

September 2024

Report

Draft Galway Wastewater Strategy

(Galway Metropolitan Area, Athenry & Moycullen)

Strategic Environmental Assessment: Scoping Report



Safeguarding our water for our future

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Acronyms and Abbreviations

Term	Definition	Term	Definition
AA	Appropriate Assessment	NDP	National Development Plan
AQGs	Air Quality guidelines	NIS	Natura Impact Statement
CFP	Common Fisheries Policy	NHA	National Heritage Area
CFRAM	Catchment-based Flood Risk Assessment and Management	NIAH	National Inventory of Architectural Heritage
CSO	Central Statistics Office	NPWS	National Parks and Wildlife Service
DAFM	Department of Agriculture, Food and the Marine	NUTS	Nomenclature of territorial units for statistics
DECC	Department of the Environment, Climate and Communications	OPW	Office of Public Works
DHLGH	Department of Housing, Local Government and Heritage	PAHs	Polycyclic Aromatic Hydrocarbons
DHPLG	Department of Housing, Planning and Local Government	PAPs	Pathway Action Plans
EEA	European Environment Agency	pNHA(s)	Proposed National Heritage Area(s)
EPA	Environmental Protection Agency	QI	Qualifying Interests
EC	European Communities	RBMP	River Basin Management Plan
EIA	Environmental Impact Assessment	RMP	Record of Monuments and Places
ELC	European Landscape Convention	RPS	Record of Protected Structures
EU	European Union	SAC	Special Area of Conservation
GHG	Greenhouse Gas	SCI	Special Conservation Interest
GMA	Galway Metropolitan Area	SEA	Strategic Environmental Assessment
GSI	Geological Survey Ireland	SMR	Sites and Monuments Record
GWS	Galway Wastewater Strategy	SPA	Special Protection Area
IAS	Invasive Alien Species	WFD	Water Framework Directive
IGH	Irish Geological Heritage	UN	United Nations
LAWPRO	The Local Authority Waters Programme	UNESCO	United Nations Educational, Scientific and Cultural Organisation

LCA	Landscape Character Area	WFD	Water Framework Directive
MSFD	Marine Strategy Framework Directive	WHO	World Health Organisation
NAF	National Adaptation Framework	WSSP	Water Services Strategic Plan
NBAP	National Biodiversity Action Plan	WWTP	Wastewater Treatment Plant

Glossary

Glossary Term	Definition
AA Screening Report	The report which provides information on and assesses the potential for the proposed plan to impact on European sites within the Natura 2000 network.
Natura Impact Statement	A document which summarises the findings of the AA and how they were factored into the plan, the reason for choosing the preferred plan in light of alternatives considered and to state the likely significant effects.
Appropriate Assessment	An assessment required under the Habitats Directive when a plan or project has the potential to affect a European site.
Baseline Environment	The state of the environment in the absence of the Plan.
Catchment	The total area of land that drains into a watercourse.
Cumulative effect	The combined effects from several plans, programmes or policies.
Strategic Environmental Assessment (SEA) Environmental Report	The SEA report that documents the effects of investment priorities outlined in a plan.
Invasive species	Non-native species that out-compete native species to the detriment of an ecosystem.
Mitigation	The implementation of measures designed to reduce the predicted effects of a plan or project on the environment.
RAMSAR site	An international designation for an important wetland site under the Ramsar Convention.
SEA Screening statement	A summary of the SEA screening determining whether the proposed plan requires SEA.
SEA Scoping Report	The SEA report sets out the scope and objectives of the SEA.
SEA Post Adoption Statement	The document which details how environmental considerations have been integrated into the plan, how the environmental report and consultation responses were taken into account, the reasons for choosing the plan as adopted in light of reasonable alternatives considered and the measures to be taken into account to monitor or mitigate the likely significant effects.
Special Area of Conservation	An international designation for habitats and/or species under the EC Habitats Directive.
Special Protection Area	A site of international importance for birds, designated as required by the EC Birds Directive.
Strategic Environmental Objectives	Methodological measures against which the effects of the Plan can be tested.

1 Introduction

1.1 Background to Uisce Éireann

On the 1st of January 2014, through the Water Services Act (No. 1) 2013, Uisce Éireann (at that time known as Irish Water) assumed statutory responsibility for the provision of public water services and management of water and wastewater investment. Uisce Éireann’s responsibility is to ensure that all of its customers (households and businesses) receive a safe and reliable water supply and have their wastewater collected, appropriately treated and returned safely to the environment. **Figure 1.1.1** below shows some key facts about Uisce Éireann’s wastewater services and infrastructure in the study area for the Galway Wastewater Strategy (GWS).



Figure 1.1.1 Uisce Éireann statistics

Uisce Éireann’s vision is for ***‘A sustainable Ireland where water is respected and protected, for the planet and all the lives it supports.’***

1.2 Purpose of the GWS

The aim of the Galway Wastewater Strategy is to assess wastewater treatment and network infrastructure in the study area to identify what future investment will be required in the medium and long term. The GWS study area includes the Galway Metropolitan Area, Athenry and Moycullen (**Figure 1.2.1**).

The study area is covered by three catchments namely Galway Bay North (EPA code 31), Corrib (EPA code 30) and Galway Bay South East (EPA code 29) and includes four Uisce Éireann Wastewater Treatment Plants (WWTPs) namely Mutton Island WWTP (serving Galway City and environs), Athenry WWTP, Moycullen WWTP and Claregalway WWTP. The wastewater drainage within the study area is by a mixture of separate foul and

stormwater systems and combined sewerage systems with multiple different types of treatment systems and discharges to a range of water bodies.

The economic success of the Galway Metropolitan Area (GMA) and surrounding areas under the National Spatial Strategy has led to very significant growth in these areas. As a result of this growth, the wastewater infrastructure is challenged to keep pace with the increased demand for new serviced land for housing, commercial development, and industry.

The need for a holistic drainage assessment for the Study Area is evident from the high growth projections, compliance challenges of some of the wastewater treatment plants (WWTPs) and sewerage networks, and wastewater treatment capacity requirements to accommodate current and future wastewater loads and address associated pressures on the quality of receiving waters.



Figure 1.2.1: GWS Study Area

Uisce Éireann have identified the need for a strategic approach to a wastewater system assessment for the GWS study area based on the increase in population identified above, current and envisaged compliance challenges at a number of wastewater treatment plants and sewerage networks, wastewater treatment capacity requirements to deal with current and future loads from the GWS study area and associated pressures on the receiving waters from wastewater discharges within the GWS study area. The challenges facing the GWS study area can be summarised as:

- Impact on wastewater systems as a result of rapid growth;
- Compliance challenges associated with existing Wastewater Treatment Plants (WwTP) and sewerage networks;
- Pressure on installed wastewater treatment capacity;
- Deterioration of receiving waters;
- Impact of proposed revised Urban Waste Water Treatment Regulations (UWWTR) on existing wastewater systems; and
- Climate change.

The delivery of a sustainable, integrated wastewater system for the GWS study area requires a strategic approach to system planning which incorporates needs of stakeholders, supports economic growth, allows for climate change and meets the demand of a growing population. A sustainable wastewater management solution must be consistent with statutory obligations and regulatory drivers designed to meet both national and international environmental objectives e.g., Water Framework Directive (WFD) and Urban Wastewater Treatment Directives (UWWTD), and those intended to address the impacts of climate change. The quality and resilience of wastewater system infrastructure in Ireland needs to be maintained in the face of increasing challenges and pressures brought about by factors including rapid growth in major metropolitan centres such as Galway and, increased demand for new serviced land for housing, commercial developments, and industry. The uncertainty associated with the most likely, emerging climate change scenario necessitates an initial step-back to develop and adopt a whole-system assessment approach.

The GWS is subject to the Strategic Environmental Assessment Directive (SEA Directive) Council Directive 2001/42/EC, the Birds Directive (Council Directive 2009/147/EC) and the Habitats Directive (Council Directive 92/43/EEC). This document is part of meeting requirements under the SEA Directive and explains how they link to the requirements of the Birds and Habitats Directives in the sections below.

1.3 Strategic Environmental Assessment

The SEA Directive (2001/42/EC) set out a process for the environmental assessment of plans and programmes and aims to provide for a high level of protection of the environment and to promote sustainable development. It also sets out specific requirements with respect to the Habitats Directive (92/43/EEC) and Birds Directive (2009/42/EC).

The SEA Directive is implemented in Ireland via the European Communities (EC) (Environmental Assessment of Certain Plans and Programmes) Regulations 2004, as amended by the EC (Environmental Assessment of Certain Plans and Programmes) (Amendments) Regulations 2011 (known as the ‘SEA Regulations’). Under these regulations, qualifying plans such as the GWS are required to be subject to SEA screening as a first step to determine if SEA is required. A screening review has been undertaken following the EPA 2021 screening guidance and this confirmed that the GWS requires a mandatory SEA (see **Appendix A**). The subsequent stages include scoping, assessment, public consultation and monitoring. The current stage is scoping.

The aim is that the SEA process should influence and improve the plan. The process involves assessing the likely significant effects on the environment of implementing the plan and considering reasonable alternatives for achieving plan objectives. Combined and cumulative effects of the plan as a whole and with other plans and programmes are also included as part of the assessment. The SEA Regulations set out specific requirements for consultation with Environmental Authorities (listed in **Section 1.7**) and transboundary environmental authorities (if relevant) at the scoping stage and for public consultation on the draft plan and SEA Environmental Report (see **Table 1.1.1** below on the phases for developing the GWS alongside the assessments). The SEA Environmental Report and consultation responses are also required to be taken into account in finalisation of the plan and for implementation monitoring.

Table 1.1.1 Work phases and consultations during the development of the GWS

Phase	Plans/Reports	Consultation
1	Issues Paper, SEA Scoping Report, AA Screening Report	Key stakeholder consultation including environmental authorities and, where relevant, transboundary environmental authorities
2	Draft GWS, SEA Environmental Report, Natura Impact Statement	Public consultation including the key stakeholder and environmental authorities mentioned above
3	Final GWS, SEA Statement, Addendum to Natura Impact Statement (if required) and AA Determination	Plans/ Reports updated to address consultation feedback

Under the European Communities (Birds and Natural Habitats) Regulations 2011 as amended (the ‘Habitats Regulations’) there is a requirement, under regulation 42, for all public authorities to conduct a screening for Appropriate Assessment (AA). AA screening is the preliminary assessment of whether a plan or project, alone and in combination with other plans or projects, could have significant effects on a European site in view of a site’s conservation objectives. If the screening determines that likely significant effects cannot be excluded, then Uisce Éireann must determine that an AA is required. If an AA is required, Uisce Éireann must prepare a Natura Impact Statement (NIS), which is a report consisting of the scientific examination of a plan or project individually, or in combination with other plans or projects, in view of the conservation objectives of the site or sites, and any further information required to carry out the AA. The GWS, SEA and AA/NIS will be developed in parallel through an iterative process.

The SEA is undertaken as a four-stage process (detailed in **Table 1.2.1**).

Table 1.2.1 Stages of the SEA

Stage	Purpose and Requirements	Output
Stage 1: Screening	Prior to starting the SEA process, a plan or programme undergoes 'screening' to determine whether it requires SEA (also if SEA is to be undertaken on a voluntary basis).	SEA Screening Statement – Uisce Éireann (as the responsible authority) determined that SEA would be undertaken for the GWS (see Appendix A)
Stage 2: Scoping Current SEA Stage	Consideration of the context and objectives of the SEA, provides information on baseline data, identifies relevant environmental issues and trends, and defines the parameters of the scope of the SEA for the purpose of consultation.	SEA Scoping Report – this report.
Stage 3: Identification, Prediction, Evaluation and Mitigation of Potential Effects	Within the context and parameters identified at the Scoping Stage, identification and evaluation of likely significant effects of the GWS is carried out, including consideration of alternatives and determination of measures to mitigate and monitor residual effects.	SEA Environmental Report.
Stage 4: Consultation, Revision and Post Adoption	Consultation with statutory consultees and the public. This may require changes to the GWS in light of responses. Statement on how the SEA and consultation process has influenced the final GWS. The statement is required to include an environmental monitoring plan – this is intended to provide feedback on significant environmental effects. This will also aid any future review / revision of the GWS and the SEA.	SEA Statement. Implementation of the monitoring programme.

1.4 SEA Screening

Stage 1 of the SEA process is SEA screening. This is based on the SEA regulations (S.I.435 of 2004) requirements Section 9 (1) (a), which states that environmental assessment shall be carried out for all plans and programmes:

"which are prepared for agriculture, forestry, fisheries, energy, industry, transport, waste management, water management, telecommunications, tourism, and which set the framework for the future development consent of projects listed in Annexes I and II to the Environmental Impact Assessment Directive."

The GWS has been screened following the Environmental Protection Agency's (EPA) Good Practice Guidance on SEA Screening¹ published in December 2021. The screening concluded that the GWS is a type of water management plan which sets a general framework influencing the future development consent of relevant

¹ Environmental Protection Agency (EPA). 2021. SEA Screening Good Practice 2021. Accessed: October 2023. Available from: <https://www.epa.ie/publications/monitoring--assessment/assessment/strategic-environmental-assessment/sea-screening-good-practice2021.php>

projects identified from these plans that may require EIA. Uisce Éireann as the competent authority, has determined that SEA is required on the basis of the EPA 2021 screening guidance applicability tests. Therefore, the Galway Wastewater Strategy is to be subject to SEA in accordance with the regulations. The SEA Screening Statement is provided in **Appendix A** of this report.

1.5 SEA Scoping

This SEA Scoping Report is the output of Stage 2 of the four-stage SEA process. The SEA scoping process aims to:

- Outline what the plan is expected to cover and how the draft plan will be developed;
- Outline the existing environmental baseline – describe the environmental characteristics of the study area and to present the initial understanding of the key environmental issues relating to the GWS;
- Undertake a review of legislation, policies and plans – outline the potential external influences on the GWS and the environment in which it is proposed through a review of legislation, policies and plans;
- Propose a framework of Strategic Environmental Objectives (SEOs) and set out a draft SEA methodology, including outlining how alternative approaches for the GWS that will be considered, identify potential interrelated plans and programmes, and outline how cumulative effects will be addressed;
- Provide the Scoping Report for consultation and seek feedback from stakeholders on the proposed approach to the SEA of the GWS.

The SEA scoping process will inform the SEA assessment and development of the GWS (Stage 3 of the SEA process). The SEA Environmental Report will be the main documented output of Stage 3 of the SEA process. The SEA Environmental Report will present information on the SEA and the likely environmental issues related to the implementation of the GWS as a whole, as well as within each of the counties that are subject to the plan.

Scoping is informed by the preliminary baseline information that has been identified and described within this report. Stakeholders are invited to comment on any further information which may be relevant for the next stage of the SEA. Any relevant data gaps identified will be reported in Stage 3 of the SEA (the SEA Environmental Report) along with areas of uncertainty for the assessment.

1.6 Appropriate Assessment (AA)

In addition to compliance with the SEA Directive, the preparation and implementation of the GWS must comply with the requirements of the Birds Directive and EU Habitats Directive.

The Habitats Directive requires that if a plan, policy or programme is likely to have a significant effect on one or more European sites (that is, a Special Area of Conservation (SAC) or Special Protection Area (SPA), also referred to as “Natura 2000” Network), either alone or in combination with other schemes, plans or projects, then it must be subject to AA.

Uisce Éireann is the relevant ‘public authority’ as identified in the transposing (EC Birds and Natural Habitats) Regulations 2011. An initial AA screening has been undertaken for the GWS to determine if it is likely to have a significant adverse effect on a Natura 2000 site, either individually or in combination with other plans or projects.

Based on the information currently available, the AA screening concluded that GWS project will present risks, some of which are considered likely to have a significant effect on each of the European designated sites

assessed in the absence of mitigation. In accordance with the precautionary principle (European Commission, 2000), and because operational effects of the plan are not yet at options stage, 21 sites are 'screened in' for further assessment. Therefore, a Stage 2 Appropriate Assessment will be required. This will be presented in a Natura Impact Statement (NIS) to fully inform the AA determination to be undertaken by the Uisce Éireann.

There is a degree of overlap between the requirements of the SEA and AA and in accordance with best practice, an integrated approach is being applied between the development of the GWS, the SEA and the AA, such as sharing of baseline data, cohesive assessment of the potential ecological effects of the GWS on European sites and clarification on more technical aspects of the GWS. These processes together will shape the development of the GWS. The SEA will take into account of the findings of the AA in relation to potential effects and mitigation relevant for Natura 2000 sites and will also cover aspects of biodiversity, habitats and species that are not required to be covered in the AA.

1.7 Consultation

The GWS will be developed following two phases of consultation.

An initial statutory consultation on the SEA Scoping Report, the AA Screening Report and Issues Paper will be undertaken. This first consultation will include public consultation and engagement with key statutory and regulatory stakeholders.

In line with Article 9 (5) of the SEA Regulations (S.I. No. 435 of 2004), this SEA Scoping Report will be issued to the following statutory Environmental Authorities for their review and comment:

- The Environmental Protection Agency (EPA);
- The Department of Agriculture, Food and the Marine (DAFM);
- The Department of Housing, Local Government and Heritage (DHLGH) including the Development Applications Unit; and
- The Department of the Environment, Climate and Communications (DECC). In addition, a copy of this SEA Scoping Report will be published online.

Feedback received on the SEA Scoping Report and the AA Screening Report, will be reviewed and taken into account as the draft GWS, SEA Environmental Report and NIS are prepared. The issues raised and the response to them will be summarised in the SEA Environmental Report.

As part of the second phase of consultation, Uisce Éireann will carry out a public consultation on the draft GWS together with the SEA Environmental Report and NIS (AA process) in 2025.

The following key questions have been prepared to guide consultees and stakeholders in making a submission on this SEA Scoping Report and are repeated under the relevant sections throughout the report. However, your response and comments are not limited to responding to these questions.

SEA Scoping Questions

- 1. Do you have any suggestions that you would like Uisce Éireann to consider in the preparation of the GWS?**
- 2. Do you have any comments on the approach to the Strategic Environmental Assessment (SEA) of the GWS?**
- 3. Section 3 sets out the current baseline environment conditions and future trends. The key considerations for the environmental assessment of the GWS and the proposed scope of the assessment is summarised in Section 3.20. Do you have any comments on these?**

4. Are there any further plans, policies and programmes not identified in Section 4 or in Appendix B that should be considered?
5. Do you have any comments on the SEA approach to considering plan alternatives at this stage? If so, please discuss these and provide specific recommendations for changes if possible.
6. Are there any additional or specific plans or programmes that you feel should be considered within the cumulative impact assessment?
7. How would you like Uisce Éireann to communicate with you as the development of the GWS progresses?

These authorities/consultees and the public will be consulted again at Stage 3 – SEA Environmental Report as required under the SEA Regulations.

1.8 Structure of the SEA Scoping Report

This SEA Scoping Report is organised as follows:

Section 2 Development of the GWS – This section outlines the proposed scope of the GWS and how the SEA process and AA are integrated with its development.

Section 3 Preliminary Baseline and Key Issues – The existing baseline environment is described along with key pressures and trends to identify key considerations relevant for assessing the beneficial and adverse impacts of the GWS and to consider the likely evolution of the existing baseline environment without the GWS in place. The scope of the topics and key aspects to be covered in the SEA are set out. The baseline environment information will be used for the SEA and will be include as part of the SEA Environmental Report in the next stage of the SEA process.

Section 4 Review of Policies, Plans and Programmes – An outline of the key relevant policies and plans to be considered and reference to a comprehensive review informing the development of SEA objectives and the approach to SEA. This section will cover the national and regional policies, plans and programmes that need to be considered in the development and assessment of GWS. Key relevant Uisce Éireann’s plans and programmes in place or in progress are also summarized.

Section 5 SEA Methodology – This section provides the draft methodology to the SEA, including the SEA objectives, that are proposed to be used in the SEA of the GWS. The approach to assessing alternative approaches and cumulative effects is also set out.

Section 6 Next Steps – This section identifies what happens next in the SEA process following the consultation on the SEA Scoping Report.

2 Development of the GWS

2.1 GWS Vision and Objectives

The GWS will deliver a sustainable wastewater management strategy that will address the needs of wastewater infrastructure, offering achievable strategic and sustainable wastewater options, resulting in better overall performance and providing capacity to meet water demand and support economic growth for the GWS study area.

The key objectives of the GWS include:

- To develop a sustainable wastewater drainage strategy for the GWS study area consistent with the EU Water Framework Directive and Urban Wastewater Treatment Regulations.
- To outline the requirements for wastewater drainage and treatment capable of meeting the demands of the study area in the context of current Development Plans, the National Planning Framework, RSES 2020 – 2032 for Northern and Western Region and longer-term development potential of the area up to 2080.
- Identification of alternative solutions for effective management of wastewater to protect and enhance the environment, support social and economic growth aligning with Uisce Éireann Water Services Strategic Plan (WSSP) and other Uisce Éireann plans and strategies including the National Wastewater Sludge Management Plan (NWWSMP) and the Regional Water Resources Plan (RWRP) North – West.
- Evaluation of alternative solutions and identification of the optimum wastewater drainage solutions having regard to whole-life cost and environmental performance.
- Identification of individual projects for implementing the recommendations of the GWS, together with the prioritisation of such implementation projects.
- To develop an adaptable strategy where outcomes are expected to be linked to volatile influences like climate and population change.

2.2 GWS and the Hierarchy of Plans

2.2.1 Hierarchy of plans

The **Water Framework Directive (WFD)** is the overarching Directive relating to water policy in the EU. Under this, there are a number of national level plans produced by Uisce Eireann to provide a framework for wastewater management services across Ireland (**Figure 2.2.1**) as outlined below:

The **Water Services Policy Statement (WSPS)** provides the framework within which our funding and investment plans are agreed. It sets out the priorities of Government regarding the provision of water services during the period of a Strategic Funding Plan².

The **Water Services Strategic Plan (WSSP)**³ sets out our objectives for the 25 years following the approval of the plan by the Minister, and the means by which Uisce Éireann will achieve them. This plan is in the process of being updated and the emerging new plan will be taken into account in the development of the GWS⁴.

The **Strategic Funding Plan (SFP)**² presents the arrangements that Uisce Éireann propose to make and the measures that Uisce Éireann propose to deliver over a five-year period to implement the objectives of the GWS. The SFP is approved by the Minister for Housing, Local Government and Heritage. The current SFP covers the period from 2019 to 2024.

² Uisce Eireann. 2019. Strategic Funding Plan 2019-2024. Accessed: December 2023. Available from: <https://www.water.ie/planningsites/greater-dublin-drainage/docs/oral-hearing/Strategic-Funding-Plan.pdf>

³ Uisce Eireann. 2015. Water Services Strategic Plan 2015-2040. Accessed: December 2023. Available from: [WSSP_Final.pdf \(water.ie\)](#)

⁴ The WSSP 2025-2050 is currently under preparation and a draft is due to be published for consultation in 2024

Whilst the SFP sets out the planned level of operational and capital expenditure over this period, the actual allowed operational capital expenditure is decided on by the economic regulator, the Commission for Regulation of Utilities through the **economic regulatory process**.

Environmental regulation of public wastewater services is by the EPA who provide Uisce Éireann's wastewater discharge authorisations.

The GWS is a regional level plan which provides the strategy for wastewater management in the Study Area over the period 2025 to 2080, including the identification of local level projects to be delivered within this time frame. The GWS will be influenced by Uisce Eireann national level plans and other relevant regional level plans including the **National Wastewater Sludge Management Plan**.

A variety of strategic Tier 2 strategic plans and supporting strategies guide how Uisce Éireann deliver their work, beneath which sit Tier 3 specific programmes, plans and projects which Uisce Éireann implement across the country.

2.3 Issues Paper for the GWS

An Issues Paper has been drafted to support the development of the GWS. It summarises the key issues influencing the GWS study area and the approach taken to address the need for sustainable drainage options and wastewater infrastructure in the GWS study area. It is not intended to define solutions or strategies to address those issues. These will be presented in the draft GWS which is currently planned to go out for public consultation in Spring 2025. The Issues Paper is available at the following weblink: www.water.ie/GWS. Hierarchy and interaction of plans and projects is presented in **Figure 2.3.1**.

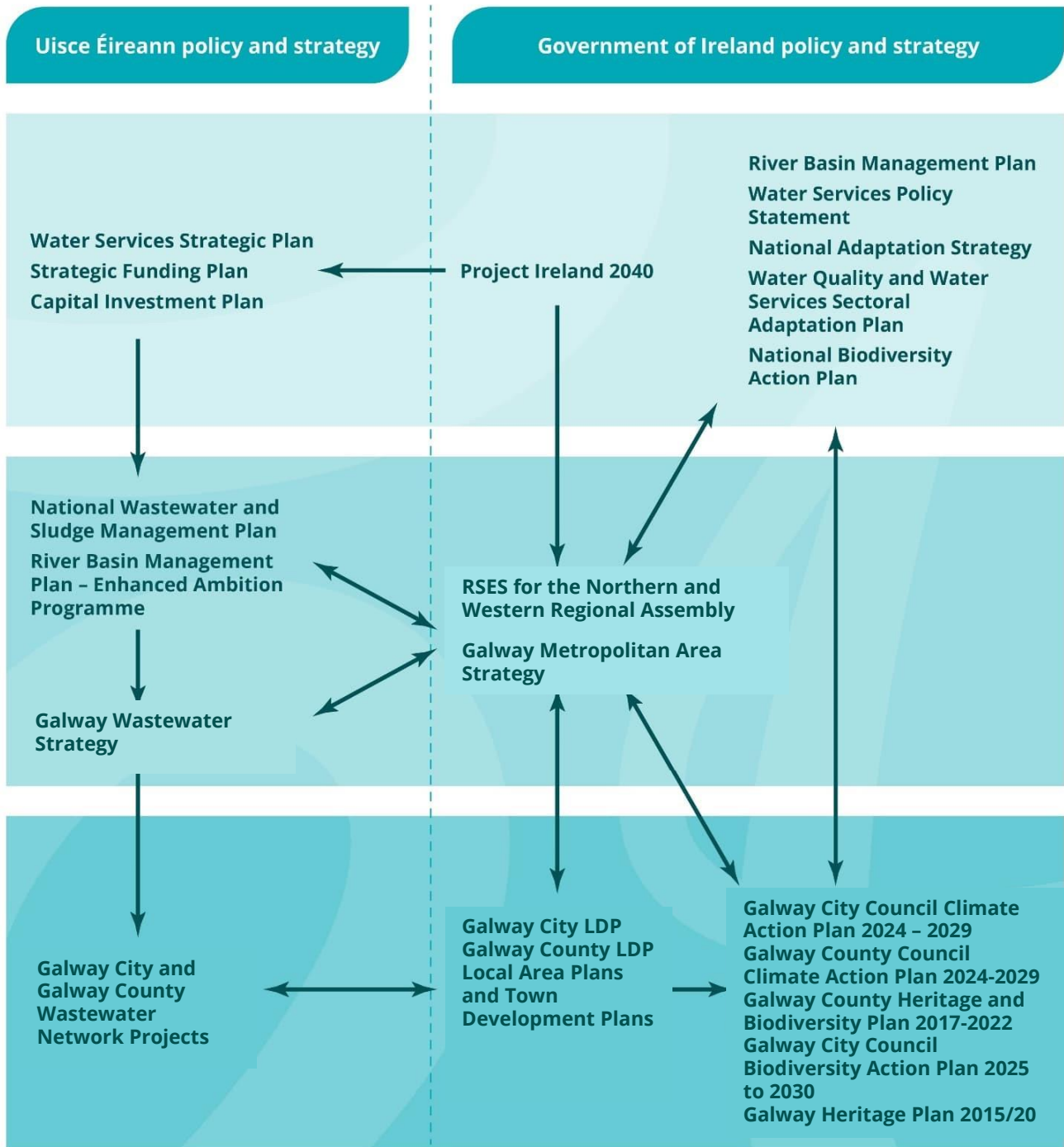


Figure 2.3.1 Hierarchy and interaction of plans and projects

2.4 GWS and the environmental assessments

In the draft GWS, Uisce Éireann will present the following information:

- Assessment of existing sewerage system conditions and of wastewater treatment plant and outfall
- Current and projected population and land use.
- Design flows and loads for the strategy horizon years.
- Hydraulic modelling and water quality modelling.
- Optioneering and solutions development and recommended technical solutions.

The GWS will respond iteratively to environmental assessments being undertaken as illustrated in **Figure 2.3.2**.

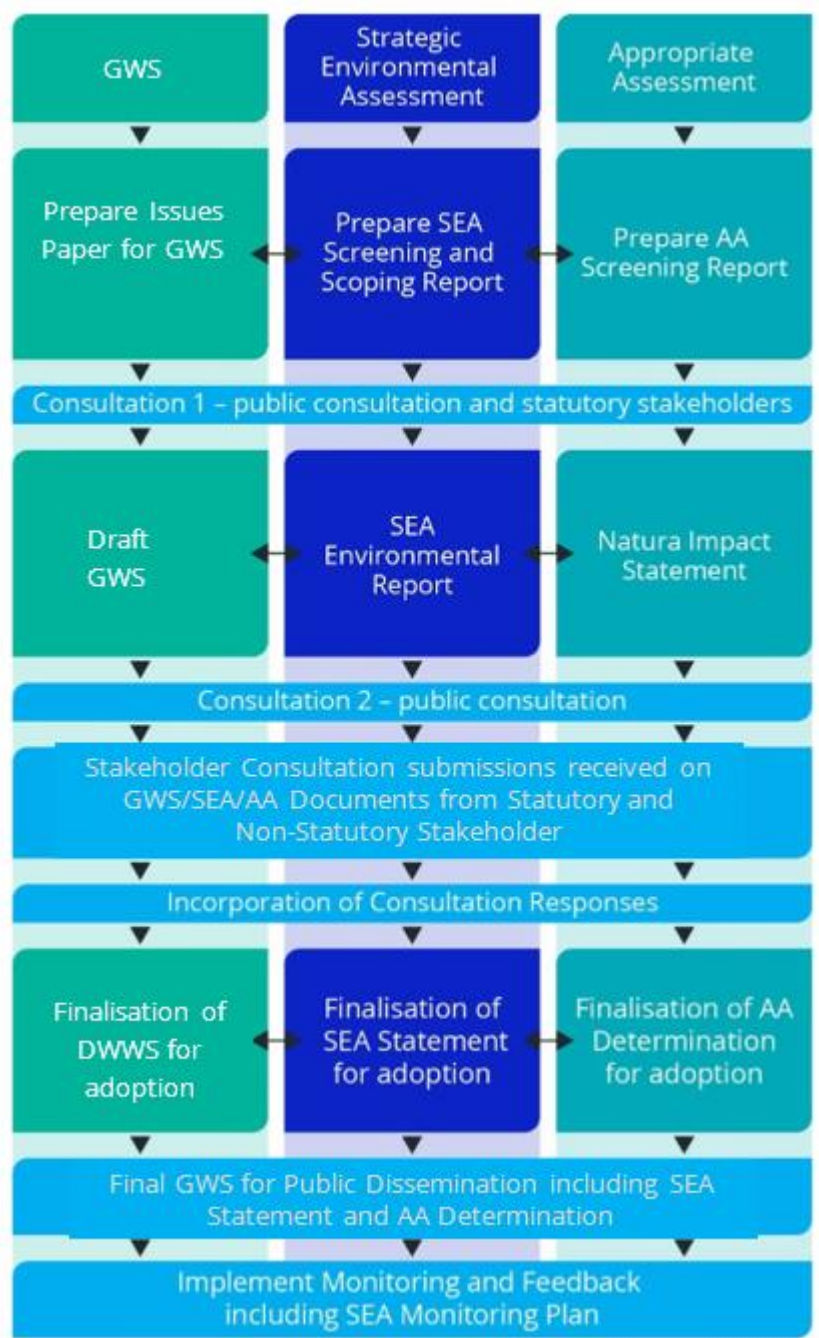


Figure 2.3.2 Development of GWS with the Environmental Assessments

SEA Scoping Questions – Chapter 2

8. Do you have any suggestions that you would like Uisce Éireann to consider in the preparation of the GWS?
9. Do you have any comments on the approach to the Strategic Environmental Assessment (SEA) for the GWS?

3 Environmental Baseline

3.1 Introduction

This section of the SEA Scoping Report describes preliminary information on the existing baseline environment including:

- Description of the existing baseline environment – the baseline is an outline of the current situation or condition drawn from available information, which provides a benchmark against which environmental effects of proposals can be assessed.
- Future trends – the likely future trends and the basis for the potential evolution of the existing baseline environment in the absence of the GWS is set out.
- Key considerations for the development of GWS and undertaking SEA – this summarises the key points to be considered from the review of the existing baseline environment most relevant to the development of GWS, including challenges and opportunities, to help focus the environmental assessment and inform the SEA objectives.

3.2 Types of Actions and Activities influenced by the GWS

As background for the scoping assessment, the broad types of activities that Uisce Éireann will be responsible for during the implementation of the GWS are considered to identify the types of impacts that could give rise to significant effects on the environment. These are summarised in **Table 3.2.1** below.

Table 3.2.1 Types of GWS related activities and potential environmental impacts

GWS related activity	Potential types of environmental Impacts
<p>Development of new wastewater services infrastructure including pipelines and wastewater treatment plants – construction, operation and decommissioning</p>	<ul style="list-style-type: none"> • Land use change/loss - temporary and permanent. • Loss/change in habitat area. • Disturbance (short-term or long-term) to species. • Habitat fragmentation including barrier effects to species movement. • Species mortality (including prey species). • Hydrological changes to aquatic environments. • Transfer of invasive non-native species through construction and operational activities. • Construction disturbance effects from noise, air pollution, water pollution, visual amenity on nearby receptors and traffic disruption impacts. • Cultural heritage impacts on sites and risk to buried archaeological interest. • Landscape/ townscape and seascape impacts depending on structure and location. • Geological sites and soils loss or damage. • Source of carbon emissions, energy and material resource use for construction and waste generation. • Benefits from improved access to wastewater collection. • Improved operational energy efficiency and carbon emissions from rationalisation. • Odour issues from wastewater treatment but also potential for improvement with operational practices and upgraded treatment. • Potential vulnerability to effects of climate change on structures and operations – e.g. from increase in extreme events such as storms, floods, droughts and freeze/thaw events. • Supporting wastewater service demand and improving reliability and flexibility in the network.

GWS related activity	Potential types of environmental Impacts
Discharge of treated wastewater and stormwater and untreated discharges	<ul style="list-style-type: none"> • Surface and groundwater pollution from discharge of wastewaters from sewage treatment plants, and also stormwater and raw sewage discharges affecting WFD water quality objectives for freshwater, estuarine and coastal waters. • Impacts on the aquatic ecology of freshwater, estuarine and coastal waters with associated effects on ecosystem services such as through reduced biodiversity, recreation impacts (for example on designated Bathing Waters and angling), and fisheries impacts including on Shellfish Waters Protected Areas and associated users and livelihoods. • Landscape and visual amenity impacts related to effects of pollution such as algal blooms and untreated sewage. • Reduced resilience to climate change and other pollutant pressures.
Wastewater sludge disposal	<ul style="list-style-type: none"> • Wastewater treatment processes can influence the potential for disposal, recycling or resource recovery from sludges. • Potential for pollution from wastewater treatment sludge disposal – but also well established waste recovery through such as agricultural use.
Other types of activity	<p>These can include a range of supporting actions, many of which can provide beneficial impacts for example:</p> <ul style="list-style-type: none"> • Catchment management initiatives and Nature Based Solutions (NBS) typically requiring collaboration with other stakeholders for delivery but also potentially providing wider environmental benefits supporting the receiving environment. • Awareness raising /behaviour and upstream business/manufacturing changes to reduce pollutants entering system and environment. • Innovation in treatment technology to address emerging issues. • Property and operations management, investigations, monitoring, studies, and mitigation measures related to delivery and improving services and reducing impacts or uncertainty of outcomes.

3.3 SEA Topics

The SEA environmental baseline information is described under the following environmental topics and section headings:

- Water Environment;
- Population, Economy, Tourism and Recreation, and Human Health;
- Climate Change;
- Biodiversity;
- Material Assets;

- Landscape, Townscape and Seascape;
- Cultural Heritage – Archaeological and Architectural;
- Geology and Soils;
- Air Quality;
- Noise and Vibration; and
- Transboundary Environment.

3.4 SEA Study Area

The spatial areas for the SEA are as follows:

- Core study area: comprises the Galway Metropolitan Area, Athenry and Moycullen (**Figure 1.2**);
- Zone of influence for European designated sites additionally including those located partially or fully outside of the Core study area which, by applying the “source-pathway-receptor” model, have been determined to have potential impact pathways connecting elements of the GWS to European sites in view of their conservation objectives (zone of influence as identified in the AA Screening Report)
- Zone of influence for WFD water bodies – this is based on the surface water hydrometric modelling area and used to identify the relevant WFD water bodies within and outside the Core study area for the assessment.

3.5 SEA Time Frame

The temporal scope for the SEA is the period between 2025 and 2080. The GWS will consider this time period including longer term design horizon years from 2055 to 2080. Options proposed in this iteration of the GWS will support the delivery of these longer-term solutions. The long-term horizon does create a challenge in establishing a robust environmental baseline this far into the future, however, the GWS will be revised and updated on a regular basis and the SEA assessment will be revised and updated alongside the future iterations of the GWS.

3.6 High Level Environmental Trends Across Ireland

The EPA’s latest State of the Environment Report⁵ provides:

- An assessment of the overall quality of Ireland’s environment;
- An outline of the pressures being placed on this environment; and
- The key actions that can address these pressures.

The following areas identified as challenges to address across Ireland within the State of the Environment Report (SOER) are environmental issues particularly pertinent to development of the GWS:

- Climate: high greenhouse gas (GHG) emissions continue, and the scale and pace of GHG reductions must accelerate to meet 2024 Climate Action Plan targets.
- Water: deteriorating water quality trends over the last 20 years, particularly for coastal waters and rivers.

⁵ Environmental Protection Agency (EPA). 2020. Ireland’s Environment 2020 - An Assessment – Report. Accessed: October 2023. Available from: [Ireland’s Environment 2020 - Foreword 2020 | Environmental Protection Agency \(epa.ie\)](https://www.epa.ie/publications/Environment_2020_-_Foreword_2020)

- Biodiversity: deteriorating protected habitat trends, with 85% of EU protected habitats having unfavourable status. Trends for EU protected species are mixed, however freshwater species are most at risk and some freshwater species are under threat.

Waste, soil health and the circular economy (including the EU Soil Strategy's aims to achieve good soil health by 2050): these aspects also support carbon, water quality and biodiversity, where further action is needed to meet long-term objectives and targets. Further detail regarding the baseline environment for each of these topic areas is provided in the baseline topic sections below.

These key challenges of relevance to the GWS also directly link to the following four UN Sustainable Development Goals (SDG):

- **SDG 6** Clean Water and Sanitation: Ensure availability and sustainable management of water and sanitation for all;
- **SDG 13** Climate Action: Take urgent action to combat climate change and its impacts;
- **SDG 14** Life Below Water: Conserve and sustainably use the oceans, seas and marine resources for sustainable development; and
- **SDG 15** Life On Land: Protect and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss.

Significant population increase is anticipated over the coming decades, which is an important consideration for wastewater treatment, and therefore relevant for the water environment including compliance with the Water Framework Directive and SDGs 6 and 14.

Specific indicators for meeting the UN SDGs in Ireland are reported on Ireland's SDG data hub⁶, and include a Central Statistics Office CSO Report on Indicators for Goal 6 Clean Water and Sanitation: Overview – SDG 6 Clean Water and Sanitation⁷.

3.7 Sources

A wide range of publicly available sources of information are used as a basis for identifying the baseline environment including, web-based searches, published reports and Geographic Information Systems (GIS) mapped data. These sources, along with Uisce Éireann's own data, are referred to in the relevant topic sections and a reference list for the sources is provided at the end of the report. Key general sources for the review of the existing baseline environment for the SEA of GWS also include:

- The EPA <https://gis.epa.ie/EPAMaps/> and <https://enviromap.ie/>;
- The Central Statistics Office (CSO) <https://www.cso.ie/en/index.html>;
- The National Parks and Wildlife Service (NPWS) <https://www.npws.ie/>; and
- The European Environment Agency (EEA) <https://www.eea.europa.eu/>.

⁶ Government of Ireland. 2023. Ireland's Sustainable Development Goals data hub. Accessed: July 2024. Available from: <https://irelandsdg.geohive.ie>

⁷ Central Statistics Office (CSO). 2021. Ireland's UN SDGs 2019 - Report on Indicators for Goal 6 Clean Water and Sanitation. Accessed: July 2024. Available from: [UN SDG's Goal 6 - Clean Water and Sanitation - CSO - Central Statistics Office](#)

3.8 Water Environment

3.8.1 Water Environment Baseline Conditions

The study area is covered by three catchments namely Galway Bay North (EPA code 31), Corrib (EPA code 30) and Galway Bay Southeast (EPA code 29), which are shown in **Figure 3.8.1**.

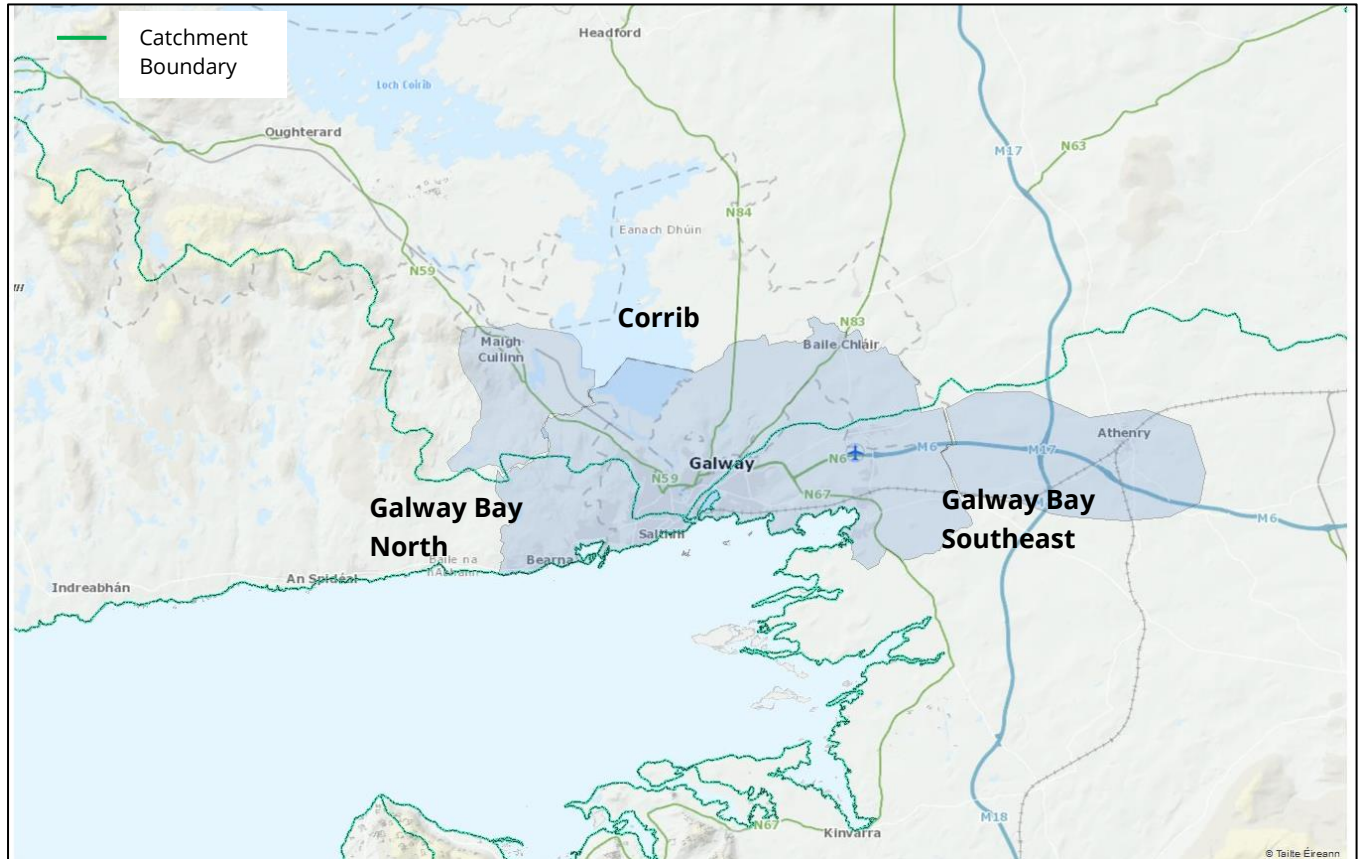


Figure 3.8.1 WFD Catchment Boundaries⁸

Water Quality

Ireland has seen a continuing decline in high status waterbodies and an increase in the number of waterbodies in poor ecological health. Even more stark is the dramatic reduction in the number of the most pristine rivers, which have fallen in 30 years from over 500 sites in 1990 to only 20 sites in 2020. The EPA also urge that focus should be given to protecting estuaries, as these waterbodies have the worst status overall and specific measures for their improvement and protection are needed⁹.

