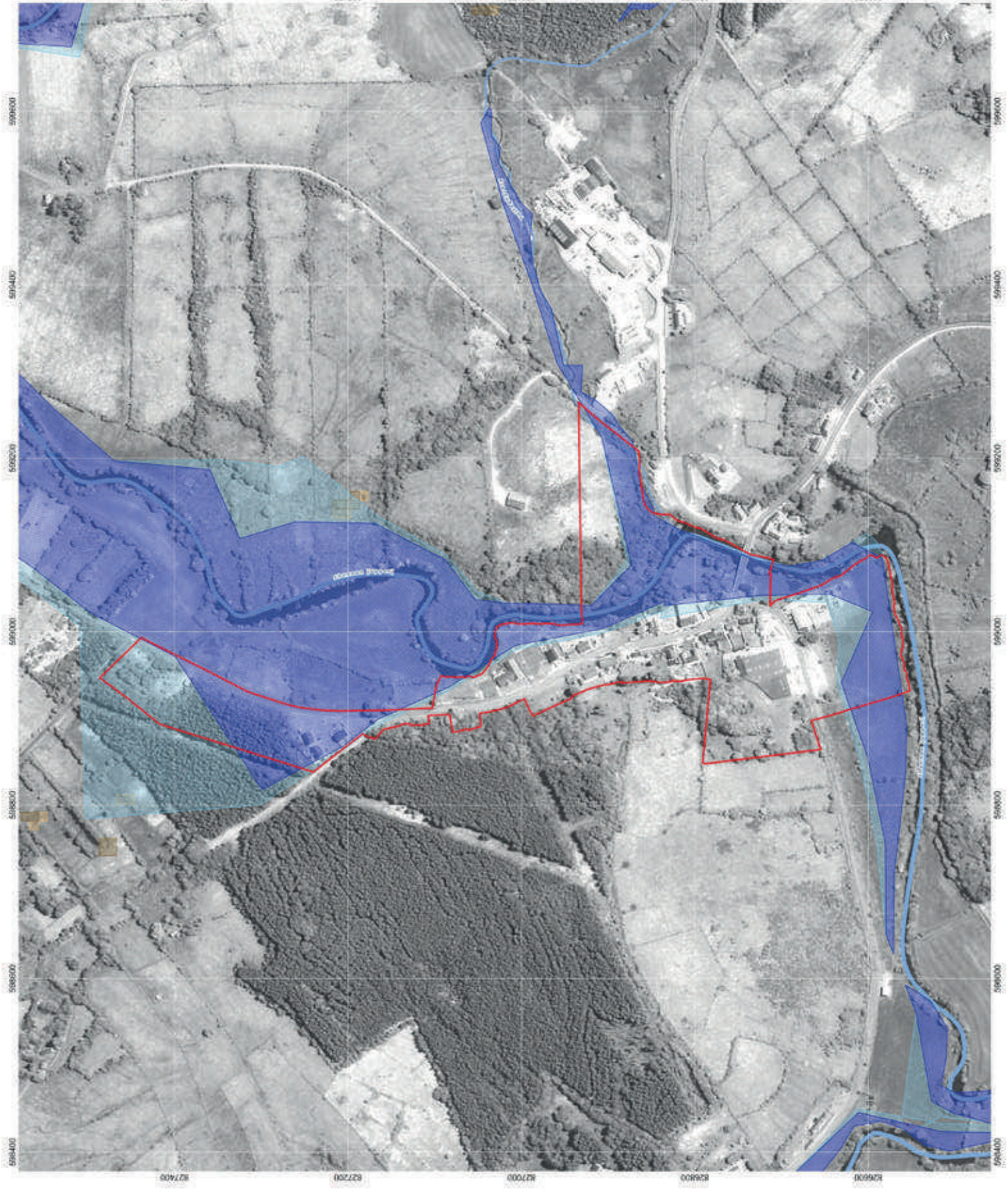
Cavan County Development Plan 2022-2028

Dowra
OPW Preliminary Flood
Risk Assessment (PFRA)

-  Plan Boundary
 -  County Boundary
 -  Border Ireland/
Northern Ireland
 -  Water
 -  River or Stream
- PFRA**
-  Fluvial 1% AEP
 -  Fluvial 0.1% AEP
 -  Pluvial 1% AEP
 -  Pluvial 0.1% AEP



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Cavan County Development Plan 2022-2028

Dowra

OPW Catchment Flood
Risk Assessment &
Management (CFRAM)
& National Indicative
Fluvial Mapping (NIFM)
Present Day Scenario

- Plan Boundary
- County Boundary
- Border Ireland/
Northern Ireland

- Water
- River or Stream

CFRAM Fluvial Present Day Scenario

- 1% AEP
- 0.1% AEP

NIFM Present Day Scenario

- 1% AEP
- 0.1% AEP

Land Use Zoning

- Town Core
- White Lands



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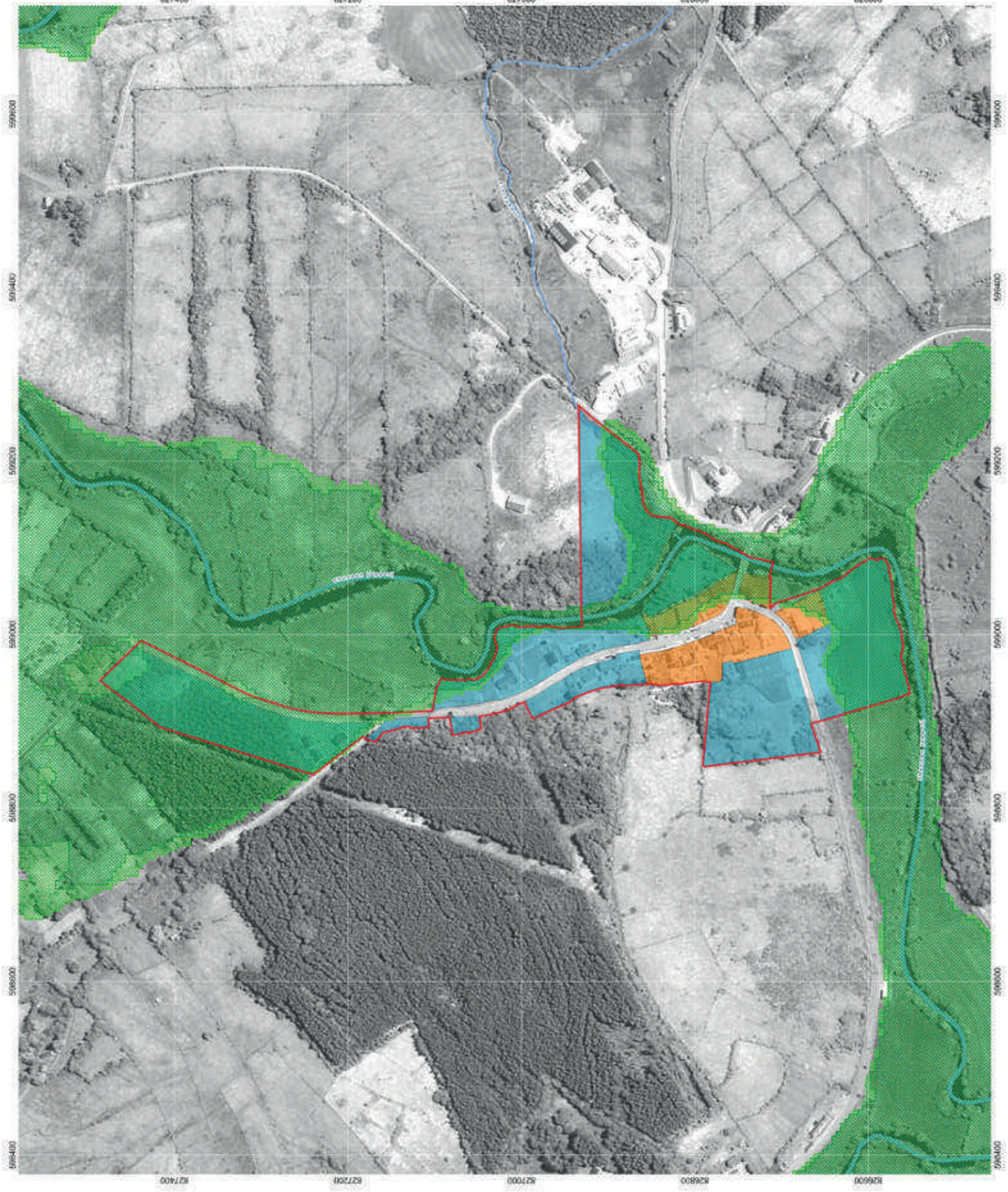
Dowra

OPW Catchment Flood
Risk Assessment &
Management (CFRAM)
& National Indicative
Fluvial Mapping (NIFM)
Mid-Range Future
Scenario

- Plan Boundary
 - County Boundary
 - Border Ireland/
Northern Ireland
 - Water
 - River or Stream
- CFRAM Fluvial Mid-Range
Future Scenario**
- 1% AEP
 - 0.1% AEP
- NIFM Mid-Range Future
Scenario**
- 1% AEP
 - 0.1% AEP
- Land Use Zoning**
- Town Core
 - White Lands



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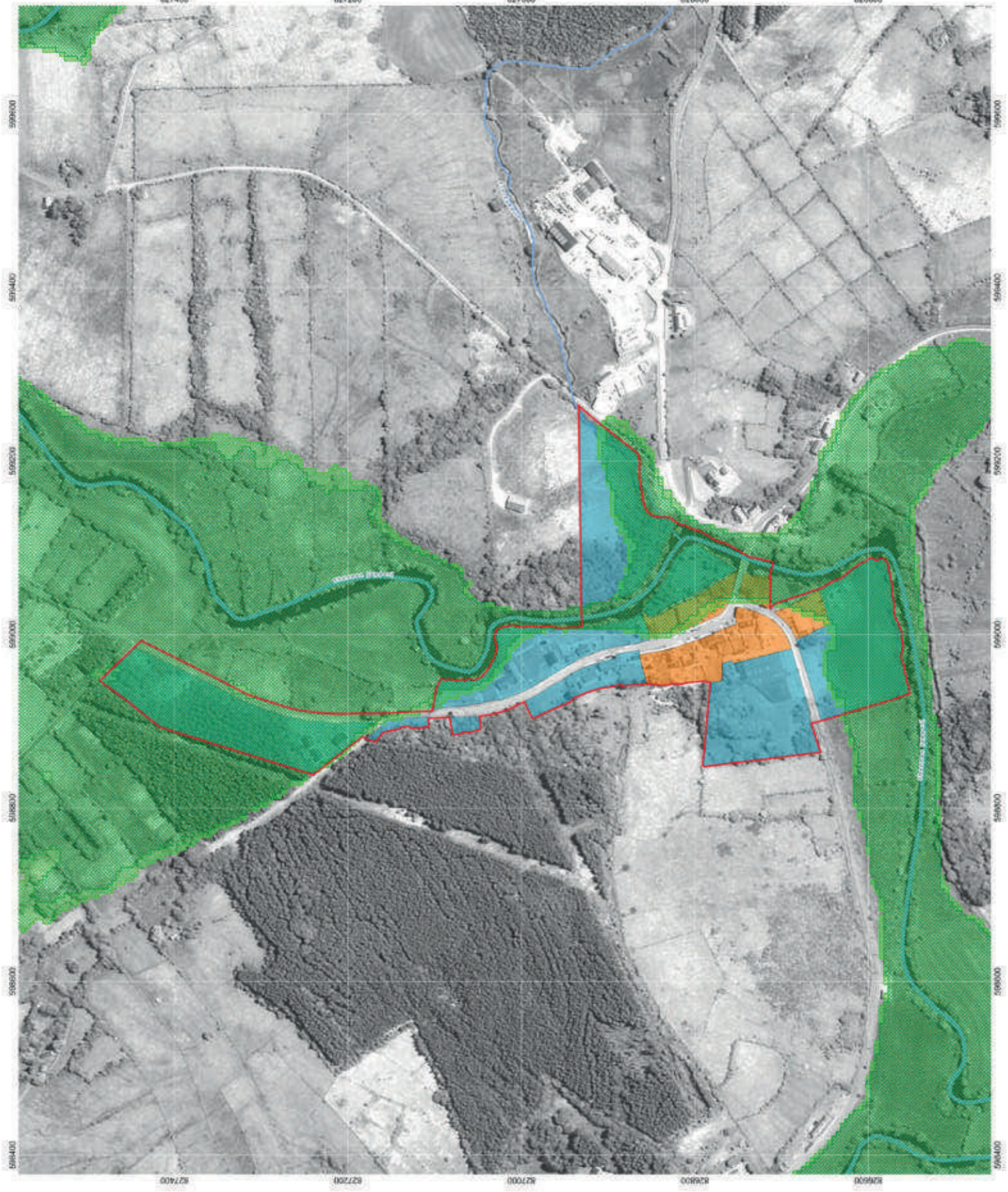
Cavan County Development Plan 2022-2028

Dowra
OPW Catchment Flood
Risk Assessment &
Management (CFRAM)
& National Indicative
Fluvial Mapping (NIFM)
High-End Future
Scenario

- Plan Boundary
- County Boundary
- Border Ireland/
Northern Ireland
- Water
- River or Stream
- CFRAM Fluvial High-End
Future Scenario**
- 1% AEP
- 0.1% AEP
- NIFM High-End Future
Scenario**
- 1% AEP
- 0.1% AEP
- Land Use Zoning**
- Town Core
- White Lands


















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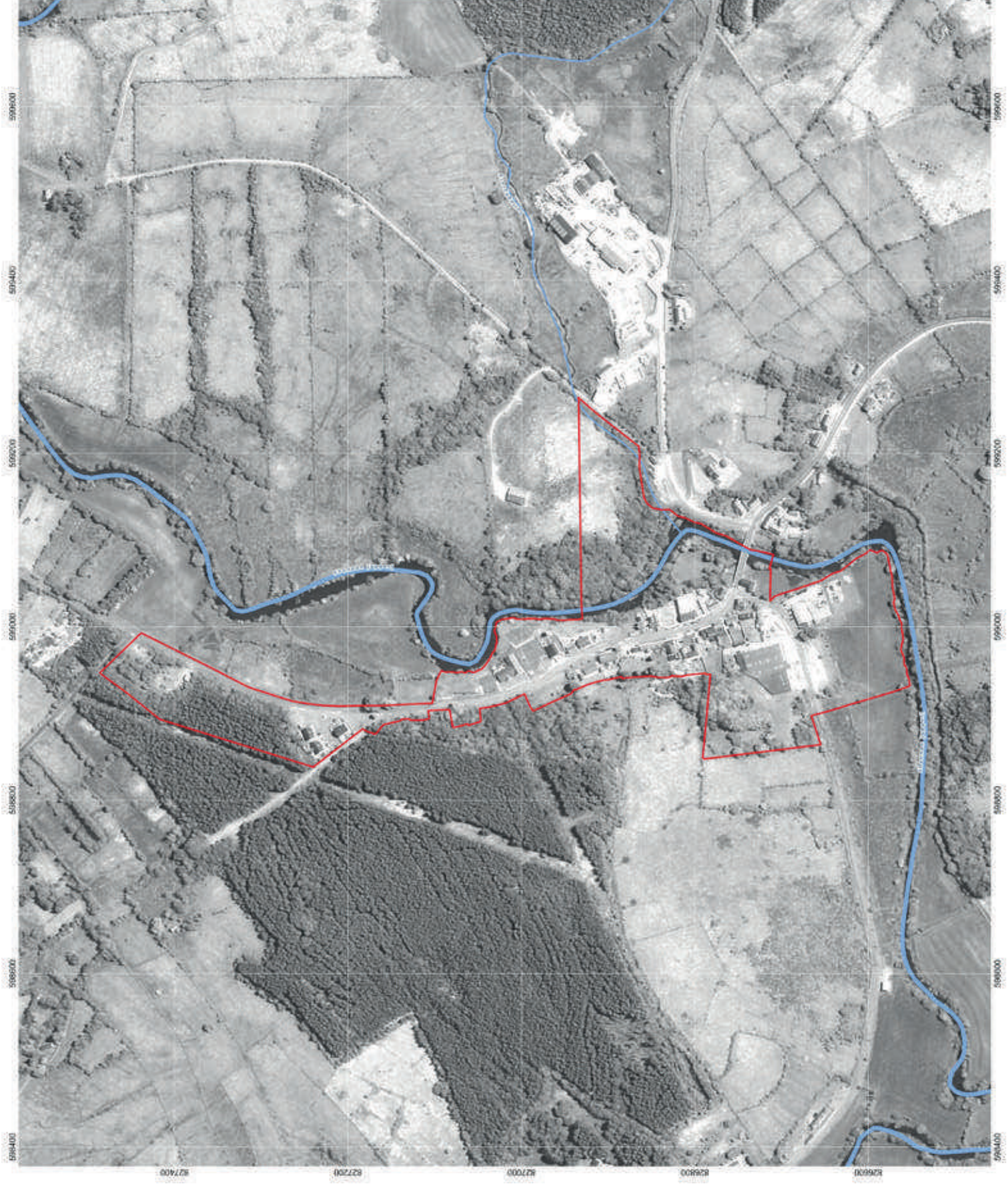
Dowra

GSI Historical Flood Data and Groundwater Predictive Modeling

-  Plan Boundary
-  County Boundary
-  Border Ireland/
Northern Ireland
-  Water
-  River or Stream
-  GSI Groundwater Flooding
Predictive Model
-  High Probability
-  Medium Probability
-  Low Probability
-  GSI Historical Flood Data
-  Surface Water Flooding
-  Winter 2015-2016 Surface
Water Flooding
-  Maximum Historic
Groundwater Flooding
-  Groundwater
-  Groundwater/Surface water