The EPA 2022 assessment also identified that 88% of surface waterbodies achieved good chemical status when ubiquitous substances were excluded (for example mercury and polycyclic aromatic hydrocarbons (PAHs)).

Rivers and Lakes

The main surface water bodies and their water quality status within the study area are summarized in **Table 3.8.1** and illustrated in **Figure 3.8.2**.

⁸ [Environmental Sensitivity Mapping \(geohive.ie\)](https://www.geohive.ie/) Accessed: July 2024

⁹ Environmental Protection Agency (EPA). 2022. Catchments. Accessed: July 2024. Available from: <https://gis.epa.ie/GetData/Download>

Table 3.8.1 Water quality of main surface water bodies within the study area^{8,9}

Major Surface Water Bodies	Status (2022)	Risk	Pressure Category
Rivers			
Corrib and its tributaries	Good	Not At Risk	
Knocknacarragh and its tributaries	Poor	Review	
Barna and its tributaries	Moderate	Review	
Ballycuike and its tributaries	Moderate	At Risk	<ul style="list-style-type: none"> Hydromorphology Urban run-off
Trusky and its tributaries	Moderate	Not at Risk	
Loughkip and its tributaries	Good	Not At Risk	
Terryland	Moderate	At Risk	<ul style="list-style-type: none"> Hydromorphology Urban run-off
Carrowmoneash and its tributaries	Poor	Review	
Clare and its tributaries	Moderate	Not At Risk to At Risk	<ul style="list-style-type: none"> Agriculture Extractive Industry Hydromorphology
Rockhill and its tributaries	Moderate	Review	
Clarinbridge and its tributaries	Moderate to Poor	Review to At Risk	<ul style="list-style-type: none"> Urban Wastewater Agriculture Domestic Wastewater Urban Run-off
Lakes			
Loch Corrib	Good	Not At Risk	
Menlough	Good	Not At Risk	
Ballyquirke	Moderate	At Risk	<ul style="list-style-type: none"> Invasive Species Urban Wastewater

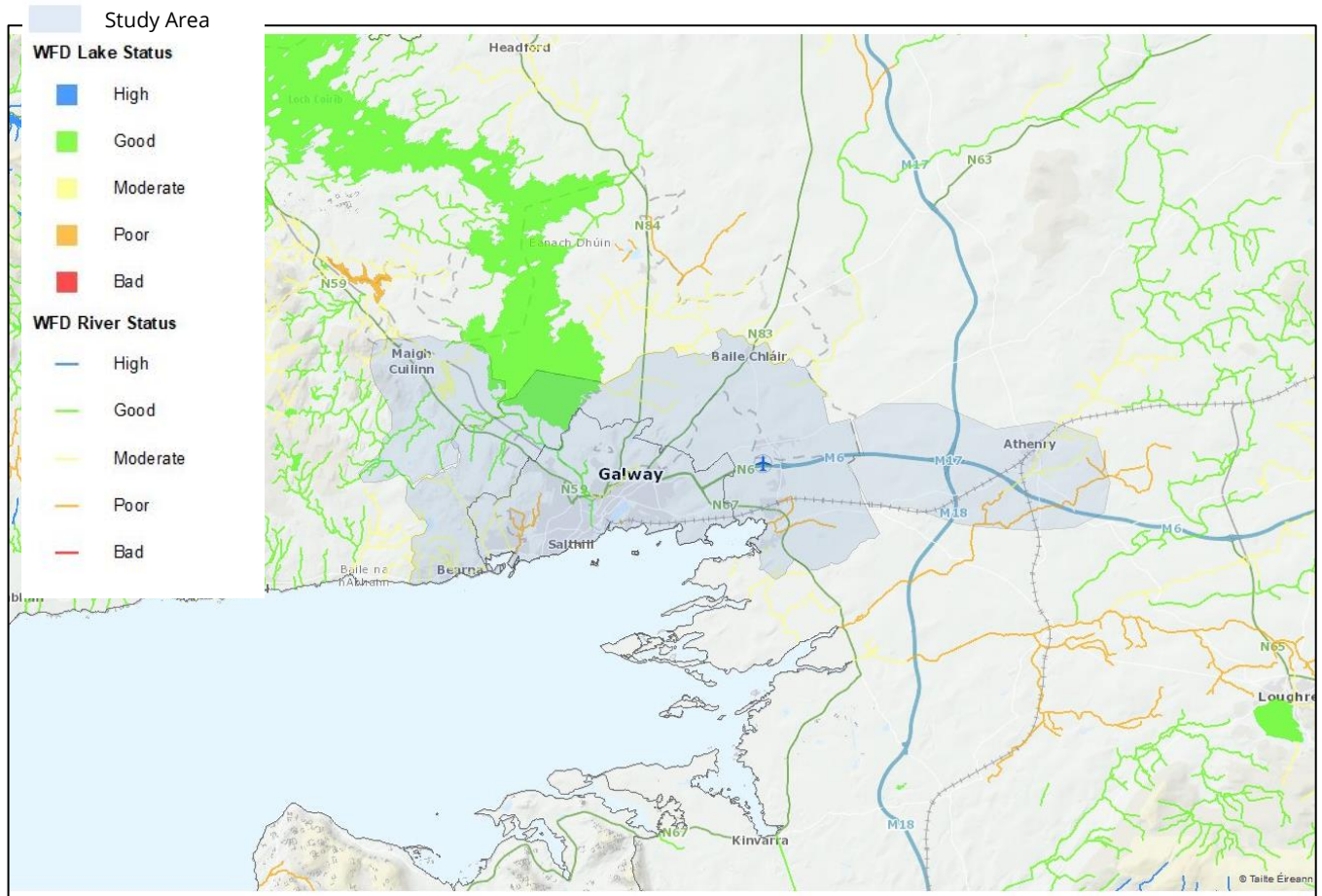


Figure 3.8.2 WFD Rivers and Lake Status

Coastal Transitional Water Bodies

The coastal and transitional (estuaries and lagoons) water bodies and their water quality status within the study area are summarized in **Table 3.8.2** and illustrated in **Figure 3.8.3**:

Table 3.8.2 Water quality of major coastal and transitional water bodies within the study area^{8,9}

Major Coastal and Transitional Bodies	Status (2022)	Risk
Corrib Estuary	Moderate	Not At Risk
Inner Galway Bay North	Good	Not At Risk
Outer Galway Bay	High	Not At Risk

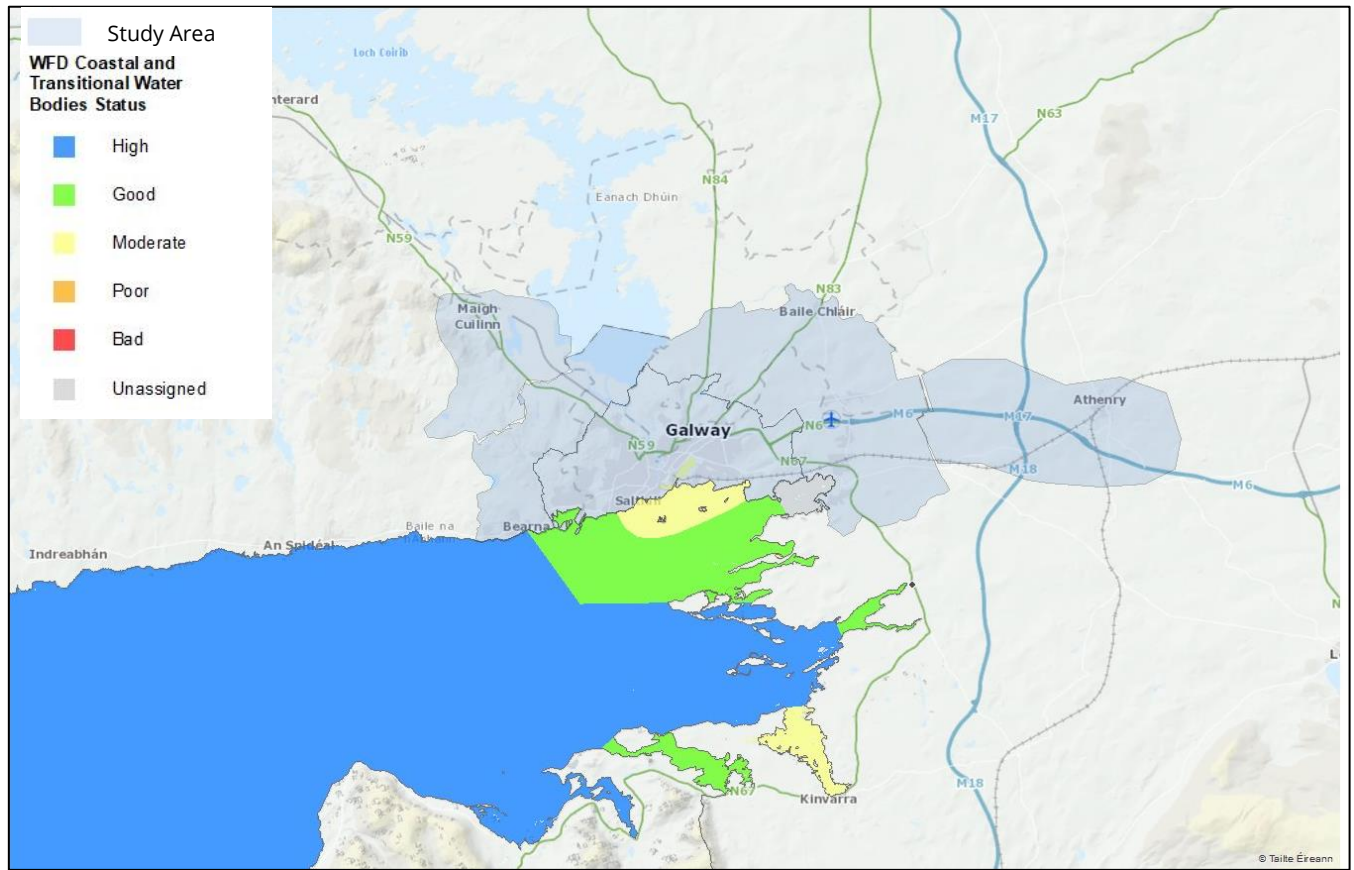


Figure 3.8.3 Water quality of major coastal and transitional water bodies within the study area⁸

Groundwater bodies

Groundwater is stored in the void spaces in underground layers of rock, or aquifers. These aquifers are permeable, allowing both the infiltration of water from the soils above them and the yielding of water to surface and coastal waters. Groundwater is the part of the subsurface water that is in the saturated zone - the zone below the water table, the uppermost level of saturation in an aquifer at which the pressure is atmospheric, in which all pores and fissures are full of water. The ground water bodies and their water quality status within the study area are summarized in **Table 3.8.3** and illustrated in **Figure 3.8.4**.

Table 3.8.3 Water quality of major groundwater bodies within the study area^{8,9}

Major Groundwater Bodies	Status (2022)	Risk	Pressure Category
Maamcorrib-Clonbur	Good	Not At Risk	
Rose Lake	Good	Not At Risk	
GWDTE-Lough Corrib	Good	Not At Risk to At Risk	<ul style="list-style-type: none"> • Extractive Industry
Spiddal	Good	Not At Risk	
Clare-Corrib	Good	At Risk	<ul style="list-style-type: none"> • Agriculture • Anthropogenic Pressures
Clarinbridge	Good	Review	
Maam Clonbur	Good	Not At Risk	

Waste Facility	Poor	At Risk	<ul style="list-style-type: none"> Waste
Industrial Facility	Poor	At Risk	<ul style="list-style-type: none"> Industry
GWDTE-Galway Bay Complex Fens	Good	Review	
Loughrea	Good	Review	
GWDTW – Rahasane Turlough	Good	At Risk	<ul style="list-style-type: none"> Agriculture Domestic Waste Water

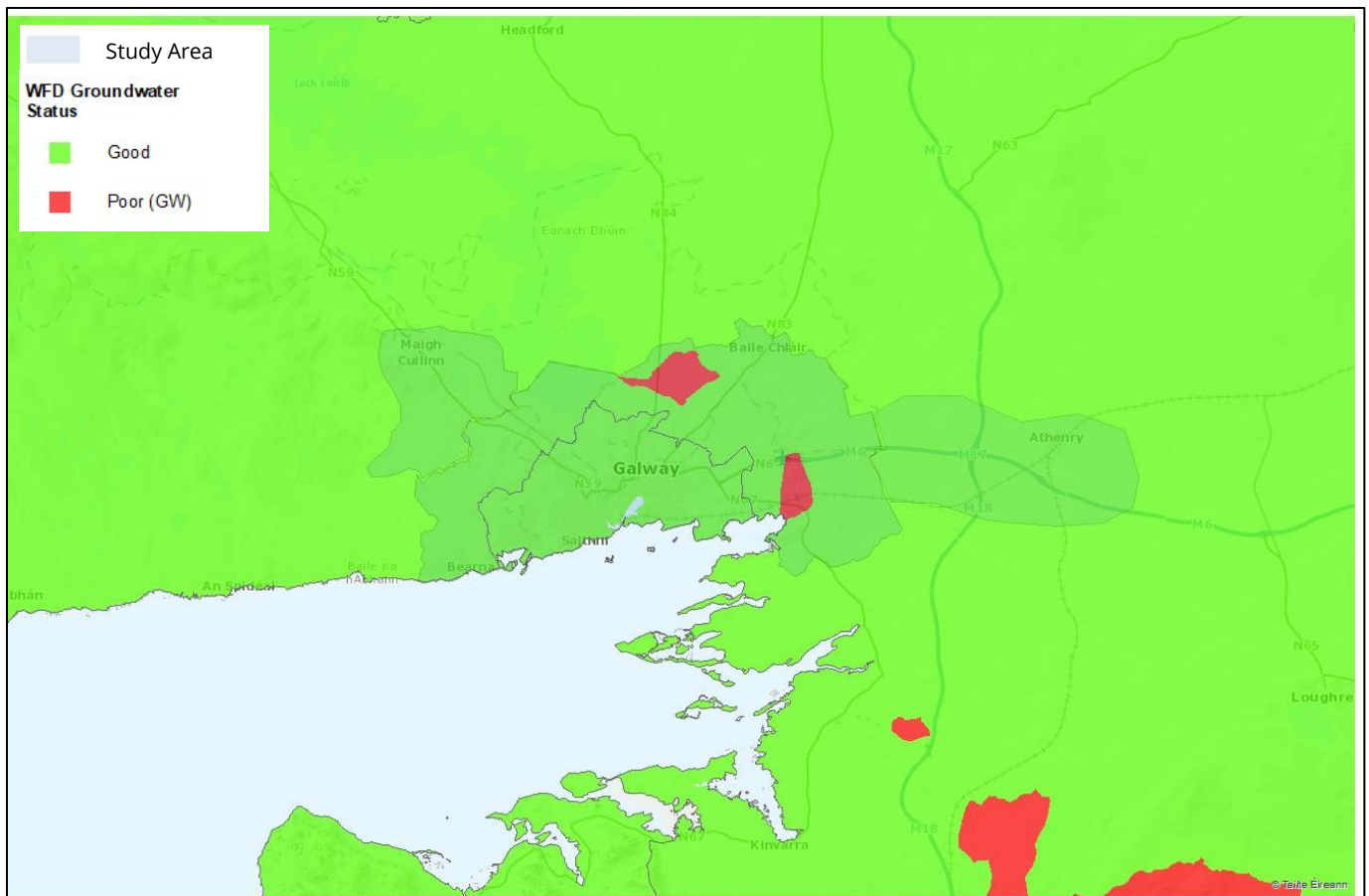


Figure 3.8.4 Water quality of major groundwater bodies within the study area⁸

Marine Environment

The temperate waters that surround Ireland are highly productive and provide a rich mosaic of marine life. The assessment of the wider marine areas is covered under the EU Marine Strategy framework Directive.

Ireland’s location in the Atlantic Ocean on the edge of the European continent has meant that its marine environment has remained relatively unpolluted. In recent years, however, the level of environmental stress, from both internal and external sources, has increased. Coastal development, particularly during the 1990s, has resulted in an increase in the range and magnitude of pressures that have the potential to impact negatively on the quality of Ireland’s tidal waters.

Nutrient Sensitive Areas

Nutrient sensitive areas are designated under the Urban Waste Water Treatment (UWWT) Directive 91/271/EEC. These areas are used to represent the waterbody containing the sensitive area. Waters may be identified as 'Sensitive (Eutrophic)' if found to contain excessive levels of nutrient waste as outlined by both the UWWT or Nitrates Directives, or likely to become eutrophic if preventative action is not taken.

There are no WFD RPA Nutrient Sensitive Areas (Rivers, Lake, Coastal and Transitional) and WFD RPA Shellfish identified in the study area⁸. River Corrib is protected under the Salmonid River Registration (S.I.293), which extends protection to freshwater fish species. The European Union Shellfish Waters Directive is designed to protect the aquatic habitats of bivalve and gastropod molluscs, including oysters, mussels, cockles, scallops and clams. Shellfish areas can be found in Clarinbridge / Kinvara Bay and Outer Galway Bay Indreabhán.

3.8.2 Flood Risk

Flooding has become a greater issue in Ireland in recent years; the frequency of flood events has been increasing and with climate change, is expected to increase further. Increased flooding can cause pressure on drains and sewers affecting wastewater treatment plant operation and release of untreated stormwaters due to flood events affecting surface water quality. Flood events also increase nutrient rich sediment run off from agricultural and forestry land also affecting water quality.

The Floods Directive (2007/60/EC) required member states to develop Flood Risk Management Plans for areas of existing and future potentially significant flood risk. The Floods Directive was transposed into Irish law by the EU (Assessment and Management of Flood Risks) Regulations 2010 and sets out the responsibilities of the OPW.

The OPW has been implementing the Directive mainly through the Catchment-based Flood Risk Assessment and Management (CFRAM) Programme¹⁰. CFRAM mapping for all Areas for Further Assessment is available to view on the CFRAM website. There are five Areas for Further Assessment (AFAs) identified in the study area: Galway City, Corrib, Oranmore, Claregalway, and Athenry

An increase in likelihood of river and coastal flooding is predicted across Ireland from climate change projections. All of Ireland's major cities are located in coastal areas subject to tides, and a significant rise in sea levels will have major economic, social and environmental impacts.

This includes flood risks to water and wastewater services either directly or indirectly by affecting power supply or transport access for water services operation and also through impacts to customers experiencing the effects of inundation of residential areas and businesses. **Figure 3.8.5** shows areas with medium or high probability of fluvial or coastal flooding within the study area.

¹⁰ Office of Public Works (OPW). 2018. Catchment Flood Risk Assessment and Management Programme. Accessed: July 2024. [Flood Plans - OPW Flood Risk Management \(floodinfo.ie\)](https://www.floodinfo.ie/)

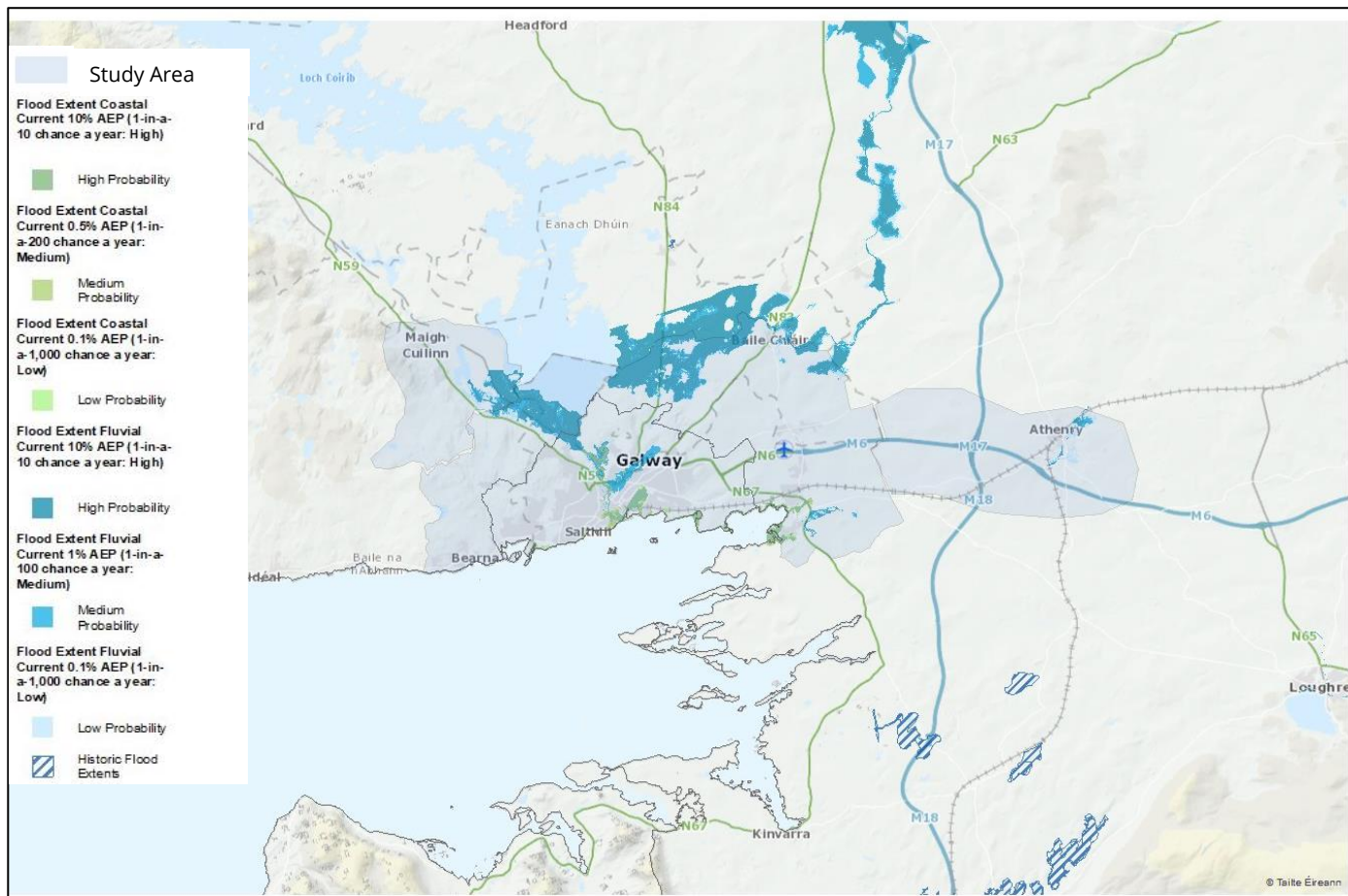


Figure 3.8.5 CFram river and coastal flood risk⁸

Areas with medium and high groundwater flooding have been identified and are shown in **Figure 3.8.6**.

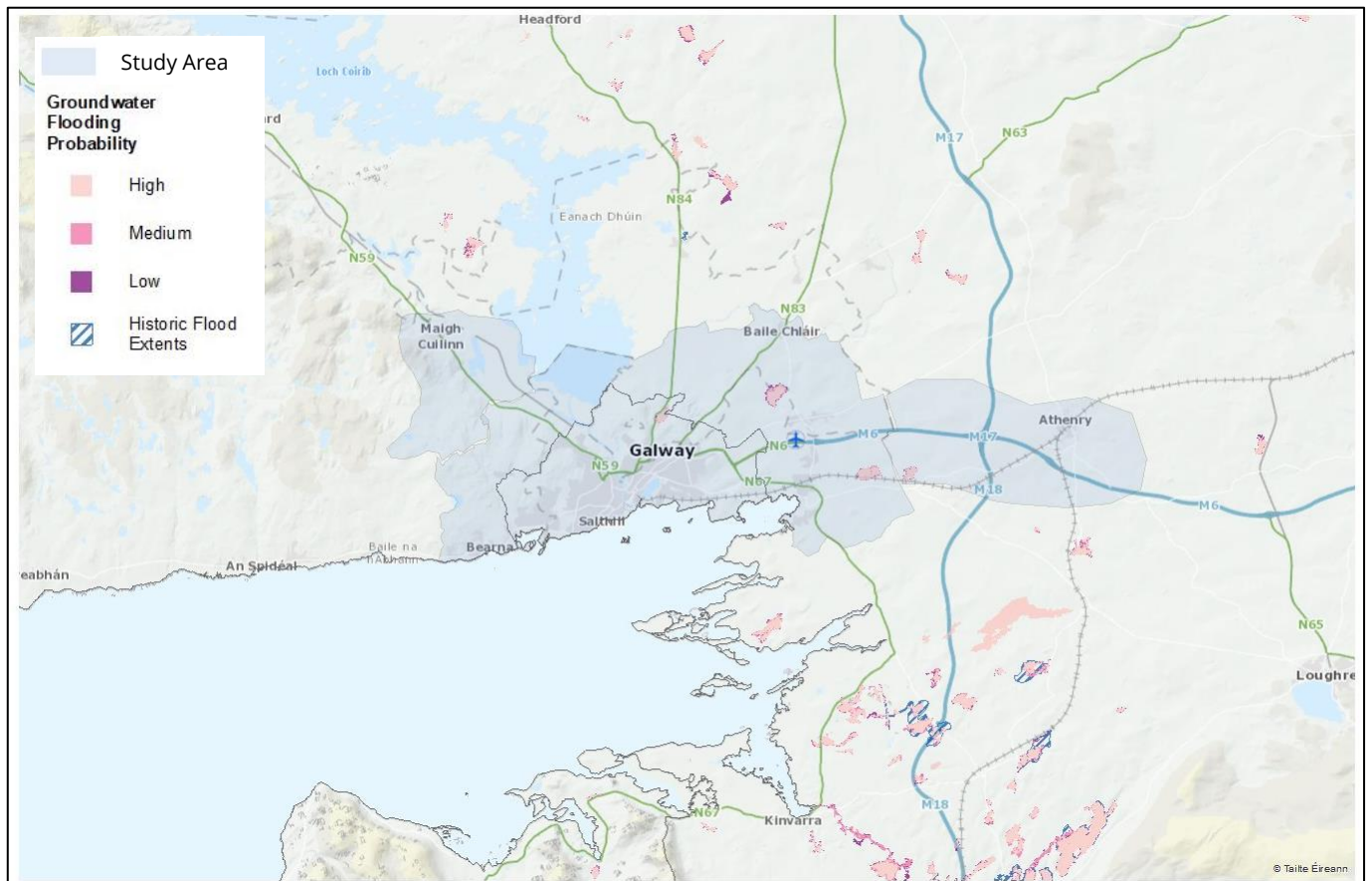


Figure 3.8.6 Groundwater flooding probability map⁸

3.8.3 Future Trends

WFD environmental objectives

The second cycle River Basin Management Plan¹¹ sets out a programme of measures to improve water quality and the third cycle draft RBMP 2021- 2027 (published for consultation in 2021 with the final version expected in early 2024)¹² updates and takes this further. The current ecological status data can be used to assess progress against the environmental objectives that those measures were designed to achieve.

The evidence shows that there have been both improvements and declines in the water quality in all water body types between 2013-2018 (cycle 2) and the 2016-2021 (cycle 3) assessment period within the WFD Zone of Influence. In 2013-2018, 43% (35 waterbodies) of all waterbodies achieved their environmental objective (have high or good WFD ecological status¹³) whilst in 2016-2021, 57% (47 waterbodies) achieved their ecological objective. Cycle 2 saw 22 waterbodies with unassigned status of which 11 had high or good status and 9 had below good status in cycle 3. A total of 6 waterbodies have deteriorated and the status of 2 waterbodies remains unassigned. The draft RBMP 2021-2027¹² proposes 26 areas for focused action and collaboration by a range of bodies including the Local Authority Waters. Programme (LAWPRO), local authorities, public bodies, and stakeholders as part of implementation of the 3rd Cycle for implementation of the EU Water Framework Directive in Ireland. There is one objective for action: restoration (for 26 waterbodies); five of which are high status objective waterbodies. In June 2022, LAWPRO introduced a new

¹¹ DHLGH. 2018. River Basin Management Plan 2018 - 2021. Accessed: July 2024. Available from: <https://www.gov.ie/en/publication/429a79-river-basin-management-plan-2018-2021/>

¹² Department of Housing, Local Government and Heritage (DHLGH). 2021. Draft River Basin Management Plan for Ireland 2022-2027. Accessed: July 2027. Available from: [gov - Public Consultation on the draft River Basin Management Plan for Ireland 2022-2027 \(www.gov.ie\)](http://gov.ie/en/publication/429a79-river-basin-management-plan-2018-2021/)

¹³ The Water Forum. 2022. Introduction to the Water Framework Directive (WFD). Accessed: July 2024. Available from: [Water-Forum-Factsheet-1 Introduction-to-the-WFD.pdf \(thewaterforum.ie\)](https://www.waterforum.ie/wp-content/uploads/2022/07/Water-Forum-Factsheet-1-Introduction-to-the-WFD.pdf)

element to their work programme called the Blue Dot Catchments Programme – Q5 River Engagements. The funding was directed towards 24 rivers in Ireland.

Agricultural policy and water protection

A significant proportion of water pollution arises from agricultural land. Teagasc (Agriculture and Food Development Authority) identify a risk-based approach to identifying areas of diffuse pollution on farmland with the highest risk of affecting a waterbody. The approach can support the work of LAWPRO and Agricultural Sustainability Support and Advisory Programme (ASSAP) which have been addressing the second cycle PAAs to focus land management measures where they will be most effective. Recommendations¹⁴ have been made to extend ASSAP as part of supporting the forthcoming third cycle RBMP. Many of the areas of action proposed in the draft RBMP 2021-2027 mentioned above will aim to address pollution from agricultural land.

The National Action Programme under the Nitrates Directive will provide an opportunity to evaluate the need to amend existing farm management measures under the programme. Measures will be required to address the issues identified during farm inspections such as inadequate management of animal manures, contamination of waters by run-off from farmyards and structural defects in manure storage facilities.

Local community initiatives

To deliver significant improvements in the condition of waters it will be important to generate and harness bottom-up community involvement and ownership of the environmental issues, for example through the formation of River Trusts. Funds available from the Community Water Fund and from national and European research projects (LEADER and LIFE projects) are providing opportunities for local communities and farmers to get involved in local water quality catchment-based projects. Local community initiatives, with the support of the LAWPRO, have the potential to tackle threats to water protection and restoration more effectively by examining the risks and developing tailored solutions at a local level.

Citizen science also provides an opportunity for local communities to get involved in science projects to inform on the quality of the aquatic environment. The Explore Your Shore project is looking for volunteers to identify the different types of animals and plants found in seashore rockpools. Clean Coasts engages communities in the protection of Ireland's beaches, seas and marine life¹⁵.

Urban wastewater

The Proposal for a revised Urban Waste Water Treatment Directive (UWWTD) was published by the European Commission in October 2022. It is envisaged that this revision will aim to take account of new standards and challenges and to support improving water quality by further addressing urban wastewater pollution. The revised UWWTD is currently scheduled for adoption in 2024 with implementation in Ireland likely sometime in 2026. The proposed revisions include:

- Extending application of the directive to settlements over 1000 p.e;
- New standards for decentralised facilities;
- Integrated water management plans in all large settlements and those above 10,000 p.e where there is environmental risk with priority to green infrastructure and optimisation of existing systems;
- More stringent limit values for nutrients for all large facilities but also those over 10,000 where there are eutrophication issues;

¹⁴ Teagasc. 2021. External Expert Assessment of the Agricultural Sustainability Support and Advisory Programme (ASSAP) Report of the Independent Review Panel 12 October 2021. Accessed: July 2024. Available from: [ASSAP-Expert-Review-Final-Report---pdf--22-Nov-2021.pdf \(teagasc.ie\)](#)

¹⁵ [Clean water projects | Environmental Protection Agency \(epa.ie\)](#). Accessed: July 2024

- Establishment of new limit values for micro-pollutants requiring additional treatment initially for large facilities then on a risk basis for smaller facilities;
- Introduction of a system of producer responsibility for two main sources of micro-pollutants to raise funds and incentivise change; and
- Improved monitoring of non-domestic pollution supporting reuse of sludge and treated water.

The proposals also aim for facilities over 10,000 p.e to reach energy neutrality by 2040 and to improve governance and transparency of performance, access to sanitation and digital technology supporting improvements to monitoring and reporting.

Since 2014 there have been significant improvements in wastewater treatment and discharges, and this is recognised in the draft RBMP 2021-2027. However, the existing infrastructure is ageing and dispersed while regulation standards are becoming more stringent. Significant investment will therefore be required to improve performance and reduce water pollution, but this will not be achievable in the short term. The EPA highlighted urban areas (in mid-2022) where treatment must be improved as a priority for the below urban areas within the study area (**Table 3.8.4**)¹⁶:

Table 3.8.4 Priority issues and proposed action plan for urban areas in Galway

Area	Priority Issues	Proposed Action Plan	Proposed date to complete
Athenry	Significant pressure on waters at risk of pollution	Treatment Plant Upgrade	2031

Marine Planning Reform

As part of implementing the EU Marine Spatial Planning Directive (2014/89/EU), Ireland’s National Marine Planning Framework (NMPF) (2021) has been produced to provide guidance for activities and developments affecting the marine environment up to 2040. The Maritime Area Planning Act 2021 (as amended), was enacted in 2021 and the Maritime Area Regulatory Authority (MARA) was established in July 2023 - together these introduce a new legislative regime around consent for development and activities in the marine area. The NMPF provides policies for sustainable planning and management of marine resources, balancing ecological, economic and social objectives in relation to aspects such as the environment, biodiversity, commercial fisheries and renewable energy. As part of this, the NMPF includes specific objectives and planning policies related to water quality and to wastewater treatment and disposal.

Impacts of climate change on the water environment

Climate change impacts on the water environment¹⁷ include:

Coastal Storm and Erosion

Galway City is exposed to coastal storms resulting in inundation of coastal areas. A number of areas are subject to frequent and recurring flooding. Coastal flooding can result in direct damage to buildings and other assets. Storm Elsa in December 2019 caused 10 houses and 50 cars in the Salthill area to be flooded. Storm Eleanor in January 2018 caused hundreds of thousands of euros worth of damage, flooding businesses near Claddagh Quay and in Shop Street. In addition, coastal flooding can result in damage to road surfaces and footpaths, as well as disrupting transport networks. Storm Barra in December 2021 led to flood waters

¹⁶ Environment Protection Agency (EPA). 2023. List of priority urban areas. Accessed: December 2023. Available from: <https://www.epa.ie/publications/compliance--enforcement/waste-water/priority-areas-list-current.php>

¹⁷ [Galway City - Galway City Council Climate Action Plan](#)

breaking over coastal defences making roads leading to Salthill Promenade impassable, as well as disrupting Bus Eireann services in the area. Flood waters arising from Storm Erik in February 2019 caused the Promenade in Salthill to be closed between Grattan Road and Leisureland.

Heatwaves & Drought

Galway City has been exposed to heatwave events (defined as 5 consecutive days with temperatures >25°C) over the period 1973-2022 with a wide range of impacts across the city. Galway City has experienced drought conditions over the period as exemplified by the drought events in 2017, 2018 and 2022. Drought conditions (e.g. Summer 2018) resulted in the imposition of restrictions on water supply on a national and city basis with implications for building operation. It also increased pressure on water treatment capacity to meet drinking water demand, e.g. Terryland Water Treatment Plant

Pluvial and Fluvial Flooding

For Galway City in the period 1973-2022, pluvial and fluvial flooding have occurred on a common basis. Areas of exposure to fluvial flooding are limited geographically but with the potential for frequent exposure. Pluvial flooding can be experienced across the city with impacts associated with inundation of transport routes while bathing water quality has been impacted due to pollutant runoff following heavy rainfall events.

3.8.4 Key Considerations for GWS and the SEA

This section summarises the key challenges and opportunities to be taken into account in the environmental assessment of the GWS related to the water environment.

Challenges

- Additional pressures on the aquatic environment related to climate change and increased frequency of drought periods.
- Water pollution from wastewater discharge, storm water, and water treatment discharge affecting receiving waterbodies including rivers, lakes, transitional and coastal waterbody ecosystems and contributing to effects on aquatic ecology, bathing waters, recreation and fisheries.
- Stormwater management: separating the wastewater and stormwater network, reducing the number of combined sewer overflows and potential to increase the use of Sustainable Urban Drainage Schemes (SUDS) in new development.
- Wastewater management: upgrading and maintaining wastewater treatment plants to address existing and also new contaminants and to meet existing and future standards and protect the environment.
- Water pollution including from diffuse sources such as agriculture forestry and urban runoff affecting raw water quality affecting drinking water treatment requirements, health and aquatic ecology.
- Challenges from climate change increasing pressure on the natural environment and increased risks for infrastructure – importance of supporting environmental resilience and developing infrastructure and operational resilience of wastewater services.

Opportunities

- Understanding the pressures and effects on the water environment better and improving data, monitoring, knowledge sharing and making use of new digital and mapping technologies.

- Opportunities for collaboration with a range of stakeholders particularly in relation to addressing catchment wide issues and developing new approaches including considering ecosystem services and valuing the wider benefits from nature-based solutions and catchment management.

3.9 Population, Economy, Tourism and Recreation, and Human Health

3.9.1 Population Baseline Conditions

The study area had a population of approximately 102,579¹⁸ in 2022. The breakdown of population in different towns are summarized in **Table 3.9.1**.

Table 3.9.1 Population distribution in major towns within the study area

Major Towns within the study area	Population (2022)
Galway City and suburbs	85,910
Oranmore	5,819
Bearna	2,336
Athenry	4,603
Moycullen	2,279
Claregalway	1,632
Ireland	5,149,139 ¹⁹

According to 2022 CSO data, the average age in the study area is 36.7, which is lower than the national average age of 38.4. A much larger proportion of people (about 26%) is found in the 20 – 34 age category.

In accordance with Census 2022²⁰, the population of Galway County grew by 8% to 277,737. The number of people aged 65 and over continues to grow. Over the same period, Ireland's population grew by 8% from 4,761,865 to 5,149,139. This age group increased by 23% to 42,886 in Galway and by 22% to 776,315 at a national level since 2016.

3.9.2 Economy and Employment Baseline Condition

According to the latest data published in 2022, the unemployment rate of the major towns within the study area are summarized in **Table 3.9.2**²¹. The unemployment rate is calculated as the number of people unemployed or looking for their first job as a proportion of all people aged 15 years and over who were either at work, unemployed or looking for their first job.

Table 3.9.2 Unemployment rates in major towns within the study area

Major Towns within the study area	Unemployment Rate
Galway City and suburbs	9.2%
Oranmore	5.9%
Bearna	4.7%
Athenry	7.2%
Moycullen	6.1%

¹⁸ 2022 census population data obtained from the Central Statistics Office (CSO). Accessed: Mar 2024.

¹⁹ [Census of Population 2022 - Summary Results - Central Statistics Office](#) Accessed: July 2024

²⁰ [Press Statement Census of Population 2022 - Summary Results Galway - CSO - Central Statistics Office](#) Accessed: July 2024

²¹ [Unemployment - CSO - Central Statistics Office](#) . Accessed: Mar 2024

Major Towns within the study area	Unemployment Rate
Claregalway	8.0%
Galway County	7.2%
Ireland	8.3 %

Overall, the unemployment rate in the study area is 8.6%, which is 0.3% above the national average of 8.3%.

The Pobal HP Deprivation Index (Haase and Pratschke, 2017) is the core index for the Republic of Ireland. The index is based on the combination of three dimensions of relative affluence and deprivation: Demographic Profile, Social Class Composition, Labour Market Situation. The Index assigns a score to areas based on a national average of zero and ranging from approximately -40 (being the most disadvantaged) to +40 (being the most affluent). The Pobal HP Deprivation Index is Ireland’s primary social gradient tool, used by numerous government departments and state agencies for the identification of geographic disadvantage, in order to target resources and services towards communities most in need. According to the latest data published in 2022²², the HP Index of the major towns within the study area are summarized in **Table 3.9.3**.

Table 3.9.3 HP Index in major towns within the study area

Major Towns within the study area	HP Index	HP Description
Galway City and suburbs	-7.45 (Newcastle) to 10.64 (Ballybrit)	Marginally Below Average to Affluent
Oranmore	8.63	Marginally Above Average
Bearna	10.38	Affluent
Athenry	4.09	Marginally Above Average
Moycullen	10.04	Affluent
Claregalway	4.85	Marginally Above Average

Locally, areas which scored below average are concentrated in the city centre in pockets at Newcastle, Shantalla and Mervue Eds, with unemployment rates at Newcastle of 16.19% for male and of 10.73% for females.

3.9.3 Commercial Baseline Condition

According to Regional Spatial and Economic Strategy 2020-2032 (RSES)²³, Galway City has an extensive reach and is located at a pivotal location along the Atlantic Economic Corridor, from where the influence of Ireland’s southern cities (Cork and Limerick) extends northwards to the Regional Growth Centres of Sligo and Letterkenny in the North West City Region context. It is home to existing internationally recognised world-class clusters in Medical Devices and Information and Communications Technology (ICT). It is becoming a major technology hub, particularly around internet and collaborative working technologies. Galway City is home to 9 of the top 10 ICT companies. All of this is supported through third-level institutions embedded within the city, providing for a highly educated and vibrant workforce

RSES also states that the agri-food sector is the largest indigenous industry in Ireland, employing 8.4% of the working population and achieving revenues of approximately €26 billion as of 2015. As an export-orientated

²² Pobal HP Deprivation Indices Accessed: Mar 2024

²³ RSES | Northern and Western Regional Assembly (nwra.ie)

industry, and one that is primarily based within the rural regions, the agri-food sector will continue to play an essential role in the rural economy, especially so within the Northern and Western Region. Galway has the highest number of farms of around 13,500 in the West of Ireland.

3.9.4 Tourism and Recreation Baseline Condition

Tourism is one of Ireland's most important economic sectors. According to the Galway Tourism Strategy 2020-2025²⁴, Galway City attracted 1.674million overseas visitors and 1.024 million domestic visitors in 2017. For the overseas visitors, 44% of visitors come from Mainland Europe, followed by North America (32%), Great Britain (16%) and other areas (9%). Galway generated €589 million in revenue from overseas visitors in 2017. Galway is also known for its strong cultural identity and rich heritage firmly rooted in the unique landscapes, a lively bi-lingual city, and an exciting range of festivals and events throughout Galway City.

Galway has significant marine resources and is home to 8 Blue Flag Beaches and 8 Green Coast Award Beaches²⁴. There are four bathing locations in the study area. **Table 3.9.4** summarizes the water quality of the four beaches within the study area⁸.