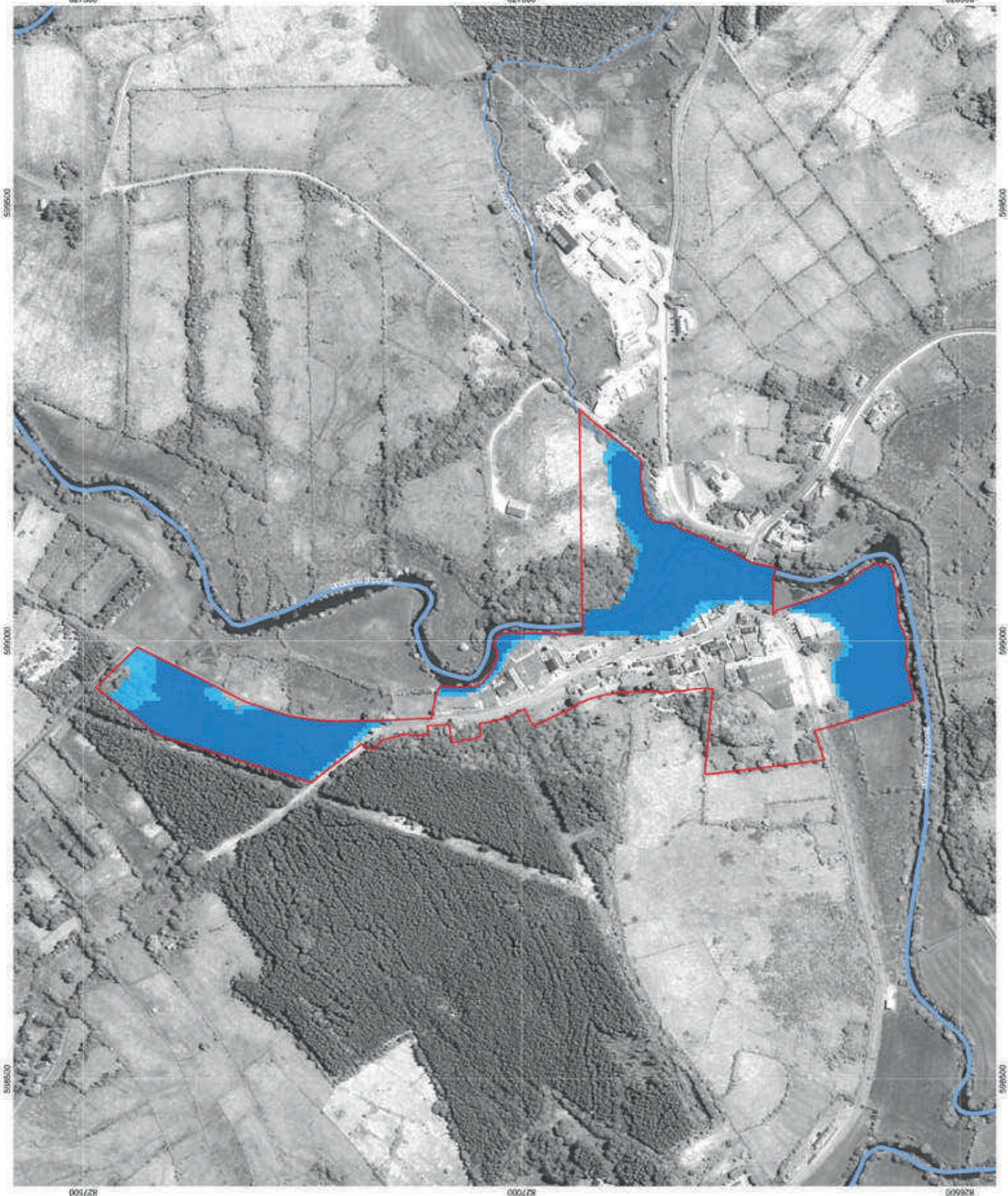
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Cavan County Development Plan 2022-2028

Dowra Flood Zones

-  Plan Boundary
 -  County Boundary
 -  Border Ireland/
Northern Ireland
 -  Water
 -  River or Stream
- Indicative Flood Zones**
-  Flood Zone A
 -  Flood Zone B

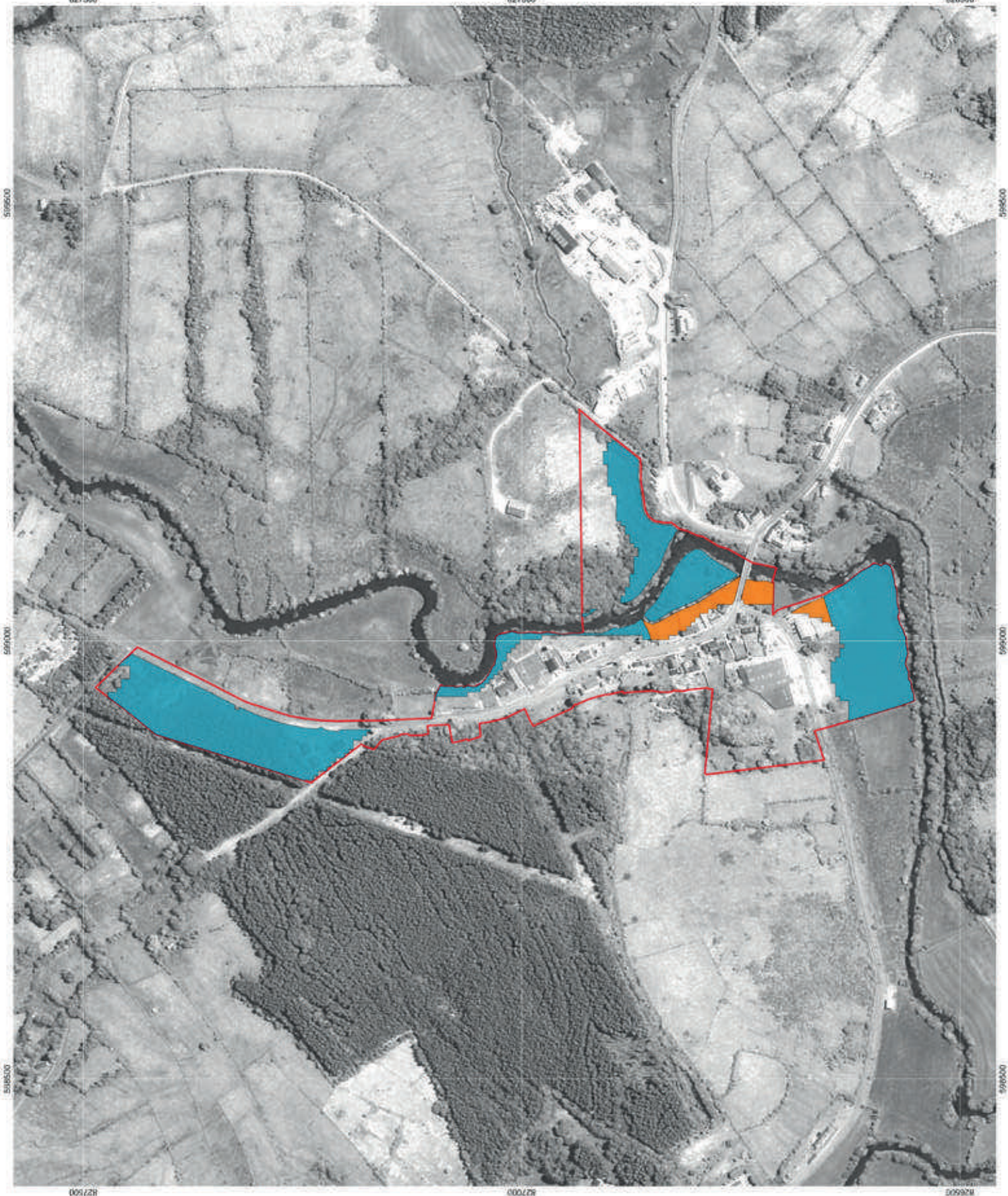


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Cavan County Development Plan 2022-2028

Dowra
Land Use Zoning that
Interacts Indicative Flood
Zones















- Plan Boundary
- County Boundary
- Town Core
- White Lands



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Cavan County Development Plan 2022-2028

Kilcogy
OPW Historical Flood
Data

-  Plan Boundary
-  County Boundary
-  Border Ireland/Northern Ireland
-  Water
-  River or Stream
- OPW Past Flood Events**
 -  Single Flood Event
 -  Recurring Flood Event
 -  Past Flood Extent
- Land Commission**
 -  Benefited Lands
- Drainage District**
 -  Channel
 -  Embankment
 -  Benefited Lands
- Arterial Drainage Scheme**
 -  Channel
 -  Embankment
 -  Benefited Lands



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Cavan County Development Plan 2022-2028

Kilcogy OPW Preliminary Flood Risk Assessment (PFRA)

- Plan Boundary
 - County Boundary
 - Border Ireland/
Northern Ireland
 - Water
 - River or Stream
- PFRA**
- Fluvial 1% AEP
 - Fluvial 0.1% AEP
 - Pluvial 1% AEP
 - Pluvial 0.1% AEP



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Kilcogy
OPW Catchment Flood
Risk Assessment &
Management (CFRAM)
& National Indicative
Fluvial Mapping (NIFM)
Present Day Scenario

780600

780600

6577600

6577600

786800

786800

659000

659000

Plan Boundary
 Plan Boundary

County Boundary
 County Boundary
 Border Ireland/
 Northern Ireland

Water
 Water
 River or Stream

CFRAM Fluvial Present Day Scenario
 1% AEP
 0.1% AEP

NIFM Present Day Scenario
 1% AEP
 0.1% AEP

Land Use Zoning
 Town Core
 White Lands



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Kilcogy
OPW Catchment Flood
Risk Assessment &
Management (CFRAM)
& National Indicative
Fluvial Mapping (NIFM)
High-End Future
Scenario

Plan Boundary

County Boundary

Border-Ireland/
Northern Ireland

Water

River or Stream

CFRAM Fluvial High-End
Future Scenario

1% AEP

0.1% AEP

NIFM High-End Future
Scenario

1% AEP

0.1% AEP

Land Use Zoning

Town Core

White Lands



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Cavan County Development Plan 2022-2028

Kilcogy

GSI Historical Flood Data and Groundwater Predictive Modeling

- Plan Boundary
- County Boundary
- Border-Ireland/
Northern Ireland
- Water
- River or Stream
- GSI Groundwater Flooding
Predictive Model
- High Probability
- Medium Probability
- Low Probability
- GSI Historical Flood Data
- Surface Water Flooding
- Winter 2015-2016 Surface
Water Flooding
- Maximum Historic
Groundwater Flooding
- Groundwater
- Groundwater/Surface water



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Kilcogy Flood Zones

- Plan Boundary
 - County Boundary
 - Border Ireland/
Northern Ireland
 - Water
 - River or Stream
- ### Indicative Flood Zones
- Flood Zone A
 - Flood Zone B



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FS38/001

FS39/001

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Kilcogy
Land Use Zoning that
Interacts Indicative Flood
Zones

- Plan Boundary
- County Boundary
- Town Core
- White Lands



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Cavan County Development Plan 2022-2028

Killeshandra OPW Historical Flood Data

- Plan Boundary
- County Boundary
- Border Ireland/Northern Ireland
- Water
- River or Stream
- OPW Past Flood Events**
 - Single Flood Event
 - Recurring Flood Event
 - Past Flood Extent
- Land Commission**
 - Benefited Lands
- Drainage District**
 - Channel
 - Embankment
 - Benefited Lands
- Arterial Drainage Scheme**
 - Channel
 - Embankment
 - Benefited Lands



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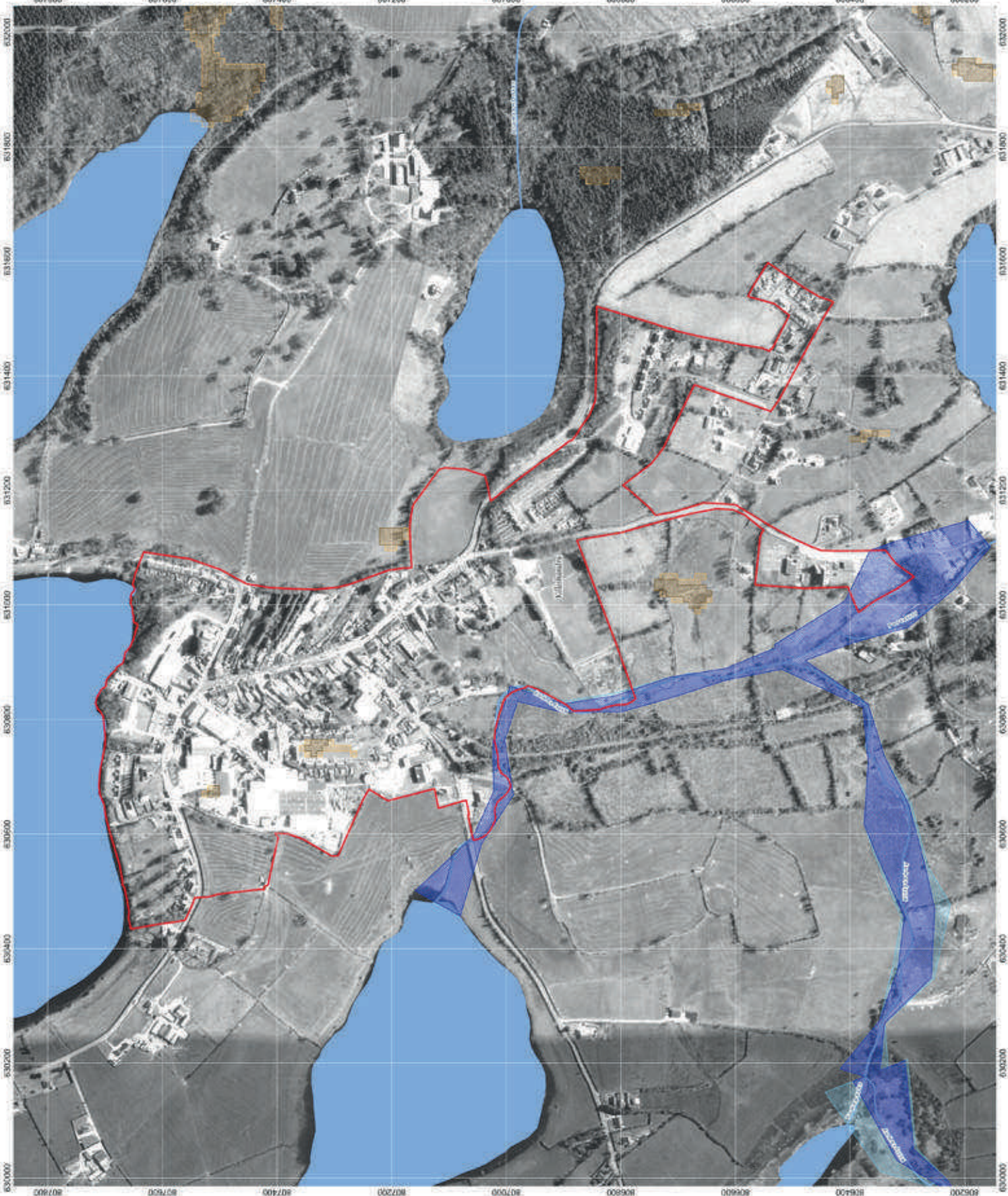
Cavan County Development Plan 2022-2028

Killeshandra OPW Preliminary Flood Risk Assessment (PFRA)

- Plan Boundary
 - County Boundary
 - Border Ireland/
Northern Ireland
 - Water
 - River or Stream
- PFRA**
- Fluvial 1% AEP
 - Fluvial 0.1% AEP
 - Pluvial 1% AEP
 - Pluvial 0.1% AEP



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Killeshandra
OPW Catchment Flood
Risk Assessment &
Management (CFRAM)
& National Indicative
Fluvial Mapping (NIFM)
Present Day Scenario

- Plan Boundary
 - County Boundary
 - Border Ireland/
Northern Ireland
 - Water
 - River or Stream
- CFRAM Fluvial Present Day Scenario**
- 1% AEP
 - 0.1% AEP
- NIFM Present Day Scenario**
- 1% AEP
 - 0.1% AEP
- Land Use Zoning**
- Town Core
 - White Lands



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Cavan County Development Plan 2022-2028

Killeshandra
OPW Catchment Flood
Risk Assessment &
Management (CFRAM)
& National Indicative
Fluvial Mapping (NIFM)
Mid-Range Future
Scenario

- Plan Boundary
- County Boundary
- Border Ireland/
Northern Ireland
- Water
- River or Stream
- CFRAM Fluvial Mid-Range
Future Scenario**
- 1% AEP
- 0.1% AEP
- NIFM Mid-Range Future
Scenario**
- 1% AEP
- 0.1% AEP
- Land Use Zoning**
- Town Core
- White Lands



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Killeshandra
OPW Catchment Flood
Risk Assessment &
Management (CFRAM)
& National Indicative
Fluvial Mapping (NIFM)
High-End Future
Scenario

- Plan Boundary
- County Boundary
- Border Ireland/
Northern Ireland
- Water
- River or Stream
- CFRAM Fluvial High-End
Future Scenario**
- 1% AEP
- 0.1% AEP
- NIFM High-End Future
Scenario**
- 1% AEP
- 0.1% AEP
- Land Use Zoning**
- Town Core
- White Lands