²⁴ [Galway Tourism Strategy 2020 2025 \(1\).pdf \(gds.earth\)](#) Accessed: July 2024

Table 3.9.4 Water quality of the beaches within the study area

Bathing Locations	Description	Water Quality in 2023
Ballyloughane Beach	Situated to the east of Galway City in the residential neighbourhood of Renmore. It is particularly popular among the residents of Renmore and east side of the city and is accessible from the Ballyloughane Road off the R338. The beach was formerly not designated a bathing area under the old bathing water regulations	Excellent
Grattan Road Beach	Located to the west of Galway City, close to Salthill. It is a popular neighbourhood bathing area in the city and is the closest beach to the city centre. The beach faces directly out to Galway Bay and can be accessed from the Grattan Road	Good
Salthill Beach	Located in Galway City and on Galway Bay, SAC. It is a traditional seaside resort and a major tourist attraction for Galway City. It extends from Dalysfort Road to Blackrock, over a distance of approximately 1km. The beach is within walking distance from the city centre and is accessed from the Salthill Promenade, R336, and facilitated by frequent public transport to and from the City. Swimming and bathing are popular activities on this beach.	Excellent
Silverstrand Beach	Located on the outskirts of Galway City between Salthill and Barna, and on Galway Bay, SAC. To the east of the site lies the village of Barna and the access to the beach is via the R336, the Barna Road. The beach is used year-round for swimming and windsurfing and can receive up to 600 visitors during a day during high season	Excellent

3.9.5 Human Health Baseline Condition

The study area is located in EU NUTS3 area of West Ireland. In 2016, the West Ireland has had a slightly higher life expectancy for male (~79.7) and female (~84.5) compared to the national average (male: 79.6; female: 83.4)²⁵. The percentage of population in 'bad' and 'very bad' health conditions in the study area is found

²⁵ Irish Life Tables No. 17 2015-2017 - CSO - Central Statistics Office (Refer to Table 4, Life expectancy by sex, age, NUTS3 region and year) Accessed: July 2024

similar to that of the whole of Ireland. Data released in 2022 showed that there are around 1678 (1.6%) in 'bad' and 'very bad' heath conditions. This is similar to the national data of 1.7% in 2022²⁶.

3.9.6 Future Trend

According to Draft Galway County Development Plan 2022- 2028²³, Galway Metropolitan Area will be the driver of sustainable growth in the Northern and Western Region, providing a choice of housing typologies together with excellent public transport, employment, community, leisure and amenity facilities in a healthy environment that will attract the critical mass of population needed to support the establishment of strong local communities and ensure a strong local and regional economy.

The Metropolitan Area straddles the Strategic Economic Corridor and the Atlantic Economic Corridor (AEC). These areas promote employment development in Galway in the case of the Strategic Economic Corridor and the western counties in the case of the AEC.

In relation to the provision of infrastructure, National Planning Objectives 9 of the NPF states that a co-ordinated strategy will ensure alignment with infrastructural investment and the provision of employment together with supporting amenities and services will be required in areas that are to accommodate significant growth. Investment in infrastructure within the Metropolitan Area will be prioritised as a means to retain and build on the attractiveness of the area as a place in which to live and work. Future co-ordinated development delivered through close collaboration with state agencies, stakeholder engagement and other organisations along with infrastructure funding streams as available. Delivery of infrastructure and infrastructure capacity will include physical, multi-modal transport networks, digital/smart technologies along with social and community infrastructure.

Wastewater treatment capacity within the Metropolitan Area is already in place to accommodate the overall forecasted growth up to 2028. Minor network improvements to local pumping stations may be required to ensure full capacity in certain areas of the metropolitan settlements. A key Growth Enabler for Galway as identified in the NPF relates to the delivery of the Greater Galway Area Drainage Study. This is a critical piece of infrastructure that is needed to secure the future sustainable growth and development of the Metropolitan Area. The NPF also supports growth through the sustainable development of greenfield areas for housing with supporting public transport and other infrastructure. Other critical pieces of infrastructure that are required to secure the development of the Metropolitan Area include the provisions set out within the Galway Transport Strategy and Galway County Transport Strategy and the delivery of the Galway City Ring Road.

Promotion of rail travel, and in particular at Oranmore station with the planned upgrade that will increase the frequency of rail services, will also be a key growth enabler that will facilitate compact urban living and reduce private car dependency. Improvement in rail infrastructure is referenced in the RSES in which Regional Policy Objectives (RPO) 3.6.9 supports the provision of a dual railway track between Galway and Athlone as a medium to long-term objective. These infrastructure improvements would provide a range of benefits for Galway MASP and other areas within the county.

An expected growth in population will bring opportunities and challenges to the region. The number of people aged 65 and over continues to grow. This also puts additional pressures on public finance and services. Many pieces of long-standing legislation such as the National Planning Policy Framework (NPPF) have promoted green areas and improved access, and this has also become more emphasized across other policies and plans. There is also greater emphasis on future development being more focused towards brownfield sites and urban areas providing greater access to green spaces. A key priority of the draft plan is the promotion of a Metropolitan network of open spaces, parks, green corridors and trails. As identified in RPO 3.6.13 of the RSES there is support for the delivery of a strategic Greenway Network for the areas to

²⁶ [Census Local Statistics interactive mapping app](#) | CSO Ireland Accessed: July 2024

include the National Dublin to Galway Cycleway, Oranmore to Bearna Coastal Greenway and the Galway to Clifden Greenway.

3.9.7 Key Considerations for GWS and the SEA

Key challenges and opportunities in relation to Population, Economy, Tourism and Recreation, and Human Health include:

Challenges

- Population growth within the study area will increase demands on the existing wastewater infrastructure, and also alter the geographical extent of serviced lands.
- Potential for the operation of wastewater treatment plants to affect freshwater or estuarine or marine water quality, fish stock and related livelihoods or recreation and tourism opportunities.
- Potential for the operation of wastewater treatment plants to affect shellfish, related livelihoods and human health.
- Potential for construction works to affect water quality, fish stock and related livelihoods or recreation and tourism.

Opportunities

- There are opportunities for programmes (such as Catchment Management Plans) to improve water quality and prevent or reduce pollutant load in the source waters, providing wider benefits to the environment.

3.10 Climate Change

Climate science is clear – human activities are estimated to have caused approximately 1.0°C of global warming above pre-industrial levels with a likely range of 0.8°C to 1.2°C. At current levels of global greenhouse gas emissions, the world remains on course to exceed the Paris Agreement’s temperature thresholds of either 1.5°C or 2°C above pre-industrial levels²⁷.

Climate change not only means changes in the average climate such as temperature but also changes in the frequency and intensity of extreme weather and climate events²⁷.

The Climate Action Plan 2024²⁸ is the third annual update to Ireland’s Climate Action Plan 2019. This Plan builds upon 2023 Plan by refining and updating the measures and actions required to deliver the carbon budgets and sectoral emissions ceilings. The Plan provides a roadmap for taking decisive action to halve Ireland’s emissions by 2030 and reach net zero by no later than 2050, as committed to in the Climate Action and Low Carbon Development (Amendment) Act 2021.

Reports from the Intergovernmental Panel on Climate Change reinforced the urgent need for greater action on climate adaptation globally. Observations show that Ireland’s climate is changing in terms of sea level rise, increases in average temperature, changes in precipitation patterns, and weather extremes.

Climate change is expected to have diverse and wide-ranging impacts on Ireland’s environment, society, and economic development, including on managed and natural ecosystems, water resources, agriculture and food security, human health, and coastal zones. The most immediate risks to Ireland from climate change are predominantly those associated with changes in extremes, such as floods, droughts, and storms.

3.10.1 Climate Change Baseline Conditions

Studies of the climate record in Ireland show that the long-term prevailing weather conditions are changing²⁹. The last century was characterised by an upward trend in temperatures, resulting in warmer, winter winters and hotter, drier summers, accompanied by an increase in extreme weather events and this pattern is likely to continue^{30, 31}. **Table 3.10.1** summarizes the observed Climate Change in Galway and Ireland ^{32, 33}.

Table 3.10.1 Observed climate change in Galway and Ireland

Parameters	Observed Impact
Temperatures	<ul style="list-style-type: none"> Increased by 0.8°C; an average of 0.07°C per decade Highest Temperature on record recorded on 18th 2022 at Athenry
Number of frost days	<ul style="list-style-type: none"> Decreased
Growing Season	<ul style="list-style-type: none"> Extended (Beginning one week earlier)
Rainfall	<ul style="list-style-type: none"> Increased by 5% since the mid-twentieth century

²⁷Environmental Protection Agency (EPA). 2023. Land Use Review: Fluxes, Scenarios and Capacity Synthesis Report. [Land-Use-Review-Fluxes-Scenarios-and-Capacity-Synthesis.pdf \(irishriverproject.com\)](#) Accessed: July 2024

²⁸ Department of the Environment, Climate and Communications (DECC). 2024. Climate Action Plan 2024. Accessed: March 2024. Available from: <https://www.gov.ie/en/publication/79659-climate-action-plan-2024/>

²⁹ Dwyer, N. (2012) The status of Ireland climate. Environmental Protection Agency, Johnstown [Research 337: Responding to the Energy Transition in Ireland: The Experience and Capacity of Communities | Environmental Protection Agency \(epa.ie\)](#) Accessed: July 2024

³⁰ Nolan, P. (2015) EPA Report No. 159: Ensemble of Regional Climate Model Projections for Ireland Environmental Protection Agency, Dublin. [EPA-159 Ensemble-of-regional-climate-model-projections-for-Ireland.pdf](#) Accessed: July 2024

³¹ Department of Communications, Climate Action and Environment (2018) National Adaptation Framework: Planning for a Climate Resilient Ireland. Government of Ireland, Dublin. [gov - National Adaptation Framework \(NAF\) \(www.gov.ie\)](#) Accessed: July 2024

³² Built & Archaeological Heritage – Climate Change Sectoral Adaptation Plan, Department of Culture, Heritage and the Gaeltacht, Sep 2019 www.gov.ie/pdf/?file=https://assets.gov.ie/246863/2660361a-6b77-4b58-b040-aea8fd960606.pdf#page=null

³³ [Galway City - Galway City Council Climate Action Plan](#) (2024 – 2029)

	<ul style="list-style-type: none"> • Average annual rainfall at Corrandulla, Galway has increased by 3% for the most recent period (1981 – 2010) compared to the 1961 – 1990 baseline
Dry Period	<ul style="list-style-type: none"> • More frequent
Temperature and acidity of Sea	<ul style="list-style-type: none"> • Increased (>1°C higher than in the mid-twentieth century and sea acidity is 30% higher globally)
Sea Level	<ul style="list-style-type: none"> • Risen by 2-3mm per year around Irish coast since the 1990s; mean wave heights along the SW coast have increase by 0.8m per decade • During Storm Eleanor (2018), water level rose 90cm above the base of the Spanish arch, flooding many parts of the Galway city
Number of Intensity Storms in the North Atlantic	<ul style="list-style-type: none"> • Increased by 3 per decade per 1950
Relative humidity	<ul style="list-style-type: none"> • Slightly increased in summer and decreased in winter in the period since 1991

According to Galway City Council Local Authority Climate Action Plan 2024-2029³³, there has been a broad range of extreme weather events historically which have had severe impact on Galway City. Most recently, river and pluvial flooding events in 2020 and 2021 demonstrated a range of impacts for Galway City. These impacts included damage to residential properties, closure of businesses, disruption to public services and closure of transport networks. Projected increases in the frequency of extreme precipitation events may result in increased surface water and riverine flood risk for Galway City.

Coastal erosion and coastal flooding events are common in Galway City. Events in 2021 and 2022 resulted in disruption of transport networks and damage to coastal habitats. Projected sea level rise may increase the frequency of coastal inundation and erosion events and associated impacts.

Historically, heatwaves and droughts have contributed to the imposition of restrictions on water supply, damage to road surfaces and have placed an increased demand on recreational areas in the city. During the winters of 2018 and 2022, prolonged cold spells and heavy snowfall events disrupted public transport networks and caused road closures. Projected increases in average temperature and decreases in the frequency of snowfall indicate a decrease in the frequency of cold spells, heavy snowfall, and their associated impacts

The Climate Action Plan 2024²⁸ states that climate change is causing fundamental and potentially irreversible changes to our marine environment, with effects for all society. Global ocean warming and ocean acidification may result in direct consequences for our marine ecosystems. At the same time, the intensity of storm events has increased, threatening coastal communities and infrastructure. These threats put at risk the many benefits provided by our seas, including food, energy, minerals, climate regulation, coastal protection, transport, leisure, and health and well-being.

Across the marine sector, a number of actions have been progressed under the Climate Action Plan 2021, including identifying areas of climate action appropriate to the Seafood Development Programme 2021-27, and completing the National Strategic Plan for Sustainable Aquaculture.

The Climate Action Plan 2024²⁸ notes that significant developments are currently under way in the planning and consenting regime for the marine environment to support the ambitions for decarbonising the energy sector through the development of offshore renewable energy. This will facilitate the development of

offshore renewable energy to progress at pace alongside the conservation, protection, and recovery of marine biodiversity.

3.10.2 Future Trends

Climate change is expected to have diverse and wide-ranging impacts on Ireland’s environment, society, and economic development, including on managed and natural ecosystems, water resources, agriculture and food security, human health, and coastal zones. The most immediate risks to Ireland from climate change are predominantly those associated with changes in extremes, such as floods, droughts, and storms²⁷.

The first NAF identified that the role of Local Authorities is critical in building climate resilience and every Local Authority is required to develop a Climate Action Plan under the Climate Action and Low Carbon Development (Amendment) Act 2021; covering mitigation, adaptation, and citizen engagement.

The revised and updated National Adaptation Framework (NAF) 2024³¹ reflects the increasingly important role of adaptation in addressing climate change impacts. The revised NAF also underpins the development of a new cycle of Sectoral Adaptation Plans. The revised NAF 2024 (draft consultation) identified 12 key sectors that would require Sectoral Adaptation Plans grouped under four themes: Natural and Cultural Capital, Critical Infrastructure, Water Resource and Flood Risk Management (with Flood Risk Management, Water Quality, and Water Services Infrastructure sector levels), and Public Health²⁸.

According to Built & Archaeological Heritage – Climate Change Sectoral Adaption Plan³², the projected impact in Ireland in 2041 – 2060 are summarised in **Table 3.10.2**.

Table 3.10.2 Predicted climate change in Ireland

Parameters	Observed Impact
Temperatures	Increased by 0.8°C; an average of 0.07°C per decade
Number of frost days	Decrease further by 50% for the medium to low emission scenario and by 60% for the high emission scenario
Growing Season	Extend further by 35 – 40 days
Rainfall	Increase; The number of ‘very wet day’ (≥30mm rain / day) will increase by 30% during winter months
Dry Period	Drier in summers. Rainfall volume will reduce by 20%; The number of dry periods will increase by up to 40%
Temperature and acidity of Sea	Rise by 1.9°C (Irish Sea) by the end of century.
Sea Level	Rise by up to 800mm by 2100; Storm surge will increase; Atlantic coastal retreat rates are likely to increase from current 0.5 – 1 m per year
Number of Intense Storms in the North Atlantic	Increase in the North Atlantic and over Ireland. Extreme wind speeds will increase slightly, particularly in winter
Extreme wind speeds will increase slightly, particular in winter	Increase during winter; Decrease in summer (mainly in the south and east)

In line with global trends, it is forecast that the frequency and intensity of some hazards (for example, coastal, river and pluvial flooding, coastal erosion, heatwaves, and drought) will increase while others will remain the same (for example, severe windstorms). These changes are projected to continue and intensify with a wide range of impacts for Galway City and Galway City Council. Galway City will also change in terms of its

population, which will potentially affect the exposure and vulnerability of people and assets within the city. **Figure 3.10.1** outlines the change in the climate risk matrix for Galway City³³. The hollow marker shows the current risk and the solid marker shows the future risk. The dotted line shows the change between the current and future risk.

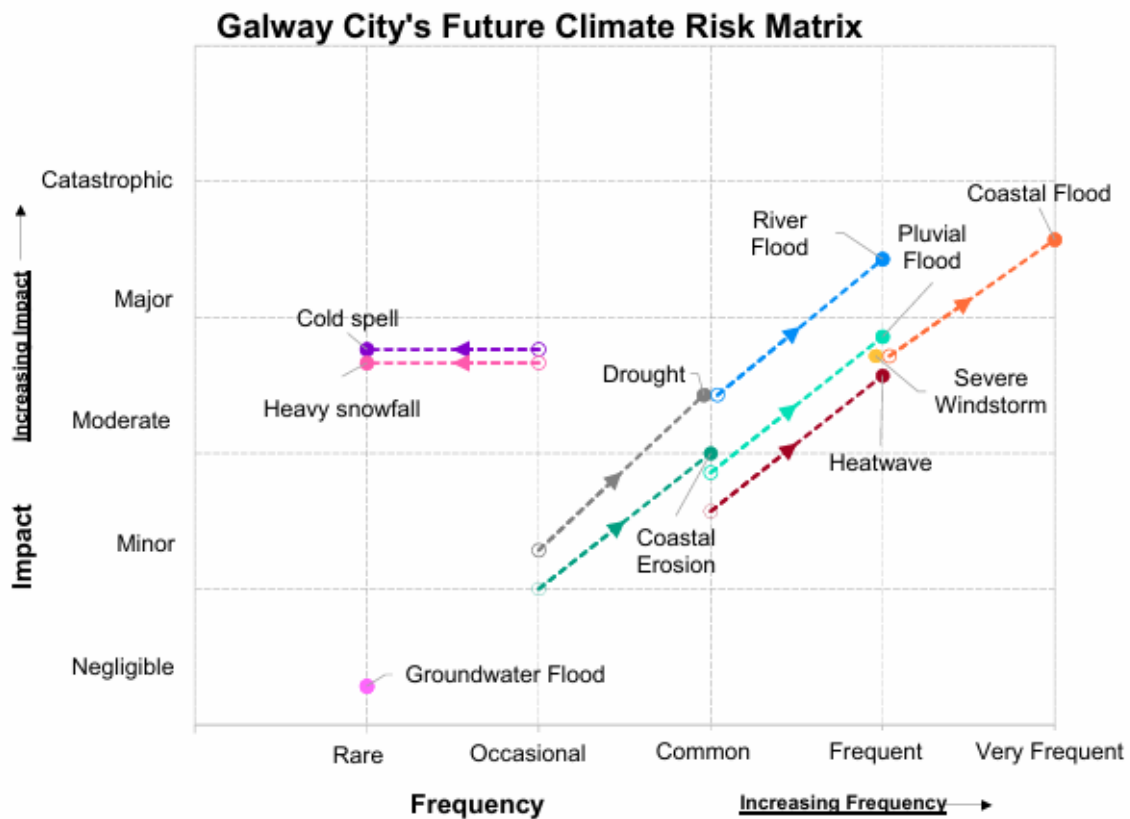


Figure 3.10.1 Climate risk matrix for Galway City³³

Table 3.10.3 summarises projected changes per climate hazard for Galway City extracted from the Galway City Climate Risk Assessment report³³.

Table 3.10.3 Projected changes per climate hazard from “Galway City Climate Risk Assessment”

Hazard	Future Frequency	Projected Change
Heatwave	Frequent	Projections indicate an overall increase in average temperature (bottom left) of between 1.1 and 1.4°C for Galway City relative to the 1981-2000 period. Under a high emission scenario, projections indicate that heatwaves will become more frequent (bottom middle) by mid-century.
Drought	Common	Summer rainfall is expected to reduce by between 6 and 8% in the future when compared with the baseline period of 1981 to 2000, in both the RCP4.5 and RCP8.5 scenario contributing to potential drought conditions.
Cold Spell	Rare	As a consequence of the increasing temperatures, a decrease in the number of frost days and ice days in the 2041-2060 future period when compared with the baseline period of 1981-2000, is projected for both the RCP4.5 and RCP8.5 scenario.
Heavy Snowfall	Rare	The annual snowfall in the region is projected to decrease substantially by the middle of the century for the RCP4.5 and RCP8.5 scenarios (bottom right).
Severe Windstorms	Frequent	Projections of storms are subject to a high level of uncertainty. By mid-century, projections indicate that average wind speed will remain similar to those currently experienced. There is limited evidence of a potential increase in the frequency of more intense storms which are currently rare events. However, more research is needed to confirm this increase.
Coastal Flooding	Very Frequent	Rising sea levels projections under a high emissions scenario indicate an increase of up to 0.24 m by 2050 which will increase the frequency of coastal inundation.
Coastal Erosion	Common	A rising sea level is strongly linked with coastal erosion and an increase in erosion rates and extent.
Fluvial Flooding	Frequent	Projections indicate an increase in the frequency of heavy rainfall days (days with precipitation >30mm) for Galway City with some areas projected to see increase of up to 37% (bottom right). This will likely result in an increased frequency of associated fluvial and pluvial flooding.
River Flooding	Frequent	
Groundwater Flooding	Rare	Projections of changes in groundwater flooding are currently not available, therefore there is uncertainty in the change in groundwater flooding frequency that can be expected.

Government policy and international goals indicate significant cuts in greenhouse gas emissions will start to take place throughout the 2020s as progress is made towards halving Ireland’s emissions by 2030 and reach net zero by no later than 2050²⁸. It is anticipated that there will be a lag between the cut in emissions and a slowdown in the rate of temperature increase, i.e., if the world became carbon neutral tomorrow, the climate would continue to change for a period of time, anticipated to be years or decades.

3.10.3 Key Considerations for GWS and the SEA

Key challenges and opportunities related to climate change mitigation and adaptation are set out below.

Challenges

The European Climate Law writes into law the goal for Europe's economy and society to become climate neutral by 2050. The law also sets the intermediate target of reducing net greenhouse gas emissions by at least 55% by 2030, compared to 1990 levels.

Climate neutrality by 2050 means achieving net zero greenhouse gas emissions for EU countries as a whole, mainly by cutting emissions, investing in green technologies and protecting the natural environment.

Changes in climate have direct and indirect influence on Uisce Éireann and the services it provides, and the changing climate will affect Uisce Éireann in many ways. Changes are already being felt and are expected to continue over the period to 2050 and beyond, and these include:

- Higher temperatures will impact receiving waters (rivers and the sea), potentially requiring new wastewater treatment practices. New treatment technologies for clean water may also be needed;
- More frequent extreme weather events and higher rainfall intensity can increase flood events and soil erosion with impacts on water quality from sediment and nutrients;
- Higher temperatures can increase vulnerability of aquatic ecosystems to pollution;
- Existing physical assets will need to manage additional rainfall and higher temperatures. They may be subject to increased fluvial and coastal flood and erosion risk; and
- Regulatory and policy commitments and compliance requirements on carbon emission targets and improving climate change resilience will have implications on operations and projects.

Opportunities

- Opportunities to achieve wider environmental benefits, infrastructure and service resilience and cost efficiency alongside contributing to meeting climate targets.

3.11 Biodiversity, Flora and Fauna Baseline Condition

Biodiversity in Ireland is facing ongoing pressures which has the potential to cause further deterioration to the condition status of habitats and species.

Global trends of biodiversity loss are reflected in Ireland. According to Ireland's 4th National Biodiversity Action Plan³⁴, the main drivers of biodiversity loss are intensive agricultural and forestry practices, overfishing, invasive species, changes in land use (particularly for residential, agricultural and commercial development) and the over-exploitation of resources such as peatland loss.

The 2019 conservation status assessments reported that there is ongoing decline for 46% of EU protected habitats and 15% of EU protected species³⁵, with freshwater species most at risk. Although many mammal species were assessed favourably, such as seals, dolphins, and several whale and some bat species.

Nearly half of Ireland's rivers and lakes are in an unsatisfactory ecological condition and there has been a general pattern of decline in satisfactory water quality in Ireland's surface waters since the first assessment of

³⁴ Department of Housing, Local Government and Heritage (DHLGH). 2024. Ireland's 4th National Biodiversity Action Plan 2023–2030. Accessed: July 2024. Available from: <https://www.gov.ie/en/publication/93973-irelands-4th-national-biodiversity-action-plan-20232030/>

³⁵ National Parks & Wildlife Service (NPWS). 2019. The Status of EU Protected Habitats and Species in Ireland Volume 1. Accessed: July 2024. Available from: <https://www.npws.ie/publications/article-17-reports/article-17-reports-2019>

ecological status was undertaken (2007-2009)³⁶. These water quality declines have major consequences for biodiversity, with many freshwater species, such as the freshwater pearl mussel³⁶ affected.

3.11.1 Biodiversity, Flora and Fauna Baseline Condition

Protected Area - European Sites

Sites within the Natura 2000 Network referred to as European Sites include Special Areas of Conservation (SACs) and Special Protection Areas (SPAs). SACs designated for their Qualifying Interests (QI), Annex I habitats and Annex II species (excepting bird species) and the habitats on which they rely (including functional linkage). SPAs are designated for Special Conservation Interest (SCI) Annex I birds and migratory birds and their habitats.

For the purposes of this study, an AA screening has been carried out of the GWS study area and the Zone of Influence (Zoi) of the Strategy using a Source - Pathway - Receptor model. **Figure 3.11.1** shows a map of the Galway Wastewater Strategy (GWS) study area and surrounding European Sites, including Special Areas of Conservation (SAC) and Special Protection Areas (SPA).

Special Areas of Conservation

SACs cover 58 habitat types recognised in Annex I of the Habitats Directive, with 16 habitats designated as “priority” habitats owing to their ecological vulnerability (NPWS, 2019a). Habitats for which SACs are designated include lakes, raised bogs, blanket bogs, turloughs, sand dunes, machair, heaths, rivers, woodlands, estuaries and sea inlets. In addition, the Habitats Directive recognises 26 Annex II species. Some of the species for which SACs have been designated include but are not limited to: Atlantic salmon (*Salmo salar*), otter (*Lutra lutra*), lesser horseshoe bat (*Rhinolophus hipposideros*), freshwater pearl mussel (*Margaritifera margaritifera*) and Killarney fern (*Trichomanes speciosum*). There are 441 SACs in Ireland and of these 358 are water-dependent (Department of Housing, Planning and Local Government, 2018c). These SACs support various habitats and species that are dependent on various water sources. There are approximately 800 water bodies within European sites, all supporting water dependent habitats and species. A number of significant pressures on these water bodies have been identified (Department of Housing, Planning and Local Government, 2018c), including:

- Agriculture;
- Hydromorphological pressures;
- Forestry;
- Urban wastewater;
- Anthropogenic pressures;
- Abstractions; and
- Invasive species.

Of the pressures noted above, urban wastewater is of particular relevance to the GWS.

Special Protection Areas

The majority of the wintering water birds and breeding seabirds occurring in Ireland are considered to be regularly occurring migratory birds. Over 60% of the 25 Annex I listed species that now occur in the Republic of Ireland on a regular basis belong to the breeding seabird and wintering waterbird groups. This has in part led to the situation of the majority (> 80%) of Ireland’s SPAs being designated for these two bird groups.

³⁶ Environmental Protection Agency (EPA). 2022. Water Quality in Ireland 2016 – 2021 Summary Report. Accessed: August 2023. Available from: <https://www.epa.ie/publications/monitoring--assessment/freshwater--marine/water-quality-in-ireland-20162021-summaryreport.php>

Some of the productive marine intertidal zones of bays and estuaries are included within SPAs and these provide vital food resources for several wintering wader species, including knot (*Calidris canutus*), dunlin (*Calidris alpina*) and bar-tailed godwit (*Limosa lapponica*). Also included in the SPA network are marine waters adjacent to breeding seabird colonies and other important areas for divers, seaducks and grebes.

Finally, a number of inland wetland sites and areas of blanket bog and upland habitats have also been designated as SPAs for wintering water birds. These sites provide important breeding and foraging areas for numerous other species including merlin (*Falco columbarius*) and golden plover (*Pluvialis apricaria*). Agricultural land is also represented within the SPA network ranging from the extensive farmland of upland areas where hedgerows, wet grassland and scrub offer feeding and/or breeding opportunities for hen harrier (*Circus cyaneus*) to the intensively farmed coastal land where internationally important numbers of swans and geese occur.

Conservation Objectives

The overall aim of the Habitats Directive is to maintain or restore the favourable conservation status of annexed habitats and annexed species of community interest for which an SAC or SPA has been designated. The conservation objectives (COs) for a European site are set out to ensure that the QIs/SCIs of that site are maintained or restored to a favourable conservation condition. Maintenance of favourable conservation condition of habitats and species at a site level in turn contributes to maintaining or restoring favourable conservation status of habitats and species at a national level and ultimately at the European site network level.

Detailed site synopses for each European site are available from the NPWS website. For all Site details provided, latest synopsis, conservation objectives and citation information at NPWS were accessed in preparation of this report. This has been abridged and interpreted using professional judgement.

In Ireland 'generic' COs have been prepared for all European sites, while 'site specific' COs have been prepared for a number of individual sites to take account of the specific QIs/SCIs of that site. Both the generic and the site-specific COs aim to define the requirements for favourable conservation condition for habitats and species at the site level. Generic COs, which have been developed by NPWS, encompass the spirit of site-specific COs in the context of maintaining and restoring favourable conservation condition as follows:

- For SACs: "To maintain or restore the favourable conservation condition of the Annex I habitats and/or Annex II species for which the SAC has been selected".
- For SPAs: "To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for the SPA".

Following on from this, favourable conservation status (or condition, at a site level) of a habitat is achieved when:

- Its natural range, and area it covers within that range, are stable or increasing;
- The specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future; and
- The conservation status of its typical species is "favourable".

The favourable conservation status (or condition, at a site level) of a species is achieved when:

- Population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats; and

- The natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future, and there is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.

AA Screening Findings

According to AA Screening report submitted in April 2024, the 'source-pathway-receptor' model was applied taking consideration of all potential impact pathways connecting elements of the GWS to European sites in view of their Conservation Objectives. The European sites have been determined to most likely to be subject to Likely Significant Effects (LSEs) in the absence of avoidance of effect and/or mitigation.

These comprise 11 European Sites (consists of 8 SACs and 3 SPAs) which share direct hydrological linkage with the GWS study area:

- Black Head-Poulsallagh Complex SAC
- Connemara Bog Complex SAC
- Cregganna Marsh SPA
- Galway Bay Complex SAC
- Gortnandarragh Limestone Pavement SAC
- Inner Galway Bay SPA
- Lough Corrib SAC
- Lough Corrib SPA
- Maumturk Mountains SAC
- Monivea Bog SAC
- Ross Lake and Woods SAC

Additional to the 11 European sites that are hydrologically connected to the GWS Study area, 10 further SPAs were also screened in, due to the potential for their QIs to be present within the GWS study area, utilising supporting habitat and therefore potentially subject to disturbance or displacement. These included the following sites, along with their distance to the GWS study area:

- Rahasane Turlough SPA – 4.4km
- Connemara Complex SPA – 6.4km
- Lough Rea SPA – 11.6km
- Slieve Aughty Mountains – 12.1km
- Coole-Garryland SPA – 16.6km
- Lough Cutra SPA – 23.9km
- Lough Mask SPA – 25.2km
- River Suck Callows SPA – 30.2km
- Cliff of Moher SPA – 30.7km
- Corofin Wetlands SPA 30.7km

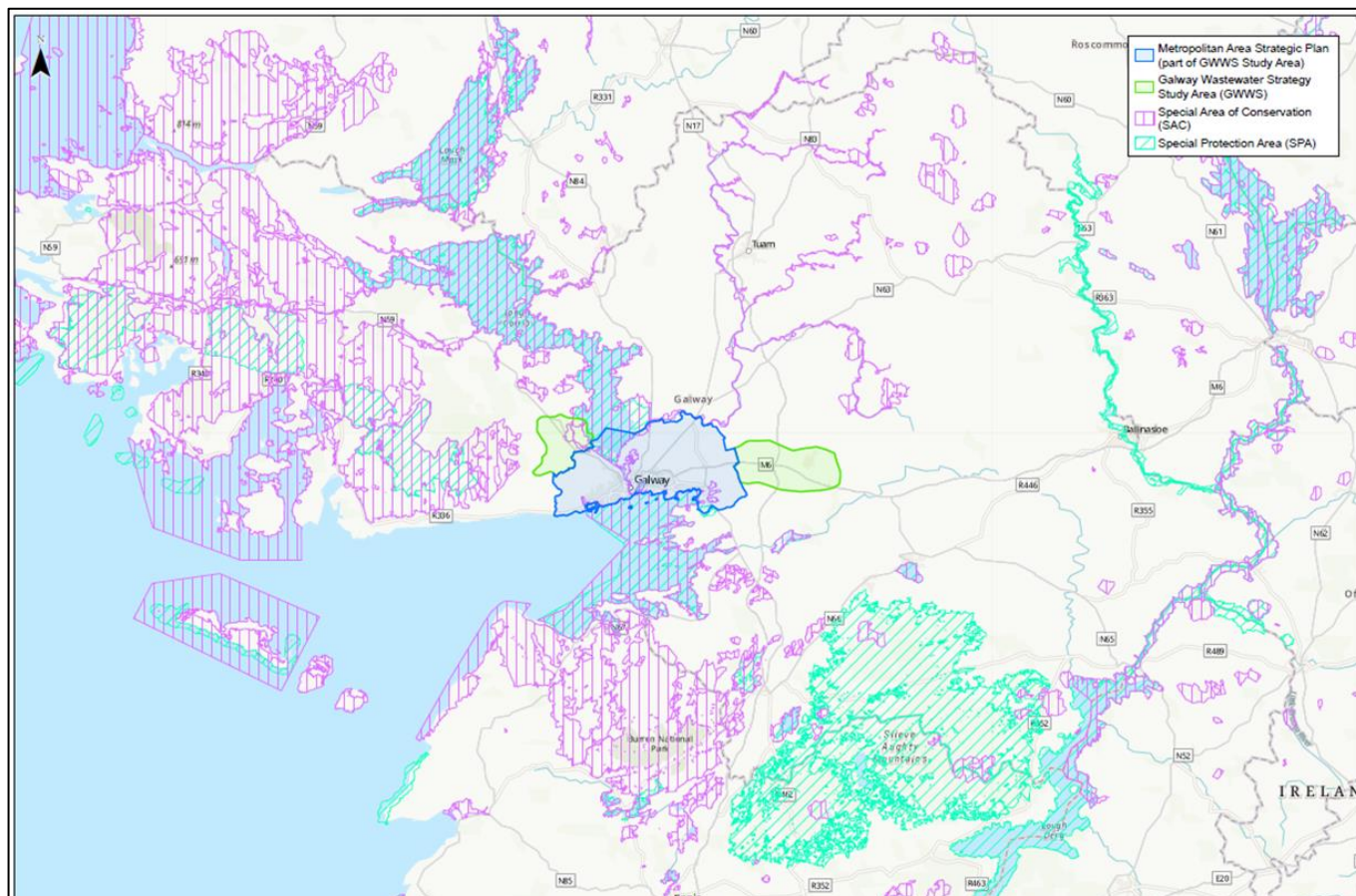


Figure 3.11.1 Surrounding European Sites, including Special Areas of Conservation (SAC) and Special Protection Areas (SPA).

Protected areas - Others

Apart from the European Sites, other Designated sites⁸ in the vicinity of the study area are listed in **Table 3.11.1** and shown in **Figure 3.11.2**.

Table 3.11.1: Intersecting designated sites for biodiversity

Designation Type	List of intersecting Sites in the vicinity of the Study Area	Qualifying Features / Interests
Ramsar	<ul style="list-style-type: none"> Lough Corrib Inner Galway Bay 	<p>Ramsar Sites are wetlands that are considered to be of international importance under the Ramsar Convention.</p>
Natural Heritage Areas (NHAs)	<p><u>Existing NHAs</u></p> <ul style="list-style-type: none"> Moycullen Bogs NHA Cregganna Marsh NHA <p><u>Proposed NHA</u></p> <ul style="list-style-type: none"> Galway Bay Complex Lough Corrib Ballycuike Lough Ross Lake And Woods Drimcong Wood Kitullagh Turlough 	<ul style="list-style-type: none"> NHAs are designated important wildlife areas, legally protected at national level under the Wildlife (Amendment) Act 2000. NHAs are considered important for the habitats present or for species of plants and animals whose habitat needs protection.
Salmonid River Regs (S.I. 293 only)	Corrib Salmonid River	<ul style="list-style-type: none"> This is a dataset of the protected rivers that are designated in the Salmonid Regulations (S.I. 293 / 1988). WFD River Network Routes designated as Designated Salmonid Waters under S.I. No. 293/1988 - European Communities (Quality of Salmonid Waters) Regulations 1988, 14th August 1988. The Council Directive 78/659/EEC of 18 July 1978 on the quality of fresh waters needing protection or improvement in order to support fish life and the Council Directive 92/42/EEC of the 21st May 1992 on the conservation of natural habitats and of wild fauna and flora was transposed into Irish law under the Fish Directive S.I. 293/1988 and Habitats Directive S.I. 477/2011.
Margaritifera Sensitive area	Knock Margaritifera sensitive area	<ul style="list-style-type: none"> Margaritifera Sensitive Areas consist of the Freshwater Pearl Mussel (<i>Margaritifera margaritifera</i>) and Nore Freshwater Pearl Mussel (<i>Margaritifera durrovensis</i>) are critically endangered species both listed in Annex II and Annex V of the EU Habitats Directive (92/43/EEC).

Designation Type	List of intersecting Sites in the vicinity of the Study Area	Qualifying Features / Interests
Ancient woodland	NIL ⁸	<ul style="list-style-type: none"> • Ancient woodland refers to those woods that have had a continuous history of cover since before the period when planting and afforestation became common practice (mid 1600s). These woodlands are important in terms of their biological and cultural value. Under Article 17 of the EU Habitats Directive (92/43/EEC), Ireland has an obligation to monitor and assess the conservation status of Annex I habitats, including woodlands.
Nature Reserve	NIL ³⁷	<ul style="list-style-type: none"> • A Nature Reserve is an area of importance to wildlife, which is protected under Ministerial order.
National Park	NIL ⁸	<ul style="list-style-type: none"> • A National Park is a protected area managed mainly for ecosystem protection, protecting natural biodiversity, promoting education and recreation, and in Ireland, national parks represent the very best examples of such areas. State owned and run National Parks are managed as Category II National Parks under the criteria set out by the World Conservation Union (IUCN) and are principally protected under the Wildlife Act 1976, and the Wildlife (Amendment) Act 2000

³⁷National Parks & Wildlife Service: <https://www.npws.ie/nature-reserves> Accessed: July 2024

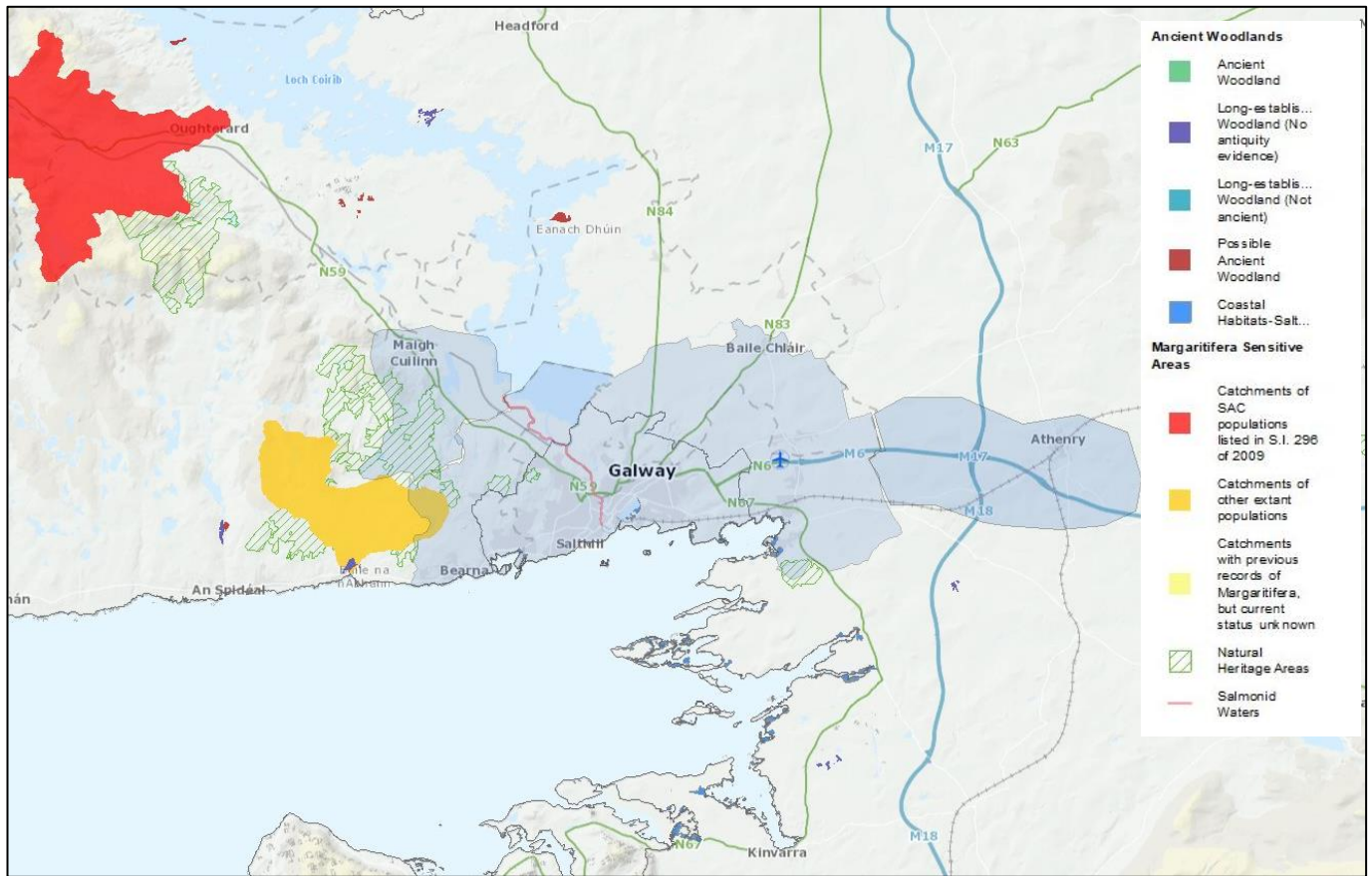


Figure 3.11.2 Other Designated sites in the vicinity of the study area⁸

Annex I Habitat

Under Article 17 of the EU Habitats Directive (92/43/EEC), Ireland has an obligation to monitor and assess the conservation status of Annex listed habitats (e.g. coastal habitats such as dunes, freshwater habitats such as turloughs, natural grasslands, raised bogs and fens, and forests). There are a range of designated NERC Act Section 41 habitats⁸ within the study area, which are shown in **Figure 3.11.3**.