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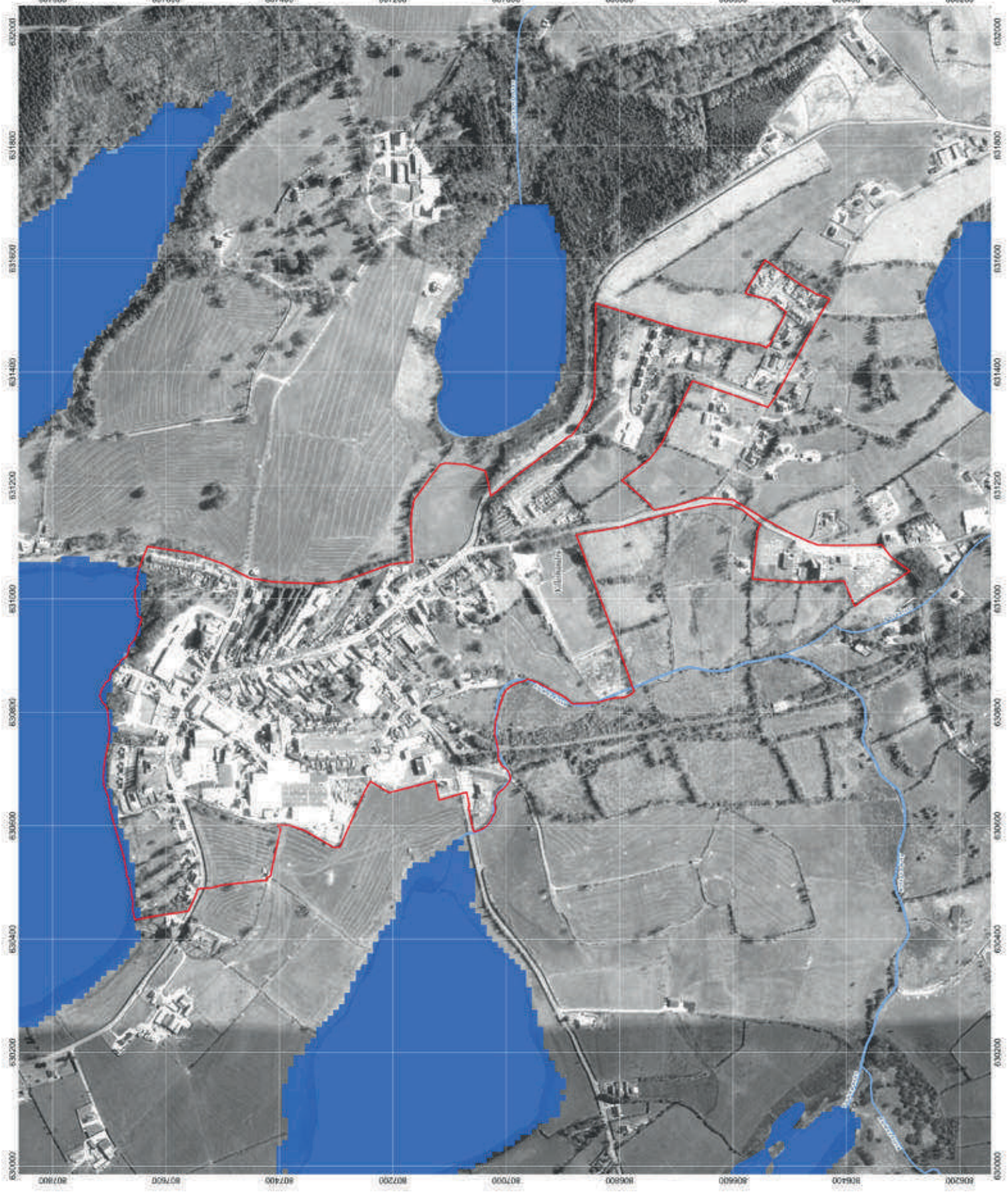
Killeshandra

GSI Historical Flood Data and Groundwater Predictive Modeling

- Plan Boundary
- County Boundary
- Border Ireland/
Northern Ireland
- Water
- River or Stream
- GSI Groundwater Flooding
Predictive Model
High Probability
- Medium Probability
- Low Probability
- GSI Historical Flood Data
Surface Water Flooding
- Winter 2015-2016 Surface
Water Flooding
- Maximum Historic
Groundwater Flooding**
- Groundwater
- Groundwater/Surface water



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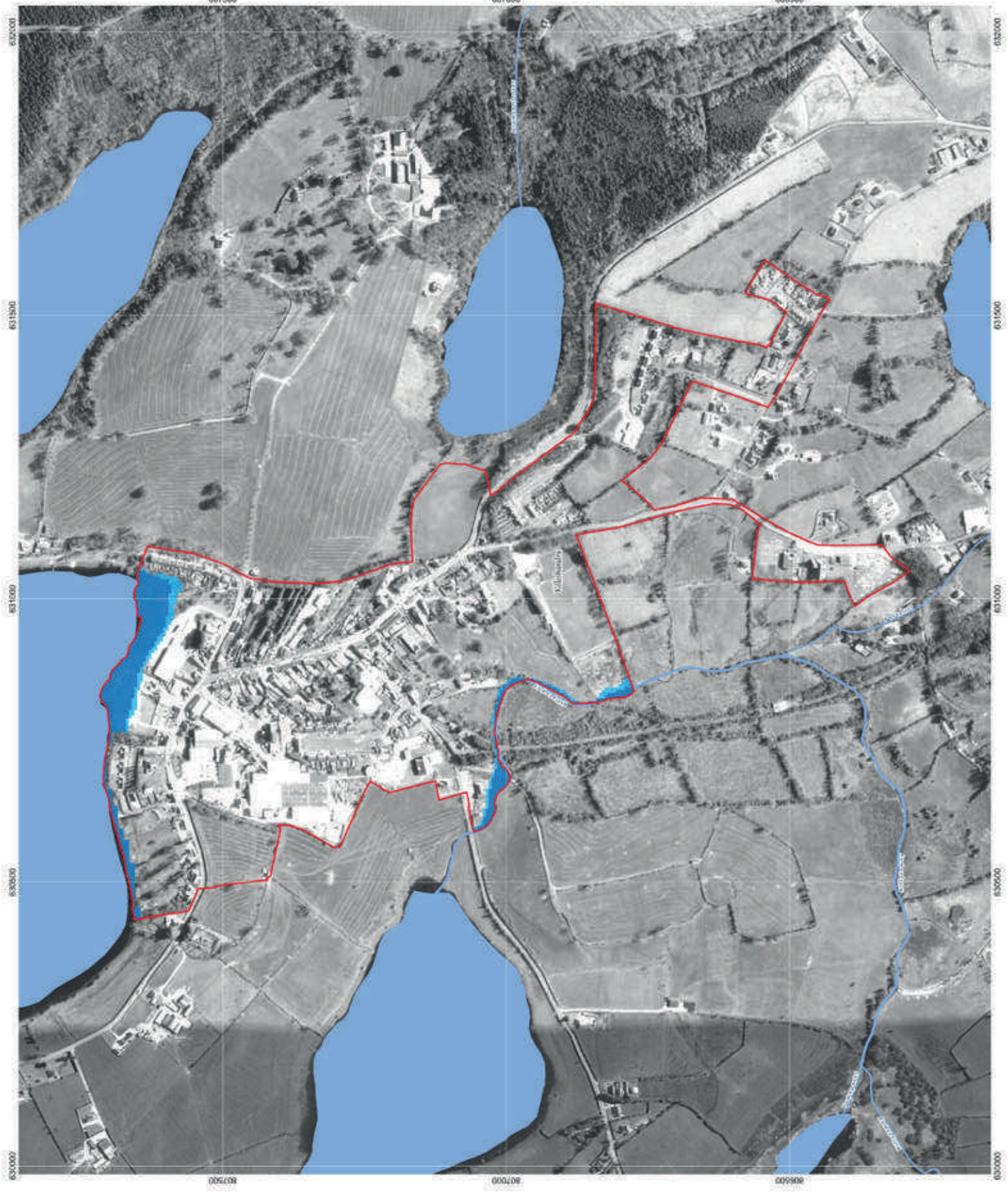
Cavan County Development Plan 2022-2028

Killeshandra Flood Zones

-  Plan Boundary
 -  County Boundary
 -  Border Ireland/
Northern Ireland
 -  Water
 -  River or Stream
- Indicative Flood Zones**
-  Flood Zone A
 -  Flood Zone B



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Cavan County Development Plan 2022-2028

Killeshandra Land Use Zoning that Interacts Indicative Flood Zones

- Plan Boundary
- County Boundary
- Town Core
- White Lands



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Cavan County Development Plan 2022-2028

Kilnaleck

OPW Historical Flood

Data

Plan Boundary

County Boundary

Border Ireland/
Northern Ireland

Water

River or Stream

OPW Past Flood Events

Single Flood Event

Recurring Flood Event

Past Flood Extent

Land Commission

Benefited Lands

Drainage District

Channel

Embankment

Benefited Lands

Arterial Drainage Scheme

Channel

Embankment

Benefited Lands



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Cavan County Development Plan 2022-2028

Kilnaleck

OPW Preliminary Flood Risk Assessment (PFRA)

-  Plan Boundary
 -  County Boundary
 -  Border Ireland/
Northern Ireland
 -  Water
 -  River or Stream
- PFRA**
-  Fluvial 1% AEP
 -  Fluvial 0.1% AEP
 -  Pluvial 1% AEP
 -  Pluvial 0.1% AEP



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County Cavan PFRA
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Cavan County Development Plan 2022-2028

Kilnaleck

OPW Catchment Flood
Risk Assessment &
Management (CFRAM)
& National Indicative
Fluvial Mapping (NIFM)
Present Day Scenario

Plan Boundary

County Boundary

Border Ireland/
Northern Ireland

Water

River or Stream

CFRAM Fluvial Present Day
Scenario

1% AEP

0.1% AEP

NIFM Present Day Scenario

1% AEP

0.1% AEP

Land Use Zoning

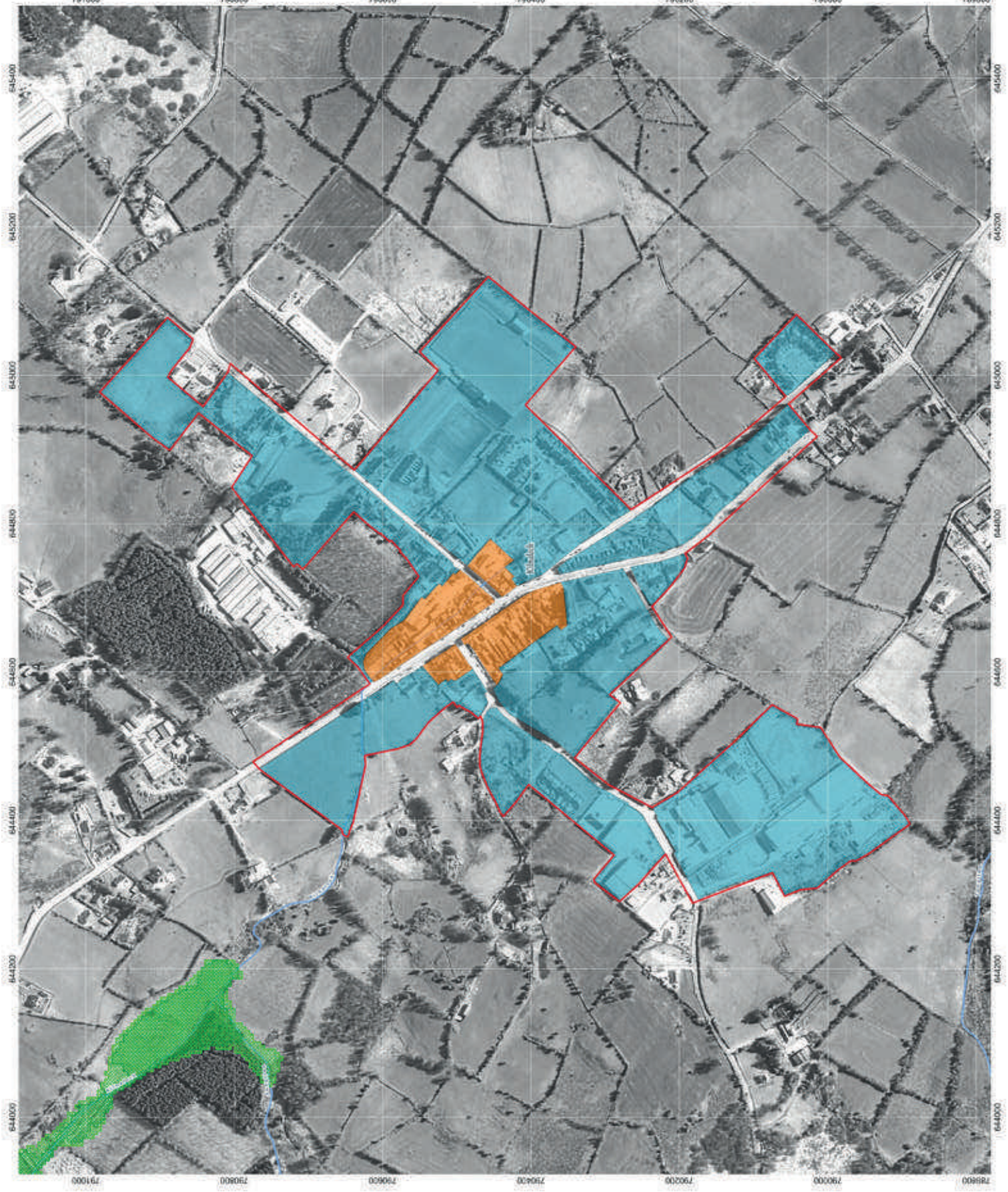
Town Core

White Lands



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Cavan County Development Plan 2022-2028

Kilnaleck

OPW Catchment Flood
Risk Assessment &
Management (CFRAM)
& National Indicative
Fluvial Mapping (NIFM)
Mid-Range Future
Scenario

- Plan Boundary
- County Boundary
- Border Ireland/
Northern Ireland
- Water
- River or Stream
- CFRAM Fluvial Mid-Range
Future Scenario**
- 1% AEP
- 0.1% AEP
- NIFM Mid-Range Future
Scenario**
- 1% AEP
- 0.1% AEP
- Land Use Zoning**
- Town Core
- White Lands

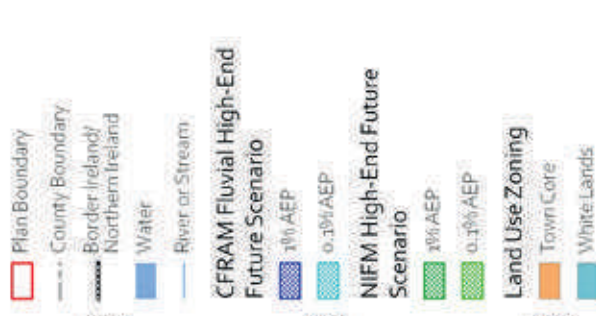


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Kilnaleck
OPW Catchment Flood
Risk Assessment &
Management (CFRAM)
& National Indicative
Fluvial Mapping (NIFM)
High-End Future
Scenario



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Kilnaleck

GSI Historical Flood Data and Groundwater Predictive Modeling

- Plan Boundary
- County Boundary
- Border Ireland/
Northern Ireland
- Water
- River or Stream
- GSI Groundwater Flooding
Predictive Model
- High Probability
- Medium Probability
- Low Probability
- GSI Historical Flood Data
- Surface Water Flooding
- Winter 2015-2016 Surface
Water Flooding
- Maximum Historic
Groundwater Flooding
- Groundwater
- Groundwater/Surface water



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Cavan County Development Plan 2022-2028

Kilnaleck Flood Zones

- Plan Boundary
 - County Boundary
 - Border Ireland/
Northern Ireland
 - Water
 - River or Stream
- ### Indicative Flood Zones
- Flood Zone A
 - Flood Zone B



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Kilnaleck
Land Use Zoning that
Interacts Indicative Flood
Zones

- Plan Boundary
- County Boundary
- Town Core
- White Lands


















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Cavan County Development Plan 2022-2028

Lough Gowna
OPW Historical Flood
Data

-  Plan Boundary
 -  County Boundary
 -  Border Ireland/
Northern Ireland
 -  Water
 -  River or Stream
- ### OPW Past Flood Events
-  Single Flood Event
 -  Recurring Flood Event
 -  Past Flood Extent
- ### Land Commission
-  Benefited Lands
- ### Drainage District
-  Channel
 -  Embankment
 -  Benefited Lands
- ### Arterial Drainage Scheme
-  Channel
 -  Embankment
 -  Benefited Lands



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Lough Gowna OPW Preliminary Flood Risk Assessment (PFRA)

- Plan Boundary
 - County Boundary
 - Border Ireland/
Northern Ireland
 - Water
 - River or Stream
- PFRA**
- Fluvial 1% AEP
 - Fluvial 0.1% AEP
 - Pluvial 1% AEP
 - Pluvial 0.1% AEP



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Cavan County Development Plan 2022-2028

Lough Gowna
OPW Catchment Flood
Risk Assessment &
Management (CFRAM)
& National Indicative
Fluvial Mapping (NIFM)
Present Day Scenario

- Plan Boundary
- County Boundary
- Border Ireland/
Northern Ireland
- Water
- River or Stream