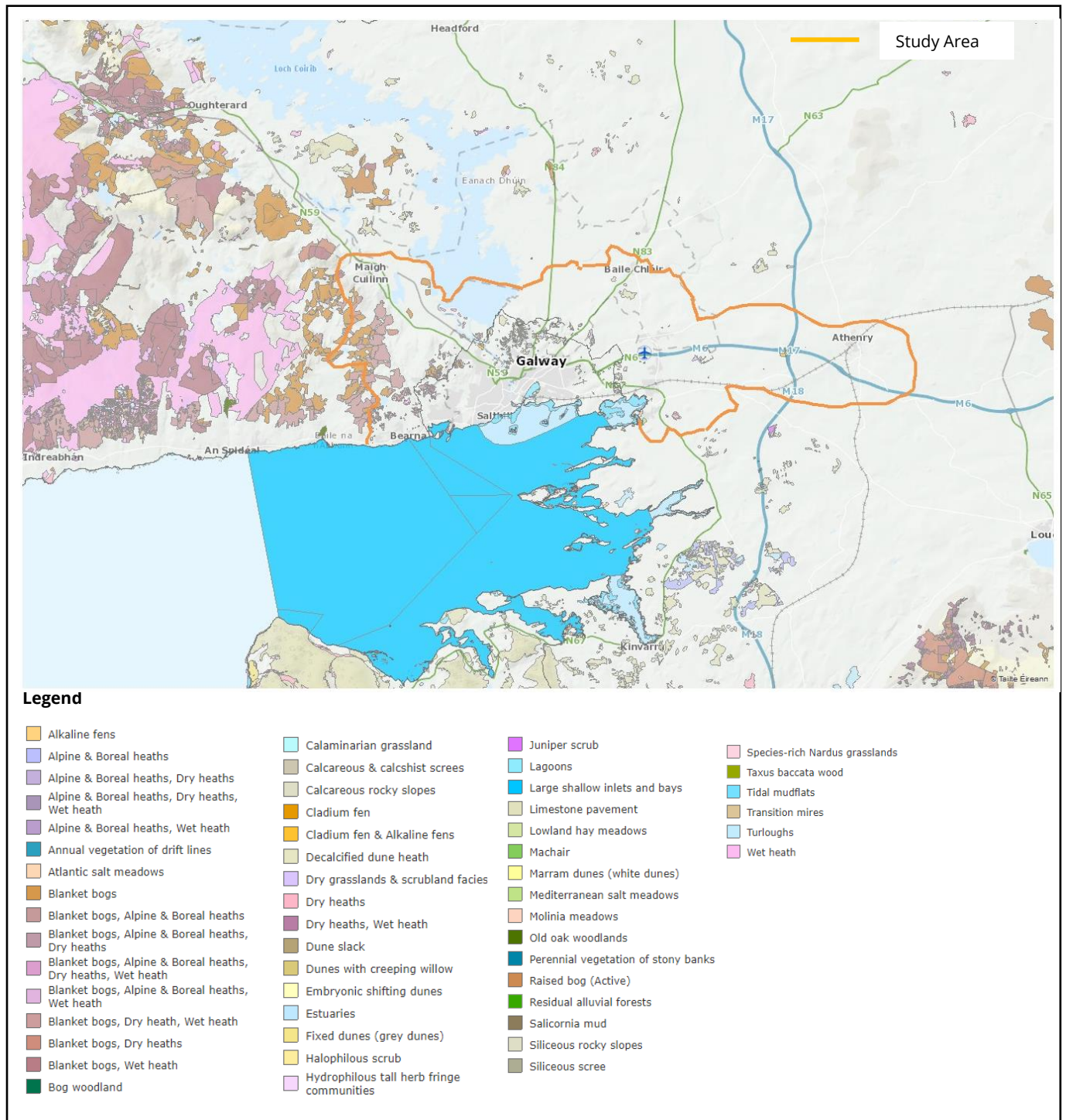


Figure 3.11.3 Annex I Habitat in the vicinity of the study area⁸

Aquatic Habitats (including Freshwater, Coastal and Marine)

Aquatic biodiversity encompasses freshwater ecosystems including lakes, ponds, reservoirs, rivers, streams, groundwater, wetlands, coastal and marine. Aquatic species are dependent on clean water and suitable flows; macro-invertebrates and some species of fish, such as Atlantic salmon, are therefore good indicators of the condition of the overall water environment.

The NPWS has identified 44 different water dependent habitat types and 22 water dependent species in Ireland. Of these, the freshwater pearl mussel, is considered to be a highly sensitive surface water dependent species in Ireland.

Connemara Bog Complex SAC is located approximately 1.6km from the GWS study area and is designated for aquatic habitats and water-dependent species, including Atlantic salmon (*Salmo salar*) and otter (*Lutra lutra*). There is hydrological connectivity between this site and the GWS study area, thus likely significant effects on water-dependent features cannot be discounted without further study.

Lough Corrib SAC is partially within the GWS study area and is designated for aquatic habitats and water-dependent species, including fresh-water pearl mussel (*Margaritifera margaritifera*) and sea lamprey (*Petromyzon marinus*).

Maumturk Mountains SAC is located approximately 23.3km from the GWS study area and is designated for aquatic habitats and water-dependent species. There is hydrological connectivity between this site and the GWS study area, thus likely significant effects on water-dependent features cannot be discounted without further study.

Monivea Bog SAC is located approximately 4.6km from the GWS study area and is designated for water-dependent habitats and species. There is hydrological connectivity between this site and the GWS study area, thus likely significant effects on water-dependent features cannot be discounted without further study.

Ross Lake and Woods SAC is located approximately 1.7km from the GWS study area and is designated for lesser horseshoe bat and hard water lakes. There is hydrological connectivity between this site and the GWS study area, thus foraging habitat and water quality may be affected as a result of the GWS.

According to the SEA for Galway City Development Plan 2023 - 2029³⁸, Atlantic Salmon use River Corrib and Lough Corrib as spawning ground³⁸. Populations of Freshwater Pearl Mussel and White-clawed Crayfish (*Austropotamobius pallipes*) occur throughout Lough Corrib. Other species that are listed under Annex II of the E.U. Habitats Directive include sea lamprey and brook lamprey.

The Terryland River inside the Galway City is an important water corridor fringed by wetlands and the Terryland Forest Park, with the presence of turloughs to the north of the Galway city and a large lake that occurs in the limestone area of Illaunacorra³⁸. Extensive peatland areas occur in the west of the study area and are deemed internationally rare in its presence as mosaics in the townlands of Cappagh and Ballagh. A rare plant, the slender bog cotton, occurs in the particularly wet, quaking bogs and peaty lake edges and is found within the study area. Habitats recorded at Ardaun include dry calcareous and natural grassland and exposed calcareous rock. The small white orchid (*Pseudochis alba*) is a legally protected plant (under the Flora Protection Order 1999), and six instances of the same were recorded.

Coastal and Marine Environment

The coastal zone of the study area contains a wide range of coastal habitats, including saltmarsh, shingle and sand banks, sandy and muddy shores³⁸. Majority coastal area of the study area is within the Galway Bay Complex SAC which is designated for aquatic habitats and water-dependent species. The Qis within the SAC include:

- Tidal mudflats and sandflats
- Coastal lagoons
- Large shallow inlets and bays
- Reefs
- Perennial vegetation of stony banks
- Vegetated sea cliffs of the Atlantic and Baltic coasts
- *Salicornia* mud
- Atlantic salt meadows
- Mediterranean salt meadows
- Turloughs

³⁸ Galway City Development Plan 2023 – 2029 SEA Environmental Report [Galway City - Galway City Development Plan 2023 - 2029](#) Accessed: July 2024

- Juniper scrub
- Orchid-rich calcareous grassland
- *Cladium* fens
- Alkaline fens
- Limestone pavement
- Otter
- Common (harbour) seal

Avi-fauna

Inner Galway Bay SPA and Lough Corrib SPA are located partially within the GWS study area and is designated for water-dependent species. Galway Bay is an important ornithological site with its shallow waters providing excellent habitat for bird species³⁸. Lough Corrib is the largest lake in Ireland. The lake can be divided into two parts: a relatively shallow basin in the south, which is underlain by Carboniferous limestone, and a larger, deeper basin to the north, which is underlain by more acidic granite, schists, shales and sandstones. The shallow, lime-rich waters of the southern basin of the lake support one of the most extensive beds of Stoneworts (Charophytes) in Ireland, which are a very important source of food for waterfowl. The QIs in Inner Galway Bay SPA and Lough Corrib SPA include:

Table 3.11.2 QIs in Inner Galway Bay SPA and Lough Corrib SPA

Inner Galway Bay SPA	Lough Corrib SPA
<ul style="list-style-type: none"> • Black-throated diver (<i>Gavia arctica</i>) • Great northern diver (<i>Gavia Immer</i>) • Cormorant (<i>Phalacrocorax carbo</i>) • Grey heron (<i>Ardea cinerea</i>) • Light-bellied brent goose (<i>Branta bernicla hrota</i>) • Wigeon (<i>Anas penelope</i>) • Teal (<i>Anas crecca</i>) • Red-breasted merganser (<i>Mergus serrator</i>) • Ringed plover (<i>Charadrius hiaticula</i>) • Golden plover • Lapwing (<i>Vanellus vanellus</i>) • Dunlin (<i>Calidris alpina</i>) • Bar-tailed godwit (<i>Limosa lapponica</i>) • Curlew (<i>Numenius Arquata</i>) • Redshank (<i>Tringa tetanus</i>) • Turnstone (<i>Arenaria interpres</i>) • Black-headed gull (<i>Chroicocephalus ridibundus</i>) • Common gull (<i>Larus canus</i>) • Sandwich tern (<i>Sterna sandvicensis</i>) • Common tern (<i>Sterna hirundo</i>) 	<ul style="list-style-type: none"> • Greenland white-fronted goose • Gadwall (<i>Anas strepera</i>) • Shoveler (<i>Anus clypeat</i>) • Pochard (<i>Aythya ferina</i>) • Tufted duck (<i>Aythya fuligula</i>) • Common scoter (<i>Melanitta nigra</i>) • Hen harrier (<i>Circus cyaneus</i>) • Coot (<i>Fulica atra</i>) • Golden plover • Black-headed gull • Common gull • Common tern • Arctic tern (<i>Sterna paradisaea</i>)

Urban Woodland

According to the SEA for Galway City Development Plan 2023 - 2029³⁸, Galway City contains various urban woodlands, significant in terms of contribution to local biodiversity and refuge areas for wildlife, as well as contributing to the wider ecological network. A summary of the principal urban woodlands is provided below:

Terryland Forest Park: Twelve mammal species have been recorded at Terryland Forest Park including seven species of bats and species generally confined to rural areas, such as the Irish hare. The occurrence of the Irish hare in the urban setting is indicative of the interconnectedness of the natural areas within the city.

Barna Woods: is approximately 21ha and is of high ecological value as it is connecting to other habitats of high conservation importance on an international scale, including Galway Bay Complex SAC. The site also has a rich archaeological heritage. Habitats recorded at Barna Wood including oak-ash-hazel woodland, mixed alder oak-ash woodland and dry calcareous and neutral grassland.

Merlin Park Woods: contains a range of habitats including native oak-ash-hazel woodland, mixed broadleaved woodland, conifer woodland, limestone pavement, wet grassland, scrub and a stream. There are records of several birds and bat species utilising the woods, as well as sightings of red squirrels. The long-eared owl *Asio otus* is known to breed within the conifer woodland at Merlin Park Woods.

Wetland

The value of wetlands includes their function in improving water quality, for floodwater storage whereby they can slow down the force of flood and storm waters as they travel downstream; habitat for wildlife; biodiversity support and provision of recreational and cultural heritage services. The role of wetlands is recognized as forming a vital element in addressing climate change effects by acting as carbon storage.

Figure 3.11.3 presents a map of the wetlands present in the study area⁸.

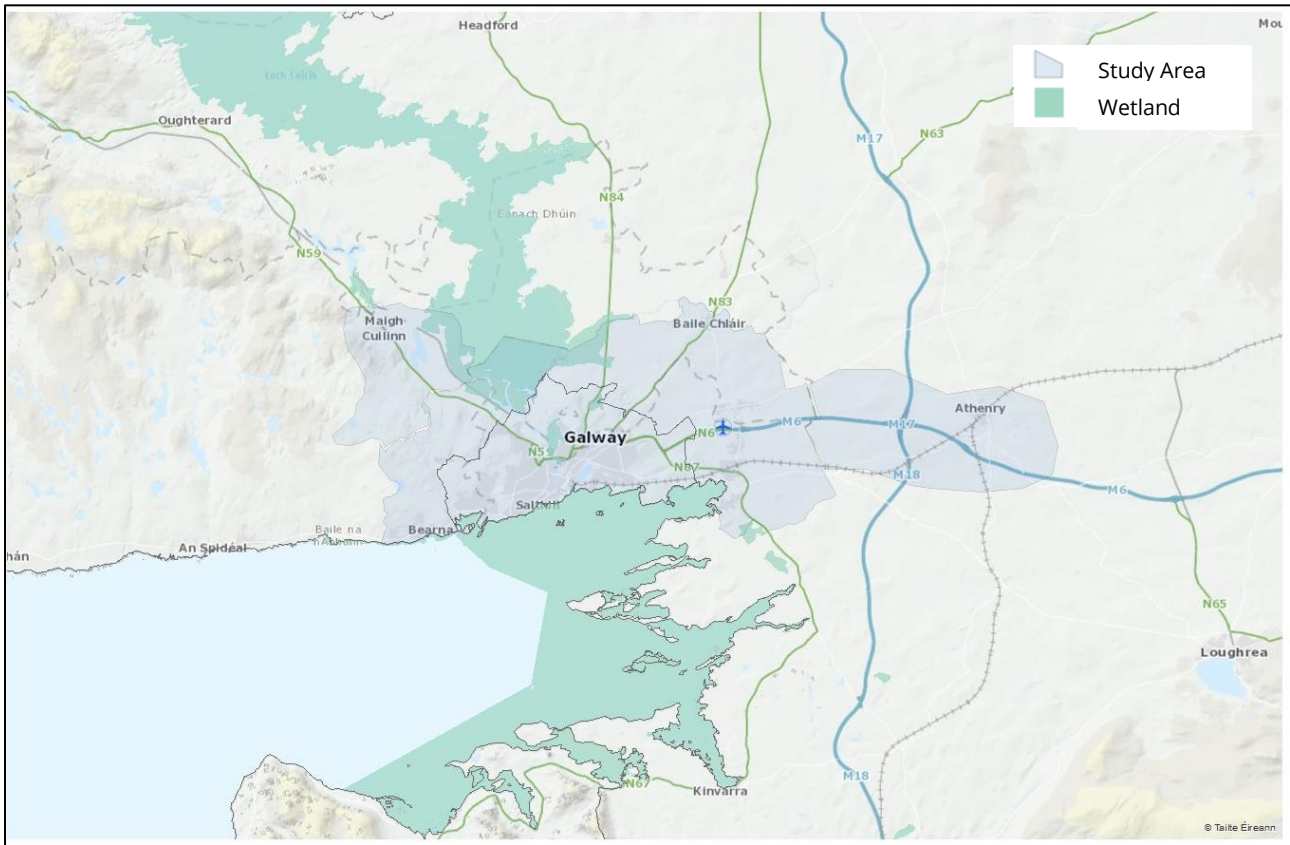


Figure 3.11.3 Wetland Areas in the vicinity of the Study Area⁸

Invasive Species

With increased globalization there is an increase in the movement of non-native species around the world and numerous non-native species, many introduced only in the last 200 years, have become successfully established over large areas of Europe³⁹. Research by the European Commission funded DAISIE project, showed that non-native species are invading Europe at an unprecedented rate. 10,822 non-native species are listed for Europe of which 10-15% are expected to have a negative economic or ecological impact⁴⁰. This is demonstrated by trend analysis of non-native species introductions for Ireland where 13% of the species recorded and assessed in Ireland are high impact invasive species⁴¹. The study assessed 377 non-native species; of these, 21% occur in freshwater environments. The trend analyses also showed that four times as many species were recorded in the 20th Century as in the previous one with the trend of introductions increasing dramatically from 2001 to 2010 for high impact invasive species. Freshwater environment showed the greatest rate of invasive species increase since 1980.

In addition to the objective to halt biodiversity loss, Ireland has a responsibility to prevent the spread of invasive species. An invasive species is a non-native species which has a tendency to spread to an extent determined to cause damage to the environment, the economy or human health in the country into which it has been introduced. Invasive species can dominate and marginalise native species, lowering the value of the overall ecosystem. Invasive species (including aquatic species) in Ireland are controlled under regulations 49 and 50 of the Habitats Regulations. The ‘Third Schedule’ of the regulations provides an extensive list of the non-native species subject to those restrictions⁴². According to National Biodiversity Data Centre information

³⁹ Hulme, P.E., Roy, D.B., Cunha, T. & Larsson, T. B. 2009. A pan-European inventory of alien species: rationale, implementation and implications for managing biological invasions. Handbook of alien species in Europe (ed DAISIE), pp. 1-14. Springer, Dordrecht.
⁴⁰ European Commission. 2008. Commission presents policy options for EU strategy on invasive species. Press release: European Commission – IP/08/1890 05/12/2008. Accessed: December 2023. Available from: http://europa.eu/rapid/press-release_IP-08_1890_en.htm
⁴¹ O’Flynn, C., Kelly, J. and Lysaght, L. 2014. Ireland’s invasive and non-native species – trends in introductions. National Biodiversity Data Centre Series No. 2. Ireland.
⁴² [Ireland's invasive species - Invasives.ie](http://www.invasives.ie)

([Home - Biodiversity Maps \(biodiversityireland.ie\)](#) accessed in July 2024) and Galway City Biodiversity Action Plan⁴³, the invasive species present in the study area are summarized in **Table 3.11.3**:

Table 3.11.3 Invasive species present in the study area

Invasive Species	
<ul style="list-style-type: none"> American Mink (<i>Mustela vison</i>) American Skunk-cabbage (<i>Lysichiton americanus</i>) <i>Aphanomyces astaci</i> <i>Arcitalitrus dorrieni</i> <i>Arion (Arion) vulgaris</i> <i>Arthurdendyus triangulates</i> Bank Vole (<i>Myodes glareolus</i>) Black Currant (<i>Ribes nigrum</i>) Brazilian Giant-rhubarb (<i>Gunnera manicata</i>) Brown Rat (<i>Rattus norvegicus</i>) Budapest Slug (<i>Tandonia budapestensis</i>) Butterfly-bush (<i>Buddleja davidii</i>) Canada Goose (<i>Branta canadensis</i>) Canadian Fleabane (<i>Conyza canadensis</i>) Canadian Waterweed (<i>Elodea canadensis</i>) Cherry Laurel (<i>Prunus laurocerasus</i>) Common Broomrape (<i>Orobanche minor</i>) Common Garden Snail (<i>Cornu aspersum</i>) Douglas Fir (<i>Pseudotsuga menziesii</i>) <i>Elminius modestus</i> European Rabbit (<i>Oryctolagus cuniculus</i>) Evergreen Oak (<i>Quercus ilex</i>) <i>Fallopia japonica x sachalinensis = F. x bohemica</i> Fallow Deer (<i>Dama dama</i>) Giant Hogweed (<i>Heracleum mantegazzianum</i>) Giant Knotweed (<i>Fallopia sachalinensis</i>) Giant-rhubarb (<i>Gunnera tinctoria</i>) Green Sea Fingers (<i>Codium fragile subsp. tomentosoides</i>) 	<ul style="list-style-type: none"> Greylag Goose (<i>Anser anser</i>) Himalayan Honeysuckle (<i>Leycesteria formosa</i>) Himalayan Knotweed (<i>Persicaria wallichii</i>) House Mouse (<i>Mus musculus</i>) Indian Balsam (<i>Impatiens glandulifera</i>) Japanese Knotweed (<i>Fallopia japonica</i>) Japanese Rose (<i>Rosa rugosa</i>) Jenkins' Spire Snail (<i>Potamopyrgus antipodarum</i>) Keeled Slug (<i>Tandonia sowerbyi</i>) Least Duckweed (<i>Lemna minuta</i>) Narrow-leaved Ragwort (<i>Senecio inaequidens</i>) Pampas-grass (<i>Cortaderia selloana</i>) Portuguese Oyster (<i>Crassostrea gigas</i>) <i>Rhododendron ponticum</i> Roach (<i>Rutilus rutilus</i>) Ruddy Duck (<i>Oxyura jamaicensis</i>) Russian-vine (<i>Fallopia baldschuanica</i>) Spanish Bluebell (<i>Hyacinthoides hispanica</i>) Sycamore (<i>Acer pseudoplatanus</i>) Three-cornered Garlic (<i>Allium triquetrum</i>) Traveller's-joy (<i>Clematis vitalba</i>) Virginia-creeper (<i>Parthenocissus quinquefolia</i>) Wall Cotoneaster (<i>Cotoneaster horizontalis</i>) Water Fern (<i>Azolla filiculoides</i>) Wild Parsnip (<i>Pastinaca sativa</i>) Wireweed (<i>Sargassum muticum</i>) Wrinkled Snail (<i>Candidula intersepta</i>) Zebra Mussel (<i>Dreissena (Dreissena) polymorpha</i>)

As there are likely to be a multitude of introduction pathways for very many non-native species, prioritizing those pathways that are likely to introduce most invasive species with potential to have the highest impact, is the most effective way to target limited resources to have the greatest preventative effect.

EU Regulation on Invasive Alien Species (IAS) and pathway action plans

The EU Regulation on Invasive Alien Species entered into force on 1st January 2015. This Regulation is based on the Convention of Biological Diversity's Guiding Principles of prevention, prioritization and coordination and seeks to address the problem of Invasive alien species in a comprehensive manner. The objective is to

⁴³ Galway City Biodiversity Action Plan 2014-2024. [Biodiversity Plan 2014.pdf \(galwaycity.ie\)](#) Accessed: July 2024

protect native biodiversity and ecosystem services, as well as to minimize and mitigate the human health or economic impacts that these species can have.

Under Article 13 (1) of the EU Regulation on IAS, Member States are required to carry out comprehensive analysis of the pathways of unintentional introduction and spread of invasive alien species and 'identify the pathways which require priority action because of the volume of species or of the potential damage caused by the species entering the Union through those pathways. By analysing the risk of each of the IAS of Union concern being introduced and spread in Ireland with the potential impact they may have, the associated pathways are ranked and prioritized. For the priority pathways, Pathway Action Plans (PAPs) are developed.

The Article 13 requirement for development of pathway action plans is in line with the international Convention on Biological Diversity Strategic Plan for Biodiversity 2011-2020, Aichi Target 9⁴⁴ and the similar European Commission's Target 5 of the EU Biodiversity Strategy to 2020 which states 'By 2020, Invasive Alien Species and their pathways are identified and prioritized, priority species are controlled or eradicated, and pathways are managed to prevent the introduction and establishment of new IAS'.

3.11.2 Future Trends

There are many challenges to address in the future. These challenges will be further exacerbated by the effects of climate change, particularly on peatland habitats and fish species. Much will depend on the identification and development of necessary conservation measures and the elaboration of mechanisms for the delivery of these measures in the next period. Operational Programmes accessing EU funding instruments will need to be used to meet the strategic national and EU objectives for biodiversity, including in Natura 2000.

Future trends will be influenced by changes/additions to existing designated sites (SACs, SPAs and NHAs). A number of pNHAs may be reviewed and upgraded to NHAs.

Habitats and species within and outside protected sites are all potentially affected by climate change, and this can also mean that they are more vulnerable to other pressures such as from land loss, disturbance, severance and fragmentation.

Invasive species which are listed as potential threats may become established threats in the future. The continuing development of the National Biodiversity Data Centre National Invasive Species Database will aid in the documentation of the distribution of invasive species in Ireland. These reports and datasets will go towards the implementation of the recent European legislation on halting the spread of invasive species.

The challenges involved in protecting Ireland's habitats and species are now more serious than ever and need urgent action. But nature can recover under the right conditions. Implementing national biodiversity policies, such as the National Biodiversity Action Plan (NBAP), requires an increased level of collaboration and coordination across multiple sectors and the whole of society. This can also give rise to indirect co-benefits for other sectors and environmental issues such as climate change and water quality⁵.

The third cycle draft RBMP¹² is expected to be finalised in 2024. The draft plan includes proposals for a range of measures intended to support improvements to water quality and biodiversity, addressing nutrients from agriculture, developing a new Controlled Activities for the Protection of Waters regime to address physical condition of waterbodies, a restoration programme to address past impacts of construction on or near waterbodies programme, review of Waste Water Discharge Licences, and an expansion on the Priority Areas for Action - including Areas for Restoration, Areas for Protection and Catchment Projects.

Ireland's 4th NBAP has been in development since October 2021 and was published in January 2024. The Plan sets the national biodiversity agenda for the period 2023-2027 and aims to deliver the transformative

⁴⁴ Convention on Biological Diversity. 2010. The Convention on Biological Diversity. Accessed: December 2023. Available from: <https://www.cbd.int/>

changes required to the ways in which the nature is valued and protected. Key considerations in the development of the NBAP are set out below:

- Build on the successes of previous NBAPs, while addressing shortfalls and implementation challenges;
- Expand the governance and oversight of the NBAP and develop a robust Monitoring and Evaluation Framework to track progress;
- Achieve buy-in and ownership of the NBAP across all levels of government and society;
- Embed biodiversity at the heart of climate action;
- Achieve greater coherence between biodiversity policy and other policy areas;
- Strengthen compliance and enforcement of existing legislation;
- Increase focus on addressing the root causes and drivers of biodiversity loss rather than consequences of biodiversity loss;
- Determine biodiversity priorities, allocate financial and other resources, internalise the value of nature and recognise the cost of inaction; and
- Significantly strengthen the science base and enhance data accessibility.

Galway City Biodiversity Action Plan 2014-2024 (GBAP 2014-2024) takes into consideration the findings of the Habitats Inventory (2005) and a range of national and local policy documents and sets out actions to promote and conserve the city's natural heritage. The GBAP identifies potential wildlife corridors with the main corridor the River Corrib, this connects the coastal habitats and the rich mosaic of habitats in the city's hinterland.

3.11.3 Key Considerations for the GWS and SEA

Key challenges and opportunities in relation to Biodiversity, Flora and Fauna include:

Challenges

- Water quality impacts on aquatic habitats and species related wastewater discharges
- Barriers for species movement avoiding creating barriers and taking opportunities for removing barriers or incorporating fish/eel passes in existing barriers and for improving habitat connectivity along riparian corridors and in the wider landscape.
- Avoiding contributing to the spread of invasive species during construction or operational activities.
- Construction impacts on terrestrial and aquatic habitats.

Opportunities

- Opportunities for reducing pollution loads from wastewater discharge and ensuring sustainable abstraction.
- Opportunities to include biodiversity enhancement measures in schemes to ensure no net biodiversity loss and potentially achieve net gain and improved connectivity and this approach is part of Uisce Éireann's Biodiversity Action Plan (BAP).
- Opportunities for multiple benefits from habitat creation/ restoration and potential to capture the value of these using natural capital and ecosystems services approaches which can support the use of nature-based solutions and catchment management approaches.

- Opportunities for contributing to improvements in water quality and resources through better wastewater treatment and potential to reduce barriers to fish migration.

3.12 Material Assets

SEA legislation includes “material assets” as a topic to be addressed in the SEA. However, it does not clearly define what this topic includes. For the purpose of this SEA Scoping Report, Material Assets are considered to be the natural and built assets (non-cultural assets) and resources required to enable society to function as a place to live and work, in giving them intrinsic, economic value.

3.12.1 Material Assets Baseline Condition

Material assets considered here include:

- Land use/ natural material assets resources which include agricultural land, peatlands and forestry (see also geology and soils topic).
- Built assets - include infrastructure relating to public open spaces and buildings, schools, healthcare facilities, residential and social buildings such as housing, and infrastructural networks such as electricity, gas, transport with emphasis on water supply and wastewater infrastructure and management as most relevant.
- Waste management - an aspect of resource management and an important part of the circular economy.

These assets all need to be considered in new water services, resource planning and infrastructure development.

3.12.2 Land Use (Natural Assets)

The land uses of the study area comprise pastures, urban fabric, industrial / commercial area, sport and leisure facilities, marsh, mixed forest peat bogs, water bodies, etc. (see **Figure 3.12.1**).

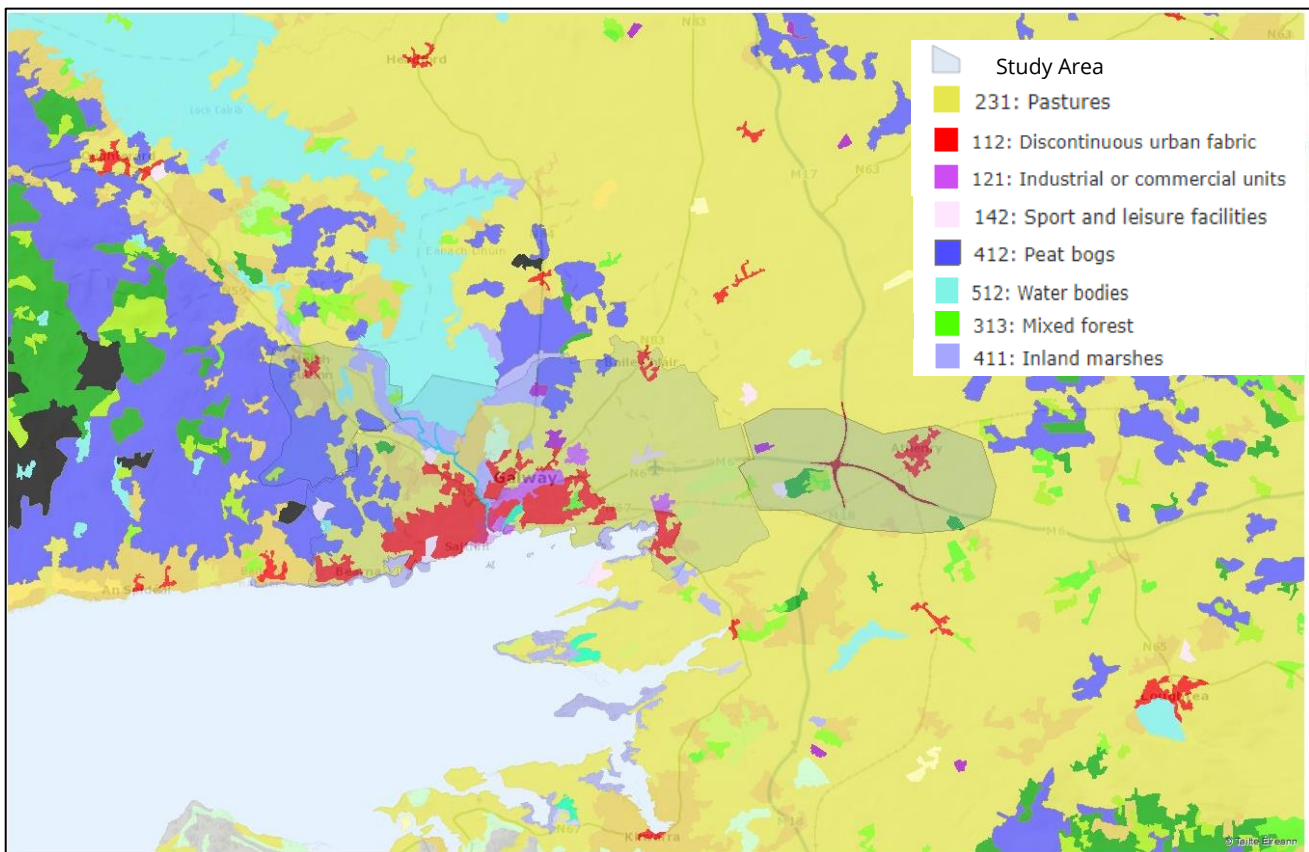


Figure 3.12.1 CORINE land cover (2018) – natural asset⁸

Settlements

The key settlements within the study area are listed in **Table 3.9.1** (see **Section 3.9.1**) and shown on **Figure 1.2.1**. Galway City and Suburbs is the largest settlement both in population and spatial extent, followed by Oranmore, Arthenry, Bearna, Moycullen, Claregalway.

National infrastructure

There are numerous major National (N / M) Roads, motorways and secondary roads within the study area. At present traffic levels during peak hours within the Galway City and Metropolitan Area have far exceeded the capacity of the existing transport network, resulting in severe traffic congestion at peak times. Traffic congestion has increased travel times along the east-west axis of the city, adversely impacting on the existing businesses within the city region, as well as businesses in Connemara.

Galway has a direct intercity rail link to Dublin with up to 10 services departing daily. There are indirect rail services from Galway to all other major train hubs in Ireland⁴⁵. The Galway Airport has been closed to Commercial Traffic other than the Galway Flying Club⁴⁶. The nearest airports to Galway are the Shannon Airport and Knock Airport. The study area consists of the Port of Galway, which is the most central port on the West Coast of Ireland. The Port is located in the sheltered, Eastern corner of Galway Bay, situated on the River Corrib⁴⁷. In 2022, the Port handled 350 vessels totalling 500,259 tonnes of cargo through the Port. Of this, imports were 287,990 tonnes and exports 212,269 tonnes⁴⁸.

The Galway city's topography is conducive to cycling, but the current mode share (2016) for cycling was low at 5%. The infrastructure for cycling is currently limited and discontinuous, with the volume of the city's vehicular traffic decreasing the appeal and safety for cycling.

Wastewater infrastructure

The European Union's Urban Wastewater Treatment Directive sets standards for treating wastewater at all large urban areas (large urban areas are towns and cities with a population equivalent of at least 2,000 that discharge effluent to freshwater or estuaries, and areas with a population equivalent of at least 10,000 that discharge effluent to coastal waters), with the objective of protecting the environment from the harmful effects of wastewater discharge. The final deadline to meet the standards was 2005.

There are four wastewater treatment works in the study area, the type and status of the wastewater treatment works are summarized in **Table 3.12.1** below⁸.

Table 3.12.1: Wastewater Treatment Works within the Study Area

Wastewater Treatment Works	Treatment Type	Agglomeration PE
Mutton Island (Galway City)	Secondary Treatment	>100,000
Athenry	Tertiary P Removal	2001 – 10,000
Claregalway	Tertiary P Removal	2001 – 10,000
Moycullen	Tertiary P Removal	2001 – 10,000

There are more than 392km of wastewater network in the study area, along with 50 wastewater pumping stations and 29 storm water overflows. Historically Uisce Éireann has had limited information regarding discharges of untreated wastewater through these outlets, and to rectify this Uisce Éireann is in the process

⁴⁵ [Trains to Galway](https://www.galwaytourism.ie/trains-to-galway) | Train times and train routes to Galway Ireland (galwaytourism.ie)

⁴⁶ galwayairport.com

⁴⁷ [Location of the Port of Galway](#) Accessed: July 2024

⁴⁸ [Port of Galway General Information \(theportofgalway.ie\)](https://theportofgalway.ie) Accessed: July 2024

of assessing its storm water overflow outlets against national standards. Uisce Éireann are also installing monitoring equipment to measure how often and for how long wastewater is discharged through storm water overflow outlets⁴⁹.

Waste Management

Ireland's waste management landscape changed radically with the implementation of the Waste Management Act in 1996. From a low base, the country made great strides in reducing disposal to landfill, providing an infrastructure for the collection of recyclables and developing expertise in waste management, regulation, research and innovation. Ireland showed innovation by being the first country to introduce a plastic bag tax and to launch a National Waste Prevention Programme. However, Ireland has reached a plateau in relation to waste management; to further deliver the necessary waste prevention and circular economy ambitions will be a challenge.

The latest data highlights the need for Ireland to do more to prevent waste, improve recycling, increase self-sufficiency and move towards a more integrated approach to waste management, as part of implementation of the new national waste policy, the EU Circular Economy Package and the European Green Deal.

The latest waste statistics⁵⁰ indicate that waste generation is increasing in many waste streams. Construction and demolition waste is the largest waste stream in Ireland in 2020 (over 8.2 million tonnes). Ireland generated approximately 16.2 million tonnes of waste in 2020, corresponding to 3.25 tonnes per person, up from 12.7 million tonnes (2.77 tonnes per person) in 2012. Although, the amount of municipal waste recycled has increased by 11% since 2016, total waste generated has also increased by 11%.

Ireland missed the waste electrical and electronic equipment (WEEE) collection target in 2020 and is in danger of missing future EU waste targets for municipal and plastic packaging waste recycling. Ireland is still heavily reliant on export markets, particularly for the treatment of municipal waste, hazardous waste, packaging waste, WEEE and biowastes.

Waste facilities, City Bin Co (for waste collection and recycling) and Galway City Council Recycling Centre, are within the study area⁸. Carroebrowne Landfill is a former landfill site within the study area.

Wastewater treatment sludge

Sewage sludge is a by-product of wastewater treatment. The Urban Wastewater Treatment Directive requires sewage sludge to be reused whenever appropriate. Good sludge management, such as removing sludge from a treatment plant at an appropriate rate, is an essential part of the treatment process. Uisce Éireann removed 60,467 tonnes of sewage sludge from its treatment plants in 2021 (EPA, 2021c). Sludge contains valuable nutrients such as nitrogen and phosphorus and most of this was subsequently reused as a fertiliser or soil improver on agricultural land (55,182 tonnes), with the rest used for composting (5,154 tonnes) and placed in storage at the end of 2021 awaiting land spreading on soil/agricultural land in 2022 (131 tonnes).

Uisce Éireann is progressing a number of initiatives through the water treatment plant residual strategy taking a circular economy model for the management of sludges, as they provide a sustainable source of precious finite materials. The sludge provides an alternative/ complement to current raw materials being used. We view water sludge as a valuable resource particularly in the context of the circular economy model.

This model is in direct contrast to the current linear model of 'take, make, consume, dispose', with landfill being the primary end point. Uisce Éireann are progressing a number of potential sustainable options. Recovery/reuse of the sludge is the preferred long term sustainable option for Uisce Éireann. A key milestone has been reached with nearly 90% of water treatment sludge going to circular economy outlets.

⁴⁹ Environmental Protection Agency (EPA). 2022. Urban Waste Water Treatment in 2022. Accessed: July 2024. Available from: [Urban-Waste-Water-Treatment-in-2022-Report.pdf \(epa.ie\)](#)

⁵⁰ Environmental Protection Agency (EPA). 2020. National Waste Statistics 2020 Summary Report for 2020. Accessed: December 2023. Available from: [National Waste Statistics Summary Report for 2019 | Environmental Protection Agency \(epa.ie\)](#)

Uisce Éireann is currently involved in a number of innovative projects, funded by the Water Services Innovation Fund administered by the Commission for Regulation of Utilities and will deliver benefits for our customers, the environment and the economy. These projects include enhancing existing wastewater treatment plants through aerobic granular sludge addition and developing pilot sludge treatment reed beds for use in treating and de-watering water sludge containing aluminium sulphate.

The EPA has identified Galway City as a priority area for improvement of water treatment to prevent wastewater discharges from harming rivers, lakes, estuaries and coastal waters⁴⁹.

3.12.3 Future Trends

Natural assets/land use

Whilst agriculture is the dominant land cover type across Ireland and within the study area, at national level there has been an overall downwards trend in this land usage since the 1990s, with shift from agricultural land cover to forestry and artificial areas. On a national level, artificial areas have increased by 65% since the 1990s. There is no publicly available data for the study area specifically, however it is anticipated that the overall trend of a decrease in agricultural land cover and increase in artificial land cover seen nationally is likely also reflected within the study area⁵.

Built material assets

Significant population growth is forecast within the study area over the coming 15 years. This will require provision of new infrastructure to service the increased population and facilitate economic growth. However, rural and coastal areas also make a strong contribution to the GMA economy and sense of character, so efforts to maintain rural communities are necessary to benefit the wider regions.

Waste and the Circular Economy

The Circular Economy and Miscellaneous Provisions Act (2022), underpins Ireland's shift from a 'take-make-waste' linear model to a more sustainable pattern of production and consumption, that retains the value of resources in the economy for as long as possible and that will significantly reduce the nation's greenhouse gas emissions. The 2022 Whole of Government Circular Economy Strategy provides the policy framework for the circular economy in the country and Ireland's National Waste Policy 2020-2025, A Waste Action Plan for a Circular Economy⁵¹, sets out a roadmap that aims to ensure that Ireland not only meets the legal targets but also takes full advantage of the opportunities of the circular economy.

The new legislation and strategies strengthen the approach to addressing waste and implementing circular economy principles. Nevertheless, with a circularity material use rate of 2% in 2020, Ireland has significant scope for progress⁵². No data on circularity material use rates relevant to the study area specifically has been identified, however it is not anticipated to differ significantly from the national trend.

The development of circular economy principles will impact all sectors of society and collaboration between stakeholders will be key to this transition in Ireland. Some examples of how the wastewater treatment processes may be changed by the progressive adoption of circular economy principles include:

- Reusing wastewater in sectors such as agriculture and manufacturing can decrease Ireland's dependence on freshwater sources. Reusing wastewater can also contribute to reducing the impact of flooding and improving water quality.
- Nutrient recovery systems can extract valuable resources from wastewater sludge, for example by converting nutrients to fertilisers or energy. This can contribute to reducing nutrient pollution,

⁵¹ DECC. 2020. A Waste Action Plan for a Circular Economy. Accessed: July 2024. Available from: <https://www.gov.ie/en/publication/4221c-waste-action-plan-for-a-circular-economy/>

⁵² Organisation for Economic Cooperation and Development (OECD). 2022. OECD Economic Surveys: Ireland 2022. Accessed: July 2024. Available from: <https://www.oecd-ilibrary.org/ireland>

potentially reducing treatment requirements for water abstracted from rivers. Sustainable agricultural practices will also support this trend.

- Minimising use of consumables in the delivery of wastewater services and generating renewable electricity.

There are several challenges to overcome to maximise the opportunities associated with circular economy principles, in particular wastewater reuse. These include public perception, regulatory challenges and market failures linked to the cost of reused water⁵³.

Relevant to these challenges are the limitations on landfill capacity. According to the EPA's National Waste Statistics Report⁵⁰, two of the three operational municipal landfills in Ireland will approach their maximum lifetime consented capacity by 2027 if additional capacity is not authorised. There is a risk in the event of export markets closing at short notice and the planned contingency landfill capacity needs to be secured without delay. Treating waste as close to its source as possible (the proximity principle) is one of the core pillars of EU waste policy. Waste exports also represent missing valuable opportunities to maximise the beneficial and efficient use of waste materials. By addressing waste infrastructure deficits, Ireland can develop circular economy opportunities and reduce the emissions associated with transporting waste over long distances. Whilst the sludge disposal does not fall under the remit of the GWS, the nature of wastewater treatment processes employed can affect the potential range of disposal or reuse options available.

3.12.4 Key Considerations for GWS and the SEA

Key challenges and opportunities in relation to the material assets topic include:

Challenges

- Land management: agricultural practices can contribute to the release of nutrients and fertilisers into waterbodies, causing eutrophication (the gradual increase in the concentration of phosphorus, nitrogen, and other plant nutrients in an aquatic ecosystem). Wastewater sludge spreading can also contribute to this, with nutrient levels within wastewater sludge affected by the treatment process employed.
- Resilience of infrastructure and operations – Uisce Éireann's wastewater treatment infrastructure will have to cope with the various impacts of climate change, and support growth.

Opportunities

- Land use and habitat type are the basis for natural capital and ecosystem services with links across topics including biodiversity, carbon, water, food production, fisheries and recreational uses.
- Waste management and potential to contribute to the circular economy - supporting sustainable waste disposal and minimising release of industry pollutants into water sources can benefit the environment, reduce carbon and reduce treatment costs.

3.13 Landscape, Townscape and Seascape

3.13.1 Landscape Baseline Condition

Landscape Character

Landscapes reflect many variables, including underlying geology, soils, topography, land cover including habitats and agricultural, forestry and urban land, hydrology, historic and cultural development, and climate. These physical and socio-economic influences, and interrelationships, makes one landscape different from

⁵³ EPA. 2019. Water Reuse in the Context of the Circular Economy. Accessed: July 2024. Available from: https://www.epa.ie/publications/research/water/Research_Report_293.pdf

another. Landscape character is the distinct and recognisable pattern of elements, or characteristics, in the landscape that make these differences. Landscape features such as hedgerows field boundaries, woodlands, riparian corridors, canals and wetlands are part of landscape character and are also important as ecological corridors providing connectivity but can be especially vulnerable to linear infrastructure development.

The European Landscape Convention (ELC) is the first international treaty to focus solely on landscape. The Convention promotes the protection, management and planning of European landscapes. The Irish Government ratified the Convention in 2002. The National Landscape Strategy 2015-2025⁵⁴ was put in place to drive compliance with the European Landscape Convention by establishing principles that provide the high-level policy framework to achieve the Convention’s objectives.

There is no National Park in the study area. The unique visual character of the study area consists of landscapes, seascapes and rich and diverse built, natural and cultural heritage. The study area is characterized by the following landscape character types (**Table 3.13.1** and **Figure 3.13.1**).

Table 3.13.1 Landscape character type within the study area

Area	Landscape Character Type	Description
Eastern and Northeastern part of Study Area	Central Galway Complex	An extensive plain of grasslands comprising medium-to-large fields with low enclosures and many areas of low stone walls. This area contains high levels of rural housing, roads and settlements.
Northern and Northwestern part of the study area	Lake Environ	This type covers Lough Corrib Ireland’s second largest lake, which is highly prized as recreational and scenic resources.
Western part of the study area	Upland and Bog	An extensive area of very open landscapes with low levels of settlement, roads or agriculture. Upland and Bogs make up much of the centre of those western parts of the study area.
Coastal region of the study area	Coastal	The Coasts of Galway are highly distinctive, but very complex and varied, types of landscape that vary considerably between low and high tide
Oranmore, Bearnna, Galway, Athenry	Urban	Around all major settlements, can establish extensive landscapes of urbanised appearance and character for a considerable distance around each centre.

⁵⁴ Department of Arts, Heritage and the Gaeltacht (DAHG). 2021. National Landscape Strategy for Ireland 2015-2025. Accessed: July 2024. Available from: [gov - National Landscape Strategy \(www.gov.ie\)](http://gov.ie)

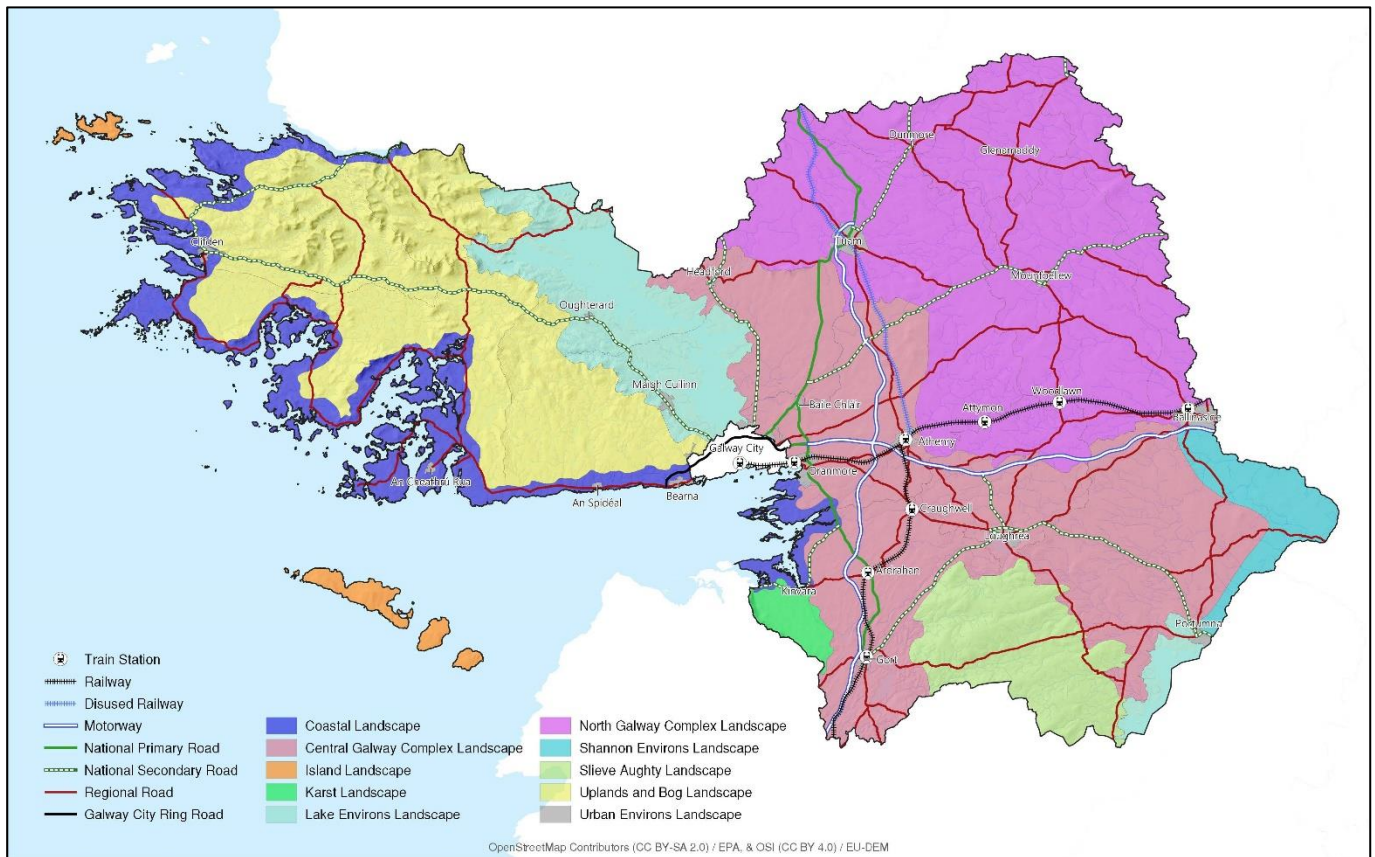


Figure 3.13.1 Landscape character types (except Galway City)⁵⁵

Galway City and Suburb encompasses the urban, built environment as well as open space, river, canal system and coastline. Other important elements of the city’s landscape include views and prospects of amenity value, trees and the historic built environment. Inland waterways are a feature of the city, including the River Corrib, Eglington Canal, the Terryland River, lesser waterways of the Cathedral River, the West River and other headraces, tailraces and minor canals. The River Corrib is flanked by inland marshes along Dyke Road. Lough Atalia is classified as a coastal lagoon. The city’s heritage and sites covered by ecological designations form important components of the city’s landscape. Fringes of the plan area turning inland are a mix of pastures, green urban areas and land principally occupied by agriculture³⁸.

Galway City’s historical cityscape and distinctive landscape setting provides a good quality of life for its residents and the economy. As the city’s heritage and sites covered by ecological designations form important components of the city’s landscape and cultural identity, the Galway City Recreation and Amenity Needs Study 2008 and the current GCDP advocates for the sustainable use and management of natural heritage areas and recreational and amenity spaces in the city. The City Council is now commencing the process of preparing a Greenspace Strategy. The City Council is also working with the community on the Healthy Green Space initiative, which is about improving the quality of the city’s green spaces to be welcoming and inviting for people, to deliver on needs to reverse biodiversity loss, support pollinators, make positive impacts against or to cope with climate change and reduce waste and reliance on carbon-based fuels.

Seascape

Seascape is defined as an area of sea, coastline or land, as perceived by people, whose character results from actions and interactions of land with sea by natural and/or human factors. The seascape character areas in

⁵⁵ Adopted Galway County Development Plan 2022 – 2028 – SEA Environmental Report. [Strategic Environmental Report - Galway Draft CDP 2022-2028.pdf](#), Accessed: July 2024

the vicinity of the study area include Atlantic Galway Bay and Islands, and Large Limestone Bay (with low-lying/undulating hinterland & coastal wetlands), which are illustrated in **Figure 3.13.2**.

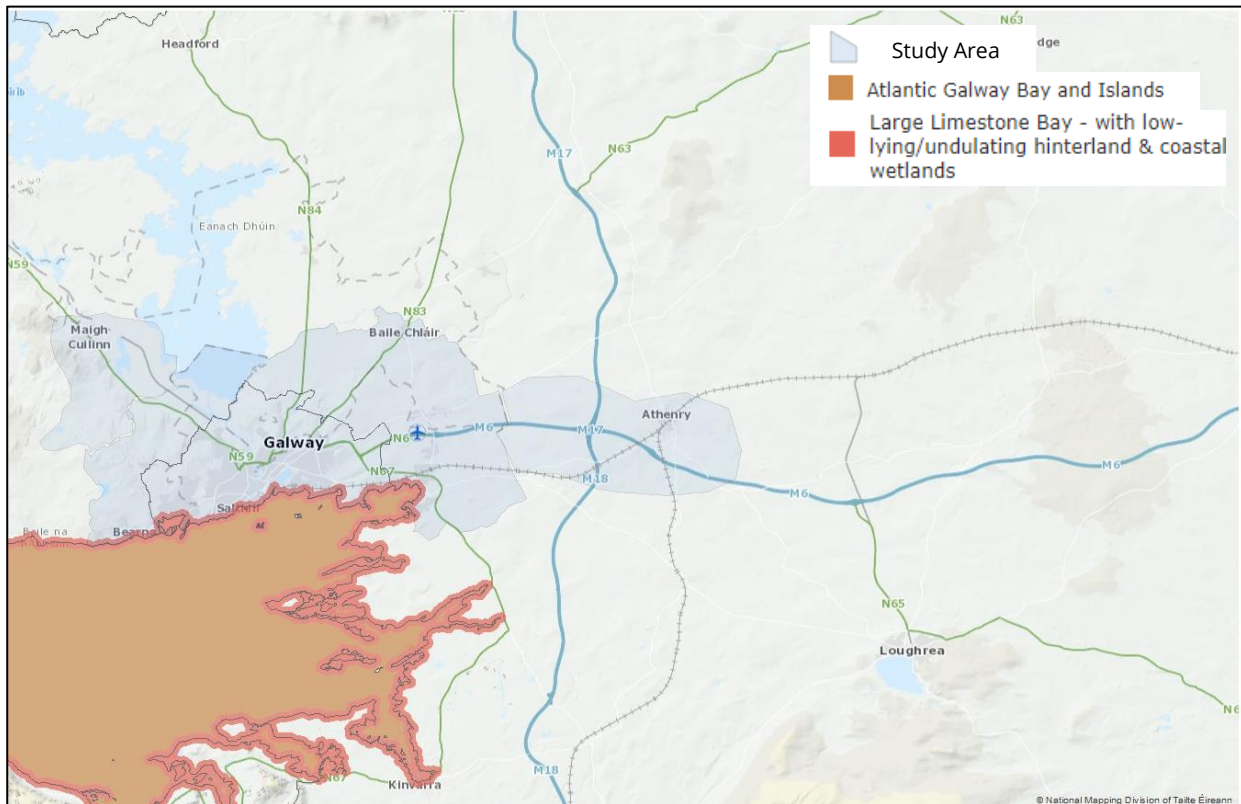


Figure 3.13.2 Seascape character areas⁸

According to Seascape Character Assessment Report for Ireland⁵⁶, the Galway Bay (a large limestone bay) is framed by two distinctive and very different coastlines, north (Connemara) and South (Burren); this seascape character area extends to encompass the Aran Islands. East of Inverin this coastline becomes more regular, and no bays are present until closer to Galway; though numerous quays occur. At this stage Galway City and Docks influence the coastal seascape and can be seen across the bay on the Clare coast. Settlements have taken advantage of sheltered bays where possible, including Galway City and Oranmore. The presence and influence of the sea on the landscape is largely consistent within this SCA; the network of minor roads and connectivity to islands, the frequently long coastal views allow for almost constant views to the sea and across Galway Bay. Closer to Galway City the visual aspect of the seascape character becomes less expansive.

The Galway Bay is sensitive to changes on the land and water and are particularly sensitive the developments on and near the shore on account of the greater viewing distances involved. Visual impacts can be particularly significant at the extremities of these coasts. Headlands give rise to singular and visually distinctive features that be significantly altered by relatively small conspicuous developments. These coasts are visible from many viewing points - which include many areas, such as beaches, that are valued for recreational and visual amenity.

Scenic Views and Routes

Figure 3.13.3 illustrates the Scenic Views and Routes within the Galway County (except Galway City). The study area encompasses several sites and vantage points from which views over areas of great natural beauty, local landmarks, historic landscapes, adjoining counties may be obtained. The scenic views and routes relevant to the study area include:

⁵⁶ Regional Seascape Character Assessment Report 2020, [final seascape character assessment report with annexes.pdf \(marine.ie\)](#). Accessed: July 2024.

- Viewpoint 30: View of the sea from Bearna
- Viewpoint 32: Silver Strand
- Lough Corrib Scenic Route
- Galway Clifden Scenic Route
- Galway Bay Scenic Route

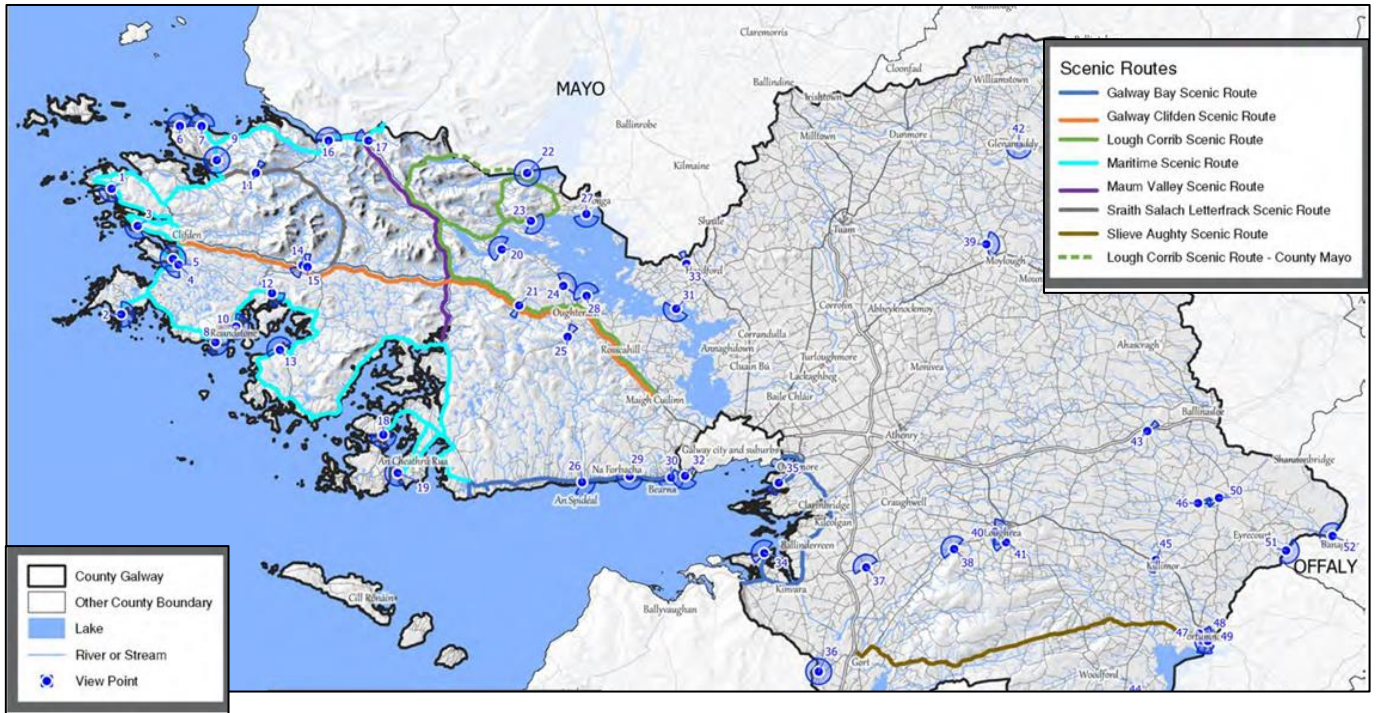


Figure 3.13.3 Scenic views and routes (except Galway City)⁵⁵

Important views in the Galway city include panoramic views which allow expansive views over landscape for example Galway Bay and over the cityscape and linear views which are views towards a particular landscape, observed from a particular point³⁸. The enjoyment of protected views by the community and visitors is a key part of the experience of the city. It is acknowledged that views are not static and some changes in a view can be absorbed without visually depreciating the integrity of the view and in some cases make a positive contribution to the characteristics and composition of protected views, while other changes can have a negative impact reducing the experience of that view irreparably. **Figure 3.13.4** presents these panoramic and linear views.

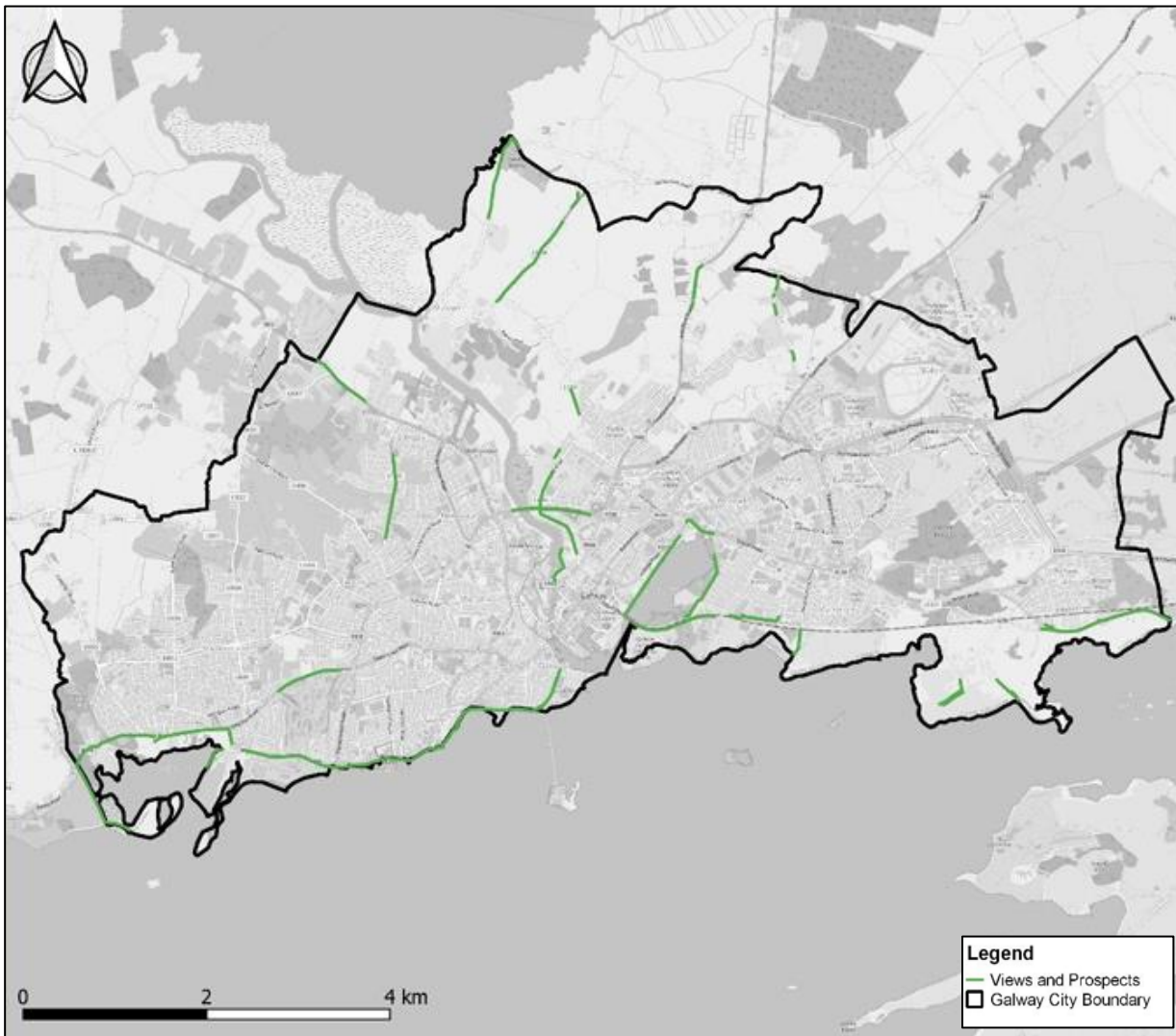


Figure 3.13.4 Views panoramas and linear views in Galway City³⁸

Dark Skies

According to Light pollution: spatial analysis and potential ecological effects in rural Ireland⁵⁷, over 60% of the population lives in urban environments in Ireland, and hence is exposed to light conditions above the natural background level. Urban expansion in the last decade has seen the spread of light into rural areas, and the most recent estimates indicate that 40% of the land area, and 84% of the population, are under skies which are 150% of the natural value, with 18% of the population using daytime vision at night^{58,59}. Rural areas are considered to be under light pollution threat as increases in light in these areas are disproportionately larger than those in urban areas.

Man-made light pollution is an area of increasing concern from a sustainability, ecological and health perspective⁶⁰. The glare and spillover from night-time light also impacts humans, as we've evolved over millennia to be in synch with natural light patterns. Interfering with this can lead to eye strain, loss of clear vision and premature aging of the eyes. Other health concerns centre on the potential of light at night to act

⁵⁷ Light pollution: spatial analysis and potential ecological effects in rural Ireland [Power GonzalezDelCampo Espey 1May2017 1257-4804-1-PB.pdf \(tcd.ie\)](#)
 Accessed: July 2024

⁵⁸ Falchi, F., Cinzano, P., Duriscoe, D., Kyba, C.C., Elvidge, C.D., Baugh, K., Portnov, B.A., Rybnikova, N.A. and Furgoni, R., 2016a. The new world atlas of artificial night sky brightness. *Science Advances*, 2(6), e1600377. DOI: 10.1126/sciadv.1600377

⁵⁹ Falchi, F., Cinzano, P., Duriscoe, D., Kyba, C.C., Elvidge, C.D., Baugh, K., Portnov, B.A., Rybnikova, N.A. and Furgoni, R. 2016b: Supplement to: The new world atlas of artificial night sky brightness. GFZ Data Services. [http:// doi.org/10.5880/GFZ.1.4.2016.001](http://doi.org/10.5880/GFZ.1.4.2016.001)

⁶⁰ Dominoni, D.M.; Nelson, R.J. Artificial light at night as an environmental pollutant: An integrative approach across taxa, biological functions, and scientific disciplines. *J. Exp. Zool. A Ecol. Integr. Physiol.* 2018, 329, 387–393.

physiologically to disrupt homeostatic and behavioural control systems, such as the circadian clock that regulates daily rhythms in activity, physiology and sleep⁶¹.

Aside from the potential for direct physiological effects, the subjective perception of artificial light at night may also impact on quality of life and health-related behaviours, and may be shaped by psychological processes, such as social amplification⁶². Further, sleep disorders such as insomnia, or even subclinical poor-quality sleep, have been associated with sleep attentional biases, wherein greater attention is drawn to sleep-salient factors in the environment⁶³.

In ecological aspect, many mammals, birds, reptiles and insects are naturally photoperiodic. Their behaviour and physiology depend on the circadian rhythms, such that growth, development, reproduction, eating and locomotion can be affected by artificial light. And plants, too, depend on nocturnal and diurnal influences which can be affected by light pollution, leading to physiological changes and increased opportunities for insects, birds and mammals to predate on them.

Figure 3.13.5 illustrates the light pollution map, measured in Zenith sky brightness, in the vicinity of the study area. The unit is mag/arcsec² based on Sky Quality Meter. Values of 21.3 and greater (darker) fall within the range of "natural" skies (Bortle Class 1-3), 19.5-21.3 may be considered significantly degraded skies (Bortle Class 4-6), while values less than 19.5 may be considered severely degraded (Bortle Class 7-9)⁶⁴. As shown in **Figure 3.13.5**, urban settlements would have significant degraded skies. Whilst severe degraded skies are observed in Galway City Centre.

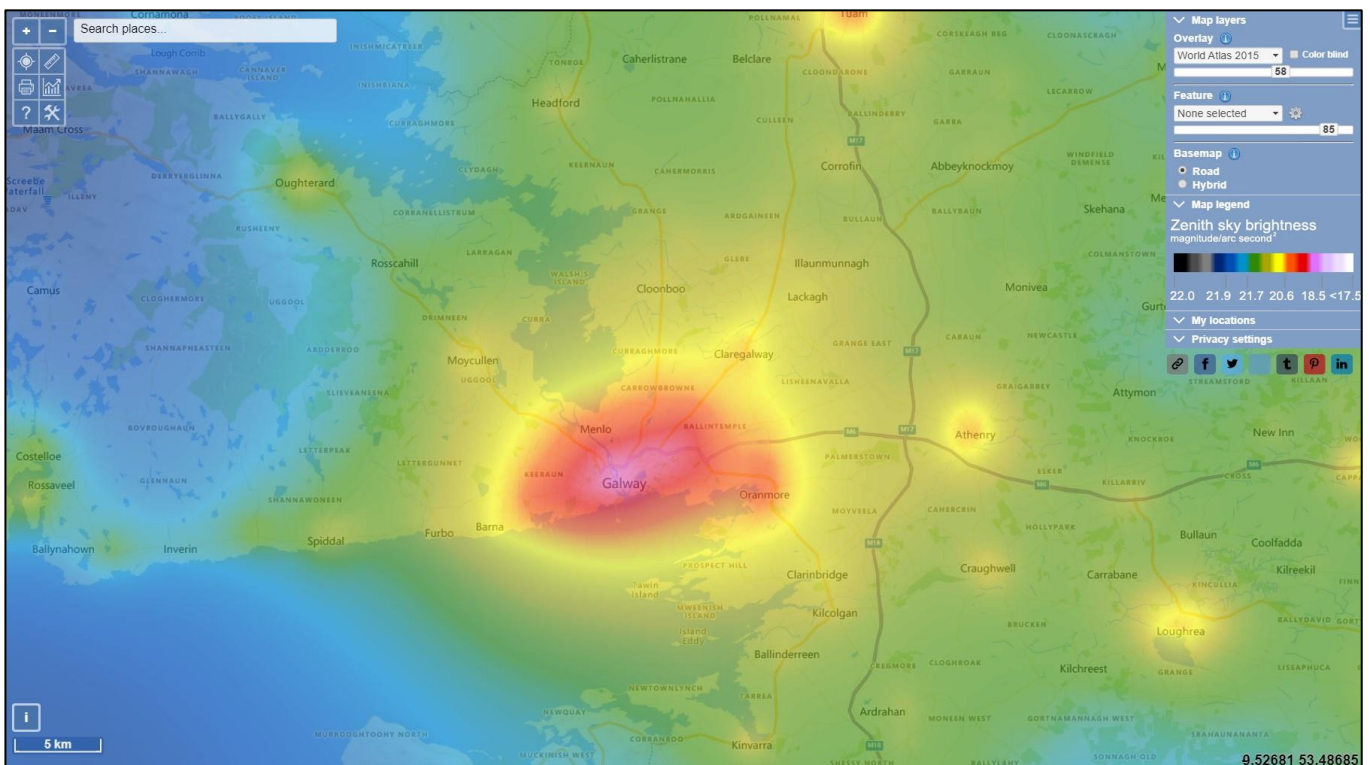


Figure 3.13.5 Light pollution map in the vicinity of the study area.

According to draft Galway County Development Plan 2022 – 2028⁵⁵, there is significant potential for the development of dark skies designated areas in the county primarily with the Conamara area due to the low population density and its distance from any major cities means it suffers from minimal light pollution and

⁶¹ Russart, K.L.G.; Nelson, R.J. Light at night as an environmental endocrine disruptor. *Physiol. Behav.* 2018, 190, 82–89.
⁶² Kim, K.H.; Choi, J.W.; Lee, E.; Cho, Y.M.; Ahn, H.R. A study on the risk perception of light pollution and the process of social amplification of risk in Korea. *Environ. Sci. Pollut. Res. Int.* 2015, 22, 7612–7621.
⁶³ Harris, K.; Spiegelhalter, K.; Espie, C.A.; MacMahon, K.M.; Woods, H.C.; Kyle, S.D. Sleep-related attentional bias in insomnia: A state-of-the-science review. *Clin. Psychol. Rev.* 2015, 42, 16–27.
⁶⁴ [Night Sky Monitoring Report Metrics & Glossary of Terms - Night Skies \(U.S. National Park Service\) \(nps.gov\)](https://www.nps.gov/night-sky-monitoring-report-metrics-glossary-terms) Accessed: July 2024

contains many areas where not a single source of artificial light may be seen. The Council will support the investigation of the development of designated dark skies areas within the most appropriate locations.

3.13.2 Future Trends

The National Landscape Strategy 2015-2025 is in the process of being implemented and will be Ireland's vehicle for complying with the EU Landscape Convention.

The existing landscape character within the study area is not expected to change significantly in the immediate future, although planned developments are potential sources of change and loss of landscape feature. Longer term influences on landscape character would be related to land use changes such as agricultural and forestry practices, and climate change responses and their impacts on habitats and landscape features.

3.13.3 Key Considerations for GWS and the SEA

Key challenges and opportunities in relation to Landscape, Townscape and Seascape include:

Challenges

- Potential for new wastewater treatment infrastructure to impact landscape, townscapes and seascapes including visual amenity during construction and operation.
- Potential for the new wastewater treatment infrastructure to be constrained by the need to protect the landscape character and local visual amenity in sensitive areas.

Opportunities

- Opportunities for enhancements linked to biodiversity and water quality improvement measures, such as restoring riparian corridors, nature-based solutions and catchment management approaches.

3.14 Cultural Heritage – Archaeological and Architectural

3.14.1 Cultural Heritage

Record of Monuments and Places

The Record of Monuments and Places (RMP) is the statutory list of recorded monuments. Monuments listed in the RMP are afforded legal protection under the National Monuments Act 1930-2004 and any work taking place at or in relation to a Recorded Monument will typically need to be notified to the Minister.

The National Monuments Act 1930-2004 was enacted to make provision for the protection and preservation of national monuments and archaeological objects and provides for the protection of monuments and archaeological sites, the protection of the portable archaeological heritage and the regulation of archaeological works. The Historic Archaeological and Heritage Bill 2023 will replace the National Monuments Act and will represent a significant modernisation of the law protecting Ireland archaeological and historic heritage.

National Inventory of Architectural Heritage

The Architectural Heritage (National Inventory) and Historic Monuments (Miscellaneous Provisions) Act 1999 was enacted to provide for the establishment of a National Inventory of Architectural Heritage (NIAH) and to provide for the obligations of statutory authorities in respect of these historic monuments. The purpose of the NIAH is to identify, record, and evaluate the post-1700 architectural heritage of Ireland, uniformly and consistently as an aid in the protection and conservation of the built heritage. In this Act *“architectural heritage”* means all structures and buildings together with their settings and attendant grounds, fixtures and fittings; groups of such structures and buildings; and sites which are of architectural, historical, archaeological, artistic, cultural, scientific, social or technical interest.

Each structure is given a rating: National, Regional, Local or Record Only. Any structure rated as being Regional or higher importance will be recommended to have a separate record under the Record of Protected Structures (RPS).

Record of Protected Structures

The Planning and Development Act 2000 (as amended) requires each planning authority to compile and maintain a RPS that forms part of each planning authority development plan. The purpose of the RPS is to protect structures, or parts of structures *“which form part of the architectural heritage, and which are of special architectural, historical, archaeological, artistic, cultural, scientific, social or technical interest.”* Sites, structures and groups of structures rated by the NIAH as being of Regional or above importance are included in the RPS which provides statutory protection for Ireland’s architectural heritage.

While the prime objective of the RPS is to protect the structure and its setting, proposals for the sensitive restoration, extension and alteration of Protected Structures are positively encouraged by the Planning Authority.

Sites and Monuments Record

The Sites and Monuments Record (SMR) appear on the Archaeological Survey of Ireland Map Viewer, however it does not, of itself confer legal protection. Not all of these are included in the RMP and hence have no statutory protection.

The designations considered as part of the cultural heritage baseline are:

- Archaeological sites monuments included on the RMPs and/or SMRs; and
- Architectural structures and sites included on the RPSs and/or NIAH.

Architectural Conservation Areas

Architectural Conservation Areas (ACAs) are places, areas, group of structures or townscapes that are of special architectural, historical, archaeological, technical, social, cultural, or scientific, interest, or that contributes to the appreciation of an RPS site. ACAs are identified by local planning authorities and protected under Section 81 of the Planning and Development Act 2000.

Unknown archaeological remains

The National Monuments Service has an interactive mapping search facility that provides access to all records relevant to the archaeological heritage of Ireland. This extensive body of records is stored on the national database of the Archaeological Survey of Ireland, and a list of recorded archaeological monuments for each county is available at www.archaeology.ie based on OSI mapping. The National Monuments Service is also tasked with addressing the protection and preservation of Ireland's underwater cultural heritage. The Underwater Archaeology Unit of the National Monuments Service has a wide remit, including quantification of the record, research, underwater survey, excavation and regulation. The Underwater Archaeology Unit maintains the Wreck Viewer and Wreck Inventory of Ireland Database, and also assesses potential development impacts on underwater archaeology by making recommendations to the relevant planning authorities and other regulatory bodies on developments which have the potential to impact on underwater archaeology⁶⁵.

3.14.2 Cultural Heritage Baseline Condition

There is no World Heritage Site in the vicinity of the study area⁸. Nevertheless, there are many sites of significant archaeological interest within the study area. **Figure 3.14.1** shows the spatial distribution of sites and monuments records. The data consists of an extensive body of material relating to the archaeological heritage of the state. The archive includes all known or possible monuments pre-dating AD 1700 that have been brought to its attention and also includes a selection of monuments from the post-AD 1700 period. These structures are protected under the National Monuments Acts 1930 to 2004. More than Seven hundreds of Recorded Monuments have been identified within the study area, including graveyards, castles, forts, crosses and churches, etc. These monuments are usually clustered around historic core. Clusters of archaeological heritage are also identified along the coastline, surrounding settlements in Galway City, Oranmore, and Athenry. The monument also includes Zones of Notification within which requirements for notifications of proposed works apply.

⁶⁵ National Monuments Service. 2023. Underwater Archaeology. Accessed: July 2024. Available from: <https://www.archaeology.ie/underwater-archaeology>

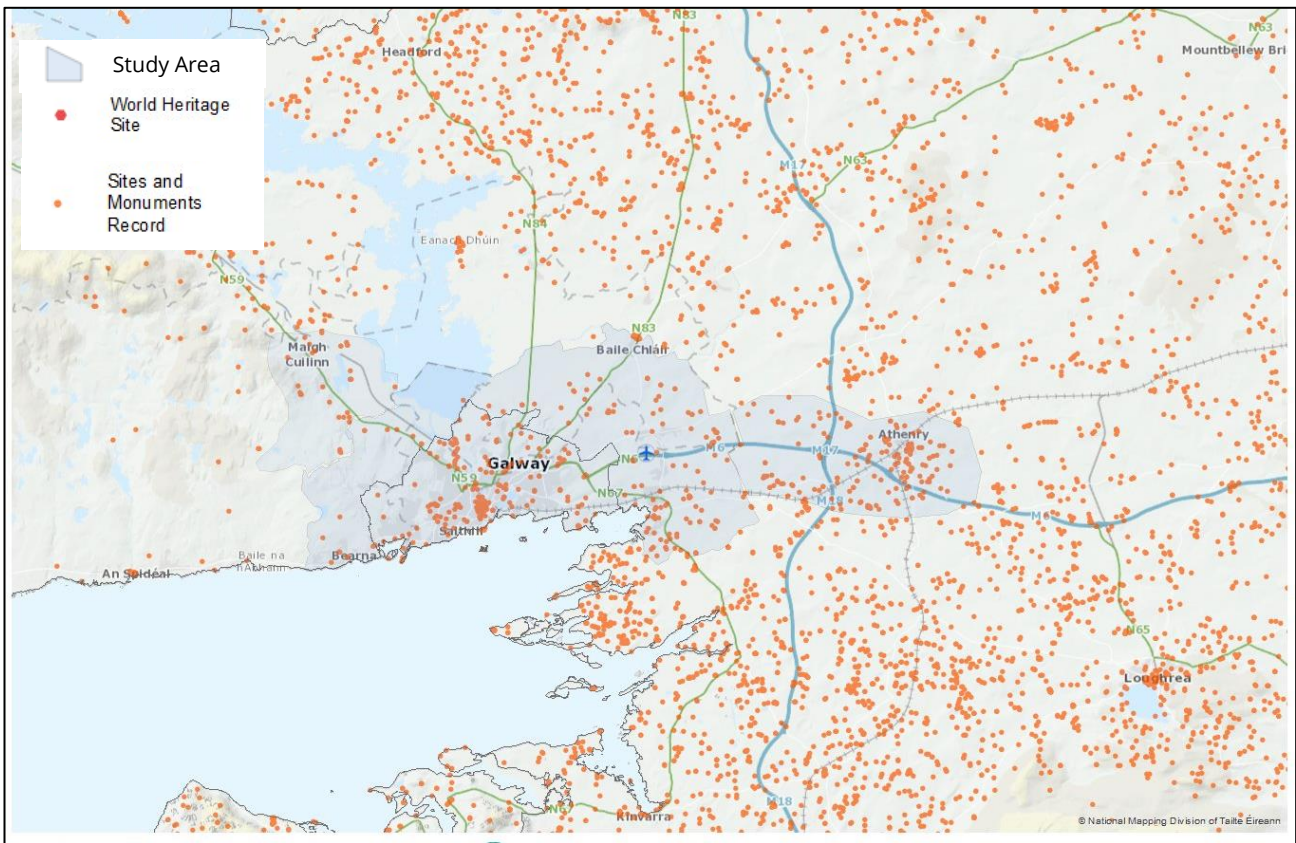


Figure 3.14.1 Sites and monuments record⁸

Figure 3.14.2 shows entries to NIAH in the vicinity of the study area and beyond⁸. There are more than three hundred entities under NIAH within the study area.

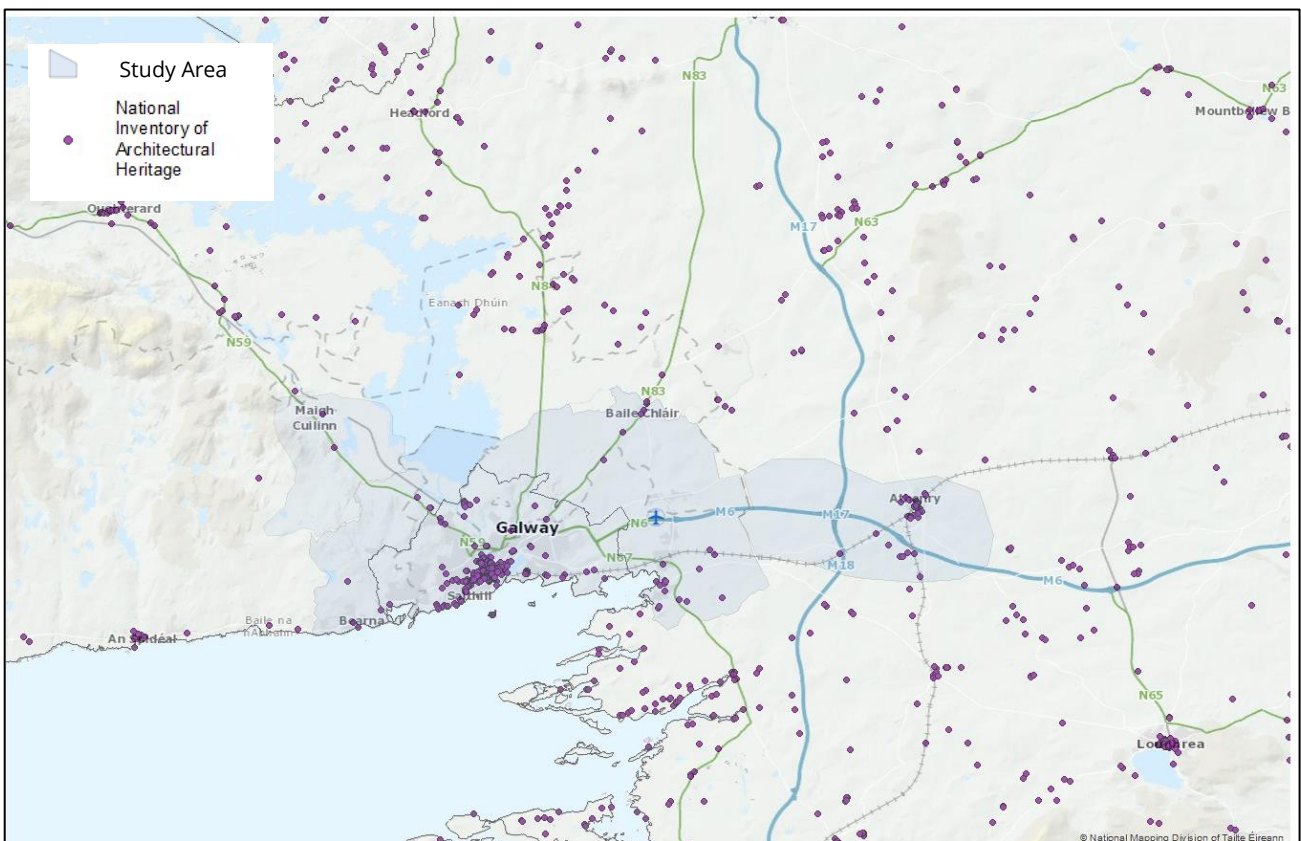


Figure 3.14.2 National inventory of architectural heritage⁸.

There are three ACAs designated in the study area and listed below:

- Athenry ACA
- Bearna ACA
- Oranmore ACA

Underwater Archaeology Unit was established within the National Monuments Service to manage and protect Ireland's underwater cultural heritage, including the quantification of the underwater resource and assessing development impacts in order to manage and protect this aspect of Ireland's heritage. The Shipwreck Inventory is principally a desktop survey with information gathered from a broad range of cartographic, archaeological and historical sources, both documentary and pictorial. Wrecks over 100 years old and archaeological objects found underwater are protected under the National Monuments (Amendment) Acts 1987 and 1994. Significant wrecks less than 100 years old can be designated by Underwater Heritage Order on account of their historical, archaeological or artistic importance. **Figure 3.14.3** shows the wrecks locations in the vicinity of the study area.

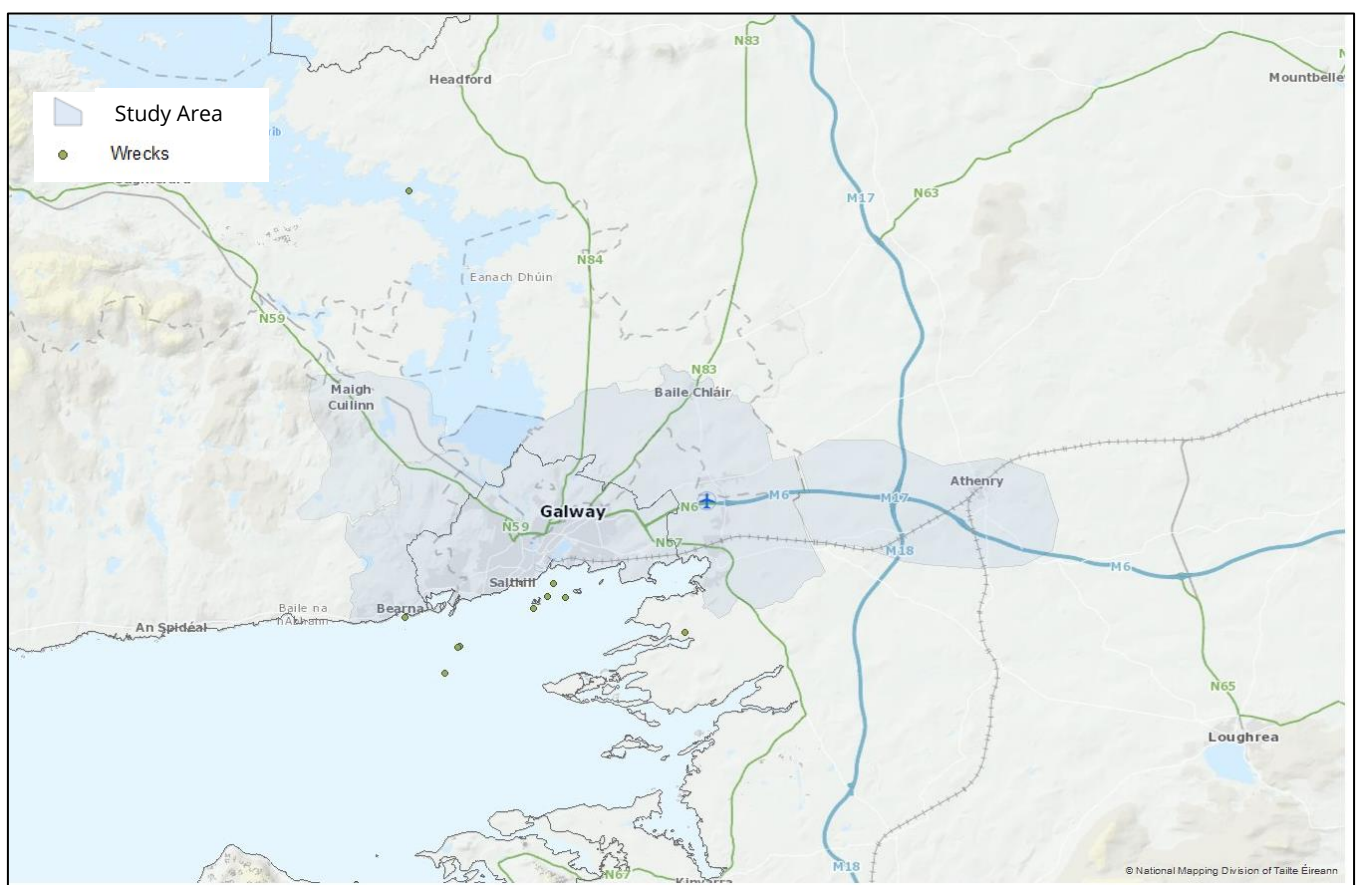


Figure 3.14.3 Wrecks locations in the vicinity of the study area⁸.