CFRAM Fluvial Present Day Scenario

- 1% AEP
- 0.1% AEP

NIFM Present Day Scenario

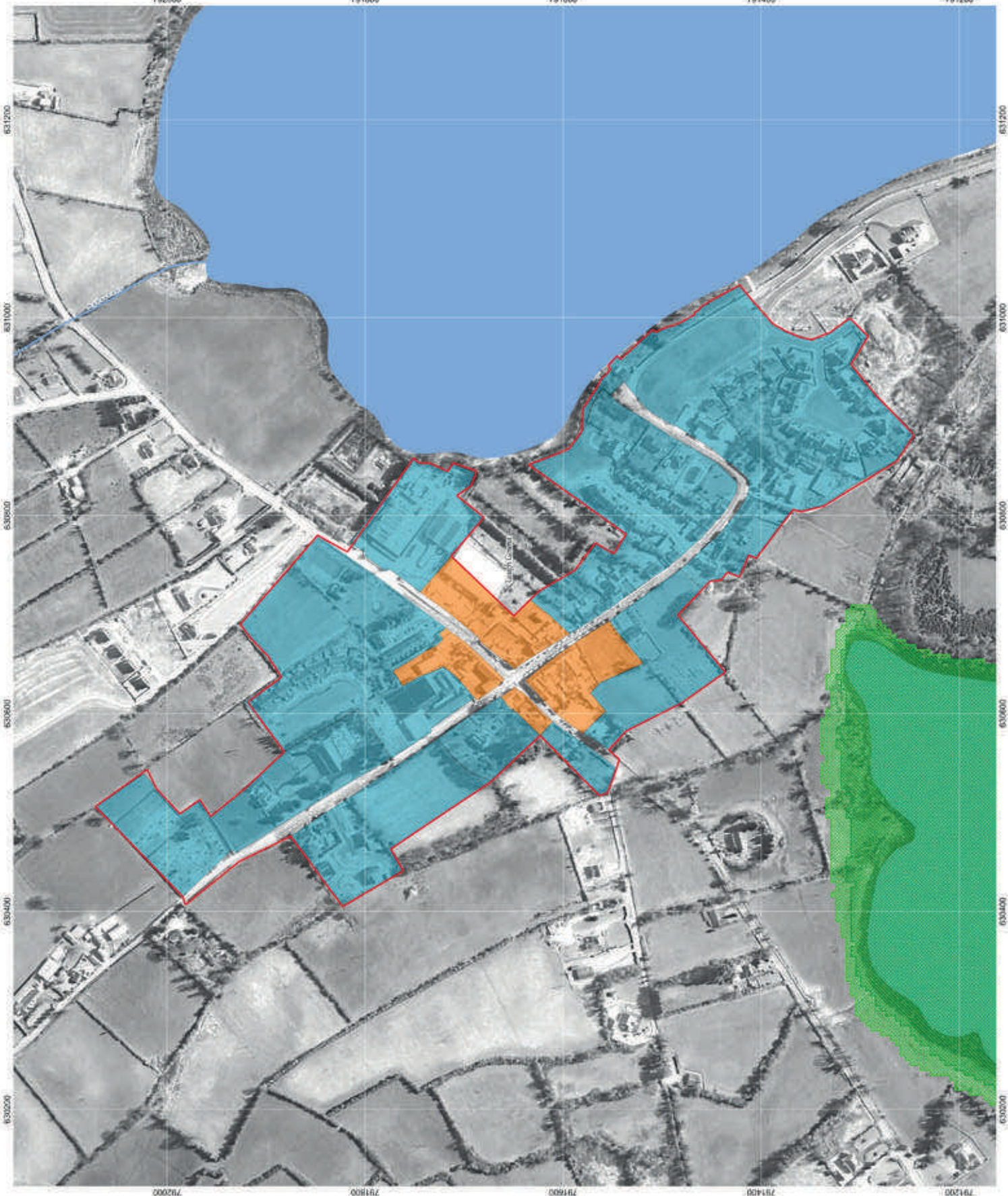
- 1% AEP
- 0.1% AEP

Land Use Zoning

- Town Core
- White Lands

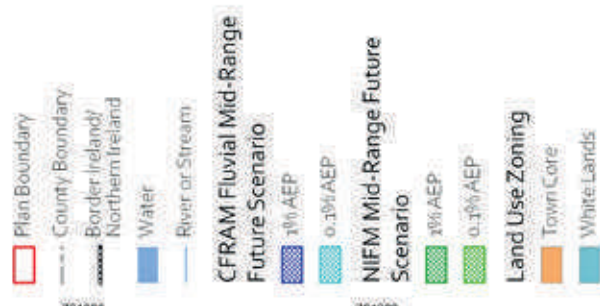


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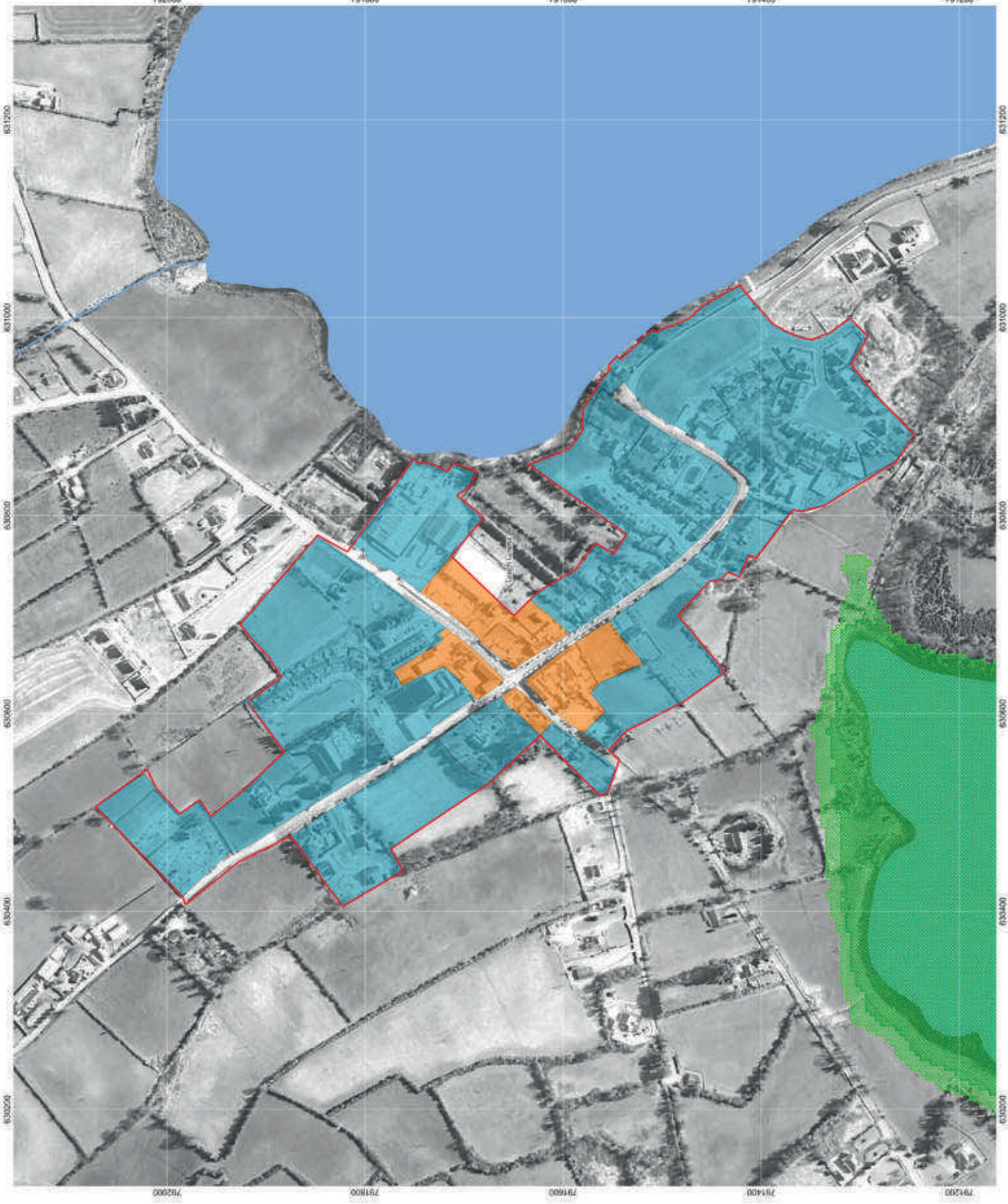


Cavan County Development Plan 2022-2028

Lough Gowna
OPW Catchment Flood
Risk Assessment &
Management (CFRAM)
& National Indicative
Fluvial Mapping (NIFM)
Mid-Range Future
Scenario



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Cavan County Development Plan 2022-2028

Lough Gowna
OPW Catchment Flood
Risk Assessment &
Management (CFRAM)
& National Indicative
Fluvial Mapping (NIFM)
High-End Future
Scenario

- Plan Boundary
- County Boundary
- Border Ireland/
Northern Ireland
- Water
- River or Stream

CFRAM Fluvial High-End Future Scenario

- 1% AEP
- 0.1% AEP

NIFM High-End Future Scenario

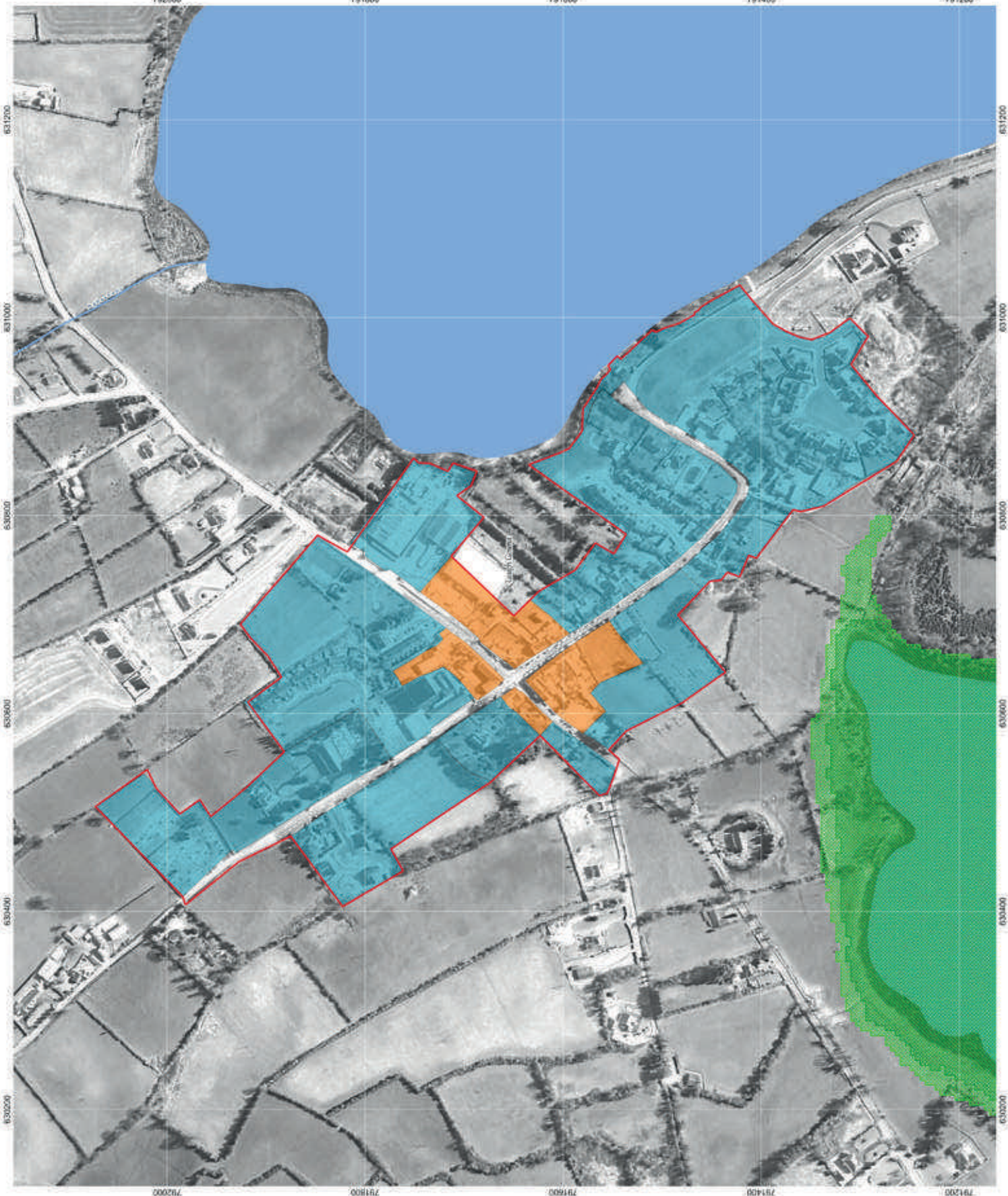
- 1% AEP
- 0.1% AEP

Land Use Zoning

- Town Core
- White Lands




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Cavan County Development Plan 2022-2028

Lough Gowna GSI Historical Flood Data and Groundwater Predictive Modeling

-  Plan Boundary
-  County Boundary
-  Border Ireland/
Northern Ireland
-  Water
-  River or Stream
-  GSI Groundwater Flooding
Predictive Model
-  High Probability
-  Medium Probability
-  Low Probability
-  GSI Historical Flood Data
-  Surface Water Flooding
-  Winter 2015-2016 Surface
Water Flooding
-  Maximum Historic
Groundwater Flooding
-  Groundwater
-  Groundwater/Surface water



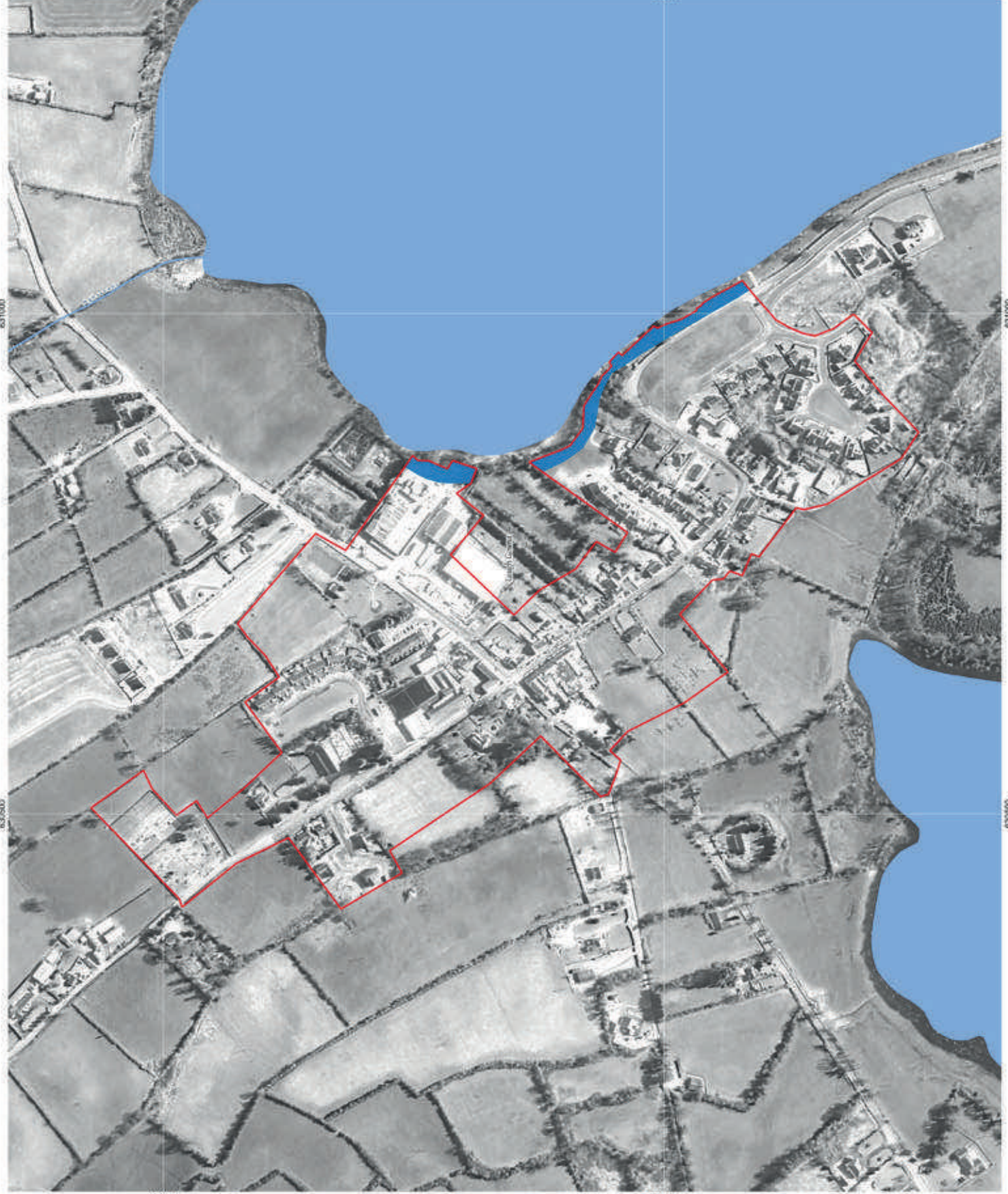
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Cavan County Development Plan 2022-2028

Lough Gowna Flood Zones

- Plan Boundary
- County Boundary
- Border Ireland/
Northern Ireland
- Water
- River or Stream
- Indicative Flood Zones
 - Flood Zone A
 - Flood Zone B



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Cavan County Development Plan 2022-2028

Lough Gowna
Land Use Zoning that
Intersects Indicative Flood
Zones
















- Plan Boundary
- County Boundary
- Town Core
- White Lands



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Mountnugent
OPW Historical Flood
Data

-  Plan Boundary
-  County Boundary
-  Border Ireland/
Northern Ireland
-  Water
-  River or Stream
- OPW Past Flood Events**
 -  Single Flood Event
 -  Recurring Flood Event
 -  Past Flood Extent
- Land Commission**
 -  Benefited Lands
- Drainage District**
 -  Channel
 -  Embankment
 -  Benefited Lands
- Arterial Drainage Scheme**
 -  Channel
 -  Embankment
 -  Benefited Lands



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Cavan County Development Plan 2022-2028

Mountnugent OPW Preliminary Flood Risk Assessment (PFRA)

- Plan Boundary
 - County Boundary
 - Border Ireland/
Northern Ireland
 - Water
 - River or Stream
- PFRA**
- Fluvial 1% AEP
 - Fluvial 0.1% AEP
 - Pluvial 1% AEP
 - Pluvial 0.1% AEP



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Cavan County Development Plan 2022-2028

Mountnugent
OPW Catchment Flood
Risk Assessment &
Management (CFRAM)
& National Indicative
Fluvial Mapping (NIFM)
Present Day Scenario

765600



765400

765400

765400

785200

785200

645400

645200

645000

644800

645400

645200

645000

644800



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Mounthugent
OPW Catchment Flood
Risk Assessment &
Management (CFRAM)
& National Indicative
Fluvial Mapping (NIFM)
Mid-Range Future
Scenario

Plan Boundary

County Boundary

Border Ireland/
Northern Ireland

Water

River or Stream

CFRAM Fluvial Mid-Range
Future Scenario

1% AEP

0.1% AEP

NIFM Mid-Range Future
Scenario

1% AEP

0.1% AEP

Land Use Zoning

Town Core

White Lands



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Cavan County Development Plan 2022-2028

Mountrugent
OPW Catchment Flood
Risk Assessment &
Management (CFRAM)
& National Indicative
Fluvial Mapping (NIFM)
High-End Future
Scenario

- Plan Boundary
- County Boundary
- Border Ireland/
Northern Ireland
- Water
- River or Stream

CFRAM Fluvial High-End
Future Scenario

- 1% AEP
- 0.1% AEP

NIFM High-End Future
Scenario

- 1% AEP
- 0.1% AEP

Land Use Zoning

- Town Core
- White Lands


















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Mountnugent GSI Historical Flood Data and Groundwater Predictive Modeling

-  Plan Boundary
-  County Boundary
-  Border Ireland/
Northern Ireland
-  Water
-  River or Stream
-  GSI Groundwater Flooding
Predictive Model
-  High Probability
-  Medium Probability
-  Low Probability
-  GSI Historical Flood Data
-  Surface Water Flooding
-  Winter 2015-2016 Surface
Water Flooding
-  Maximum Historic
Groundwater Flooding
-  Groundwater
-  Groundwater/Surface water



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Cavan County Development Plan 2022-2028

Mountnugent Flood Zones

- Plan Boundary
 - County Boundary
 - Border Ireland/
Northern Ireland
 - Water
 - River or Stream
- ### Indicative Flood Zones
- Flood Zone A
 - Flood Zone B



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Cavan County Development Plan 2022-2028