According to Underwater Archaeological and Cultural Heritage Impact Assessment: Cable Route Selection Survey⁶⁶, evidence for Mesolithic activity in Galway is scarce. Neolithic archaeology is more evident due to the presence of a number of known megalithic monuments⁶⁷. In 2014, an investigation headed by Ireland's Underwater Archaeology Unit unearthed a series of sunken dug-out canoes in Lough Corrib⁶⁸, which also contained a miniature armoury of weapons of Viking origin.

Architectural heritage is defined in the Architectural Heritage (National Inventory) and Historic Monuments Act 1999 as meaning all:

⁶⁶ Underwater Archaeological and Cultural Heritage Impact Assessment: Cable Route Selection Survey <https://assets.gov.ie/82870/146c4fea-cb29-4564-80e3-07eb56d9f187.pdf> Accessed: July 2024

⁶⁷ Shipwrecks | Infomar <https://www.infomar.ie/maps/downloadable-maps/shipwrecks-viewer> Accessed: July 2024.

⁶⁸ The Logboats in the Lake <https://archaeology.co.uk/articles/features/the-logboats-in-the-lake.htm> Accessed: July 2024.

- structures and buildings together with their settings and attendant grounds, fixtures and fittings;
- groups of structures and buildings; and
- sites which are of technical, historical, archaeological, artistic, cultural, scientific, social, or technical interest.

3.14.3 Future Trends

The National Heritage Plan, Heritage Ireland 2030, was published in 2022⁶⁹. This plan sets out a wide range of actions aimed at protecting and nurturing Ireland's heritage and recognising the importance of community engagement and the links to biodiversity and climate change. An Implementation Plan for the actions is to be developed. The Historic Archaeological and Heritage Bill 2023, replacing the National Monuments Act, will introduce a single integrated licensing system and statutory codes of practice, and will confer legal protection on new finds at archaeological sites. These forthcoming changes to cultural heritage legislation and policy strengthen the protection of designated cultural, archaeological and architectural heritage assets and as well as undesignated archaeological. There are recognised threats to heritage assets from development activities affecting settings or resulting in loss of buried unknown assets. Climate change and habitat loss can also affect the preservation of buried archaeological remains.

3.14.4 Key Considerations for GWS and the SEA

The key challenges and opportunities in relation to Cultural Heritage for the GWS and SEA include:

Challenges

- The potential for the construction of wastewater treatment infrastructure to damage archaeological and architectural heritage monuments/site or affect access to or the settings of sites/monuments.
- The potential for new structures to impact the setting of heritage sites/monuments.
- New developments could be constrained by the need to avoid and protect sites/monuments and their settings.

Opportunities

- Opportunities for linking protecting heritage with supporting biodiversity and climate change objectives.
- Potential to uncover (and damage) unknown, undesignated archaeological remains, including underwater and marine archaeology but also potential to record and add to knowledge and improve access to cultural heritage and archaeology.

⁶⁹ DHLGH. 2023. Heritage Ireland 2030. Accessed: July 2024. Available from: [gov - Heritage Ireland 2030 \(www.gov.ie\)](http://gov.ie/Heritage-Ireland-2030)

3.15 Geology and Soils

3.15.1 Geology baseline Condition

Several County Geological Sites are identified in the study area and are summarized in **Table 3.15.1** and illustrated in **Figure 3.15.1**. County Geological Sites have been surveyed by an ongoing national programme of County Geological Heritage Audits. The programme of County Geological Sites documentation is a dynamic process as additional sites may be added through new exposures such as quarries and road cuttings, and notifications from local community knowledge. The purpose of the Geological Site is to put forward for protection in the relevant County Development Plan.

Table 3.15.1 Major County Geological Sites within the study area

County Geological Sites	Description
Lough Corrib	A large lake situated between County Galway’s western acidic uplands and the limestone lowlands
Menlough Quarry	A large, disused limestone quarry on the south shore of Lough Corrib.
Menlough Mushroom Rocks	Mushroom rocks on limestone pavement, with granite erratic boulders.
Terryland River (Sink/Rising)	River with unusual flow regime flowing from or into River Corrib, with associated karst features.
Two Mile Ditch Quarry	A very large working quarry
Salthill Promenade	Rocky outcrops and a boulder beach along a coastal section
Rusheen Bay Drumlins	Coastal drumlins with eroded cliff-faces and intertidal boulder fields
Merlin Park Cave	Narrow cave mouth at the floor of an enclosed depression.
Merlin Park Quarry	A disused limestone quarry
Fairlands Park	Metamorphic outcrops situated in green area of suburban estate.
Westside Sports Grounds	Granite outcrops situated in public amenity area
Shantalla Sliding Rock	Landmark outcrop with historical significance in suburban estate amenity park
Doughiska N6 Road Cut	One-kilometre-long road cut section on the N6 dual-carriageway.

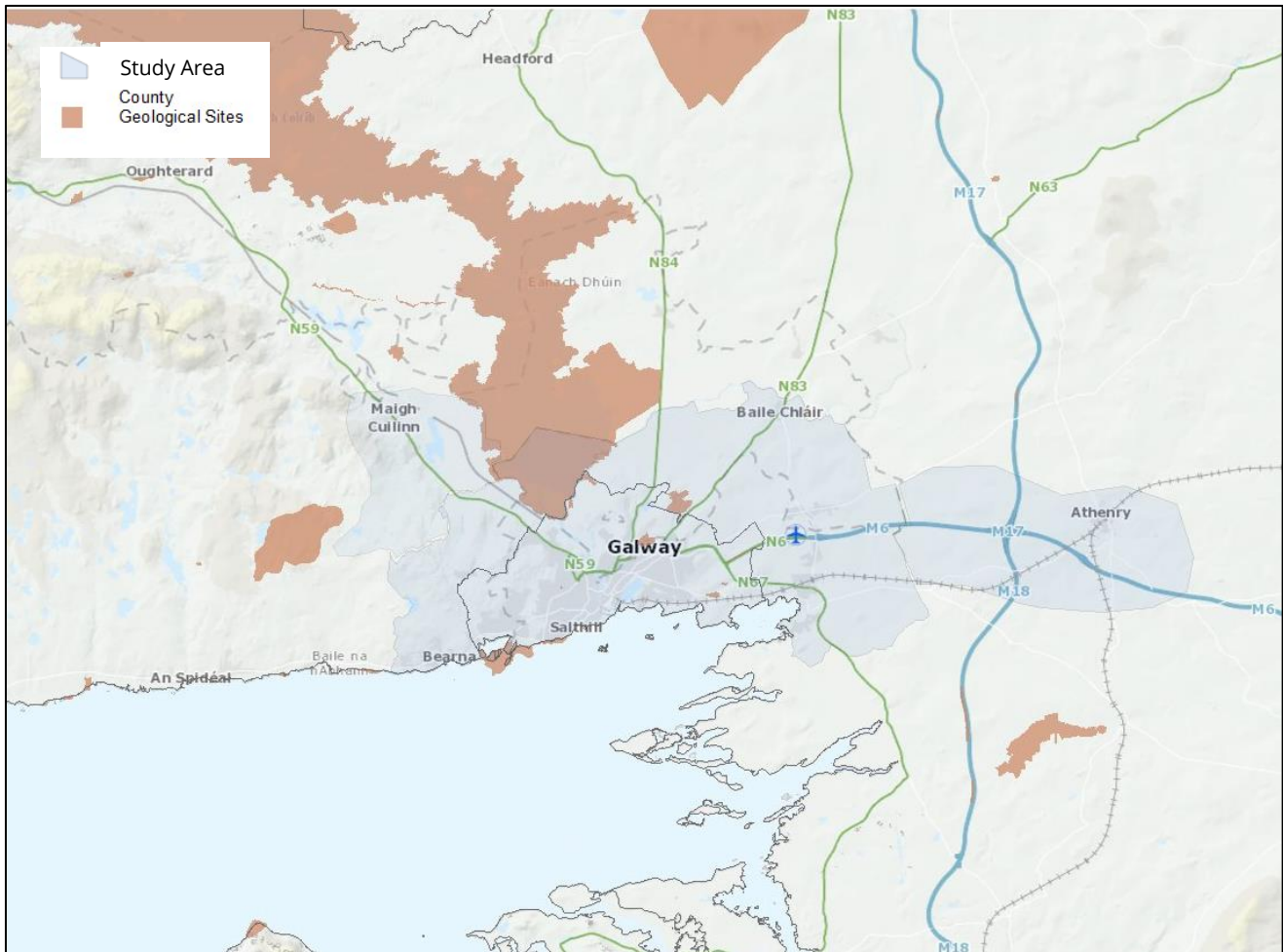


Figure 3.15.1 County Geological Sites map⁸

3.15.2 Soil Baseline Condition

There is relatively little legislation relating directly to soil and soil protection at an international level and there is no legislation solely directed to soil protection in Ireland. However, the key driver for future policy is the EU Soil Strategy for 2030⁷⁰ which was published in 2021. This sets out the aim for EU soils to be in a healthy condition by 2050. Soils are defined in this strategy as:

“when they are in good chemical, biological and physical condition, and thus able to continuously provide as many of the following ecosystem services as possible:

- *Provide food and biomass production, including in agriculture and forestry;*
- *Absorb, store and filter water and transform nutrients and substances, thus protecting groundwater [and surface water] bodies;*
- *Provide the basis for life and biodiversity, including habitats, species and genes;*
- *Act as a carbon reservoir;*
- *Provide a physical platform and cultural services for humans and their activities;*
- *Act as a source of raw materials;*
- *Constitute an archive of geological, geomorphological and archaeological heritage”.*

⁷⁰ Communication From The Commission To The European Parliament, The Council, The European Economic And Social Committee And the Committee Of The Regions. EU Soil Strategy For 2030 Reaping The Benefits Of Healthy Soils For People, Food, Nature And Climate, Com (2021) 699, Final. Accessed: July 2024. Available from: <http://Eur-Lex.Europa.Eu/>

Bedrock and Soil maps in the vicinity of the study area are illustrated in **Figure 3.15.2** and **3.15.3** respectively⁸. Patches of Alluvial soils are found primarily along the River Corrib, River Clare in Claregalway, Clarinbridge River in Athenry and dispersed across the eastern side of Galway City. Lands to the west with granitic rocks are divided by the N59 from lands to the east with limestone. As granitic rocks are acidic and poorly drained, whilst limestone rocks are alkaline and porous. There is potential for contamination of water resources as a result of the limestone/karst geology⁷¹. Given the urban character and historical land-use activities particularly in the city centre and harbour area, soil contamination may have occurred in brownfield lands.

Majority of the soils for Galway City and suburbs are classified as “Made”, which have been distributed, transported or manipulated by urban activities. Other soil types identified within the study area include:

- Grey, Brown Podzolic / Brown Earth Basic
- Acid Brown Earths / Brown Podzolic,
- Lithosols / Regosols

Quarrying results in the depletion of soils or the materials being quarried. Within the Galway city, two quarries were qualified to submit to An Bord Pleanála for ‘substitute consent’ in accordance with Section 261(a) of the Planning and Development Act 2010 relating to the control of quarries. The EU (Environmental Impact Assessment and Habitats) Regulations 2015 introduced changes to legislation relating to applications for substitute consent and for prospective development applications to An Bord Pleanála. These regulations aim to facilitate An Bord Pleanála in considering both past development and proposed future development of quarries in a holistic manner.

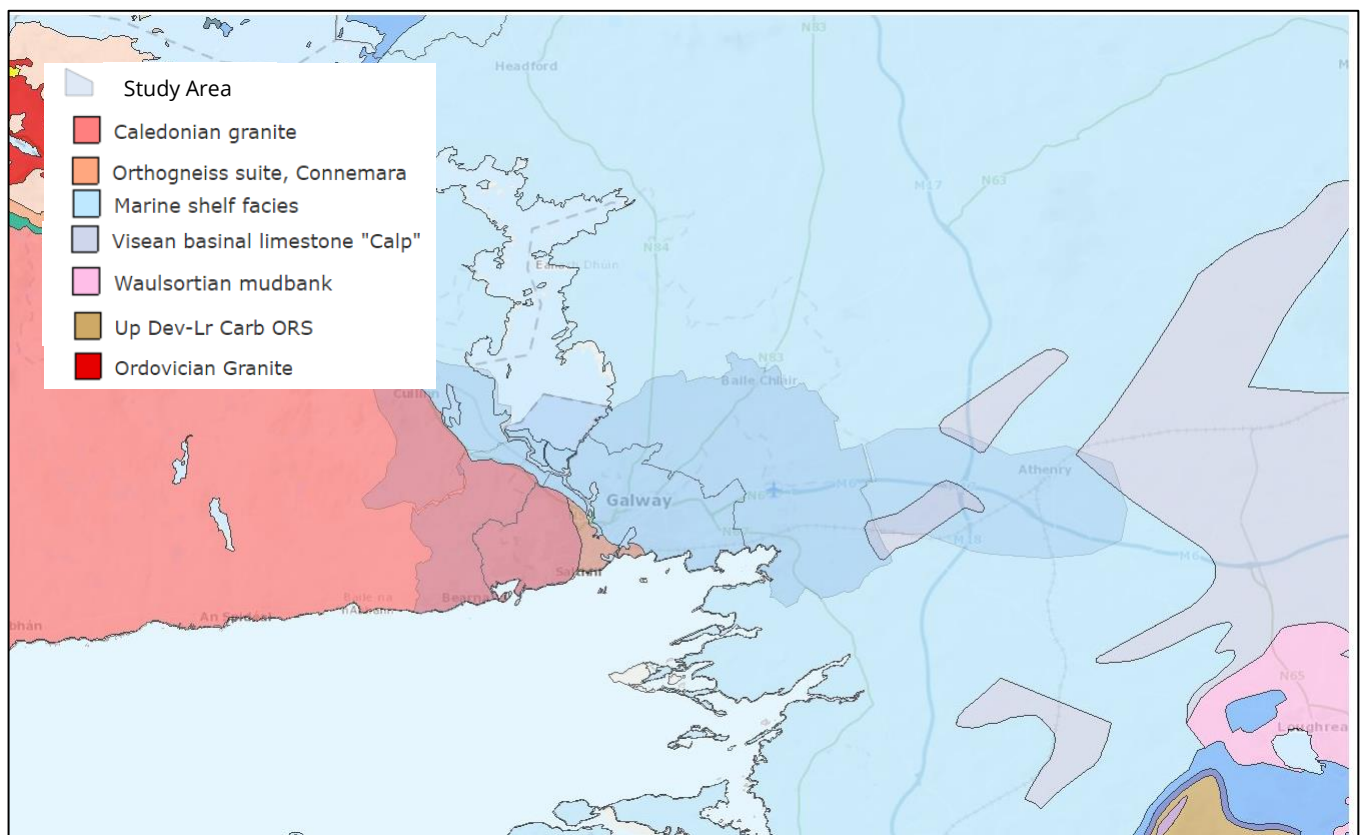
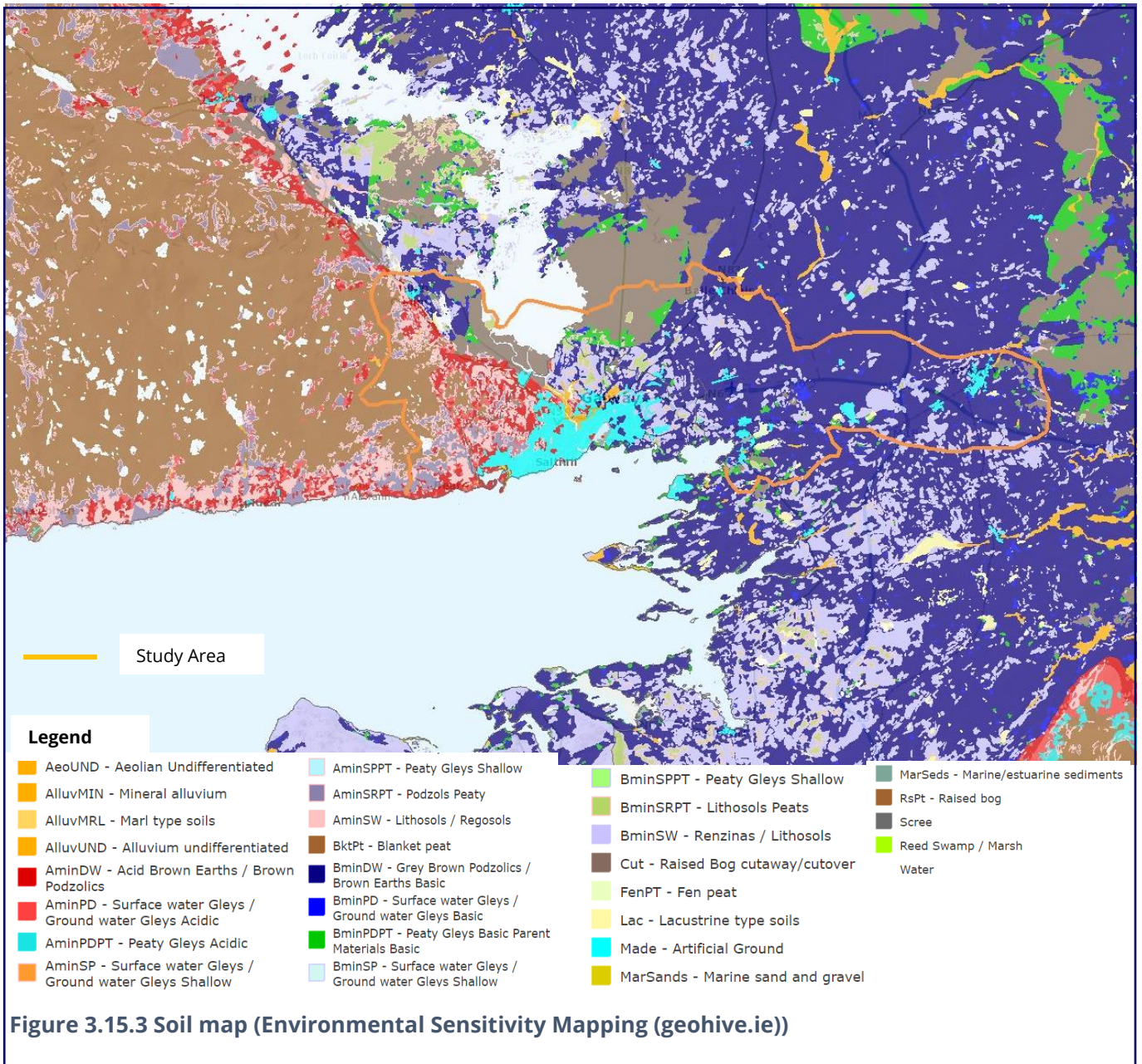


Figure 3.15.2 Bedrock map⁸

⁷¹ Natura Impact Report of Galway City Development Plan 2017-2023 [Galway City Development Plan 2017-2023 - Appropriate Assessment.pdf](#). Accessed: July 2024



Peatlands are priority habitats under Annex 1 of the Habitats Directive (92/43/EC). Undamaged peatlands (or bogs) provide important ecosystem services, such as flood prevention and are a significant store of fossil carbon. Raised bogs are extremely rare in global terms and are sites of European and international importance. Active raised bog is particularly important as it is continuing to lay down peat. A significant portion of the world's remaining active raised bog can be found in Ireland. Many peat bogs in Ireland are protected by European and national conservation legislation and have been designated as Special Areas of Conservation under the EU Habitats Directive (92/43/EEC), Special Protection Areas under the Birds Directive (2009/147/EC) or as Natural Heritage Areas under the Wildlife (Amendment) Act 2000. Peat bogs are a type of wetland and are also considered under the Water Framework Directive (2000/60/EC). Raised bogs and cutaway raised bogs are found mainly in the eastern areas of the Lough Corrib with blanket bog common to the west of the Corrib.

Soil quality or contamination

The EPA's State of the Environment 2020⁵ highlights six key degradation processes that can impact on soils: soil sealing, erosion, organic matter decline, compaction, salination and landslides. Surface sealing

(urbanisation) is the main soil quality pressures for Ireland with human activity also being a significant driver of degradation through poor (or inappropriate) land management practices.

Soil contamination can occur as a result of unauthorised waste-related activities, historical activities, leakages and accidental spillages of chemicals. The EPA is responsible for enforcing the remediation of contamination identified at EPA-licensed facilities but there is currently no specific contaminated land policy or legislation in Ireland.

Soil and the circular economy

Soil plays a key role in recycling water, carbon and nutrients, and can break down and filter pollutants as well as providing raw material resource. The EU Soil Strategy 2030 proposes a land take hierarchy placing emphasis on aiming to avoid loss of soil resources and promote development of healthy soils.

3.15.3 Future Trends

Changes in geology are generally considered to happen over very long timescales. However, changes affecting soils due to water regime, climate change, land use practices influence soil carbon, nutrients levels and erosion rates and are relevant within the timescale for the GWS.

Soils and ecosystems services they support are resources that need to be protected, monitored and managed, from high-level national and sectoral land use plans through to local management activities on farms, forest plantations, peatlands, urban and rural settlements. In the absence of European and national soil legislation, the challenge remains to ensure a consistent approach to protecting and managing the limited soil resource, in the context of supporting environmentally sustainable economic and population growth. The EU Soil Strategy to 2030 which is closely linked to the EU Biodiversity Strategy and a proposed EU Nature Restoration Law, sets out actions to support achieving its overarching long term aims which should also influence future national policy related to soils.

3.15.4 Key Considerations for GWS and the SEA

Key challenges and opportunities in relation to geology and soils potentially relevant for the GWS and the SEA include:

Challenges

- Land take with a loss of soil resources from construction works on wastewater services infrastructure.
- Soil management and health affecting how water and nutrients are retained in soil and susceptibility to erosion with loss of soil and high levels sediment and nutrients in run off entering water bodies.
- Potential impact on geological resources and protected sites from construction works.
- Indirect effects on soil quality, beneficial and negative, from sludge spreading and potential for waterbody pollution as wastewater treatment processes influence the nutrient and heavy metal content of sludges.

Opportunities

- Opportunities for peatland restoration including peat rewetting initiatives, catchment-based soil conservation initiatives and wetland enhancements/creation. These approaches can support water quality and soil health and provide other ecosystem benefits such as carbon sequestration and support biodiversity enhancement.
- Opportunities to use soil management plans to apply hierarchy to avoid loss and promote reuse and maintain soil health.

3.16 Air Quality

3.16.1 Air Quality Baseline Condition

Air pollution is a major environmental risk to our health. According to the World Health Organisation (WHO), air pollution can increase the risk of stroke, heart disease, lung cancer, and both chronic and acute respiratory diseases, including asthma. It is estimated that there are approximately 1,300 premature deaths annually in Ireland⁷² due to poor air quality from fine particulate matter (PM_{2.5}).

Under the EU’s Green Deal’s Zero Pollution Action Plan⁷³, the European Commission set the 2030 goal of reducing the number of premature deaths caused by fine particulate matter (PM_{2.5}), a key air pollutant, by at least 55% compared with 2005 levels. To this end, in 2022 the European Commission published a proposal to review the ambient air quality directives, aiming, among other things, to align the air quality standards more closely with WHO recommendations.

The CAFÉ (Ambient Air Quality and Cleaner Air for Europe) Directive establishes objectives on how to assess ambient air quality in order to reduce, prevent and avoid harmful effects on our health and on the environment.

In Ireland, four zones were defined in the Air Quality Standards Regulations (S.I. No. 180 of 2011). The zones were amended in 2013 to take account of population counts from the 2011 CSO Census and to align with the Air Pollution Act (Marketing, Sale, Distribution and Burning of Specified Fuels) Regulations 2012. The air zones in the study area are summarized in **Table 3.15.1**

Table 3.15.1 Air zones within the Study Area

Major Towns within the study area	Air Zone
Galway City and suburbs	C
Oranmore	Majority D; small part within C
Bearna	C
Athenry	D
Moycullen	D
Claregalway	D

There are three air quality monitoring stations in the study area. They are at Ragoon Road; Eyre Square and Briarhill in Galway. According to Air Quality in Ireland Report 2022, Ireland met all of its EU CAFÉ Directive legal requirements⁷⁴. **Table 3.15.2** summarizes the number of exceedance in 2022 / 2023 for the identified air quality monitoring stations.⁷⁵

⁷² Environmental Protection Agency (EPA). 2021. Air Quality in Ireland Report 2021. Accessed: July 2024. Available from: <https://indd.adobe.com/view/67188a5f-37ff-44bd-b335-5d168fdcf113>

⁷³ European Commission. 2021. Zero pollution action plan. Accessed: July 2024 Available from: https://environment.ec.europa.eu/strategy/zero-pollution-action-plan_en

⁷⁴Environmental Protection Agency (EPA). 2022. Air Quality in Ireland Report 2022. Accessed: July 2024. Available from [Air Quality Report 22 v8 \(adobe.com\)](#)

⁷⁵Environmental Protection Agency (EPA). 2023. Annual Air Quality Bulletin 2023. Accessed: July 2024. Available from [Annual-Air-Quality-Bulletin-2023.pdf \(epa.ie\)](#)

Table 3.15.2 Selected pollutants measured in 2022 and 2023 against EU Air Quality Directives

Stations	Year	Number of Values ≥ 200 $\mu\text{g}/\text{m}^3$ (hourly NO_2)	Number of Values ≥ 50 $\mu\text{g}/\text{m}^3$ (daily PM_{10})
Rahoon Road	2022	N/A	0
	2023	N/A	0
Eyre Square	2022	0	N/A
	2023	0	0
Briarhill	2022	N/A	N/A
	2023	0	0

In general, the water industry is not a major contributor to air quality issues, although there is potential for odour nuisance as a result of nearby wastewater treatment facilities. There is a requirement to comply with air pollution regulations and also identify potential opportunities for reducing emissions.

3.16.2 Future Trends

WHO published new AQGs in 2021 based on the impact of pollutants on our health. There are four Interim Targets (IT) identified (IT1, IT2, IT3, IT4) towards achieving the final AQG levels. Europe as part of the European Union’s (EU) Green Deal and the EU’s zero pollution visions for 2050 is revising its air quality standards to align them more closely with the lower WHO recommendations. Currently air quality within the study area is of an acceptable standard within both the European Union (EU) legislative and target values, however achieving the WHO Air Quality Guidelines, particular for annual NO_2 level of $10 \mu\text{g}/\text{m}^3$ in the future will be challenging for Galway and Ireland as a whole.

The Galway City Council Climate Action Plan 2024 - 2029 has a range of strategies and measures to tackle climate change, which are also related to air quality. According to EPA Clean Air Together⁷⁶, Galway City Council is in the top three local authorities for electrifying their fleet with 22% of the fleet already electrified. Galway City Council will become the first Local Authority in the country to eliminate road diesel in its larger fleet, by transitioning to Hydrotreated Vegetable Oil (HVO) as a renewable fuel source. At a city level, implementation of the Galway Transport Strategy (GTS) will have potentially very significant positive impacts on air quality. Increasing active travel and public transport are core to the GTS - the multimodal Martin Junction Upgrade, and recently opened Salmon Weir Pedestrian and Cycle Bridge are good examples of the GTS on the ground.

3.16.3 Key Considerations for GWS and the SEA

Key challenges and opportunities in relation to air quality potentially relevant for the GWS and the SEA include:

Challenges and opportunities

- The temporary generation of air pollution such as during construction and operational phases of wastewater infrastructure development, although it should be noted that upgrades to existing infrastructure and the provision of new services are likely to present an opportunity to utilise technologies that are more energy efficient.

⁷⁶ EPA Clean Air Together [Clean-Air-Together-Galway-City---Understanding-the-Results.pdf \(epa.ie\)](https://www.epa.ie/clean-air-together-galway-city-understanding-the-results.pdf) Accessed: July 2024

- Odour can be a concern from wastewater treatment and agricultural sludge spreading and new facility design or upgrades to wastewater treatment will need to take account of standards required in relation to receptors around plants and good practice approaches for sludge spreading and storage.

In the context of the development of the GWS, the challenges and opportunities related to air quality are considered localised issues addressed through application of appropriate standards identified at programme and project levels. In terms of the SEA of the GWS they will therefore be considered generally as in terms of potential nuisance or disturbance effects under the topic of population and health.

3.17 Noise and Vibration

3.17.1 Noise and Vibration Baseline Condition

According to the WHO, noise is defined as unwanted sound and can be harmful to human and ecosystem health. The Noise Directive (2002/49/EC), which is commonly referred to as the Environmental Noise Directive (END) relating to the assessment and management of environmental noise, was transposed into Irish national legislation via the Environmental Noise Regulations 2006 (S.I. No. 140 of 2006). This Directive called for the development of strategic noise maps and action plans for major roads, railways, airports and cities.

The END defines a common approach intended to avoid, prevent or reduce on a prioritised basis the harmful effects, including annoyance, due to exposure to environmental noise. The END does not set any limit value, nor does it prescribe the measures to be used in the action plans, which remain at the discretion of the competent authorities. Limit values are left to each member state. At this point in time, Ireland does not have any statutory noise limit values. The World Health Organisation (WHO) Environmental Noise Guidelines for the European Region (October 2018) sets Lden 53dB and Lnight 45dB guide levels for annoyance, above which adverse health effects and adverse effects on sleep may occur.

The road traffic noise exposure in the study area is illustrated in **Figure 3.17.1**⁸

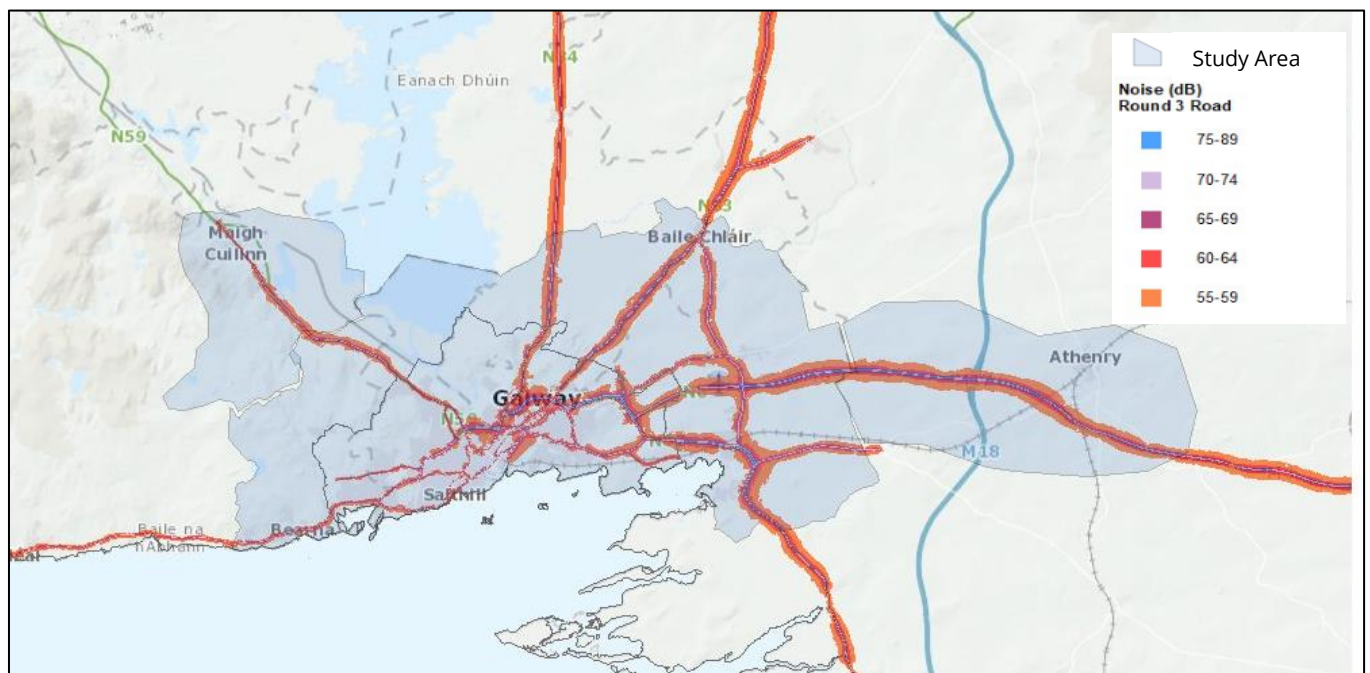


Figure 3.17.1 Noise map for the study area⁸

According to Transport Infrastructure Ireland⁷⁷, the population noise exposure in Galway City is summarized in **Table 3.17.1**

Table 3.17.1: Population noise exposure in Galway City

L _{den}	Approximate Number of People	L _{night}	Approximate Number of People
> 55 dB(A)	15,911	> 50 dB(A)	10,833
> 65 dB(A)	4,836	> 60 dB(A)	1,200
> 75 dB(A)	2	> 70 dB(A)	0

⁷⁷ Transport Infrastructure Ireland: Galway City Noise Mapping Round 3 (2017) Lden: [galwaycity_lden_rev01.pdf \(tii.ie\)](https://www.tii.ie/galwaycity_lden_rev01.pdf); Lnight: [GalwayCity_Lnight_Rev01.pdf \(tii.ie\)](https://www.tii.ie/galwaycity_lnight_rev01.pdf) Accessed: July 2024

Water and wastewater infrastructure development is not expected to add significantly to noise pollution. Uisce Éireann acknowledges that construction noise can have adverse effects on terrestrial and marine environments and therefore it will be considered through scheme construction management and design for local receptors and during operation for sensitive receptors in close proximity.

3.17.2 Future Trends

Future noise trends are difficult to predict. The Environmental Noise Regulations 2006 may be revised in future to enforce a stricter level of noise management, and further strategic noise maps and plans are to be developed.

The EPA has commissioned a three-year research project Noise and Health Evidence from Ireland that will provide a detailed review of the relationship between environmental noise and health/wellbeing. This research will provide a national estimate of the burden of disease from environmental noise in disability-adjusted-life-years (DALYs). It is led by University College Dublin (UCD) and the Economic and Social Research Institute (ESRI). The aim is to combine noise modelling and health data to examine contributory relationships between noise exposure and health/wellbeing outcomes.

Galway City Council Noise Action Plan (2019-2023) ⁷⁸ addresses environmental noise from major roads with more than three million vehicles per annum. The action planning areas identified in the functional area of Galway City are:

- National Roads: N6, N59, N83, N84
- Regional Roads: R336, R337, R338, R339, R446, R863, R864, R865, R866, R921
- Local Roads: L1002, L1010, L1011, L1012, L1013, L5048, L5147

The action plan includes measures to minimise noise levels in their development design to reduce the emission and intrusion of noise or vibration which might adversely impact on residential amenities.

Outside the Galway City, the Draft Galway County Council Noise Action Plan 2024 – 2028 identified 41 Most Important Areas (MIAs) along major routes in the County. Eight of the MIA locations occurred at the highest density criterion of 15 or more people per 100m² being Highly Annoyed., while a further 13 MIAs are at the density criterion of 10 people per 100m² being Highly Annoyed. From the list of 41 MIAs, ten Priority Important Areas (PIAs) have been selected for which Galway County Council give a commitment to undertake an assessment of noise mitigation measures within the life cycle of the NAP. These PIAs are located in the villages of Moycullen, Barna, Oranmore and Claregalway.

3.17.3 Key Considerations for GWS and the SEA

The key challenges and opportunities in relation to noise and vibration potentially relevant to the GWS and SEA include:

Challenges and opportunities

- Generation of noise during construction and operation of wastewater infrastructure; and
- Generation of noise from the construction and operation of wastewater treatment, including the disposal of sludge waste, related to the use of plant and HGV movements.

Opportunities to consider noise and vibration standards in design and procurement where sensitive receptors maybe affected.

In the context of the development of the GWS, the challenges and opportunities related to noise and vibration are considered localised issues to be addressed through the application of appropriate standards at

⁷⁸ Extracted from [SEA for Draft Galway City Development Plan 2023-2029.pdf](#) Accessed: July 2024

programme and project levels. In terms of the SEA of the GWS they will therefore be considered generally as potential nuisance or disturbance effects under the topic of population and health.

3.18 Transboundary Effects

No transboundary effects are anticipated due to the distance involved between the GWS SEA study area and other nations (approximately 130 km) and because as the WFD catchments scoped into assessment for the GWS are not shared with any other nation. Transboundary effects are therefore scoped out of further assessment.

3.19 Summary of the Scope of the SEA

The scope of the SEA has been determined by the key issues and trends established in the baseline assessment. The scope of the assessment is outlined in **Table 3.19.1**

Table 3.19.1 Scope summary for the SEA of draft GWS

SEA topic	Scope	Scoped in - Y/N?	
	Matters for consideration	Construction Phase	Operation Phase
Water Environment	<p>Challenges: Water pollution affecting fresh, estuarine and coastal waters from treated and untreated (stormwater or septic tank) discharges.</p> <p>New and upgraded infrastructure requirements to meet needs and improve resilience.</p> <p>Opportunities: Continued investment to reduce pressure and achieve environmental improvements. Targeted and wider catchment-based actions to improve water quality, ecosystems services and resources and use of nature-based solutions.</p>	Y	Y
Population, Socioeconomics and Human Health	<p>Challenges: Population growth with implications for level of demand for wastewater services.</p> <p>Access to, and quality of, natural environment including rivers, lakes, canals, coastal areas, bathing waters, marine and freshwater fisheries and shellfish waters is important for local economies, tourism, recreation and wellbeing.</p> <p>Construction and operational nuisance from noise, air pollution and traffic generation and from wastewater treatment plant odour.</p> <p>Opportunities: Investment in wastewater treatment and catchment management plans will support improved water quality with wider social and environmental benefits. Opportunities to reduce nuisance effects from wastewater treatment odour.</p>	Y	Y
Climate Change	<p>Challenges: Changes to rainfall patterns, temperature, sea level rise and increase frequency of weather events affecting the environment and risks to infrastructure and services.</p> <p>Opportunities: Support environment resilience by reducing pressure from wastewater discharges and avoiding exceeding sustainable abstraction thresholds</p>	Y	Y

	and planning for drought conditions. Making infrastructure and services more resilient to extreme events.		
Biodiversity	<p>Challenges: Impacts from wastewater discharges to waterbodies – pollution potentially affecting aquatic ecology, fresh water estuarine and marine.</p> <p>New and upgraded infrastructure – plants and pipelines with potential for habitat loss, fragmentation, disturbance and pollution.</p> <p>Opportunities: Reduce pollutant loads and pressure on aquatic environment from abstraction, opportunities to remove barriers for fish/eel migration or provide passes. Biodiversity no net loss and potential for net gain including benefits from nature-based solutions and catchment management actions.</p>	Y	Y
Landscape, Townscape and Seascape	<p>Challenges: Infrastructure development and construction work can have impacts on visual amenity and landscape, townscape or seascape depending on location. Wastewater discharges, storm water overflows and pollution can lead to algal blooms also affecting visual amenity such as litter.</p> <p>Opportunities: Sensitive siting and construction of new infrastructure, improvements to the wastewater discharge and support for improving water quality to benefits.</p>	Y	Y
Cultural Heritage	<p>Challenges: Infrastructure development and construction work can have impacts on cultural heritage and archaeology and architecture either through direct loss or impacts on their settings. River and coastal heritage structures and sites in particular.</p> <p>Opportunities: Sensitive siting and construction of new infrastructure actions supporting wetland and soil conservation could also help conserve archaeological interest.</p>	Y	Y
Geology and Soils	<p>Challenges: Potential impacts on designated geological sites of interest from infrastructure construction and soil loss.</p> <p>Opportunities: Potential for nutrient recovery and reuse of sewage sludge in agriculture supporting soil health and circular economy principles. Catchment management and nature-based solutions aimed at improving raw water quality can support soil health with related benefits for water retention and water quality and carbon sequestration. Wetland restoration and peat and soil conservation measure can help to reduce soil erosion, polluting run off and flash flooding.</p>	Y	Y

Air quality	<p>Challenges: Air pollution from construction works, vehicle movements and operations including odour from wastewater treatment works.</p> <p>Opportunities: Construction air emissions can be managed through good construction practice, fuel/energy policy. Wastewater treatment improvements, higher design standards and operation practice can reduce odour.</p> <p>Construction related emissions are considered local issues addressed through application of appropriate standards at lower programme and project levels and are therefore considered generally as potential nuisance or disturbance effects under population and health.</p>	N	Y
Noise and vibration	<p>Challenges: Noise and vibration from construction works and operations including vehicle movements.</p> <p>Opportunities: Construction noise can be managed through good construction practice and appropriate design standards and siting to take account of sensitive receptors.</p> <p>These and operations are considered local issues addressed through application of appropriate standards at lower programme and project levels and are therefore considered generally as potential nuisance or disturbance effects under population and health.</p>	N	N
Material Assets	<p>Challenges: Ageing wastewater infrastructure assets needing repair maintenance and replacement. Waste management challenges for sewage sludge and water treatment residuals to avoid pollution and minimise disposal of waste to landfill.</p> <p>Opportunities: Potential to adopt circular economy principles and potential for waste resource recovery through use on land and innovation for use for renewable energy/fuel.</p>	Y	Y
Interrelated aspects	<p>Opportunities: potential to use natural capital and ecosystems-based approaches to support consideration of scale and multiple environmental impacts and benefits using quantification and metrics to add to qualitative environmental assessment approaches.</p>		

As shown in **Table 3.19.1**, there is potential for likely significant effects of both a positive and negative nature in relation to all of the environmental topics listed in the SEA Directive when developing the GWS. On this basis, it was determined that none of the environmental topics would be scoped out at the scoping stage and that all the environmental topics listed will be considered further, however within the topics the focus will be on relevant aspects identified.

3.20 Interrelated SEA Topics

In accordance with the SEA Directive, it is important to recognise the interrelationships between environmental topics, as changes to one environmental aspect can directly and indirectly influence others.

Table 3.20.1 below illustrates the potential interrelationships between the environmental topics discussed in **Sections 3.8 to 3.17** which will be explored further during the next stages of the SEA.

All SEA topics will be relevant to some degree related to potential positive or negative impacts from the implementation of the GWS.

Table 3.20.1 Interrelated SEA topics

Population, Economy, Tourism and Recreation, and Human Health	Y								
Climate Change	Y	Y							
Biodiversity	Y	Y	Y						
Material Assets	Y	Y	Y	Y					
Landscape, Townscape and Seascape	Y	Y	Y	Y	Y				
Cultural Heritage – Archaeological and Architectural	Y	Y	Y	Y	Y	Y			
Geology and Soils	Y	Y	Y	Y	Y	Y	Y		
Air Quality	N	Y	Y	Y	N	N	N	Y	
Noise and Vibration	N	Y	N	Y	Y	N	Y	N	N
	Water Environment	Population, Economy, Tourism and Recreation, and Human Health	Climate Change	Biodiversity, Flora and Fauna	Material Asset	Landscape, Townscape and Seascape	Cultural Heritage – Archaeological and Architectural	Geology and Soils	Air Quality

SEA Scoping Questions – Chapter 3

- Chapter 3 sets out the current baseline environment conditions, future trends and relevant issues for the assessment. Do you have any comments on these?
- Are there recreational or tourism uses of the waterways within the SEA study area or additional locations where fishing and water sports take place, that should be considered as part of the baseline?

4 Review of Policies, Plans and Programme

4.1 Introduction

The SEA Directive states in Article 5(1) of Annex 1 that the environmental assessment must identify “*the environmental protection objectives, established at International, European Union or national level, which are relevant to the plan or programme, or modification to the plan or programme, and the way those objectives and any environmental considerations have been taken into account during its preparation*”.

In accordance with this requirement, a review of other plans, policies and programmes and the legislative framework is an important part of setting the context for the SEA and the GWS. The review also identifies wider environmental protection objectives. These may be plans and programmes at an international (European), national (including cross-boundary), regional or sub-regional level, commensurate with the scope of the GWS. The review aims to identify the relationships between the GWS and these other documents i.e., how the GWS could be affected by the other plans and programmes’ aims, objectives and/or targets, or how it could contribute to the achievement of their environmental and sustainability objectives.