Mountnugent
Land Use Zoning that
Interacts Indicative Flood
Zones














- Plan Boundary
- County Boundary
- Town Core
- White Lands



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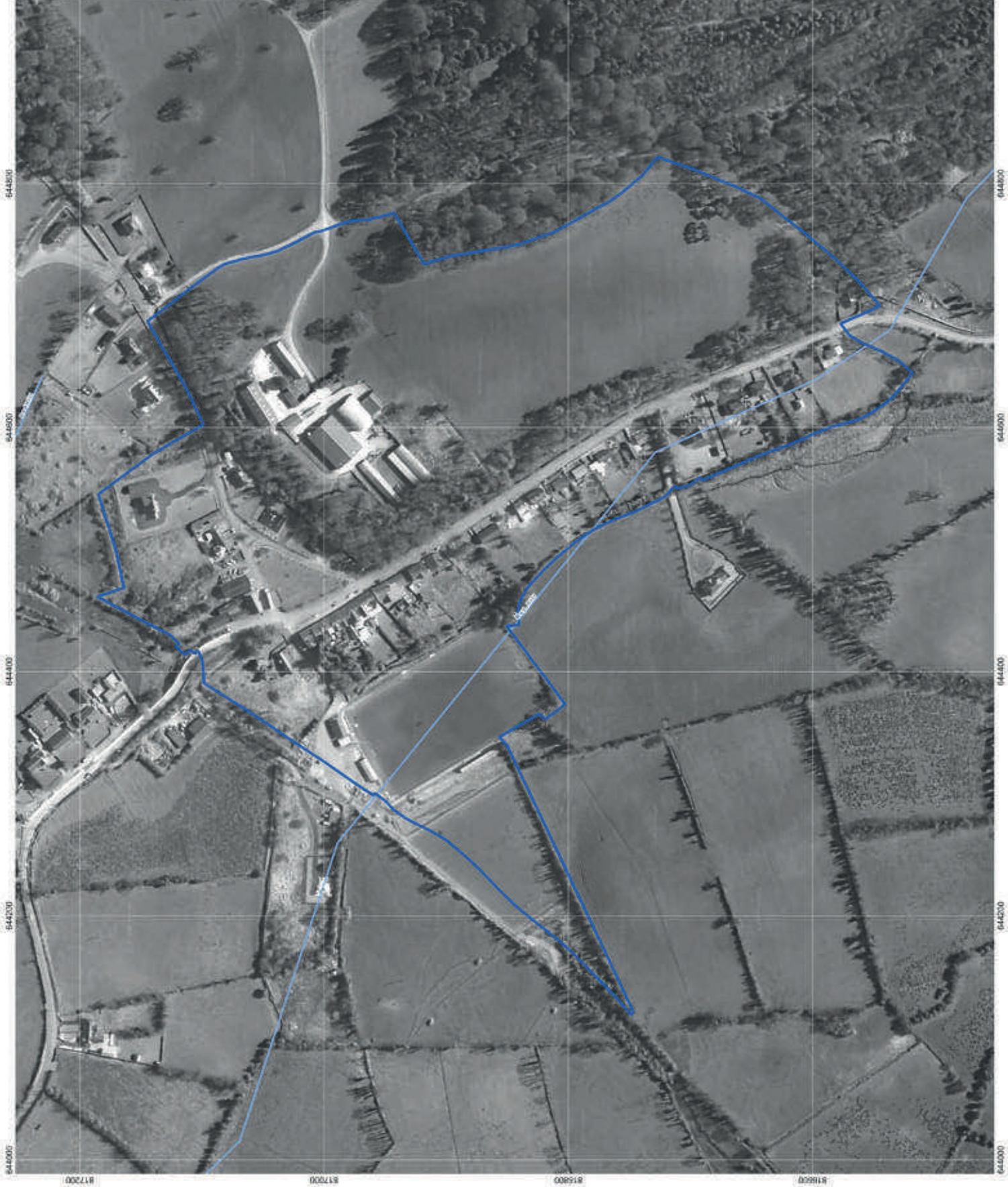
Cavan County Development Plan 2022-2028

Redhills OPW Historical Flood Data

-  Plan Boundary
-  County Boundary
-  Border Ireland/
Northern Ireland
-  Water
-  River or Stream
- OPW Past Flood Events**
 -  Single Flood Event
 -  Recurring Flood Event
 -  Past Flood Extent
- Land Commission**
 -  Benefited Lands
- Drainage District**
 -  Channel
 -  Embankment
 -  Benefited Lands
- Arterial Drainage Scheme**
 -  Channel
 -  Embankment
 -  Benefited Lands












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Cavan County Development Plan 2022-2028

Redhills

OPW Preliminary Flood Risk Assessment (PFRA)

-  Plan Boundary
 -  County Boundary
 -  Border Ireland/
Northern Ireland
 -  Water
 -  River or Stream
- PFRA**
-  Fluvial 1% AEP
 -  Fluvial 0.1% AEP
 -  Pluvial 1% AEP
 -  Pluvial 0.1% AEP



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Cavan County Development Plan 2022-2028

Redhills

OPW Catchment Flood
Risk Assessment &
Management (CFRAM)
& National Indicative
Fluvial Mapping (NIFM)
Present Day Scenario

Plan Boundary

County Boundary

Border Ireland/
Northern Ireland

Water

River or Stream

CFRAM Fluvial Present Day Scenario

1% AEP

0.1% AEP

NIFM Present Day Scenario

1% AEP

0.1% AEP

Land Use Zoning

Town Core

White Lands



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Cavan County Development Plan 2022-2028

Redhills

OPW Catchment Flood
Risk Assessment &
Management (CFRAM)
& National Indicative
Fluvial Mapping (NIFM)
Mid-Range Future
Scenario

Plan Boundary

County Boundary

Border-Ireland/
Northern Ireland

Water

River or Stream

CFRAM Fluvial Mid-Range
Future Scenario

1% AEP

0.1% AEP

NIFM Mid-Range Future
Scenario

1% AEP

0.1% AEP

Land Use Zoning

Town Core

White Lands



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Cavan County Development Plan 2022-2028

Redhills

OPW Catchment Flood
Risk Assessment &
Management (CFRAM)
& National Indicative
Fluvial Mapping (NIFM)
High-End Future
Scenario

- Plan Boundary
- County Boundary
- Border-Ireland/
Northern Ireland
- Water
- River or Stream

CFRAM Fluvial High-End Future Scenario

- 1% AEP
- 0.1% AEP

NIFM High-End Future Scenario

- 1% AEP
- 0.1% AEP

Land Use Zoning

- Town Core
- White Lands



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Cavan County Development Plan 2022-2028

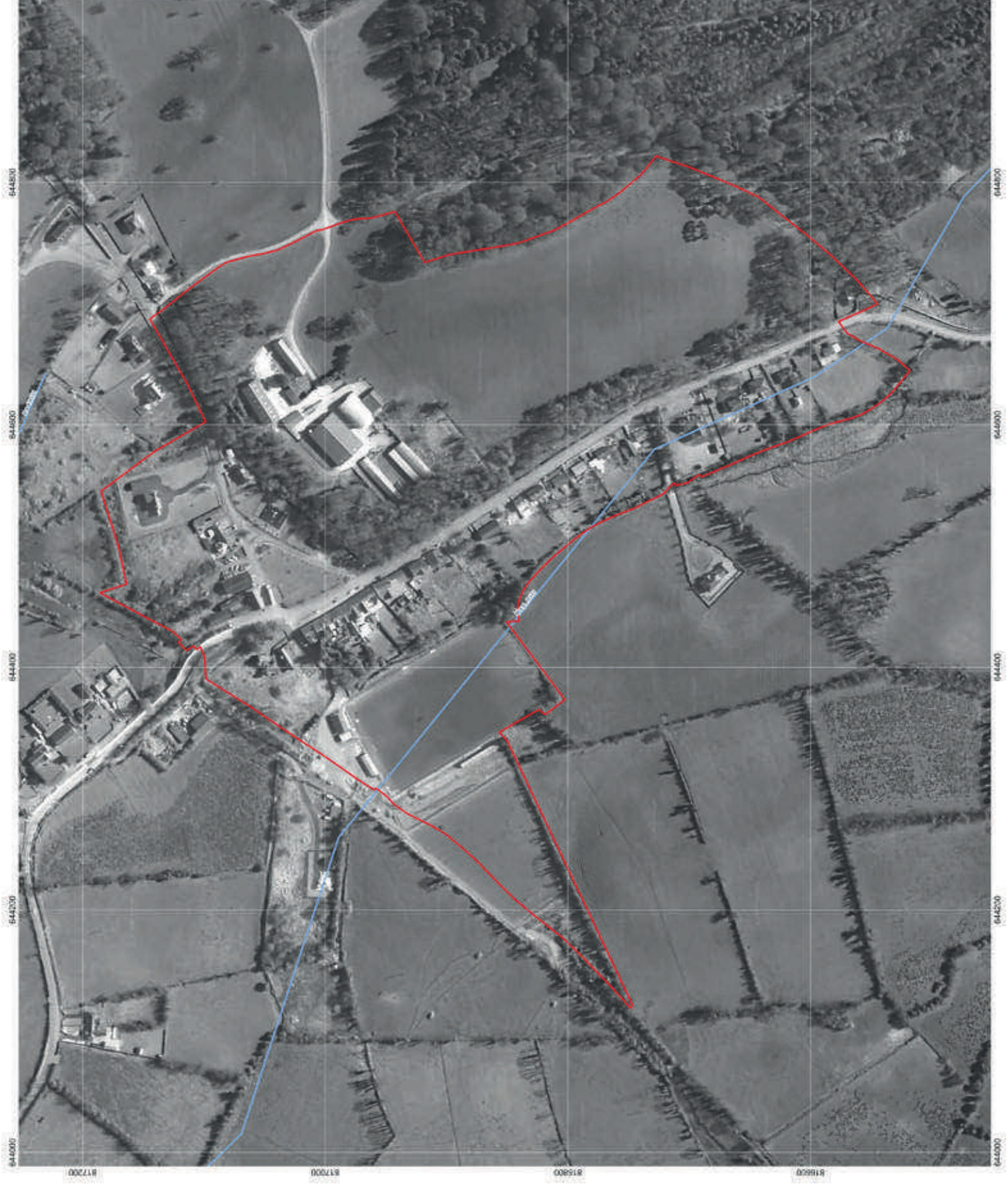
Redhills

GSI Historical Flood Data and Groundwater Predictive Modeling

- Plan Boundary
- County Boundary
- Border Ireland/
Northern Ireland
- Water
- River or Stream
- GSI Groundwater Flooding
Predictive Model
- High Probability
- Medium Probability
- Low Probability
- GSI Historical Flood Data
- Surface Water Flooding
- Winter 2015-2016 Surface
Water Flooding
- Maximum Historic
Groundwater Flooding
- Groundwater
- Groundwater/Surface water










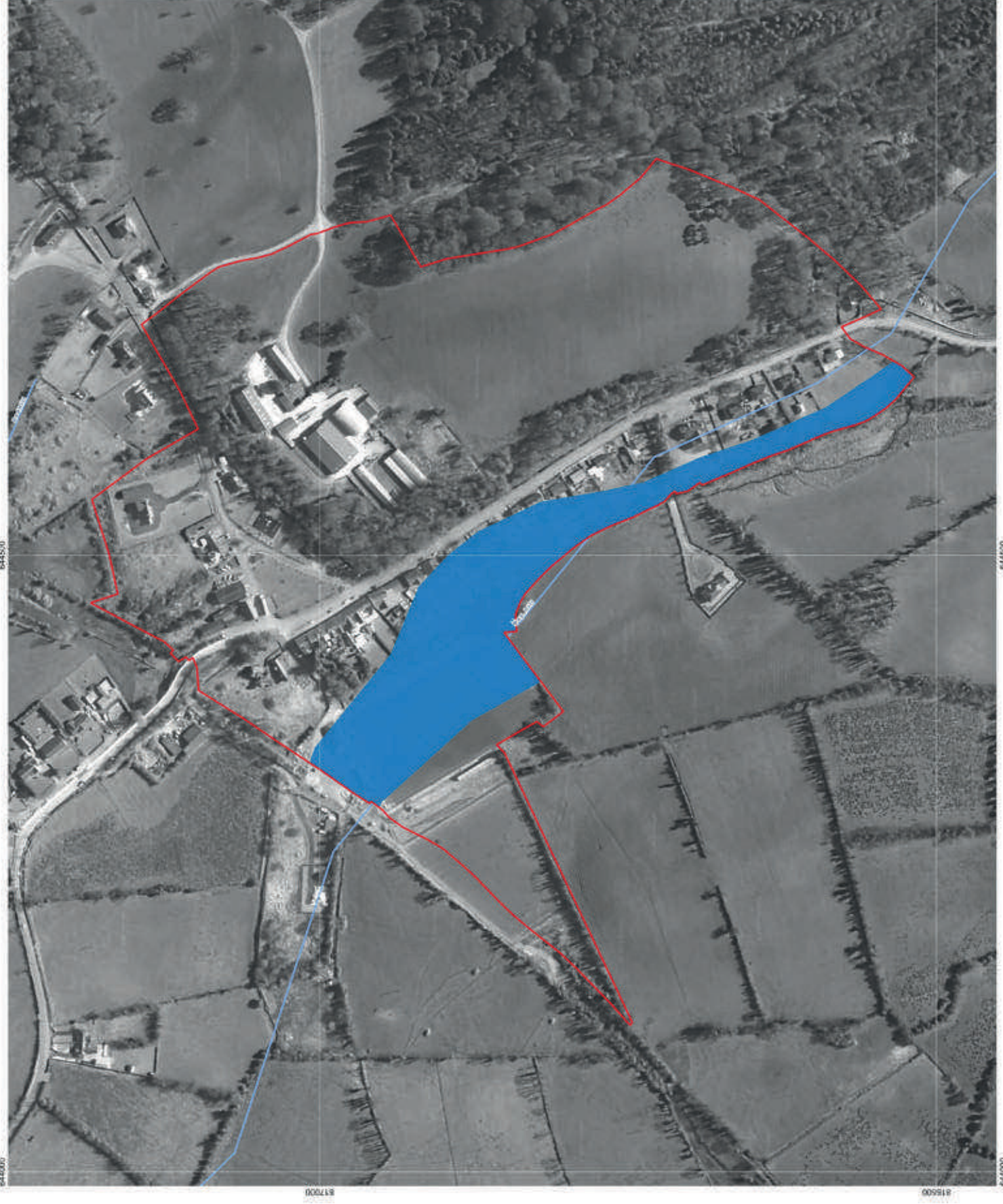
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Cavan County Development Plan 2022-2028

Redhills Flood Zones

-  Plan Boundary
 -  County Boundary
 -  Border Ireland/
Northern Ireland
 -  Water
 -  River or Stream
- Indicative Flood Zones**
-  Flood Zone A
 -  Flood Zone B



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Redhills
Land Use Zoning that
Interacts Indicative Flood
Zones

- Plan Boundary
- County Boundary
- Town Core
- White Lands

817000
















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Shercock
OPW Historical Flood
Data

-  Plan Boundary
-  County Boundary
-  Border Ireland/Northern Ireland
-  Water
-  River or Stream
- OPW Past Flood Events**
 -  Single Flood Event
 -  Recurring Flood Event
 -  Past Flood Extent
- Land Commission**
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- Drainage District**
 -  Channel
 -  Embankment
 -  Benefited Lands
- Arterial Drainage Scheme**
 -  Channel
 -  Embankment
 -  Benefited Lands












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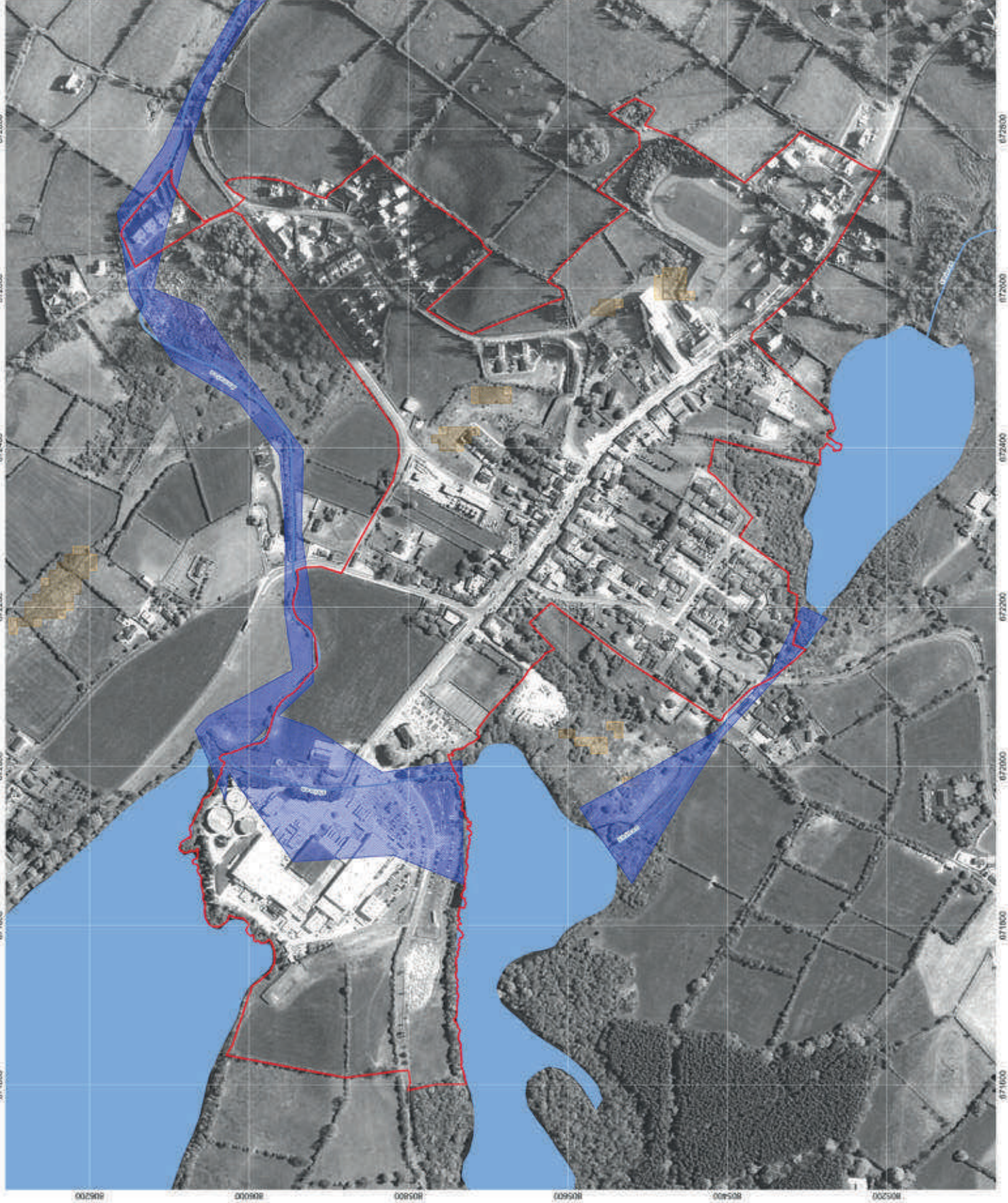
Shercock OPW Preliminary Flood Risk Assessment (PFRA)

-  Plan Boundary
 -  County Boundary
 -  Border Ireland/
Northern Ireland
 -  Water
 -  River or Stream
- PFRA**
-  Fluvial 1% AEP
 -  Fluvial 0.1% AEP
 -  Pluvial 1% AEP
 -  Pluvial 0.1% AEP



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County Cavan PFRA
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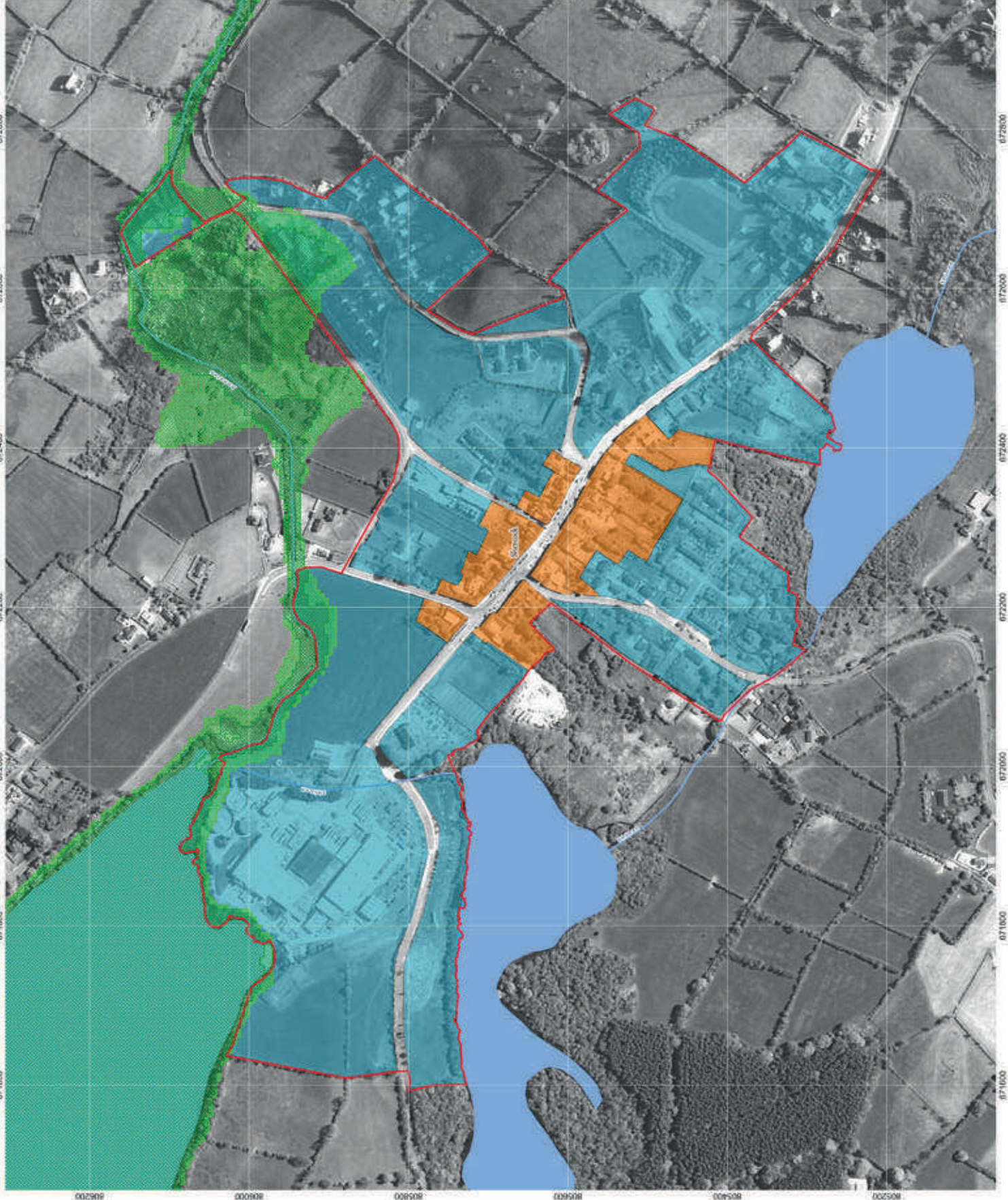
Cavan County Development Plan 2022-2028

Shercock
OPW Catchment Flood
Risk Assessment &
Management (CFRAM)
& National Indicative
Fluvial Mapping (NIFM)
Present Day Scenario

- Plan Boundary
 - County Boundary
 - Border Ireland/
Northern Ireland
 - Water
 - River or Stream
- CFRAM Fluvial Present Day Scenario**
- 1% AEP
 - 0.1% AEP
- NIFM Present Day Scenario**
- 1% AEP
 - 0.1% AEP
- Land Use Zoning**
- Town Core
 - White Lands



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Cavan County Development Plan 2022-2028

Shercock
OPW Catchment Flood
Risk Assessment &
Management (CFRAM)
& National Indicative
Fluvial Mapping (NIFM)
Mid-Range Future
Scenario

- Plan Boundary
- County Boundary
- Border Ireland/
Northern Ireland
- Water
- River or Stream

CFRAM Fluvial Mid-Range
Future Scenario

- 1% AEP
- 0.1% AEP

NIFM Mid-Range Future
Scenario

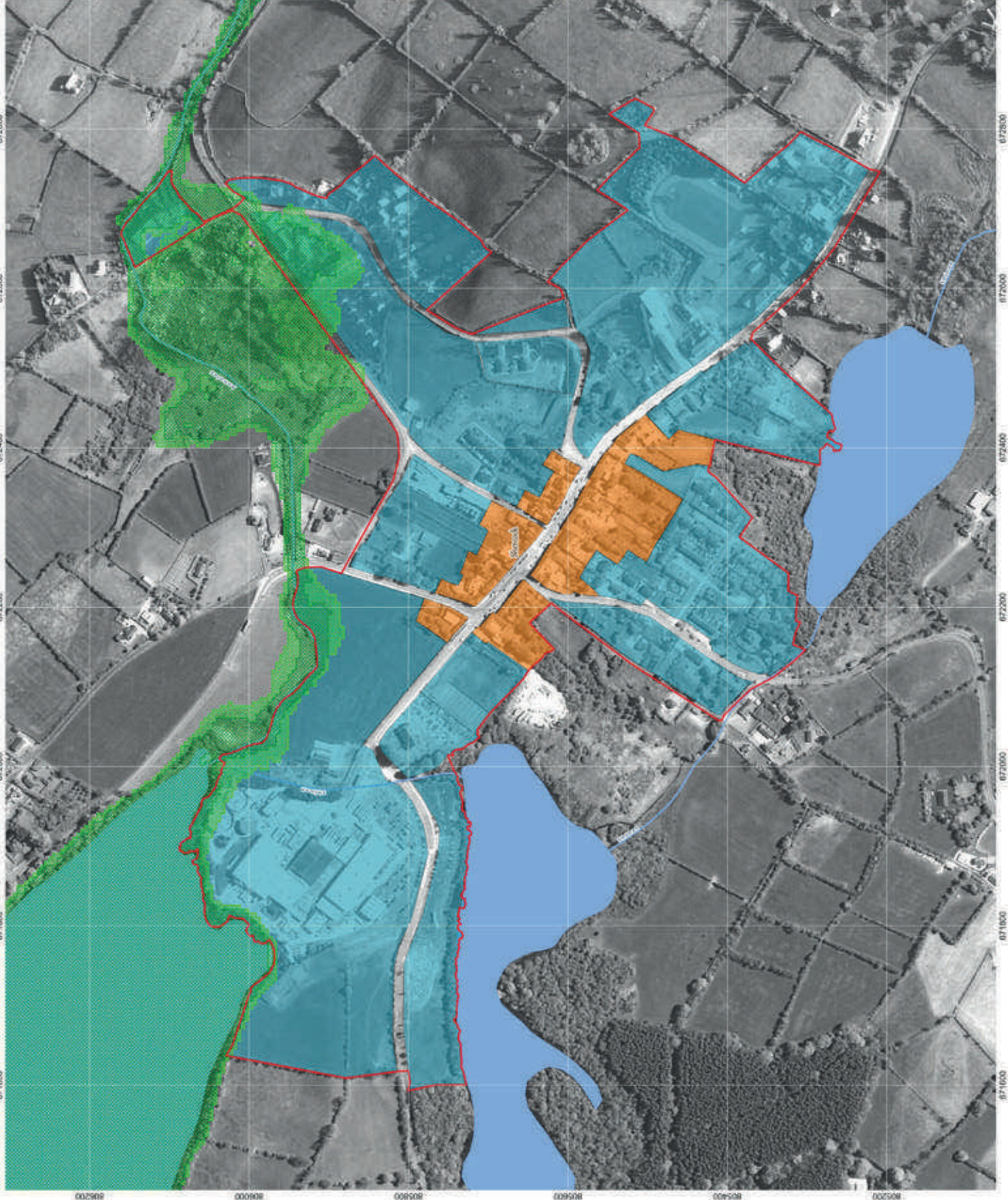
- 1% AEP
- 0.1% AEP

Land Use Zoning

- Town Core
- White Lands



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Cavan County Development Plan 2022-2028

Shercock
OPW Catchment Flood
Risk Assessment &
Management (CFRAM)
& National Indicative
Fluvial Mapping (NIFM)
High-End Future
Scenario

- Plan Boundary
- County Boundary
- Border Ireland/
Northern Ireland
- Water
- River or Stream

CFRAM Fluvial High-End
Future Scenario

- 1% AEP
- 0.1% AEP

NIFM High-End Future
Scenario

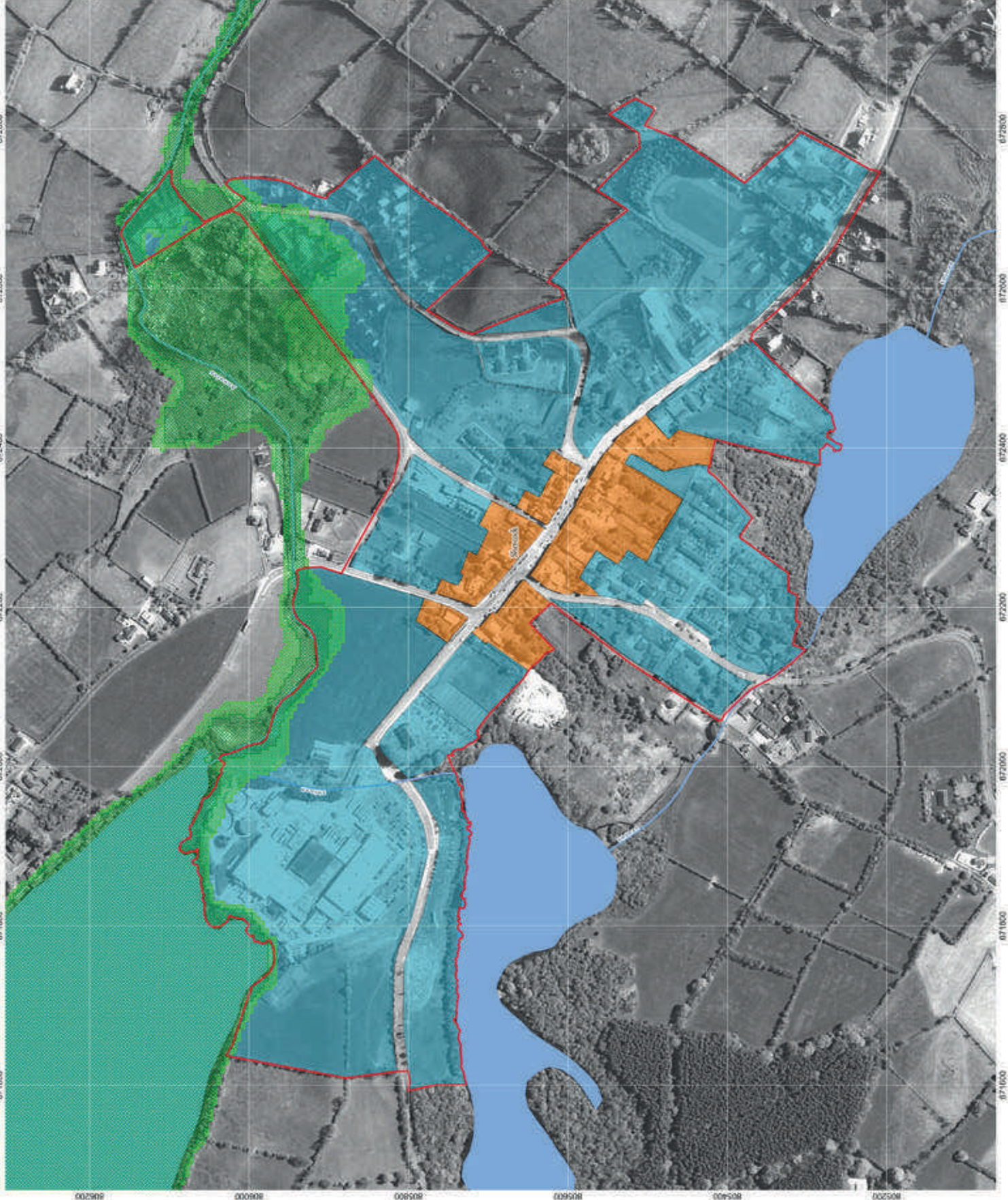
- 1% AEP
- 0.1% AEP

Land Use Zoning

- Town Core
- White Lands




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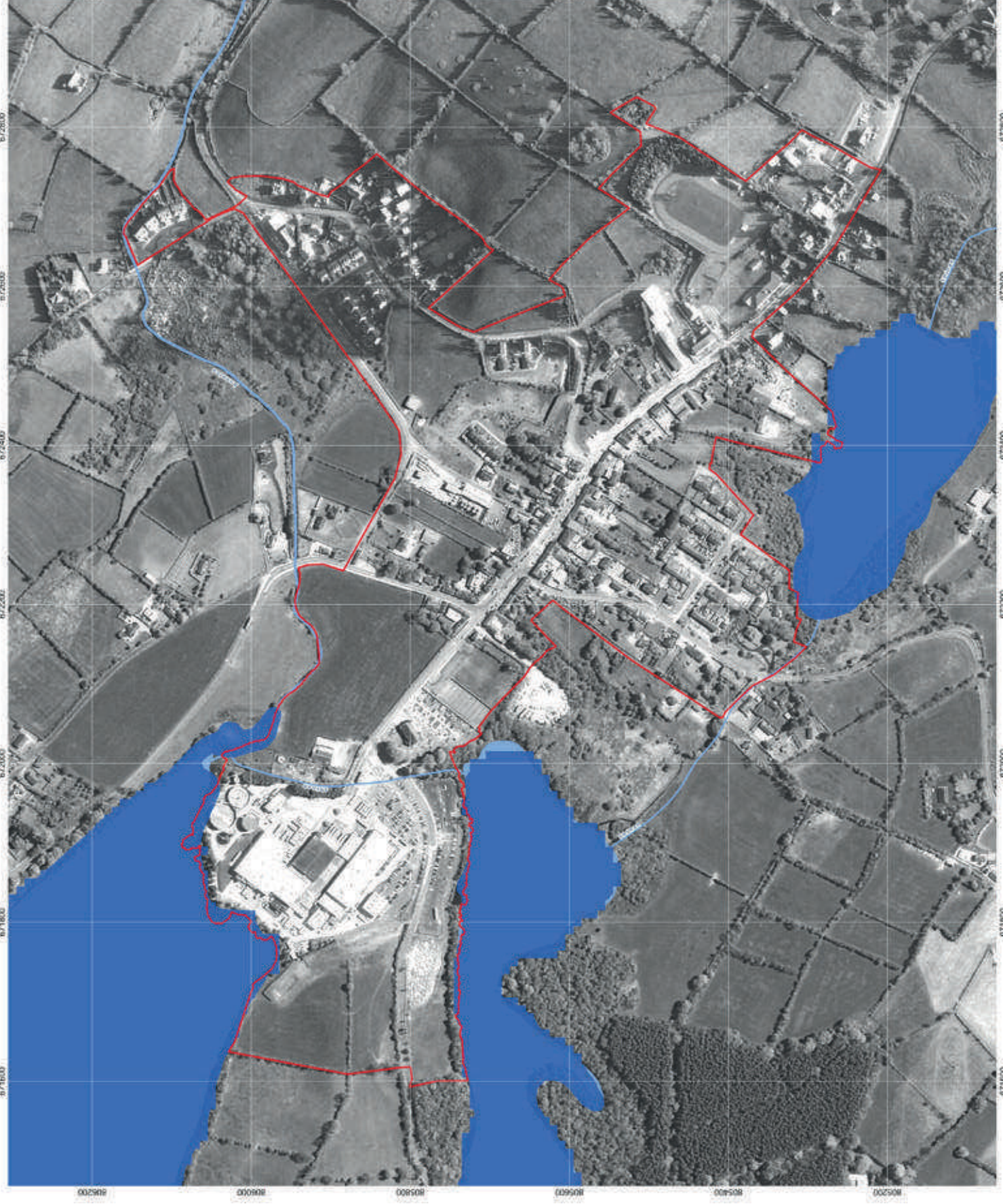
Shercock

GSI Historical Flood Data and Groundwater Predictive Modeling

-  Plan Boundary
-  County Boundary
-  Border Ireland/
Northern Ireland
-  Water
-  River or Stream
-  GSI Groundwater Flooding
Predictive Model
-  High Probability
-  Medium Probability
-  Low Probability
-  GSI Historical Flood Data
-  Surface Water Flooding
-  Winter 2015-2016 Surface
Water Flooding
-  Maximum Historic
Groundwater Flooding
-  Groundwater
-  Groundwater/Surface water