The review has been undertaken in two stages firstly as a comprehensive review of plans, policies to identify those directly relevant for the GWS and SEA (**Appendix B**) and a further review focusing on the how those identified can inform the scope of the baseline and the assessment including the SEA Objectives. Those considered most influential are also outlined in more detail in **Section 4.2** in keeping with the EPA’s guidance⁹² recommending focus on a few key policy and plans. **Figure 2.2.1** identifies how the GWS relates to the key national, regional, and local level plans, policies and strategies.

4.2 Key Influences and interactions

The key legislation, policies and plans that need to be taken into account in the GWS and the environmental assessment are considered below under the following headings (note a comprehensive list of relevant plans is provided in **Appendix B**):

- Water resources and quality;
- Climate change;
- Biodiversity;
- Circular Economy; and
- Land use and planning.

4.2.1 Water Resources and Water Quality Plans and Policies

Water Framework Directive and River Basin Management Plan

The EU WFD (Directive 2000/60/EC of the European Parliament and of the Council establishing a framework for Community action in the field of water policy) and the RBMP (required under WFD) are of particular relevance to the development of the GWS as they set the framework for managing Uisce Éireann activities relating to pollution from wastewater discharges (DHLGH, 2021c). They strongly influence investments in wastewater infrastructure to address inadequately treated wastewater, deficits and future growth needs.

The WFD establishes a standard European wide strategic approach to managing surface water, groundwater, transitional and coastal waterbodies, wetlands and to meeting common environmental objectives.

The Directive is linked to, and reinforces, other EU environmental directives including directives relating to the protection of biodiversity (Birds and Habitats Directives), directives related to specific uses of waters (drinking water, bathing waters and urban wastewater directives) and to directives concerned with the regulation of activities undertaken in the environment (Industrial Emissions and Environmental Impact

Assessment directives). The Nitrates Directive also forms an integral part of the Directive and is one of the key instruments in the protection of waters against agricultural pressures.

European Union Member States implement the WFD through RBMPs in six-year cycles. This process allows for assessment, planning, implementation, and review at regular intervals. Ireland's approach to water quality management has developed over the first and second RBMPs and will continue to evolve into the third cycle RBMP 2022 – 2027 to protect and improve water quality nationally and locally.

Under Article 4(1)(a) of the WFD, Ireland must adopt the necessary measures to achieve the objectives of non-deterioration, preservation and enhancement of the status of bodies of water by making the programmes specified in the RBMP operational for the achievement of the WFD environmental objectives. Both the obligations to enhance, and to prevent deterioration of the status of bodies of water, are designed to attain the qualitative objectives pursued by the EU legislature, namely the preservation or restoration of good status, good ecological potential and good chemical status of surface waters.

More details on the WFD and the current baseline and key trends for the water environment are presented in Section 3.8 of this SEA Scoping Report.

The WFD establishes a standard European wide strategic approach to managing surface water, groundwater, transitional and coastal waterbodies, wetlands and to meeting common environmental objectives.

The WFD environmental objectives for surface waters include the following:

- Prevent deterioration;
- Aim to achieve good ecological status (or for Artificial or Heavily Modified waterbodies, good ecological potential);
- Aim to achieve good chemical status;
- Aim to reduce/cease emissions, discharges and losses from priority substances and priority hazardous substances; and
- Meet protected area objectives where relevant.

Under Article 4(1)(a) of the WFD, Ireland must adopt the necessary measures to achieve the objectives of non-deterioration, preservation and enhancement of the status of bodies of water by making the programmes specified in the RBMP operational for the achievement of the WFD environmental objectives. Both the obligations to enhance, and to prevent deterioration of the status of bodies of water, are designed to attain the qualitative objectives pursued by the EU legislature, namely the preservation or restoration of good status, good ecological potential and good chemical status of surface waters.

More details on the WFD and the current baseline and key trends for the water environment are presented in Chapter 5 of this SEA Environmental Report.

The RBMP for Ireland sets out how organisations, stakeholders and communities will work together to improve the water environment and fulfil the requirements of the WFD. The RBMP is updated every six-years as part of the river basin planning cycle; the current RBMP¹¹ is the second cycle and sets out what measures will be undertaken to protect and improve Uisce Éireann.

The third cycle draft RBWP for the period of 2022-2027¹² was published for consultation in September 2021 and is currently under review. The draft RBMP sets out the measures that are necessary to protect and restore water quality in Ireland. The overall aim of the plan is to ensure that the natural waters are sustainably managed and that freshwater resources are protected so as to maintain and improve Ireland's water environment.

Protecting and restoring water quality in Ireland will most of all need measures to address the loss of agricultural nutrients to water, continue to improve wastewater treatment and to re-establish natural free

flowing conditions in more rivers. Ireland's wastewater services face challenges on a number of fronts including a continued need for investment in infrastructure and an ever-increasing demand for water and wastewater services due to urbanisation, population and economic growth all set against a backdrop of widespread, rapid, and intensifying climate change.

Wastewater Treatment Plants (WWTPs) identified in the Draft RBMP 2022-2027 as causing water quality impacts in the rivers they discharge, are included in Uisce Éireann River Basin Management Plan Enhanced Ambition Programme funded by the European Union under Ireland's National Recovery and Resilience Plan. This will support the objectives of Ireland's River Basin Management Plans and improve water quality in rivers. The programme is aimed at ensuring that Uisce Éireann assets are not impacting on the ability of receiving waters to achieve their water quality objectives.

The GWS and the SEA need to take account of the objectives and targets of the River Basin Management Plans for the environment and the specific actions identified for Uisce Éireann.

Urban Wastewater Directive

The Urban Wastewater Directive (UWWTD)(Council Directive 91/271/EEC of 21 May 1991) is a European Union (EU) directive regarding urban wastewater collection, wastewater treatment and its discharge. It sets standards for both treatment and disposal of sewage for communities of more than 2,000 person equivalents as well as monitoring requirements for wastewater discharges from urban areas.

Wastewater discharges are regulated by the EPA under the European Union (Waste Water Discharge) Regulations 2007 to 2020. The EPA can also issue notices to review Water Discharge Authorisation.

In 2022, the European Commission published its proposal for a revised UWWTD. The revised UWWTD is currently scheduled for agreement in 2024 with implementation in Ireland likely sometime in 2026. These upcoming revisions will have implications for investment that will need to be taken into account in implementation of the GWS.

Floods Directive

The EU Floods Directive (2007/60/EC) required member states to develop Flood Risk Management Plans for areas of existing and future potentially significant flood risk. The Floods Directive was transposed into Irish law by the EU (Assessment and Management of Flood Risks) Regulations 2010 and sets out the responsibilities of Office of Public Works (OPW). The OPW has been implementing the Directive mainly through the Catchment-based Flood Risk Assessment and Management (CFRAM) Programme, identifying areas where risks associated with flooding might be significant (Areas of Further Assessment, or AFAs) and developing measures to address these risks. Floods and weather patterns are closely connected to challenges for urban drainage and contribute to issues related to storm water discharges and vulnerability to flooding is also a risk for treatment and supply infrastructure including impacts on associated services such as electricity supply and transport access.

Marine Planning

As part of implementing the Marine Spatial Planning Directive, Ireland's National Marine Planning Framework (2023)⁷⁹ has been produced to provide guidance for activities and developments affecting the marine environment up to 2040. The Maritime Area Planning Act was enacted in 2021 and the Maritime Area Regulatory Authority (MARA) was established in July 2023 - together these introduce a new legislative regime around consent for development and activities in the marine area. The NMPF provides policies for sustainable planning and management of marine resources, balancing ecological, economic and social objectives in relation to aspects such as the environment, biodiversity, commercial fisheries and renewable

⁷⁹ DHLGH. 2023. National Marine Planning Framework. Accessed: July 2024. Available from: <https://www.gov.ie/en/publication/a4a9a-national-marine-planning-framework/>

energy. As part of this, the NMPF includes specific objectives and planning policies related to water quality and to wastewater treatment and disposal which will need to be taken into account in the development of the GWS and for the SEA,

4.2.2 Climate Change Related Plans and Policies

Climate Action and Low Carbon Development (Amendment) Act 2021

In July 2021 the Climate Action and Low Carbon Development (Amendment) Act 2021 was signed into law. This Act establishes the following national climate objective:

“The State shall, so as to reduce the extent of further global warming, pursue and achieve, by no later than the end of the year 2050, the transition to a climate resilient, biodiversity rich, environmentally sustainable and climate neutral economy.”

To achieve that objective the Act sets out a number of actions. These include:

- The preparation of an annual update to the Climate Action Plan 2019 (currently Climate Action Plan 2024 is the latest annual Plan);
- The preparation, not less frequently than once every five years, of a national long term climate action strategy (referred to as a ‘national long term climate action strategy’);
- The establishment of carbon budgets, aligned with the achievement of the national climate objective, for consecutive 5-year periods;
- The preparation of “*sectoral emissions ceilings*” which establish the maximum amount of greenhouse gas emissions that are permitted in different sectors of the economy during the 5-year period of a carbon budget;
- The preparation of “*local authority climate action plans*” covering periods of five years, which are required to specify the mitigation measures and the adaptation measures to be adopted by the relevant local authority in relation to climate matters; and
- An obligation that public bodies must take account of Climate Action Plans in the performance of their functions.

The Act provides that the first two 5-year carbon budgets should equate to a total reduction of 51% over the period to 2030, relative to a baseline of 2018. While that overall target has not yet been disaggregated into sectorial targets, it is understood that the transport sector will be required to achieve this 51% reduction in full.

The Climate Action Plan and Low Carbon Development Act will strongly influence the investments set out in the GWS and guide development of its aim to identify sustainable wastewater management and treatment strategies and to develop a prioritised solutions list for medium and long term. The GWS will explore ways to minimise the carbon impact of wastewater treatment through prioritisation of sustainable solutions for effective wastewater management.

Climate Action Plan 2024

The Climate Action Plan 2024 (CAP24)⁸⁰ is the third annual update to Ireland’s Climate Action Plan 2019. The Plan was approved by Government on 20 December 2023, subject to SEA and AA. CAP24 has been updated to include an additional Sustainable Development Goals (SDG) chapter which provides an assessment of each chapter of the Plan for SDG impact at SDG target level.

⁸⁰ Climate Action Plan 2024: [gov - Climate Action Plan 2024 \(www.gov.ie\)](https://www.gov.ie/en/publications-and-resources/publication/2024-climate-action-plan-2024/) Accessed: July 2024

The plan implements the carbon budgets and sectoral emissions ceilings and sets out a roadmap for taking decisive action to halve Ireland's emissions by 2030 and reach net zero no later than 2050, as committed to in the Programme for Government. The CAP24 sets out how Ireland can accelerate the actions that are required to respond to the climate crisis, putting climate solutions at the centre of Ireland's social and economic development.

Progress Reports on the Climate Action Plans are published each quarter. For CAP24, the progress reports will highlight 'high impact' measures, Key Performance Indicators, state of play on emissions targets, recent emissions trends, action case studies and foresight on key actions due later in 2024.

The GWS will set the context for subsequent implementation plans and projects that will detail the programmes of works to be completed in specific areas relevant to climate change adaptation and mitigation and wastewater compliance in accordance with the CAP24.

National Adaptation Framework and Sectoral Adaptation Planning

Building on the work completed under the National Climate Change Adaptation Framework, the Department of Communications, Climate Action and Environment published Ireland's first statutory National Adaptation Framework (NAF) in January 2018⁸¹ and has been updated to the second NAF published in 2024⁸¹. The NAF sets out the national approach to adaptation in Ireland in order to reduce the negative impacts of climate change. The framework requires each government department to develop a sectoral adaptation plan for their area of responsibility.

As part of the 2018 NAF, the DHLGH produced the Adaptation Plan for Water Quality and Water Services Infrastructure⁸².

The 2015 Climate and Low Carbon Development Act (the Climate Act) requires that the National Adaptation Framework (NAF) be reviewed at least every five years. The NAF review process took place in 2022. The Review also takes account of key developments at International and EU level, notably the publication of the IPCC Working Group I and II reports, the agreement and publication of the new 2021 EU Adaptation Strategy, and feedback on current Adaptation policy in Ireland. A Report on the NAF Review was approved in October 2022, and recommended the development of a new NAF and that provision for the making of joint Sectoral Adaptation Plans would be best accommodated within a new framework. Revision of sectoral adaptation plans is also highlighted as a requirement. The 2024 NAF takes account of the changes and challenges and in particular the need for national climate change adaptation indicators and a national climate adaptation risk assessment.

The GWS will be relevant to the implementing of measures identified in the Adaptation Plan for Water Quality and Water Services Infrastructure and addressing the recommendations of the new 2024 NAF.

Local Climate Adaptation Strategies

Under the National Adaptation Framework (NAF), which was published in response to the provisions of the Climate Action and Low Carbon Development Act 2015, all Local Authorities were tasked with producing a Climate Adaptation Strategy for their functional areas. In 2019 Galway County Council developed the Climate Adaptation Strategy for Galway County⁸³ and Galway City Council developed the Climate Adaptation Strategy for Galway City⁸⁴. These strategies draw on the data issued by both national and international forums in

⁸¹ National Adaption Framework 2024: [www.gov.ie/pdf/?file=https://assets.gov.ie/295486/d5714908-45fb-413c-80bc-cedbb3b640b5.pdf#page=null](https://assets.gov.ie/295486/d5714908-45fb-413c-80bc-cedbb3b640b5.pdf#page=null)
Accessed : July 2024

⁸² Department for Housing, Local Government and Heritage (DLGH). 2019. Water Quality and Water Services Infrastructure – Climate Change Sectoral Adaptation Plan. Accessed: July 2024. Available from: [gov - Water Quality and Water Services Infrastructure - Climate Change Sectoral Adaptation Plan \(www.gov.ie\)](http://gov.ie/WaterQualityandWaterServicesInfrastructure-ClimateChangeSectoralAdaptationPlan)

⁸³ Draft Climate Adaptation Strategy 2019-2024 [gov - Draft Climate Adaptation Strategy 2019-2024 \(www.gov.ie\)](http://gov.ie/DraftClimateAdaptationStrategy2019-2024) Accessed: July 2024

⁸⁴ Galway City Council Climate Adaption Strategy (2019) [Galway City Council Adaptation Strategy 2019-2024.pdf](http://GalwayCityCouncilAdaptationStrategy2019-2024.pdf) Accessed: July 2024

addition to those from regional and local sources. They establish an extreme weather event baseline and predicts the challenges and risks that climate change will pose for the county in the future.

Climate Change Adaptation Strategies take on the role as the primary instrument at local level to ensure a proper comprehension of the key risks and vulnerabilities of climate change; bring forward the implementation of climate resilient actions in a planned and proactive manner and, ensure that climate adaptation considerations are mainstreamed into all council operations and functions. Subsequently, the Galway County Climate Action Plan 2024 – 2029⁸⁵ and Galway City Climate Action Plan 2024 – 2029⁸⁶ were developed under the Climate Act.

4.2.3 Biodiversity Plans and Policies

4th National Biodiversity Action Plan 2023-2030

The Plan⁸⁷ sets out actions through which a range of government, civil and private sectors will undertake to achieve Ireland's 'Vision for Biodiversity' and follows on from the work of the first, second and third National Biodiversity Action Plans. It has been developed in line with the EU and International Biodiversity strategies and policies.

The 4th NBAP aims to take account of the Global Biodiversity Framework. This recognises that despite three decades of co-ordinated global action for conservation, the loss of biodiversity continues, posing significant threats to human well-being. This Framework is intended to guide actions worldwide for the decade to 2030 to preserve and protect nature and its essential services to people. It includes a vision for biodiversity governance further into the future, aiming for a global effort towards living in harmony with nature by the year 2050. The 4th NBAP set out a Vision for Biodiversity in 2050 where '*Biodiversity in Ireland is valued, conserved, restored and sustainably used, maintaining ecosystem services, sustaining a healthy planet and delivering benefits essential for all people*'.

194 targeted actions are contained in the Plan, underpinned by five strategic objectives. The objectives contain series of outcomes and lay out a clear framework for Ireland's national approach to biodiversity, ensuring that efforts and achievements of the past are built upon, while looking ahead to what can be achieved over the next five years and beyond.

They include:

- Adopt a Whole-of-Government, Whole-of-Society Approach to Biodiversity;
- Meet Urgent Conservation and Restoration Needs;
- Secure Nature's Contribution to People;
- Enhance the Evidence Base for Action on Biodiversity; and
- Strengthen Ireland's Contribution to International Biodiversity Initiatives.

The GWS will need to take account of the objectives and actions under 4th National Biodiversity Action Plan particularly those aimed at improving biodiversity and water quality including meeting urgent protection and restoration needs (Objective 2) and linkage to meeting the third cycle RBMP objectives.

EU's Nature Restoration Law

The Environment Council of European Council adopted an EU Nature Restoration Law on 17 June 2024. This is the first continentwide, comprehensive law of its kind and is a key element of the EU Biodiversity Strategy

⁸⁵ Galway County Council's Draft Climate Action Plan 2024-2029 [Galway County Council Local Authority Climate Action Plan 2024-2029_0.pdf](#) Accessed: July 2024

⁸⁶ Galway City Council Climate Action Plan: [Galway City - Galway City Council Climate Action Plan](#) Accessed: July 2024

⁸⁷ Ireland's 4th National Biodiversity Action Plan 2023–2030: [gov - Ireland's 4th National Biodiversity Action Plan 2023–2030 \(www.gov.ie\)](#) Accessed: July 2024

and a step towards implementing the EU Green Deal. The law aims to restore ecosystems, habitats and species across the EU's land and sea areas to:

- Enable the long-term and sustained recovery of biodiverse and resilient nature;
- Contribute to achieving the EU's climate mitigation and climate adaptation objectives; and
- Meet international commitments.

The law combines an overarching restoration objective for the long-term recovery of nature in the EU's land and sea areas with binding restoration targets for specific habitats and species. These measures should cover at least 20% of the EU's land and sea areas by 2030, and ultimately all ecosystems in need of restoration by 2050. This law could have significant implications for national strategies and targets. The GWS and SEA will need to address the requirements of the Nature Restoration Law as these are brought into national policy and regulations, and potentially including through future updates to Uisce Éireann's own Biodiversity Action Plan.

Local Heritage and Biodiversity Plan

The Galway County Heritage and Biodiversity Plan 2017-2022⁸⁸ outlines action for all aspects of heritage and the natural world throughout the county. The aim of the Plan is to place heritage and biodiversity at the heart of public life in the County. This will be achieved through increasing awareness, participation, enjoyment, knowledge and understanding of our shared heritage to lead to its proper conservation, management and protection and safeguarding it for future generations. Three overarching objectives have been identified that will underpin the delivery of actions under five key themes. These objectives are:

- to increase awareness, appreciation and participation;
- to gather and share knowledge; and
- to manage and conserve our heritage, including biodiversity.

The Galway City Council is now working on the Biodiversity Action Plan 2025 to 2030⁸⁹, with the aim to correspond to changes in the ecosystems, EU and national legislation, policy and future Directives. The tentative objectives of Local Biodiversity Plan will be

- To develop and maintain the Galway City's Ecological Network and increase the resilience of the network by restoring degraded habitats and habitat creation;
- To tackle key pressures on species and habitats;
- To ensure that (inter)national targets for species and habitats are translated into effective conservation action at local level in Galway City;
- To raise public awareness and encourage involvement in biodiversity action by the wider community; and
- To increase our knowledge and understanding of biodiversity and monitor impacts of biodiversity actions through ecological research.

4.2.4 Circular Economy Plans and Policies

EU Soil Strategy for 2030

The EU soil strategy for 2030⁹⁰ sets out a framework and concrete measures to protect and restore soils, and ensure that they are used sustainably. It sets a vision and objectives to achieve healthy soils by 2050, with

⁸⁸ [Galway County Heritage & Biodiversity Action Plan - People and Nature \(galwaycommunityheritage.org\)](https://galwaycommunityheritage.org) Accessed: July 2024

⁸⁹ [Galway-City-Council-SPC-Biodiversity-Action-Plan-230920.pdf \(galwaycitycommunitynetwork.ie\)](https://galwaycitycouncil.ie/Assets/230920.pdf) Accessed: July 2024

⁹⁰ Communication From The Commission To The European Parliament, The Council, The European Economic And Social Committee And The Committee Of The Regions. EU Soil Strategy For 2030 Reaping The Benefits Of Healthy Soils For People, Food, Nature And Climate, Com (2021) 699, Final. Accessed: July 2024. Available from: <http://eur-lex.europa.eu>

specific actions by 2030. The strategy also proposed a new Soil Health Law to ensure a level playing field and a high level of environmental and health protection.

The new EU soil strategy for 2030 is a key deliverable of the EU biodiversity strategy for 2030. It will contribute to the objectives of the European Green Deal. Healthy soils are essential for achieving climate neutrality, a clean and circular economy and halting desertification and land degradation. They are also essential to reverse biodiversity loss provide healthy food and safeguard human health.

The EU soil strategy aims to ensure that, by 2050:

- All EU soil ecosystems are healthy and more resilient and can therefore continue to provide their crucial services;
- There is no net land take and soil pollution are reduced to levels that are no longer harmful to people's health or ecosystems; and
- Protecting soils, managing them sustainably and restoring degraded soils is a common standard.

A proposal for an EC Directive on soil monitoring was published July 2023. This will set out a framework for soil monitoring and aim to support sustainable soil management and required contaminated land to be identified and addressed.

The GWS will need to consider how the proposed actions can support this strategy especially through sludge waste disposal and circular economy approaches.

Circular Economy and Miscellaneous Provisions Act 2022

The Circular Economy and Miscellaneous Provisions Act 2022 builds on Ireland's commitment to achieving a circular economy, as set out in the 2020 Waste Action Plan for a Circular Economy and the 2021 Whole-of-Government Circular Economy Strategy. The Act demonstrates commitment to a more sustainable pattern of production and consumption, that retains the value of resources in the economy for as long as possible which will also significantly reduce greenhouse gas emissions.

In a circular economy, waste and resource use are minimised. The use and value of products and materials is maintained for as long as possible. When a product has reached the end of its life its parts are used again and again – to create further useful products, instead of being discarded which is an all too familiar pattern now. The Act includes:

- Incentives for the use of reusable and recyclable alternatives to a range of wasteful single-use disposable packaging and other items;
- Re-designates the existing Environment Fund as a Circular Economy Fund, which will remain ringfenced to provide support for environmental and circular economy projects;
- Introduces a mandatory segregation and incentivised charging regime for commercial waste, similar to the household market. This will increase waste separation and support increased recycling rates;
- Places the Circular Economy Strategy and National Food Loss Prevention Roadmap on a statutory footing, establishing a legal requirement for governments to develop and periodically update these 2 policies;
- Streamlines the national processes for End-of-Waste and By-Products decisions, tackling the delays which can be encountered by industry, and supporting the availability of recycled secondary raw materials in the Irish market; and
- Consolidates the government's policy of keeping fossil fuels in the ground – by introducing prohibitions on exploration for and extraction of coal, lignite and oil shale.

For GWS, the Circular Economy and Miscellaneous Provisions Act 2022 Act will be particularly relevant for GWS addressing wastewater treatment wastes.

4.2.5 Land Use and Economic Planning Plans and Policies

The Planning and Development Bill 2023

The Planning and Development Bill 2023 is a Draft bill published in November 2023.

The Bill represents a major overhaul of the planning system in Ireland. It, *inter alia*, proposes to strengthen the legal status of ministerial guidelines and policy directives. These will require Government approval and alignment with the policies and measure will be mandatory. Other plans will be required to be materially consistent with them. There will be changes to Local Development Plans and to the structure of the Local Area Plan system. Statutory timelines for all consent processes will be introduced and changes proposed to Judicial Reviews.

The bill once enacted will provide the legislative framework for spatial planning and sustainable development which will be relevant for implementing development proposals identified through the GWS.

National Development Plan 2021-2030

As part of Project Ireland 2040⁹¹ the NDP⁹² sets out the Government's over-arching investment strategy and budget for the period 2021-2030. It is an ambitious plan that balances the significant demand for public investment across all sectors and regions of Ireland with a major focus on improving the delivery of infrastructure projects to ensure speed of delivery and value for money.

This NDP is identified as being 'the largest and greenest ever delivered in Ireland', with a particular focus on supporting the largest public housing programme in the history of the state. While many of the investments in this NDP are already well known and have been progressing through planning for some time, there are a range of investments which are new or enhanced in this NDP. The GWS will need to take account of population and economic growth and the related requirements for wastewater services.

National Planning Framework – Project Ireland 2040

The National Planning Framework (NPF)⁹³ is a national document published on 16th February 2018. The commencement of the first revision to the NPF has been approved by Government and a Road Map for the revision was Published in June 2023. This sets out the commitment to update the NPF in 2024.

The National Planning Framework 2040 is a strategic development framework setting out the long-term context for Ireland's physical development and associated progress in economic, social, and environmental terms. The National Planning Framework is being followed and underpinned by supporting policies and actions at sectoral, regional and local level. The National Planning Framework is accompanied by the ten-year National Development Plan, together forming one plan to guide strategic development and infrastructure investment at a national level.

In the period to 2040, the National Planning Framework recognises Dublin as Ireland's key international and global city of scale and principal economic driver, accounting for 25% of growth. A further 25% of growth is estimated to occur across the other four cities combined (Cork, Limerick, Galway, and Waterford), enabling all four to become cities of greater scale by growing their population and jobs by 50-60%.

Under the framework three regional assemblies have been identified, Eastern and Midland, Northern and Western, and Southern. The study area falls within the Northern and Western region.

⁹¹Project Ireland 2040 [gov - Project Ireland 2040 \(www.gov.ie\)](https://www.gov.ie/en/publication/774e2-national-development-plan-2021-2030/) Accessed: July 2024

⁹² Department of Public Expenditure, NDP Delivery and Reform. 2021. National Development Plan 2021-2030. Accessed: July 2024
Available from: <https://www.gov.ie/en/publication/774e2-national-development-plan-2021-2030/>

⁹³ Project Ireland 2040 National Planning Framework: [gov - Project Ireland 2040 National Planning Framework \(www.gov.ie\)](https://www.gov.ie/en/publication/774e2-national-development-plan-2021-2030/) Accessed: July 2024

The first revision to the NPF will be made in the context of a number of changes in policy and legislation since 2018 when the NPF was originally published and will include taking account of the Climate Action Plan 2023/2024, the National Marine Planning Framework from 2021 and the prospective changes expected once the draft Planning and Development Bill is enacted.

The NPF and regional and local plans are key for the GWS in terms of the population and economic growth and housing development that needs to be supported by wastewater services and also the potential to inform and influence these plans to support more sustainable development.

Regional Spatial and Economic Strategy (RSES) for the Northern & Western Region of Ireland

Under the Local Government Reform Act 2014, the Northern & Western Regional Assembly assumed a number of new functions - chief among these is the preparation and implementation of a Regional Spatial and Economic Strategy (RSES) for the Northern & Western Region of Ireland.

The RSES⁹⁴ sets out the strategic regional development framework for the Region, with a primary aim to implement Project Ireland 2040 - the National Planning Framework, at the regional tier of Government and to support the achievement of balanced regional development. The strategy focuses on the delivery of housing, job creation, infrastructure, community facilities and ensuring that the region remains attractive for investment.

The Planning and Development Act 2000 (as amended) requires that all City and County Development Plans and variations are consistent with the RSES and relevant national policy, with draft development plans or proposed variations to development plans referred by the relevant local authority to the Regional Assembly. The Regional Assembly considers the consistency of the draft with the RSES and can make formal recommendations to the local authority on what amendments, in the opinion of the Regional Assembly, are required to ensure consistency of the proposed variation to the development plan and its core strategy with the RSES.

Local Development Plans / Other Local Strategic Plans

The Galway Metropolitan Area Strategic Plan (MASP)⁹⁵ forms part of the Regional Spatial and Economic Strategy (RSES) which is a twelve-year strategic planning and investment framework for the region. The MASP area is identified to grow considerably in population within the plan period. This growth must be in a planned and co-ordinated manner where residential and employment areas are adequately serviced with infrastructure and services such as access to public transport and a good range of community facilities. The plan sets out the strategic direction for the Metropolitan Area to achieve compact growth which is the first national strategic outcome (NSO) of the National Planning Framework. It also sets out clear and concise strategy to:

- Identify the key change parameters for this area i.e., population, employment, housing, retail, travel patterns and key renewal, development and amenity areas;
- Work out a sequence of infrastructure prioritisation, delivery and co-ordination; and
- Deliver compact regeneration and growth.

Adopted Galway County Development Plan 2022-2028⁹⁶ is a statutory document prepared by the Planning Authority in accordance with the requirements of the Planning & Development Act 2000 (as amended) and the Planning & Development Regulations 2001 (as amended). The plan sets out a range of proposed policy objectives with supporting narrative for development up to 2028.

⁹⁴Regional Spatial and Economic Strategy (RSES) for the Northern & Western Region of Ireland: [RSES | Northern and Western Regional Assembly \(nwra.ie\)](https://www.nwra.ie/rses) Accessed: July 2024

⁹⁵ The Galway Metropolitan Area Strategic Plan (MASP): [1.0 Galway Metropolitan Area 0.pdf](#) Accessed: July 2024

⁹⁶ Galway County Development Plan 2022 – 2028: [Adopted Galway County Development Plan 2022-2028 | Galway County Council Online Consultation Portal](#) Accessed: July 2024

Galway City Development Plan 2023-2029⁹⁷ is set within the overall national and regional planning contexts, taking into account in particular, the National Planning Framework (NPF), the Regional Spatial and Economic Strategy (RSES) and the Galway Metropolitan Area Strategic Plan (MASP). It sets out the policies and objectives for the development of the City over the plan period. The plan has been prepared in accordance with the steps set out in the Planning and Development Acts.

Galway Local Economic and Community Framework Plan 2024 -2029⁹⁸ is to set out, for a six-year period, the objectives and actions needed to promote and support the economic development and the local and community development of Galway City both by Galway City Council directly, and in partnership with other economic and community development stakeholders. As the framework for the economic development and community development of Galway City, the LECP will be the primary mechanism at local level to bring forward relevant actions arising from national and regional strategies and policies that have a local remit. The LECP Framework 2024 – 2029 details 5 High-Level Goals and 17 Sustainable Community and Economic Objectives.

4.3 Relevant Uisce Éireann Plans

The hierarchy of plans related to the GWS is illustrated in **Figure 2.2.1**. These include:

- Topic specific plans such as, on climate change or biodiversity, which inform all Uisce Éireann's plans and programme; and
- Implementation plans for wastewater related services - identifying targets and investment needs. Key Uisce Éireann plans and programmes most relevant to the GWS are discussed below.

4.3.1 Topic Specific Plans

Sustainable Energy – Climate Change Mitigation and Adaptation

Improving energy efficiency is one of Uisce Éireann's key sustainability measures for improving their carbon footprint and reducing greenhouse gas emissions. Uisce Éireann is in the process of preparing a sustainable energy strategy to become a low carbon, energy efficient, sustainable water utility and improve energy efficiency. This strategy will take account of mandatory targets.

Energy efficiency improvement is a key mitigation measure of Uisce Éireann's climate change policy to help ensure water and wastewater services are resilient to climate change, developing a low greenhouse gas emitting water and wastewater service. Uisce Éireann is implementing a business wide climate mitigation and adaptation strategy, aligned with the Water Sector Adaptation Plan under the National Adaptation Framework. The strategy identifies the adaptation and mitigation actions to be undertaken to minimise the consequences of climate change on Uisce Éireann, their customers and the environment.

Improving energy efficiency is one of Uisce Éireann's key sustainability measures for improving their carbon footprint and reducing greenhouse gas emissions. Uisce Éireann aims to become a low carbon, energy efficient, sustainable water utility with targets to improve energy efficiency by 50% by 2030 (2009 baseline) and achieve an absolute reduction (51%) in GHG emissions from energy by 2030 (2016-18 baseline). The strategy includes business wide energy action plans that focus on Capital Energy Efficiency, Operational Energy Efficiency, Renewable Energy, Innovation and Transformation and Energy Management. Significant progress has been made in implementing the sustainable energy strategy with a 30% improvement in energy efficiency performance to date. Uisce Éireann is on track to meet the target of 50% energy efficiency improvement by 2030 and achieving an absolute reduction (51%) in GHG emissions energy by 2030, putting them in a strong position for net zero carbon by 2040.

⁹⁷ Galway City Development Plan 2023-2029: [Galway City Development Plan 2023-2029 | Galway City Council Online Consultation Portal](#) Accessed: July 2024

⁹⁸ Galway Local Economic and Community Framework Plan 2024 -2029: [GalwayCity - Local Economic and Community Plan \(LECP\)](#) Accessed: July 2024

Energy efficiency improvement is also a key mitigation measure of Uisce Éireann climate change policy to help ensure water and wastewater services are resilient to climate change, developing a low greenhouse gas emitting water and wastewater service. Uisce Éireann is implementing a business wide climate mitigation and adaptation strategy, aligned with the Water Sector Adaptation Plan under the National Adaptation Framework. The strategy identifies the adaptation and mitigation actions to be undertaken to minimise the consequences of climate change on Uisce Éireann, their customers and the environment.

Biodiversity Action Plan

Uisce Éireann's Biodiversity Action Plan (BAP)⁹⁹ details specific objectives and actions to address the biodiversity emergency. These objectives and actions align with Uisce Éireann policy-level strategic objectives and implementation is in progress. The plan will be reviewed and updated every five years in line with the company's periodic review. The following key objectives have been identified:

- Issue all Uisce Éireann sites with a clear set of measures that will enhance and protect biodiversity.
- Raise awareness and provide educational supports on biodiversity to Uisce Éireann staff and its partners. Ensure 'no net loss' of biodiversity when carrying out activities, or delivering plans or projects.
- Implement actions arising from the All-Ireland Pollinator Plan across all Uisce Éireann sites, to support and increase our pollinator population.
- Promote the use of nature-based solutions for water protection and wastewater treatment.
- Manage invasive alien species at Uisce Éireann's sites.
- Collaborate and work with key internal and external stakeholders, and the wider community, to protect and enhance biodiversity.

4.3.2 Implementation Plans

National Wastewater Sludge Management Plan

Uisce Éireann has published a long-term National Wastewater Sludge Management Plan (referred to as the NWSMP) that outlines its strategy to ensure a nationwide, standardised approach for managing wastewater sludge over the next 25 years¹⁰⁰. The NWSMP is one of Uisce Éireann 's Tier 2 Implementation Plans.

Uisce Éireann has looked at how wastewater sludge is currently managed throughout the country and estimates that the quantity of wastewater sludge generated is expected to increase by more than 80% by 2040 as new and upgraded plants to treat our wastewater are completed. The management of this wastewater sludge poses economic, planning and environmental challenges. The NWSMP presents a national approach to wastewater sludge. This will ensure that, for the first time, treated wastewater sludge across the country is effectively managed, stored, transported and re-used or disposed of in a sustainable way, to the benefit of the public and the environment we all live in.

Uisce Éireann is currently reviewing and updating the National Wastewater Sludge Management Plan. The next revision of the Plan will provide a progress update on the objectives identified in the original Plan (2016). The next revision of the Plan will also include detail around sludge management activities and how these activities impact climate change, sustainability and circular economy initiatives.

⁹⁹ Irish Water. 2021. Irish Water's Biodiversity Action Plan. Accessed: July 2024. Available from: [Biodiversity Action Plan | National Projects | Uisce Éireann \(formerly Irish Water\)](#)

¹⁰⁰ Irish Water. 2016. National Wastewater Sludge Management Plan. Accessed: July 2024. Available from: [Wastewater Sludge Management Plan | Projects | Uisce Éireann \(formerly Irish Water\)](#)

5 SEA Methodology

5.1 Introduction

The aim of this SEA Scoping Report is to determine the scope of the assessment and methodology to be applied for the SEA of the GWS.

The existing baseline conditions, future baseline trends and legal requirements within relevant plans, policies and programmes have shaped the development of the scope and objectives for this assessment.

This Section sets out the proposed SEA methodology, noting that **Section 2.4** of this report describes how the development of the GWS will be influenced through the SEA process. Key guidance taken into account in the approach to the SEA includes:

- SEA pack including scoping guidance and checklists (updated 2023)¹⁰¹;
- Developing and Assessing Alternatives in SEA¹⁰²;
- Guidance on SEA Statements and Monitoring¹⁰³;
- Integrating Climatic Factors into SEA in Ireland – A Guidance Note¹⁰⁴;
- Good practice guidance on Cumulative Effects Assessment in SEA¹⁰⁵;
- EPA guidance 'The Tiering of Environmental Assessment – The influence of Strategic Environmental Assessment on Project-level Environmental Impact Assessment'¹⁰⁶; and
- Good Practice Guidance Strategic Environmental Assessment in the Water Sector.¹⁰⁷

5.2 Proposed SEA Objectives

During this scoping stage of the SEA process a set of SEOs and assessment criteria has been developed based on the key considerations from the baseline review and the policy, plan and programme review outlined in **Sections 3** and **4**. These objectives will provide the framework for assessing the alternative plan approaches and preferred plan proposals. The draft SEOs and assessment criteria are provided in **Table 5.2.1**.

¹⁰¹ EPA 2023 SEA Pack. Accessed: July 2024 Available from [SEA-Pack-2024.pdf \(epa.ie\)](#)

¹⁰² EPA. 2015. Developing and Assessing Alternatives in Strategic Environmental Assessment (SEA). Accessed: July 2024. Available from: [Review of Effectiveness of SEA in Ireland - Executive Summary | Environmental Protection Agency \(epa.ie\)](#)

¹⁰³ EPA. 2020. Guidance on SEA Statements and Monitoring. Accessed: July 2024. Available from: [Review of Effectiveness of SEA in Ireland - Executive Summary | Environmental Protection Agency \(epa.ie\)](#)

¹⁰⁴ EPA. 2019. Integrating Climatic Factors into Strategic Environmental Assessment in Ireland - A Guidance Note. Accessed: July 2024. Available from: [EPA-SEA-Climatic-Factors-Guidance-Note.pdf](#)

¹⁰⁵ EPA. 2020. Good practice guidance on Cumulative Effects Assessment in SEA. Accessed: July 2024. Available from: [EPA-Good-Practice-Guidelines-SEA.pdf](#)

¹⁰⁶ EPA. 2021. The Tiering of Environmental Assessment – The influence of Strategic Environmental Assessment on Project-level Environmental Impact Assessment. July 2024. Available from: [Research Report 391.pdf \(epa.ie\)](#)

¹⁰⁷ EPA. 2022. Good Practice Guidance Strategic Environmental Assessment in the Water Sector. Accessed: July 2024. Available from: [SEA Screening GoodPractice Water-2022.pdf \(epa.ie\)](#)

Table 5.2.1 Draft SEA objectives for draft GWS Assessment

SEO topic	Objective
Water Environment	<p><i>Water quality and quantity</i></p> <p>Prevent deterioration of the WFD status of waterbodies with regard to quality and quantity due to discharges of wastewater from treatment plants. Contribute towards the “no deterioration” WFD condition target and restore and improve waterbody status to meet WFD and RBMP objectives related to the provision of wastewater services.</p> <p><i>Flood risk</i></p> <p>Protect and, where possible, reduce risk from flooding as a result of Uisce Éireann’s provision of wastewater services.</p>
Population, Economy, Tourism and Recreation, and Human Health	<p>Protect and contribute to enhancement of human health and wellbeing and support sustainable economic and population growth, with (i) preventing restrictions to recreation and amenity facilities and (ii) protecting and enhancing freshwater and marine fisheries and shellfish protected areas.</p>
Climate Change	<p><i>Climate change mitigation</i></p> <p>Minimise contributions to climate change emissions to air (including greenhouse gas emissions) through energy efficiency, consideration of ecosystem services including carbon sequestration, water reuse and conservation - related to the provision of wastewater services.</p> <p><i>Climate change adaptation</i></p> <p>Take account of additional pressures on the environment due to climate change and promote measures supportive of climate change resilience related to provision of wastewater services. Take account of additional risks to wastewater services and infrastructure due to climate change and improve resilience to the effects of climate change such as to extreme weather events.</p>
Biodiversity	<p>Protect and enhance terrestrial, aquatic and soil biodiversity and habitat connectivity, with particular regard for European and nationally designated sites (including proposed and candidate sites and protected species). Achieve BAP commitments to No Net Loss of habitats related to provision of wastewater services.</p>
Material Assets	<p><i>Resource use and waste management</i></p> <p>Minimise resource use and waste generation from new or upgraded wastewater infrastructure and the management of sludge and residuals from treatment processes. Seek to apply circular economy principles across lifecycle decision making for resources and wastes.</p> <p><i>Asset use</i></p> <p>Minimise impacts on other material assets and infrastructure and optimise use of existing wastewater assets including through capacity and upgrades of existing wastewater sites.</p>
Landscape, Townscape and Seascape	<p>Protect and enhance designated and valued landscapes/townscapes and seascapes, visual amenity and dark skies in relation to the provision wastewater services.</p>

Cultural Heritage – Archaeological and Architectural	Protect and enhance designated and undesignated cultural heritage assets and archaeological interest, including their condition, settings and access related to the provision of wastewater services.
Geology and Soils	Protect soils and geological heritage sites and contribute towards the appropriate management of soil quality and quantity related to wastewater services.
Air Quality	Identify and seek to apply wastewater treatment improvements, higher design standards and operation practices to minimise odour from wastewater plants.
Noise and Vibration	Scoped out - as GWS unlikely to have significant effects related to noise and vibration (see Section 3.19)

5.3 SEA Assessment Approach

The next SEA stage follow scoping will involve assessment of the draft GWS and alternative approaches considered against the SEOs identified in **Table 5.2.1**.

5.3.1 Optioneering

The optioneering process for the GWS will include the following steps:

1. Develop a generic and long list of unconstrained options;
2. Primary “coarse” screening of unconstrained options to produce a short list of constrained options;
3. Further screening of constrained options to develop a short list of options; and
4. Final assessment of feasible options.

The following subsections set out the process to be followed at each stage of the optioneering process, including how the SEA will be integrated such that environmental considerations are considered throughout.

Unconstrained Options

The first stage of the options assessment will involve identifying and evaluating an unconstrained list of solutions to meet the identified need. The intervention hierarchy will involve:

- Behavioural solutions – changes in customer behaviour;
- Planning area solutions – inter-agglomeration approaches;
- System operation of assets (both WwTPs and networks/assets);
- Partnership or 3rd party solutions – measures co-created with other stakeholders;
- Catchment measures - catchment management and ‘green’ measures such as Sustainable Urban Drainage Systems (SuDs) and Nature Based Solutions; and
- System upgrades or new assets.

An options long list will be built for each agglomeration and design horizon (2030, 2055 and 2080), which will include the following non-exhaustive list:

- Do nothing;
- Minimal upgrades via process optimisation;
- Reuse and upgrading of existing assets;

- Pump away options;
- Construction of new plants and/or relocation of outfalls;
- Optimisation of sludge treatment facilities;
- Nature based solutions/SUDS.

Coarse Screening

Options included in the unconstrained options list will be subject to coarse screening against a variety of criteria (including environmental and sustainability considerations) using a simplistic scoring system. Unfeasible options will be discarded from the optioneering process at this point, and options considered viable will be taken through to the constrained options list.

Constrained Options List

Options on the constrained options list will be developed further, taking into account regional considerations and focussing on drainage, treatment and discharge. The following non-exhaustive list of options will be considered:

- Local treatment options;
- Flow transfer to Galway main drainage network, between catchments, or to a new WwTP;
- Infrastructure and asset upgrades to improve both treatment and flow transfer capacity;
- Introduction of sludge treatment facilities
- Outfall upgrades to maintain and improve environmental objectives of receiving waterbody;
- Developing emergency action plans to provide resilience of infrastructure; and
- Works necessary to Storm Water Overflows to meet relevant environmental limits (for example upgrade or decommissioning, downstream ser upsizing or diversion, storage facilities, storm separation and increased flows to full treatment).

Fine Screening

A Multi Criteria Assessment (MCA) will be completed to refine the constrained options list into the short list. MCA involves assessing options based on key criteria (to be confirmed, but under the broad headings of resilience, deliverability, progressivity and sustainability) to verify criteria and understand risks.