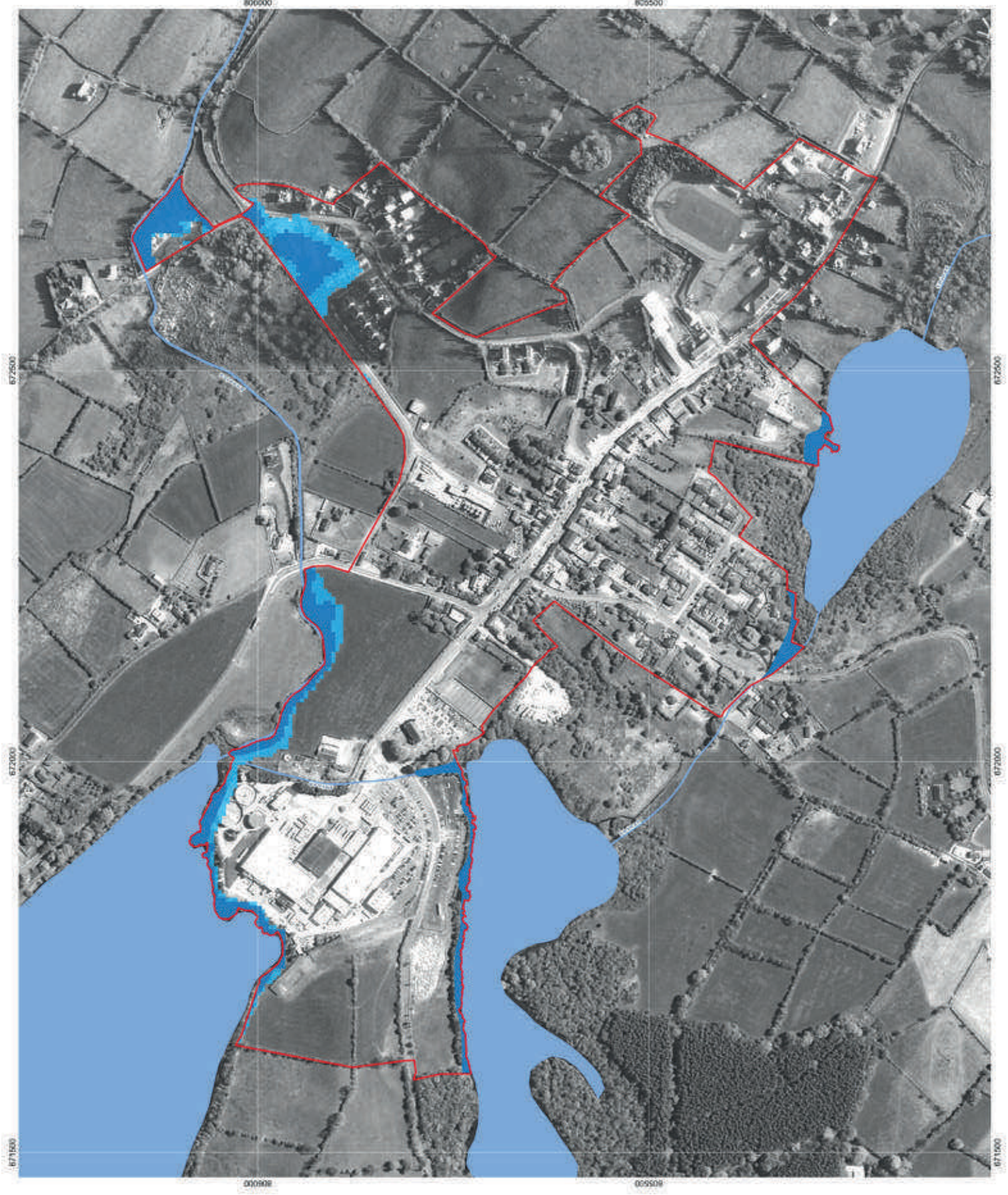
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Shercock Flood Zones

- Plan Boundary
- County Boundary
- Border Ireland/
Northern Ireland
- Water
- River or Stream
- Indicative Flood Zones
 - Flood Zone A
 - Flood Zone B



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Cavan County Development Plan 2022-2028

Shercock
Land Use Zoning that
Interacts Indicative Flood
Zones

- Plan Boundary
- County Boundary
- Town Core
- White Lands


















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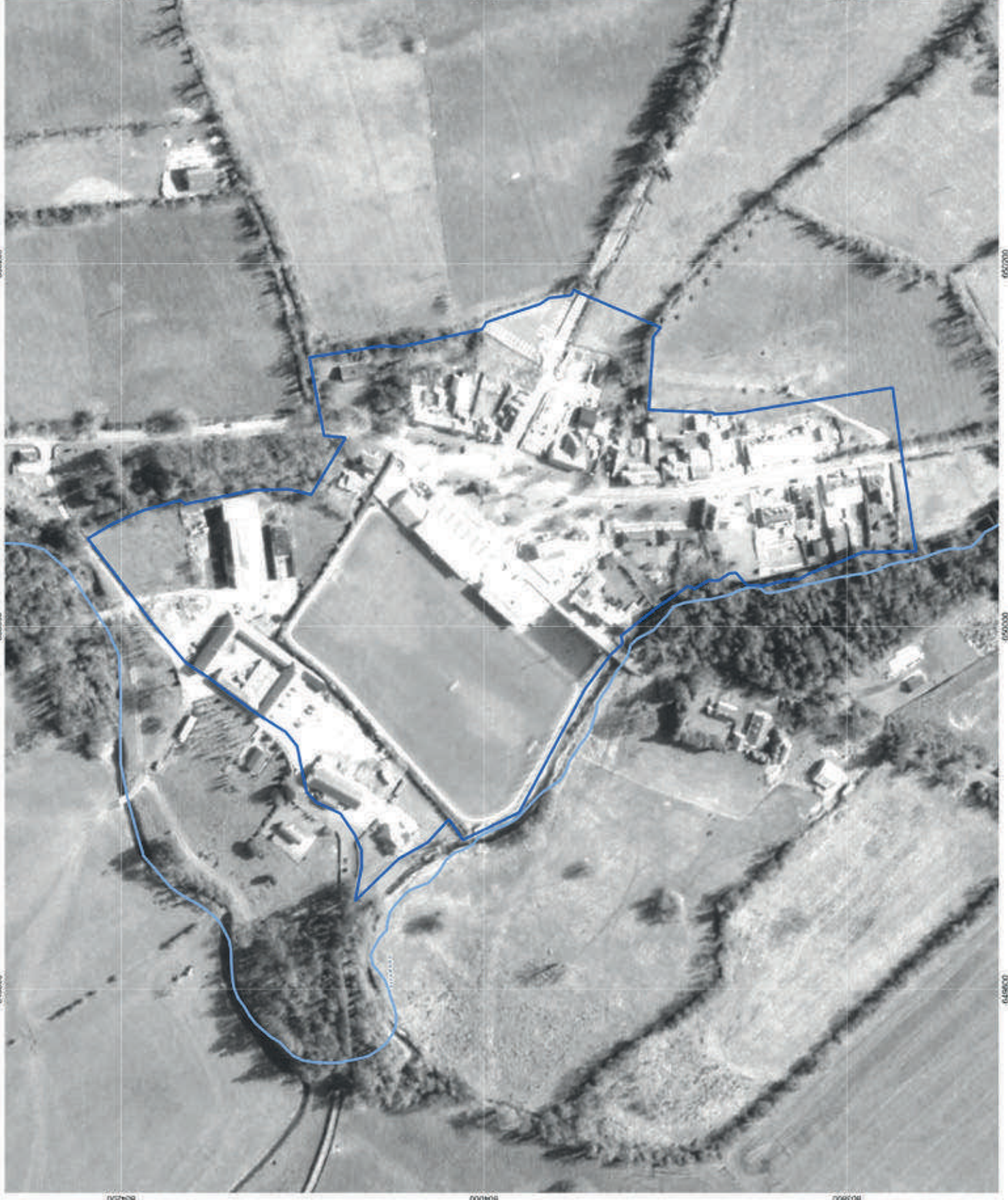
Cavan County Development Plan 2022-2028

Stradone
OPW Historical Flood
Data

-  Plan Boundary
 -  County Boundary
 -  Border Ireland/
Northern Ireland
 -  Water
 -  River or Stream
- OPW Past Flood Events**
-  Single Flood Event
 -  Recurring Flood Event
 -  Past Flood Extent
- Land Commission**
-  Benefited Lands
- Drainage District**
-  Channel
 -  Embankment
 -  Benefited Lands
- Arterial Drainage Scheme**
-  Channel
 -  Embankment
 -  Benefited Lands












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Stradone

OPW Preliminary Flood Risk Assessment (PFRA)

-  Plan Boundary
 -  County Boundary
 -  Border Ireland/
Northern Ireland
 -  Water
 -  River or Stream
- PFRA**
-  Fluvial 1% AEP
 -  Fluvial 0.1% AEP
 -  Pluvial 1% AEP
 -  Pluvial 0.1% AEP



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Cavan County Development Plan 2022-2028

Stradone

OPW Catchment Flood
Risk Assessment &
Management (CFRAM)
& National Indicative
Fluvial Mapping (NIFM)
Present Day Scenario

Plan Boundary

County Boundary

Border Ireland/
Northern Ireland

Water

River or Stream

CFRAM Fluvial Present Day

Scenario

1% AEP

0.1% AEP

NIFM Present Day Scenario

1% AEP

0.1% AEP

Land Use Zoning

Town Core

White Lands



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County Cavan SP6A
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Cavan County Development Plan 2022-2028

Stradone
OPW Catchment Flood
Risk Assessment &
Management (CFRAM)
& National Indicative
Fluvial Mapping (NIFM)
Mid-Range Future
Scenario

Plan Boundary
 County Boundary
 Border Ireland/
Northern Ireland
 Water
 River or Stream
**CFRAM Fluvial Mid-Range
Future Scenario**
 1% AEP
 0.1% AEP
**NIFM Mid-Range Future
Scenario**
 1% AEP
 0.1% AEP
Land Use Zoning
 Town Core
 White Lands



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Cavan County Development Plan 2022-2028

Stradone

OPW Catchment Flood
Risk Assessment &
Management (CFRAM)
& National Indicative
Fluvial Mapping (NIFM)
High-End Future
Scenario

Plan Boundary

County Boundary

Border Ireland/
Northern Ireland

Water

River or Stream

CFRAM Fluvial High-End
Future Scenario

1% AEP

0.1% AEP

NIFM High-End Future
Scenario

1% AEP

0.1% AEP

Land Use Zoning

Town Core

White Lands



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Cavan County Development Plan 2022-2028

Stradone

GSI Historical Flood Data and Groundwater Predictive Modeling

-  Plan Boundary
-  County Boundary
-  Border Ireland/
Northern Ireland
-  Water
-  River or Stream
- GSI Groundwater Flooding
Predictive Model**
-  High Probability
-  Medium Probability
-  Low Probability
- GSI Historical Flood Data**
- Surface Water Flooding**
-  Winter 2015-2016 Surface
Water Flooding
- Maximum Historic
Groundwater Flooding**
-  Groundwater
-  Groundwater/Surface water



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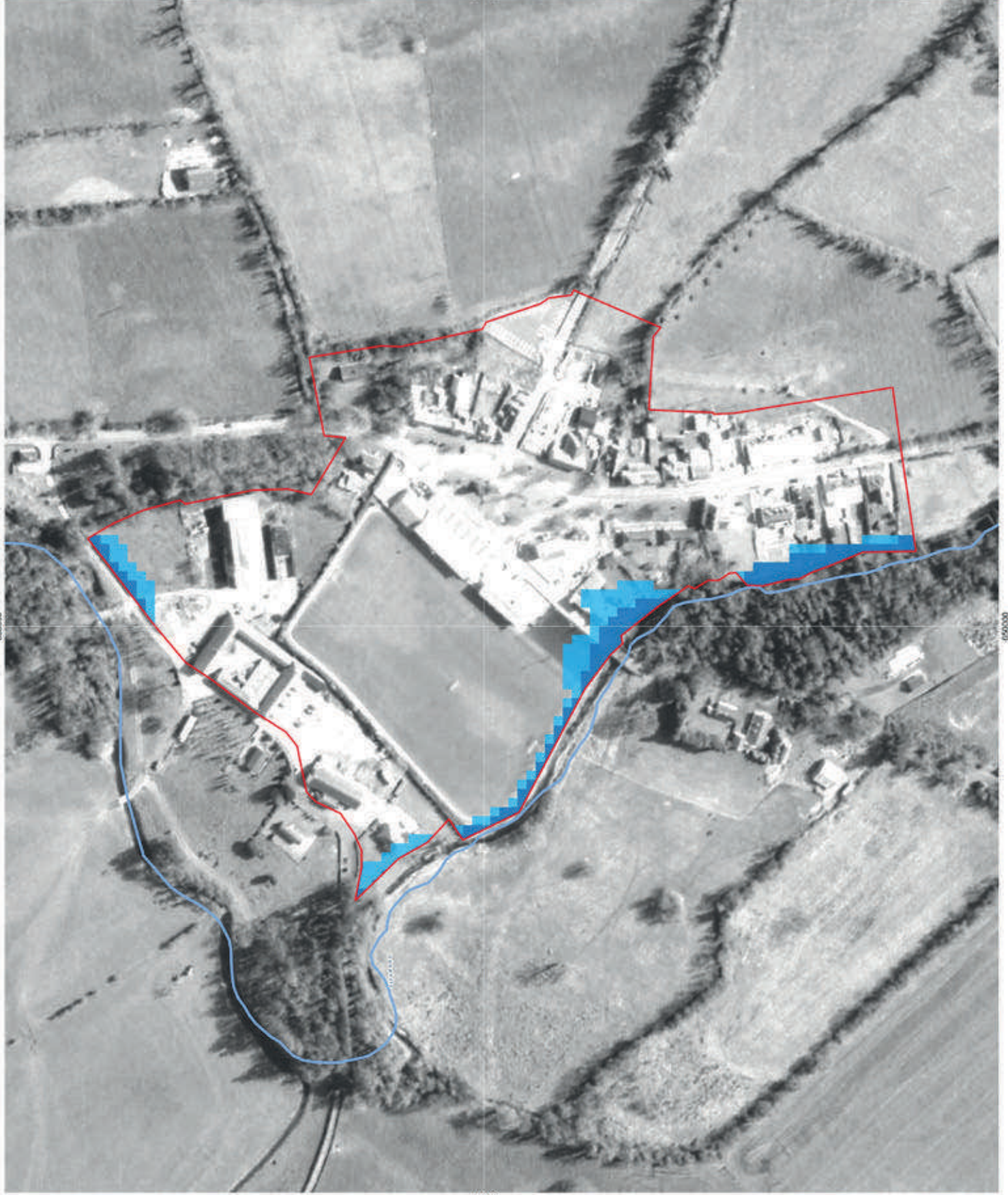


Cavan County Development Plan 2022-2028

Stradone Flood Zones

-  Plan Boundary
 -  County Boundary
 -  Border Ireland/
Northern Ireland
 -  Water
 -  River or Stream
- Indicative Flood Zones**
-  Flood Zone A
 -  Flood Zone B

804000



804000



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Cavan County Development Plan 2022-2028

Stradone
Land Use Zoning that
Interacts Indicative Flood
Zones

- Plan Boundary
- County Boundary
- Town Core
- White Lands



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Cavan County Development Plan 2022-2028

Swanlinbar
OPW Historical Flood
Data

- Plan Boundary
- County Boundary
- Border Ireland/Northern Ireland
- Water
- River or Stream
- OPW Past Flood Events**
 - Single Flood Event
 - Recurring Flood Event
 - Past Flood Extent
- Land Commission**
 - Benefited Lands
- Drainage District**
 - Channel
 - Embankment
 - Benefited Lands
- Arterial Drainage Scheme**
 - Channel
 - Embankment
 - Benefited Lands



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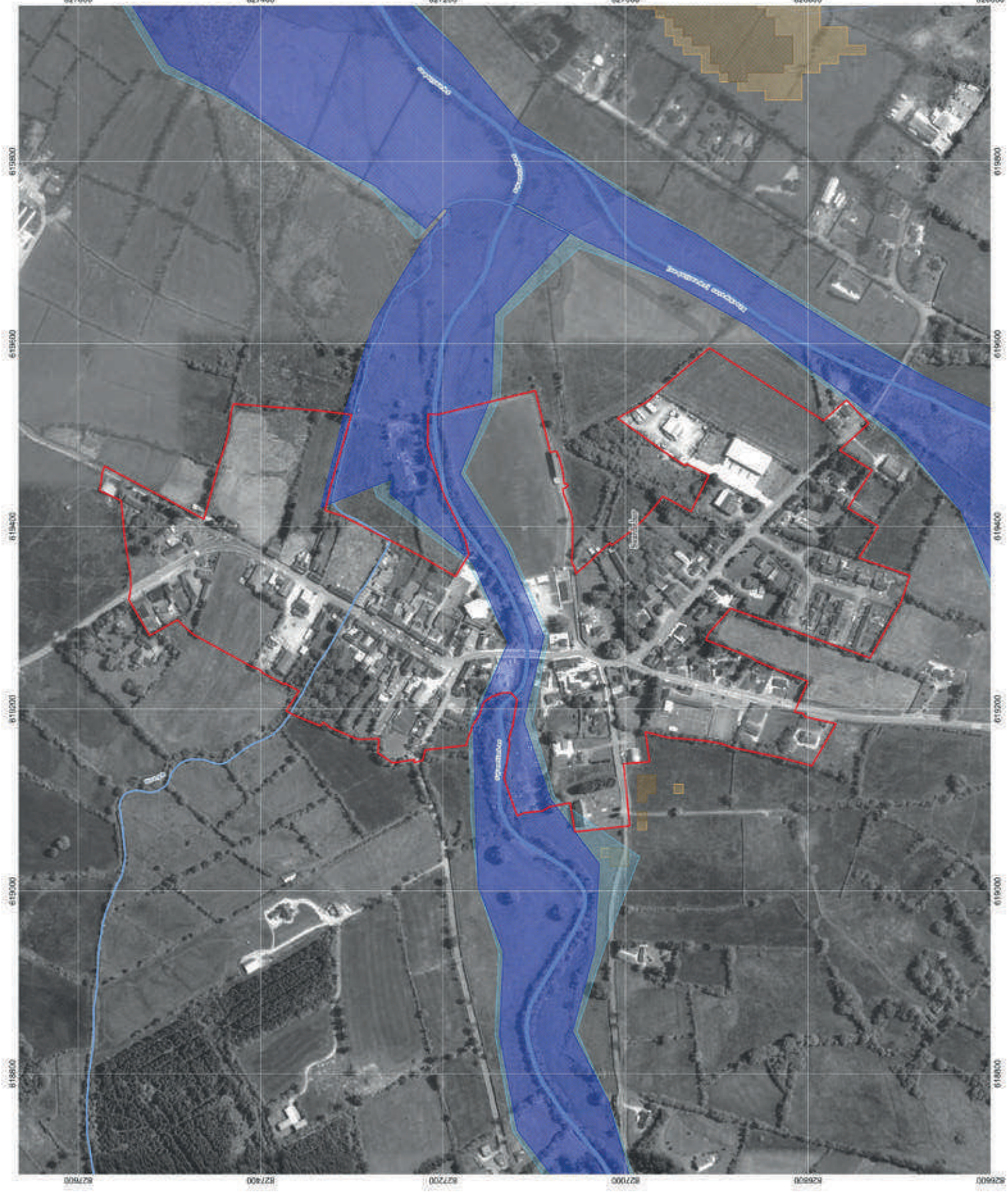
Cavan County Development Plan 2022-2028

Swanlinbar OPW Preliminary Flood Risk Assessment (PFRA)

- Plan Boundary
 - County Boundary
 - Border Ireland/
Northern Ireland
 - Water
 - River or Stream
- PFRA**
- Fluvial 1% AEP
 - Fluvial 0.1% AEP
 - Pluvial 1% AEP
 - Pluvial 0.1% AEP



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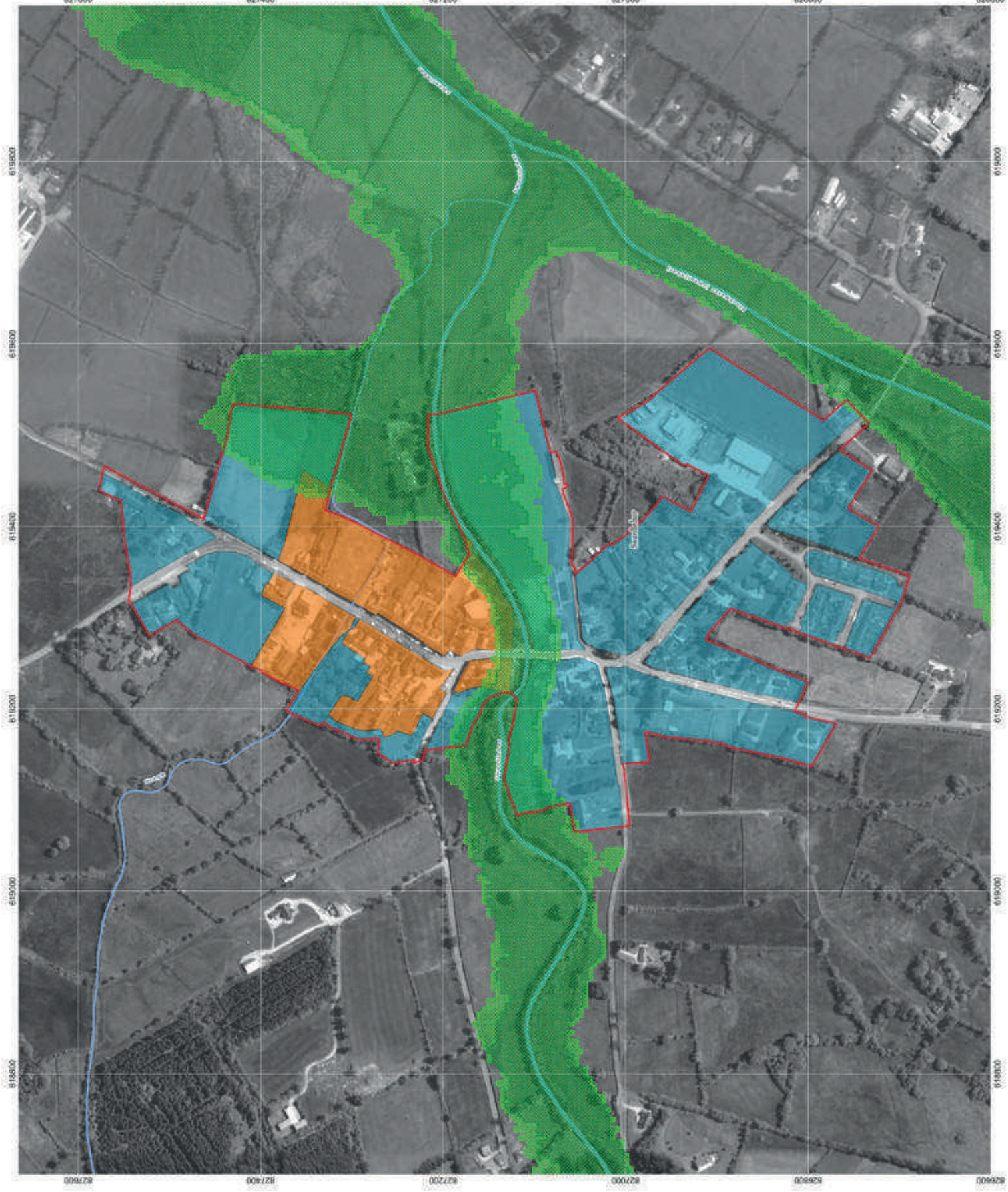


Cavan County Development Plan 2022-2028

Swanlinbar
OPW Catchment Flood
Risk Assessment &
Management (CFRAM)
& National Indicative
Fluvial Mapping (NIFM)
Present Day Scenario



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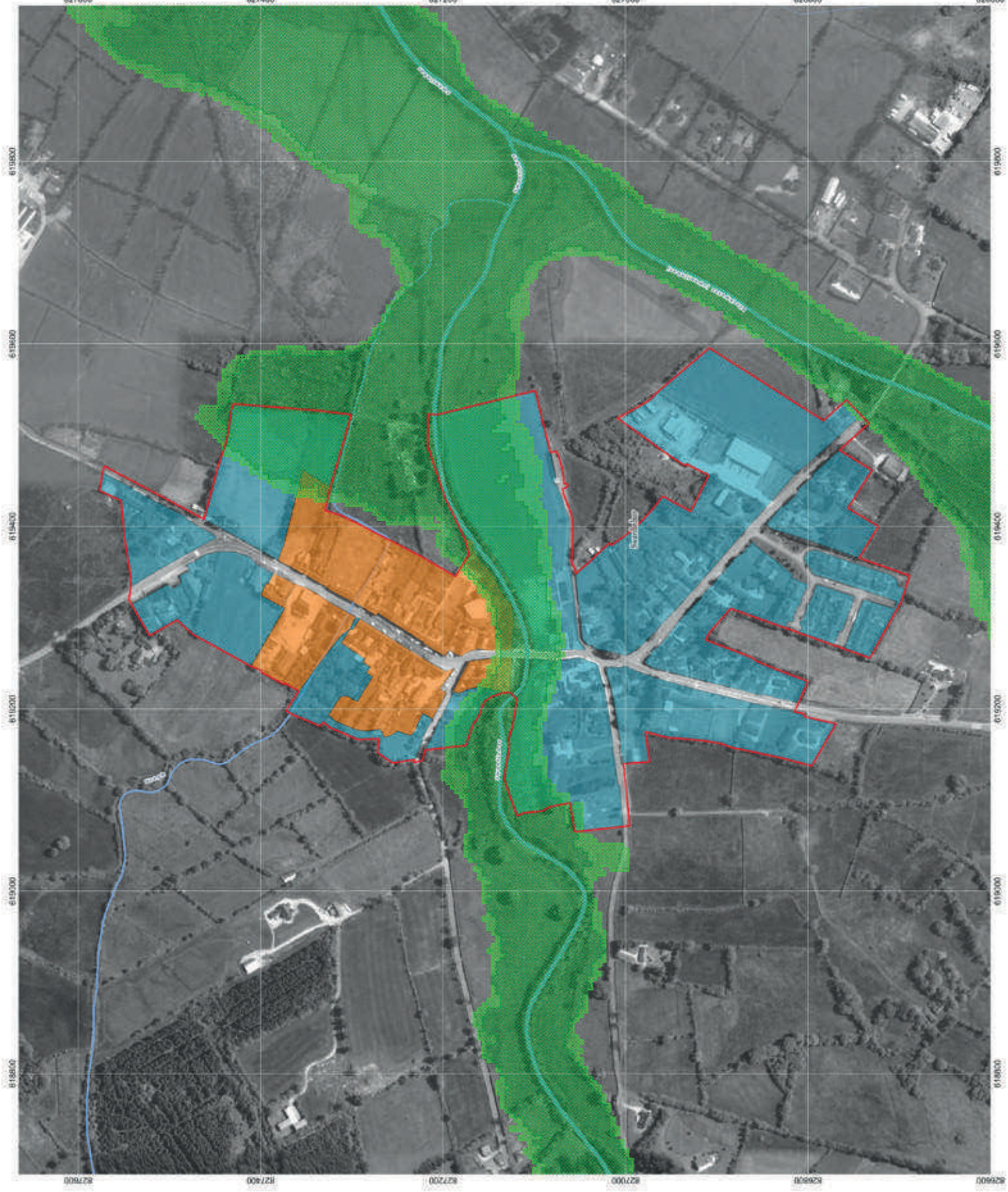
Cavan County Development Plan 2022-2028

Swanlinbar
OPW Catchment Flood
Risk Assessment &
Management (CFRAM)
& National Indicative
Fluvial Mapping (NIFM)
Mid-Range Future
Scenario

- Plan Boundary
 - County Boundary
 - Border Ireland/
Northern Ireland
 - Water
 - River or Stream
- CFRAM Fluvial Mid-Range
Future Scenario**
- 1% AEP
 - 0.1% AEP
- NIFM Mid-Range Future
Scenario**
- 1% AEP
 - 0.1% AEP
- Land Use Zoning**
- Town Core
 - White Lands



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Cavan County Development Plan 2022-2028

Swanlinbar
OPW Catchment Flood
Risk Assessment &
Management (CFRAM)
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Fluvial Mapping (NIFM)
High-End Future
Scenario

- Plan Boundary
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Northern Ireland

- Water
- River or Stream

CFRAM Fluvial High-End Future Scenario

- 1% AEP
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NIFM High-End Future Scenario

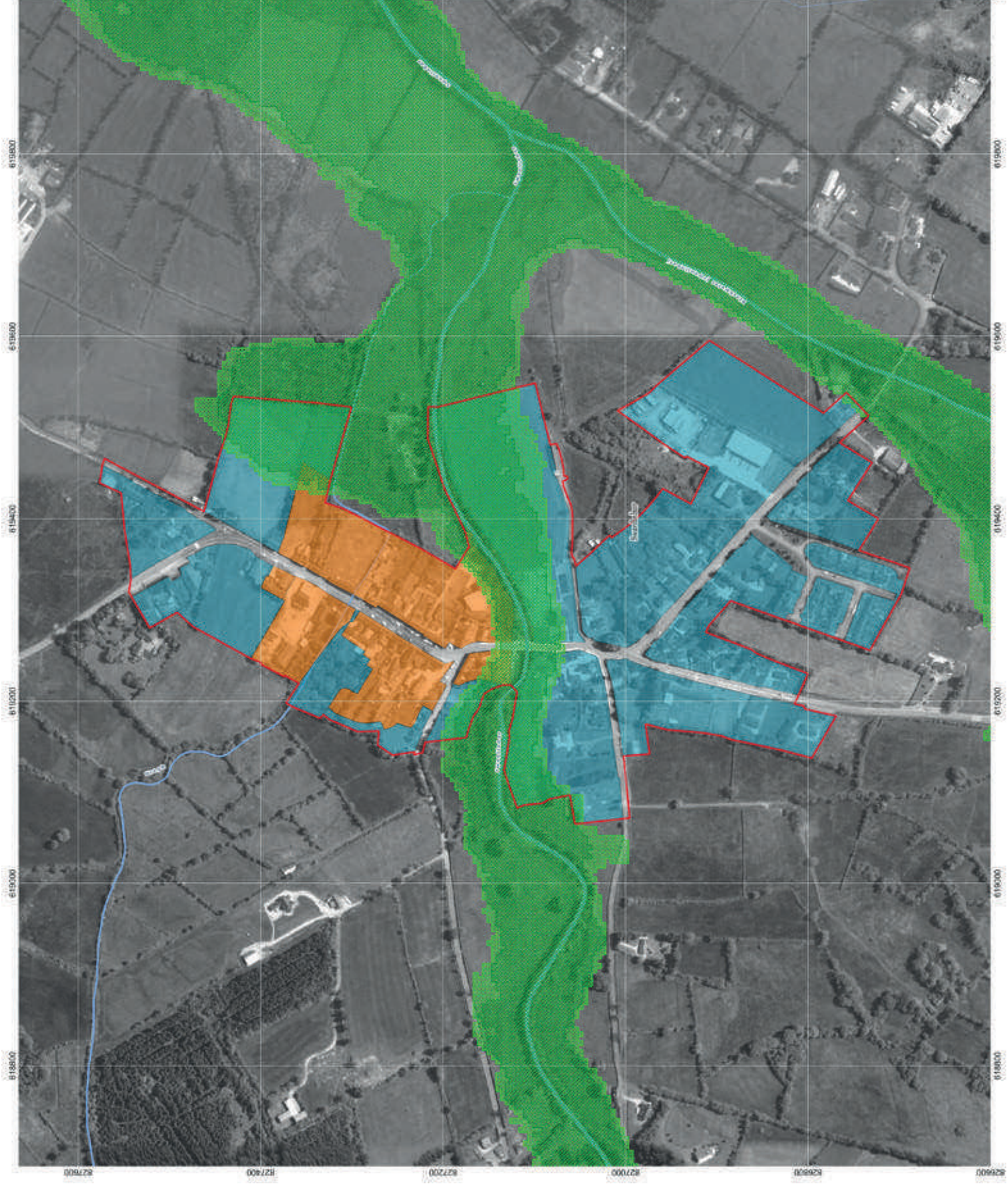
- 1% AEP
- 0.1% AEP

Land Use Zoning

- Town Core
- White Lands



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Cavan County Development Plan 2022-2028

Swanlinbar

GSI Historical Flood Data and Groundwater Predictive Modeling

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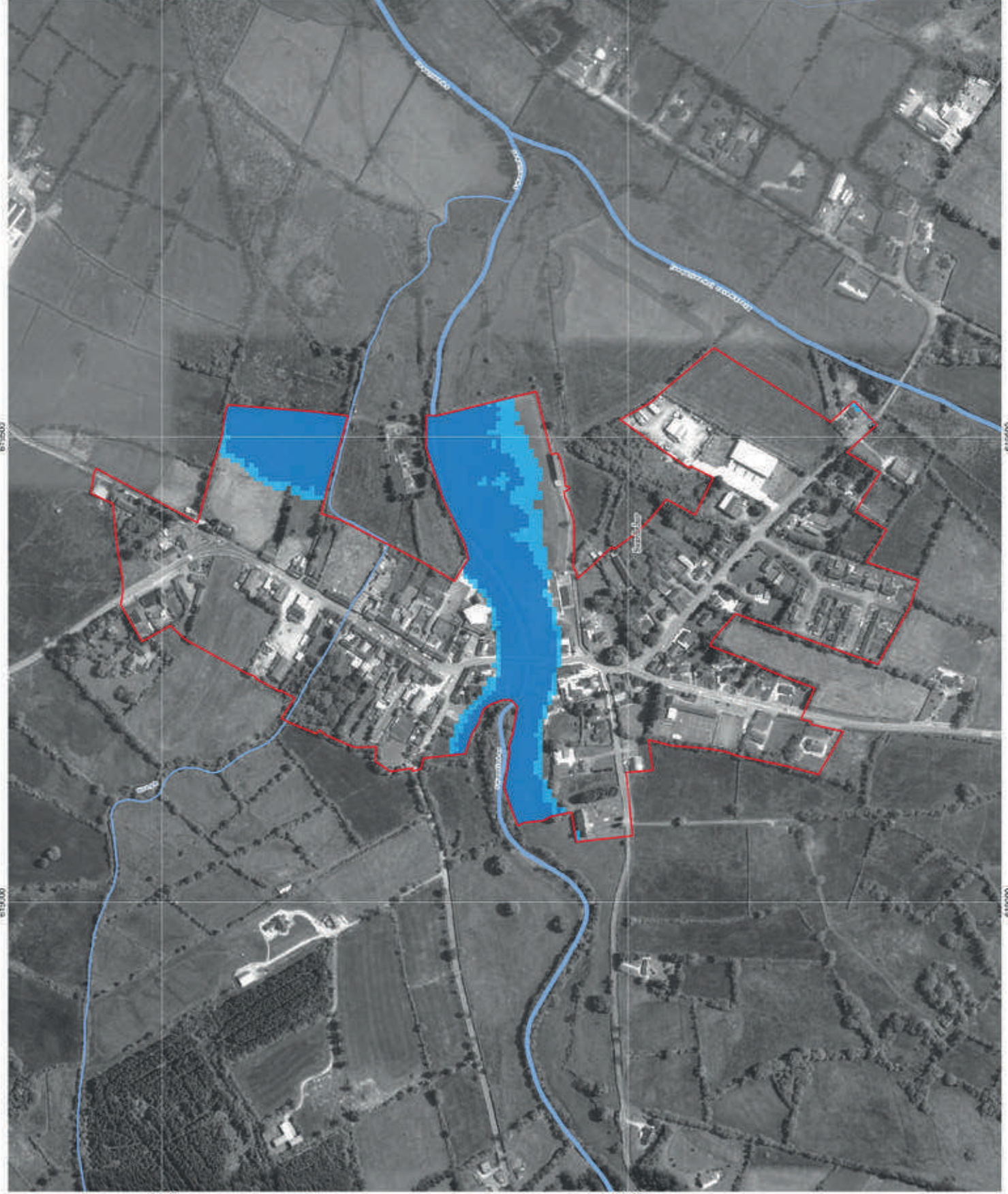
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Cavan County Development Plan 2022-2028

Swanlinbar Flood Zones

-  Plan Boundary
 -  County Boundary
 -  Border Ireland/
Northern Ireland
 -  Water
 -  River or Stream
- Indicative Flood Zones**
-  Flood Zone A
 -  Flood Zone B



Cavan County Development Plan 2022-2028

Swanlinbar
Land Use Zoning that
Interacts Indicative Flood
Zones

- Plan Boundary
- County Boundary
- Town Core
- White Lands



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Cavan

Gairbhíde Centre an Chláirín
Cavan County Council



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Cavan County Council