Environmental sub-criteria under the sustainability heading will be linked to the SEOs set out in **Section 5.2** as well as consideration of impacts on European sites as required through the Appropriate Assessment process.

Short List

The options short list may include three options per WwTP/agglomeration and per design horizon. All shortlisted options will be subject to water quality and network modelling to inform further assessment, and sufficiently developed in order to inform CAPEX and OPEX cost estimation (direct and indirect costs, including environmental and social costs).

Final Assessment of Short List

Short listed options will be assessed against bespoke criteria using multicriteria analysis including, SEA based criteria informed by modelling outputs and stakeholder inputs. Long term strategic plans and growth projections will be considered in determining potential option combinations, and a phased development approach used to facilitate the use of existing assets as far as possible.

5.3.2 Preferred Plan

The assessment of the Preferred Plan will be summarised through matrices identifying the potential for significant effects against each SEO. The assessment will be made taking planning procedures and legislative protection into account, since they would be implemented regardless of the SEA process. The evidence that has informed the assessment, along with the level of certainty, will also be reported.

Recommendations for mitigation to help avoid or reduce the potential impacts or to contribute to achieving objectives will be identified as part of the assessment. An assessment of significance will be recorded with mitigation in place to address how the effects will change following implementation of the mitigation recommendations and provide an assessment of residual effects.

A description of the expected nature of these effects will be given, for example whether they are cumulative, direct/indirect, short-term/ long-term, negative, positive, mixed positive and negative or neutral, in accordance with Schedule 2, part (f) of the SEA Directive and Schedule 2B of the Planning and Development (SEA) Regulations, 2004 (as amended).

The assessment will cover the proposals in the draft GWS comprising:

- Overall approach and alternatives considered in the development of the proposed draft plan;
- Assessment of the draft plan including:
 - Assessment of proposed options for the 2030, 2055 and 2080 design horizons;
 - Overarching comparative assessment of the proposed draft plan compared to a no plan scenario;
 - Assessment of cumulative impacts of the proposed GWS with other plans and programmes; and
 - Identification of mitigation measures and recommended actions and monitoring requirements for the plan implementation.

5.4 Assessment of Significant Effects

The assessment of the effects that are expected to occur from the implementation of the GWS will be based on technical judgement and knowledge of similar schemes. The significance of the effect will be determined based on the sensitivity of the receptor and the scale of the change. Using this method, a sensitive receptor (for example a European designated site) may only require a small change to be considered as a significant effect.

Alternatively, a less sensitive environment may tolerate a larger change and may therefore be judged as a minor or no effect. The effects can be beneficial or adverse as indicated by colour and by the + and – symbol and are shown in **Table 5.4.1**. The effects will be assessed both before and after the identification of mitigation. The magnitude of the predicted effect will take into account the likelihood of the effect occurring, the severity of the effect and the spatial extent (i.e. how large an area, or size of population) would be affected.

Table 5.4.1 Assessment criteria for assessment of the GWS

Description of comparison of effect	Effect score	Description of comparison of effect	Effect score
Plan approach / alternative is likely to make a considerable positive contribution to SEOs or greatly improve likelihood of delivery of positive effects and reduce risk of adverse effects.	+++	Plan approach / alternative has potential to conflict to a greater extent with SEOs or high risk of significant adverse effects.	---
Plan approach / alternative is likely to make a moderate positive contribution to SEOs or greatly improve likelihood of delivery of positive effects and reduce risk of adverse effects.	++	Plan approach / alternative has moderate potential to conflict to a greater extent with SEOs or increase risk of adverse effects.	--
Plan approach / alternative has potential to provide a minor positive contribution to SEOs or improve likelihood of delivery of positive effects and reduce risk of adverse effects.	+	Plan approach / alternative has moderate potential to conflict to a greater extent with SEOs or increase risk of adverse effects.	-
Plan approach / alternative has negligible of contribution or conflict with SEOs or low risk of effects or uncertainty of effects.	0/?	Plan approach / alternative has potential to provide mixed effects so both positive and negative contribution to SEOs or in terms likelihood of delivery of effects and risk.	+/-

5.5 Plan Alternatives

The SEA Directive requires the SEA process to identify and describe ‘reasonable alternative’ means of achieving the objectives of the GWS. It states under Article 5(1) that;

*“Where an environmental assessment is required under Article 3(1), an environmental report shall be prepared in which the likely significant effects on the environment of implementing the plan or programme, and **reasonable alternatives** taking into account the **objectives** and the **geographical scope** of the plan or programme, are identified, described and evaluated.”*

The reasons for selecting (a) the alternatives and (b) the preferred approach for the plan must be documented, together with a description of how this assessment of alternatives was undertaken.

Alternatives assessed will include:

- Option level alternatives as considered at the coarse screening and fine screening and through the multi criteria analysis included option based environmental assessment stages of optioneering as described in **Section 5.3.1**;

- Consideration of combinations of options to address GWS objectives;
- Plan level 'Do Minimum' scenario assuming the continuation of current or committed development under the previous GWS but without the implementation of the GWS; and
- Plan level alternatives for the identified permutations of option combinations which could potentially meet the strategy need as described for the final assessment stage of optioneering in Section 5.3.1.

Option and plan level alternatives will be assessed against the SEOs using a matrix based approach as described for the preferred plan in **Section 5.3.2**.

5.6 Cumulative Effects

Cumulative effects can be described as the addition of many small impacts to create one larger, more significant, impact. Cumulative effects can be described as either:

- Additive effects: the addition of many minor or significant effects to create larger, more significant effects. Therefore, effects that arise, for instance, where several developments (such as multiple options) each have insignificant effects but together have a significant effect; or where several individual effects of the GWS (for example noise, dust and visual) have a combined effect (in combination effects); or
- Synergistic effects: "Where the resultant effect is of greater significance than the sum of its constituents." Synergistic effects often happen as habitats, resources or human communities get close to capacity. For instance, a wildlife habitat can become progressively fragmented with limited effects on a particular species until the last fragmentation makes the areas too small to support the species.

Both intra-plan and inter-plan cumulative effects will be considered within the SEA:

- Intra-Plan cumulative effects – these arise from the interactions between different types of environmental effects resulting from a plan, programme. Interrelationships include for example between air quality and vegetation; human health and flood risk; and ecology and water quality.
- Inter-Plan cumulative effects – these arise when the effects of the implementation of one plan occurs in combination with those of other plans, programmes, or projects. With regard to potential inter-Plan cumulative environmental effects, these occur as a result of the combination of environmental effects which are identified by the assessment and the effects arising from other policies, plans and programmes.

The plans we propose to include as part of the inter-plan cumulative assessment are listed below:

- Sectoral Planning Guidelines for Climate Change Adaption 2018¹⁰⁸;
- Climate Action Plan 2024⁸⁰;
- Galway County Draft Climate Action Plan 2024 – 2029⁸⁵
- Galway City Climate Action Plan 2024 – 2029⁸⁶;
- National Adaptation Framework 2024⁸¹;
- Water Quality and Water Services Infrastructure, Climate Change Sectoral Adaptation Plan⁸²;
- Ireland's 4th National Biodiversity Action Plan 2023-2030⁸⁷;

¹⁰⁸ Sectional Planning Guidelines for Climate Change Adaption 2018 Accessed: July 2024, Available from [www.gov.ie/pdf/?file=https://assets.gov.ie/129614/9bcbb18e-7203-4079-9a59-833842e932f2.pdf#page=null](https://assets.gov.ie/129614/9bcbb18e-7203-4079-9a59-833842e932f2.pdf#page=null)

- The Galway County Heritage and Biodiversity Plan 2017-2022¹⁰⁹
- National Development Plan 2021-2030⁹²;
- National Planning Framework, Project Ireland 2040⁹¹;
- Regional Spatial and Economic Strategy (RSES) for the Northern & Western Region of Ireland⁹⁴
- Galway City Development Plan 2023-2029⁹⁷
- Adopted Galway County Development Plan 2022-2028⁹⁶
- River Basin Management Plan 2018-2021¹¹ and Draft River Basin Management Plan 2022-2027¹² (expected to be issued in 2024 to replace the 2018-2027 plan);
- Catchment Flood Risk Assessment and Management (CFRAM) Programme¹⁰;
- National Marine Planning Framework⁷⁹;
- Uisce Éireann's Water Services Strategic Plan 2040³ and Draft Water Services Strategic Plan 2050¹¹⁰ ;
- Uisce Éireann's National Wastewater Sludge Management Plan¹⁰⁰;
- Uisce Éireann's Lead in Drinking Water Mitigation Plan¹¹¹;
- Uisce Éireann's Regional Water Resources Plan – North West¹¹²; and
- Uisce Éireann's Biodiversity Action Plan⁹⁹.

The GWS will be developed in line with Uisce Éireann's own national, regional and local level plans and programmes and therefore these are not considered as part of the inter-plan assessment.

5.7 Appropriate Assessment

As described in Section 4, all Natura 2000 sites (SPAs, SACs, including candidate and potential sites) will be the subject of a separate AA, in accordance with the Birds and Natural Habitats Regulations 2011. This will be carried out in parallel with the SEA and will feed into the SEA on European site issues. The first stage screening has been undertaken and is provided in the AA Screening Report. This has concluded that LSE cannot be ruled out and a second stage AA, will be undertaken on the draft GWS including alone, in combination (including cumulative) effects in accordance with guidance on AA. The results of the AA will inform the SEA, including the SEA cumulative effects assessment. The NPWS, DHLGH and EPA will be consulted on the AA findings.

The AA Screening Statement and NIS will be provided as standalone separate reports for consultation alongside the SEA report.

¹⁰⁹ Galway County Heritage & Biodiversity Action Plan, Accessed: July 2024, Available from [Galway County Heritage & Biodiversity Action Plan - People and Nature \(galwaycommunityheritage.org\)](https://galwaycommunityheritage.org)

¹¹⁰ Uisce Éireann. Water Services Strategic Plan 2050. Accessed: July 2024. Available from: [Water Services Strategic Plan | Projects | Uisce Éireann \(formerly Irish Water\)](#)

¹¹¹ Uisce Éireann. 2016. Lead in Drinking Water Mitigation Plan. Accessed: July 2024. Available from: [Lead Mitigation Plan | Projects | Uisce Éireann \(formerly Irish Water\)](#)

¹¹² Uisce Éireann. 2023. Regional Water Resources Plan – North West. Accessed: July 2024. Available from: [Regional Water Resources Plan - North West | Strategic Plans | Uisce Éireann \(formerly Irish Water\)](#)

6 Next Steps

6.1 Galway Wastewater Strategy Development and SEA Assessment

The next stage in the process will be the review of consultation comments received on this SEA Scoping Report, the Issues Paper and the AA Screening report. These will be used as a basis for developing the draft GWS and for undertaking the assessments required for the SEA and AA. An outline roadmap of the process and future public consultation on the draft GWS and accompanying SEA Environmental Report and NIS is set out in **Figure 6.1.1** below.

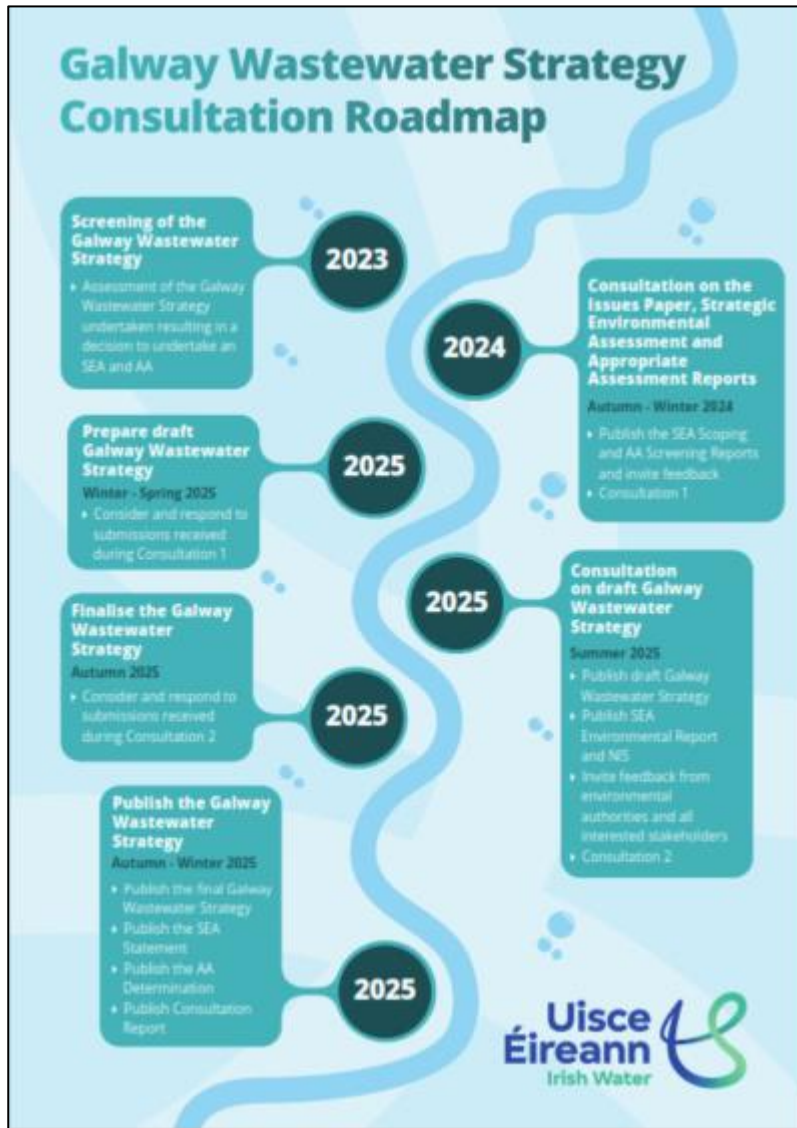


Figure 6.1.1 Consultation Road Map for the GWS and environmental assessments

6.2 The SEA Environmental Report

The outcomes of the assessment stage and recommended approach will be presented in the GWS and SEA Environmental Report.

6.2.1 Proposed Outline Structure for the SEA Environmental Report

1. Introduction and Background – Covering need for the plan and SEA;
2. GWS – Outline of how the plan was developed, objectives and summary of proposals;

3. Consultation – Outline of consultation informing the development of the plan and the SEA scoping process comments and responses (summary with table of comments in an appendix);
4. Review of Policy, Plans and Programmes context review – (summary with more details in an appendix);
5. Baseline Environment – Summary of baseline, trends, pressures and future evolution without the plan (with the full information included as an appendix)
6. Assessment Methodology – Outline of approach to the SEA Assessment applied;
7. Assessment of the GWS and Alternatives
8. Cumulative Effects Assessment – Including intra plan effects and inter plan effects with other plans;
9. Mitigation and Monitoring Plans – Covering proposed actions to be undertaken for the plan implementation and providing recommendations for downstream project level mitigation and monitoring; and
10. Appendices – supporting information including the scoping report comments and responses, baseline information, and the policy and plan review.

SEA Scoping Questions – Chapter 6

- 1. Any comments on the next steps or the outlined SEA Environmental Report structure?**
- 2. How would you like to be involved in the development of the GWS as this progresses?**

Appendix A SEA Screening Statement

A.1 The SEA Screening Process

Under the Strategic Environmental Assessment (SEA) Directive 2001/42/EC and Ireland's transposing regulations S.I. No. 435/2004 European Communities (Environmental Assessment of Certain Plans and Programmes) Regulations 2004 (as amended) (henceforth referred to as the SEA Regulations), a Plan or Programme (or modification thereto) requires an SEA if it meets criteria set out under Regulation 9(1)(a) or where it is considered likely to have significant effects on the environment.

The screening assessment takes account of the EPA's Good Practice Guidance on SEA Screening published December 2021 (the EPA Guidance). This sets out a four-stage screening process which has been used as the basis for screening for the proposed Galway Wastewater Strategy.

In terms of the SEA Regulations, definition of what constitutes a plan or programme is based on the purpose and status rather than name (hence for example a strategy or study may effectively be a plan or programme under the regulations).

The Stages consist of:

Stage 1: Applicability test to consider if mandatory SEA is required for the Plan or Programme.

Stage 2: If mandatory SEA is not required or if it is unclear, then more detailed screening is required (including consultation).

Stage 3: Where screening of a non-mandatory Plan or Programme is required then a SEA Determination is required.

Stage 4: Determination confirming decision for non-mandatory SEA plans or programmes.

Figure A.1 provides a flow chart of the process based on the EPA 2021 guidance:

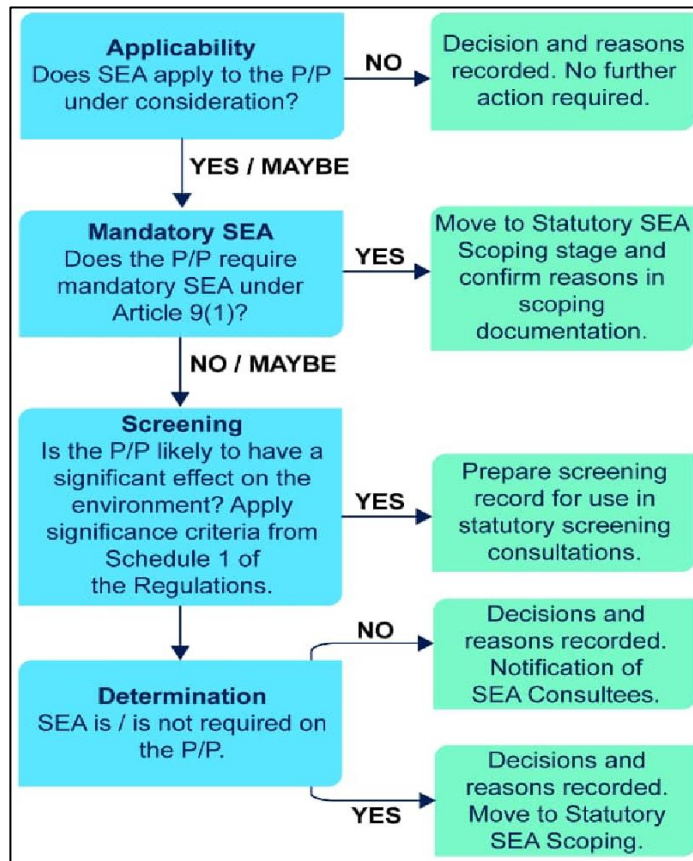


Figure A.1 SEA Screening Process

This statement reports on the first stage being ‘applicability’ and follows the template provided in the EPA Guidance. This statement determines if the proposed plan falls within the scope of the SEA Directive and transposing legislation, and to confirm if it constitutes a plan that requires mandatory SEA.

A.2 The Proposed Plan

The proposed Galway Wastewater Strategy is an area plan beneath Uisce Éireann’s overarching national Water Services Strategic Plan (WSSP). The strategy will cover the Galway Wastewater Strategy Area and will identify sustainable drainage strategies and projects for the growing Galway Wastewater Strategy Area that meets projected long-term drainage needs to 2080 and will include periodic review and updating. It will be consistent with Uisce Éireann’s Water

Services Strategic Plan (WSSP) and other Uisce Éireann plans and strategies including the National Wastewater Sludge Management Plan (NSMP) and the Regional Water Resources Plan (RWRP) North-West.

The SEA applicability is listed in **Table A.1**, which is adopted from EPA template for SEA applicability (2021).

Table A.1: SEA Applicability (EPA template for SEA applicability 2021)

Details of the Plan	
Type and Title of Plan	Galway Wastewater Strategy
Name of Plan Maker	Uisce Éireann
Date	June 2023

Status of the Plan Maker

<p>Is the P/P prepared and/or adopted by an authority at national, regional or local level or prepared by an authority for adoption through a legislative procedure by Parliament or Government?</p> <p><i>Clarify who will prepare the P/P, if they are affiliated to any authority and if the P/P will be adopted through any legislative provision.</i></p>	<p>Yes. This wastewater strategic will be prepared and adopted by Uisce Éireann. Uisce Éireann was established under the Water Services (No. 2) Act 2013 on the 1st of January 2014, and assumed statutory responsibility for the provision of public water services and management of water and wastewater investment. Uisce Éireann’s role is to provide public water and wastewater services throughout the country.</p>
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<p><i>Is the P/P required by legislative, regulatory, or administrative provisions? Provide information on any legislative, regulatory, or administrative requirements. This criterion also includes P/P required to deliver administrative functions of an authority e.g. Dublin Port Company Masterplan</i></p>	<p>Yes. Although it is not a named plan, the study is considered at a regional level and has been identified as required by Uisce Éireann as part of its statutory functions.</p> <p>This strategy will outline the requirements for wastewater drainage and treatment capable of meeting the demands of the study area in the context of current Development Plans, the National Planning Framework, the RSES 2020 and longer-term development potential of the area up to 2080.</p>
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Nature of the Plan

<p>Is the P/P prepared for agriculture, forestry, fisheries, energy, industry, transport, waste management, water management, telecommunications, tourism, town and country planning or land use?</p> <p><i>Clarify if the P/P falls under any of these categories. This should be considered broadly such that energy may be interpreted to include grid, petroleum industry, electricity, renewables.</i></p>	<p>Yes. This wastewater strategy will identify wastewater management strategies and projects for the Galway Strategic Area.</p>
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<p>Does the P/P provide a framework for the development consent for projects listed in the EIA Directive?</p> <p><i>This is a fundamental question in the applicability stage. The interpretation of this statement should include any P/P which includes full or partial rules, limits or other criteria that would be used in development management; P/P that set legal requirements or are binding rules; P/P that have goals or targets; P/P that</i></p>	<p>Yes. This wastewater strategy will identify projects for implementation and set the framework for future development consent of projects listed in Annex I and II to the EIA Directive (85/337/EEC, as amended).</p>
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<p><i>commence the process of optioneering for locations or technology or modes etc. If there is any doubt regarding the applicability of this statement, the P/P should move forward to Stage 2 and consideration of screening criteria.</i></p>	
<p>Is the P/P likely to have a significant effect on a Natura 2000 site which leads to a requirement for Article 6 or 7 assessments?</p> <p><i>To fully answer this question, the AA screening must be complete, particularly where the outcome is pointing to a P/P being screened out.</i></p>	<p>Yes. According to the draft Appropriate Assessment Screening report, this wastewater strategy will present risks, some of which are considered likely to have a significant effect on each of the European designated sites assessed in the absence of mitigation. In accordance with the precautionary principle (European Commission, 2000), and because operational effects of the plan are not yet at options stage, all sites are screened in for further assessment. Therefore, a stage 2 Appropriate Assessment 'Natura Impact Statement' will be required for all European sites assessed within the AA Screening report as likely significant effects from the wastewater strategy cannot be discounted.</p>
<p>Exemptions</p>	
<p>Is the sole purpose of the P/P to serve national defence or civil emergency or is it a financial/budget P/P or is it co-financed by the current SF/RDF programme?</p>	<p>No, the purpose of this Galway Wastewater Strategy is not to serve national defence or civil emergency, and is not a financial budget, or co-financed by the current Structural Funds and Regional Development Funds programme.</p>

A.3 APPLICABILITY CONCLUSION

Based on **Section A.2** above, although the GWS is not directly required by legislative, regulatory or administrative provisions, the EPA guidance identifies that plans that are required as part of fulfilling statutory functions are implicitly required. In this case Uisce Éireann has identified a need for undertaking such as plan to meet growth and environmental requirements, and the plan is a type that falls within the remit of the SEA Directive/SEA Regulations and therefore requires mandatory SEA. Therefore, the GWS will be taken forward to the next stage in the SEA process which is SEA Scoping and statutory consultation with the designated environmental authorities. The Screening outcome will be reported within the SEA Scoping Report. No second stage screening is required.

A.4 Summary of Screening Outcome

Based on Section 9 (1) (a) of the SEA Regulations, which states that: Environmental assessment shall be carried out for all plans and programmes:

- a) *which are prepared for agriculture, forestry, fisheries, energy, industry, transport, waste management, water management, telecommunications, tourism, and which set the framework for the future development consent of projects listed in Annexes I and II to the Environmental Impact Assessment Directive.*

It is the view of Uisce Éireann that the proposed plan, the GWS is a qualifying plan under section 9 (1) (a) because it will identify projects, including those requiring development consent and EIA as referred to Section 3 above, and is therefore subject to Strategic Environmental Assessment in accordance with the regulations.

Appendix B Relevant Legislation, Plans and Programmes

Policy, Plans and Programmes	SEA Topics										Review Screening
	Water Environment	Population, Economy, Tourism and Recreation, and Human Health	Climate Change	Biodiversity, Flora and Fauna	Material Asset	Landscape, Townscape and Seascape	Cultural Heritage - Archaeological and Architectural	Geology and Soils	Air Quality	Noise and Vibration	
International, National, Regional and transboundary - Legislation and Policy/Plans/Strategies											Policy, Plans or Programmes with some relevance to the GWS and SEA - screening Direct /higher relevance- H Indirect relevance - L
International											
Environmental Liability Directive (2004/35/EC)	✓	✓	✓	✓				✓	✓		H
Water Framework Directive (2000/60/EC)	✓	✓	✓	✓	✓	✓		✓			H
Bathing Water Directive (2006/7/EC)	✓	✓									H
Floods Directive (2007/60/EC)	✓	✓	✓		✓	✓	✓	✓			H

Nitrates Directive (91/676/EEC and derogation 2018/209)	✓	✓		✓				✓			H
Policy, Plans and Programmes	SEA Topics										Review Screening
International, National, Regional and transboundary - Legislation and Policy/Plans/Strategies	Water Environment	Population, Economy, Tourism and Recreation, and Human Health	Climate Change	Biodiversity, Flora and Fauna	Material Asset	Landscape, Townscape and Seascape	Cultural Heritage - Archaeological and Architectural	Geology and Soils	Air Quality	Noise and Vibration	Policy, Plans or Programmes with some relevance to the GWS and SEA - screening Direct /higher relevance- H Indirect relevance - L
Urban Wastewater Treatment Directive (91/271/EEC as amended 98/15/EEC)	✓	✓		✓	✓	✓					H
Marine Strategy Framework Directive (2008/56/EC)	✓		✓	✓		✓					H
Groundwater Directive (2006/118/EC)	✓	✓		✓				✓			H

Maritime Spatial Planning Directive 2014/89/EU	✓	✓				✓	✓				H
Common Fisheries policy (2023)	✓	✓		✓		✓	✓				H
Aarhus Convention	✓	✓	✓	✓				✓	✓		H

Policy, Plans and Programmes	SEA Topics										Review Screening
	Water Environment	Population, Economy, Tourism and Recreation, and Human Health	Climate Change	Biodiversity, Flora and Fauna	Material Asset	Landscape, Townscape and Seascape	Cultural Heritage - Archaeological and Architectural	Geology and Soils	Air Quality	Noise and Vibration	
International, National, Regional and transboundary - Legislation and Policy/Plans/Strategies											Policy, Plans or Programmes with some relevance to the GWS and SEA - screening Direct /higher relevance- H Indirect relevance - L
WHO Global Air Quality Guidelines (published 2021)		✓							✓		L
Drinking Water Directive (2020/2184)	✓	✓	✓		✓			✓			H

Strategic Environmental Directive (2001/42/EC)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	H
Environmental Impact Assessment Directive (2014/52/EU)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	H
EU Nature restoration law	✓		✓	✓	✓	✓	✓	✓		✓	H
The Habitats Directive (92/43/EEC)	✓	✓	✓	✓		✓	✓	✓			H

Policy, Plans and Programmes	SEA Topics										Review Screening
International, National, Regional and transboundary - Legislation and Policy/Plans/Strategies	Water Environment	Population, Economy, Tourism and Recreation, and Human Health	Climate Change	Biodiversity, Flora and Fauna	Material Asset	Landscape, Townscape and Seascape	Cultural Heritage - Archaeological and Architectural	Geology and Soils	Air Quality	Noise and Vibration	Policy, Plans or Programmes with some relevance to the GWS and SEA - screening Direct /higher relevance- H Indirect relevance - L
The Birds Directive (2009/147/EC)				✓							L

Fish Directive (2006/44/EC)	✓			✓							H
Waste Framework Directive (2008/98/EC)	✓	✓		✓	✓		✓				H
European Landscape Convention (ELC) (published 2000)	✓	✓				✓	✓	✓			L
Ambient Air Quality Directive (2008/50/EC)		✓		✓					✓		L
Industrial Emissions Directive (2010/75/EU)	✓	✓		✓				✓	✓	✓	L
Environmental Noise Directive (2002/49/EC)		✓								✓	L

Policy, Plans and Programmes	SEA Topics										Review Screening
International, National, Regional and transboundary – Legislation and Policy/Plans/Strategies	Water Environment	Population, Economy, Tourism and Recreation, and Human Health	Climate Change	Biodiversity, Flora and Fauna	Material Asset	Landscape, Townscape and Seascape	Cultural Heritage – Archaeological and Architectural	Geology and Soils	Air Quality	Noise and Vibration	Policy, Plans or Programmes with some relevance to the GWS and SEA - screening Direct /higher relevance- H Indirect relevance - L
The Kyoto Protocol 1997	✓		✓	✓				✓	✓		L
Paris Agreement 2015	✓	✓	✓	✓				✓	✓		H
EU Energy and Climate (2020) Package 2009	✓	✓	✓	✓		✓		✓	✓		L
Renewable Energy Action Plan (Directive 2018/2001)	✓	✓	✓	✓	✓			✓		✓	L
EU Action Plan - Towards a Zero Pollution for Air, Water and Soil 2021	✓	✓	✓	✓				✓	✓		H

EU Conventions on Archaeological, Architectural and Cultural Heritage							✓				L
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Policy, Plans and Programmes	SEA Topics										Review Screening
International, National, Regional and transboundary - Legislation and Policy/Plans/Strategies	Water Environment	Population, Economy, Tourism and Recreation, and Human Health	Climate Change	Biodiversity, Flora and Fauna	Material Asset	Landscape, Townscape and Seascape	Cultural Heritage - Archaeological and Architectural	Geology and Soils	Air Quality	Noise and Vibration	Policy, Plans or Programmes with some relevance to the GWS and SEA - screening Direct /higher relevance- H Indirect relevance - L
Proposed EU Soil Health Directive	✓		✓	✓	✓			✓		✓	H
EU Urban Waste Water Directive (91/271/EEC) (as amended)	✓	✓		✓	✓				✓		H
EU Drinking Water Directive (2020/2184) (as amended)	✓	✓			✓						H
EU Sustainability Policy	✓	✓	✓	✓		✓		✓	✓		L
UN Sustainable Development Goals 2015-2030	✓	✓	✓	✓	✓	✓	✓	✓	✓		H

Sustainable Development Goals National Implementation Plan 2018-2020	✓	✓	✓	✓	✓	✓	✓	✓	✓		H
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Policy, Plans and Programmes	SEA Topics										Review Screening
International, National, Regional and transboundary - Legislation and Policy/Plans/Strategies	Water Environment	Population, Economy, Tourism and Recreation, and Human Health	Climate Change	Biodiversity, Flora and Fauna	Material Asset	Landscape, Townscape and Seascape	Cultural Heritage - Archaeological and Architectural	Geology and Soils	Air Quality	Noise and Vibration	Policy, Plans or Programmes with some relevance to the GWS and SEA - screening Direct /higher relevance- H Indirect relevance - L
National Implementation Plan for the Sustainable Development Goals 2022-2024	✓	✓	✓	✓	✓	✓	✓	✓	✓		H
European Green Deal 2020-2050	✓	✓	✓	✓		✓		✓	✓		H
World Health Organization Guidelines for Drinking Water Quality (4th edition, 2017)	✓	✓	✓	✓	✓	✓		✓			H

Water safety plan manual: step-by-step risk management for drinking-water suppliers (2 nd edition, 2023)	✓	✓	✓		✓			✓			H
EU Tourism Policy		✓				✓	✓				L

Policy, Plans and Programmes	SEA Topics										Review Screening
International, National, Regional and transboundary – Legislation and Policy/Plans/Strategies	Water Environment	Population, Economy, Tourism and Recreation, and Human Health	Climate Change	Biodiversity, Flora and Fauna	Material Asset	Landscape, Townscape and Seascape	Cultural Heritage – Archaeological and Architectural	Geology and Soils	Air Quality	Noise and Vibration	Policy, Plans or Programmes with some relevance to the GWS and SEA - screening Direct /higher relevance- H Indirect relevance - L
EU Biodiversity Strategy for 2030	✓	✓	✓	✓				✓	✓		H
Green Infrastructure: Enhancing Europe’s Natural Capital Strategy	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	H
EU Soil Strategy for 2030	✓		✓	✓		✓		✓			H
Convention for the Protection of the Architectural Heritage of Europe (Granada, 1985)							✓				L

Convention for the Protection of the Archaeological Heritage of Europe (revised) (Valletta, 1992)								✓				L
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Policy, Plans and Programmes	SEA Topics										Review Screening
International, National, Regional and transboundary - Legislation and Policy/Plans/Strategies	Water Environment	Population, Economy, Tourism and Recreation, and Human Health	Climate Change	Biodiversity, Flora and Fauna	Material Asset	Landscape, Townscape and Seascape	Cultural Heritage - Archaeological and Architectural	Geology and Soils	Air Quality	Noise and Vibration	Policy, Plans or Programmes with some relevance to the GWS and SEA - screening Direct /higher relevance- H Indirect relevance - L
National											
Wildlife Act 1976 (as amended including 2010)	✓		✓	✓				✓			L
The Climate Action and Low Carbon Development Act 2015	✓	✓	✓	✓	✓			✓			H
Transcribed Irish legislation - European Communities (Environmental Liability) Regulations 2008 S.I. No. 547/2008 (as amended 2015 S.I. No. 293/2015)	✓	✓	✓	✓				✓	✓		H

Transcribed Irish legislation - European Communities (Environmental Assessment of Certain Plans and Programmes) Regulations 2004 S.I. No. 435/2004 (as amended 2011 S.I. No. 200/2011)	✓	✓	✓	✓	✓			✓	✓		H
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Policy, Plans and Programmes	SEA Topics										Review Screening
	Water Environment	Population, Economy, Tourism and Recreation, and Human Health	Climate Change	Biodiversity, Flora and Fauna	Material Asset	Landscape, Townscape and Seascape	Cultural Heritage - Archaeological and Architectural	Geology and Soils	Air Quality	Noise and Vibration	
Environmental Protection Agency Act 1992 - 2007	✓	✓	✓	✓				✓	✓		H
Climate Action and Low Carbon Development (Amendment) Bill 2021		✓	✓	✓	✓			✓			H
Transcribed Irish legislation - European Communities (Industrial Emissions) Regulations 2013 S.I. No. 138/2013	✓	✓						✓	✓		L
Transcribed Irish legislation - European Communities (Water Policy) Regulations 2003	✓	✓	✓	✓		✓		✓			H

S.I. No. 722/2003 (as amended 2010 S.I. No. 326/2010)												
Transcribed Irish legislation - Bathing Water Quality Regulations 2008 S.I. No. 79/2008 (as amended 2016 S.I. No. 163/2016)	✓	✓										H
Transcribed Irish legislation - European Union (Water Policy) (Abstractions Registration) Regulations 2018 (S.I. No. 261/2018)	✓							✓				H
Transcribed Irish legislation - European Communities (Assessment and Management of Flood Risks) Regulations 2010 S.I. No. 122/2010	✓	✓	✓			✓	✓	✓				H

Policy, Plans and Programmes	SEA Topics										Review Screening
International, National, Regional and transboundary – Legislation and Policy/Plans/Strategies	Water Environment	Population, Economy, Tourism and Recreation, and Human Health	Climate Change	Biodiversity, Flora and Fauna	Material Asset	Landscape, Townscape and Seascape	Cultural Heritage – Archaeological and Architectural	Geology and Soils	Air Quality	Noise and Vibration	Policy, Plans or Programmes with some relevance to the GWS and SEA - screening Direct /higher relevance- H Indirect relevance - L
Transcribed Irish legislation - European Communities (Marine Strategy Framework) Regulations 2011 S.I. No. 249/2011 (as amended 2018 S.I. No. 648/2018)	✓		✓	✓		✓					H
Transcribed Irish legislation - European Communities Environmental Objectives (Groundwater) Regulations 2010 S.I. No. 9/2010 (as amended 2016 S.I. No. 366/2016)	✓	✓		✓	✓			✓			H

Policy, Plans and Programmes	SEA Topics										Review Screening
International, National, Regional and transboundary - Legislation and Policy/Plans/Strategies	Water Environment	Population, Economy, Tourism and Recreation, and Human Health	Climate Change	Biodiversity, Flora and Fauna	Material Asset	Landscape, Townscape and Seascape	Cultural Heritage - Archaeological and Architectural	Geology and Soils	Air Quality	Noise and Vibration	Policy, Plans or Programmes with some relevance to the GWS and SEA - screening Direct /higher relevance- H Indirect relevance - L
Water Environment (Abstractions and Associated Impoundments) Act, 2022 (the Abstractions Act)	✓		✓	✓	✓						L
Transcribed Irish legislation - Planning and Development (Strategic Environmental Assessment) Regulations 2004 S.I. No. 436/2004 (as amended 2011 S.I. No. 201/2011)	✓	✓	✓	✓	✓	✓	✓	✓	✓		H

Transcribed Irish legislation - European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018 S.I. No. 296/2018 (as amended S.I. No. 646/2018)	✓	✓	✓	✓		✓	✓	✓	✓		H
Water Services Act, 2013 (as amended 2017)	✓	✓									H
National Water Resources Plan (2021) and Regional Plans (2021-2023) - Uisce Éireann	✓	✓									H
Transcribed Irish legislation - European Union (Renewable Energy) Regulations 2020 S.I. No. 365/2020	✓		✓		✓	✓					L
Water Services Strategic Plan (2015) Uisce Éireann	✓	✓									H

Policy, Plans and Programmes	SEA Topics										Review Screening
International, National, Regional and transboundary – Legislation and Policy/Plans/Strategies	Water Environment	Population, Economy, Tourism and Recreation, and Human Health	Climate Change	Biodiversity, Flora and Fauna	Material Asset	Landscape, Townscape and Seascape	Cultural Heritage – Archaeological and Architectural	Geology and Soils	Air Quality	Noise and Vibration	Policy, Plans or Programmes with some relevance to the GWS and SEA - screening Direct /higher relevance- H Indirect relevance - L
Planning and Development Act 2000 (as amended)	✓	✓		✓		✓	✓	✓	✓	✓	H
Planning and Development Regulations 2001 (as amended)	✓	✓		✓		✓	✓	✓	✓	✓	H
General Scheme of the Water Environment (Abstractions) Bill 2020	✓	✓	✓	✓		✓	✓	✓			H

Transcribed Irish legislation - European Union (Good Agricultural Practice for Protection of Waters) Regulations 2014 S.I. No. 31/2014 (as amended 2023 S.I. No. 62/2023)	✓	✓						✓			H
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Policy, Plans and Programmes	SEA Topics										Review Screening
International, National, Regional and transboundary - Legislation and Policy/Plans/Strategies	Water Environment	Population, Economy, Tourism and Recreation, and Human Health	Climate Change	Biodiversity, Flora and Fauna	Material Asset	Landscape, Townscape and Seascape	Cultural Heritage - Archaeological and Architectural	Geology and Soils	Air Quality	Noise and Vibration	Policy, Plans or Programmes with some relevance to the GWS and SEA - screening Direct /higher relevance- H Indirect relevance - L
Transcribed Irish legislation - Urban Wastewater Treatment Regulations 2001 S.I. No. 254/2001 (as amended 2010 S.I. No. 48/2010)	✓	✓		✓						✓	H
Transcribed Irish legislation - European Union (Drinking Water) Regulations 2014 S.I. No. 122/2014 (as amended 2017 S.I. No. 464/2017) The European Union Drinking Water Regulations 2023 (S.I 99/2023),	✓	✓								✓	H

Fisheries Consolidation Act, 1959	✓				✓						H
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Policy, Plans and Programmes	SEA Topics										Review Screening
International, National, Regional and transboundary - Legislation and Policy/Plans/Strategies	Water Environment	Population, Economy, Tourism and Recreation, and Human Health	Climate Change	Biodiversity, Flora and Fauna	Material Asset	Landscape, Townscape and Seascape	Cultural Heritage - Archaeological and Architectural	Geology and Soils	Air Quality	Noise and Vibration	Policy, Plans or Programmes with some relevance to the GWS and SEA - screening Direct /higher relevance- H Indirect relevance - L
National Strategic Plan for Sustainable Aquaculture Development 2030	✓										L
Transcribed Irish legislation - European Communities (Birds and Natural Habitats) Regulations 2011 S.I. No. 477/2011(as amended 2015 S.I. No. 355/2015)				✓							H
Waste Management Act 1996 (as amended 2023)	✓	✓		✓	✓			✓	✓		H
The Maritime Area Planning Act 2021	✓	✓			✓	✓					H

Transcribed Irish legislation - European Communities (Air Quality Standards) Regulations 2011 S.I. No. 180/2011		✓	✓		✓				✓		L
National Clean Air Strategy for Ireland (published 2023)		✓	✓		✓				✓		L
National Air Pollution Control Programme (published 2021)		✓	✓						✓		L
Transcribed Irish legislation - European Communities (Environmental Noise) Regulations 2006 SI. No. 140/2006		✓			✓					✓	L
Transcribed Irish legislation - European Communities (Environmental Noise) Regulations 2018 S.I. No. 549/2018		✓			✓					✓	L

Policy, Plans and Programmes	SEA Topics										Review Screening
International, National, Regional and transboundary – Legislation and Policy/Plans/Strategies	Water Environment	Population, Economy, Tourism and Recreation, and Human Health	Climate Change	Biodiversity, Flora and Fauna	Material Asset	Landscape, Townscape and Seascape	Cultural Heritage – Archaeological and Architectural	Geology and Soils	Air Quality	Noise and Vibration	Policy, Plans or Programmes with some relevance to the GWS and SEA - screening Direct /higher relevance- H Indirect relevance - L
Proposed Planning and Development Bill 2022	✓	✓	✓	✓		✓	✓	✓	✓	✓	H
Heritage Act 2018	✓			✓	✓		✓				L
Proposed Historic Archaeological and Heritage Bill 2023		✓		✓	✓	✓	✓				L
National Monuments Act 2004 (as amended)		✓		✓		✓	✓	✓			L
Architectural Heritage and Historic Monuments Act 1999		✓					✓				L

Policy, Plans and Programmes	SEA Topics										Review Screening
International, National, Regional and transboundary - Legislation and Policy/Plans/Strategies	Water Environment	Population, Economy, Tourism and Recreation, and Human Health	Climate Change	Biodiversity, Flora and Fauna	Material Asset	Landscape, Townscape and Seascape	Cultural Heritage - Archaeological and Architectural	Geology and Soils	Air Quality	Noise and Vibration	Policy, Plans or Programmes with some relevance to the GWS and SEA - screening Direct /higher relevance- H Indirect relevance - L
Our Sustainable Future, a Framework for Sustainable Development for Ireland	✓	✓	✓	✓	✓		✓	✓			H
Ireland 2040: Our Plan, National Planning Framework	✓	✓	✓				✓	✓			H
Water Services Policy Statement 2018 - 2025	✓	✓	✓								H
Capital Investment Plan 2020-2024 (Uisce Éireann)		✓									L

Climate Action Plan 2024	✓	✓	✓					✓			H
Grid Implementation Plan 2017-2022 For the Electricity System in Ireland		✓									L

Policy, Plans and Programmes	SEA Topics										Review Screening
	Water Environment	Population, Economy, Tourism and Recreation, and Human Health	Climate Change	Biodiversity, Flora and Fauna	Material Asset	Landscape, Townscape and Seascape	Cultural Heritage - Archaeological and Architectural	Geology and Soils	Air Quality	Noise and Vibration	
International, National, Regional and transboundary - Legislation and Policy/Plans/Strategies											Policy, Plans or Programmes with some relevance to the GWS and SEA - screening Direct /higher relevance- H Indirect relevance - L
State of the Environment Report (SOE) Ireland's Environment - An Integrated Assessment 2020 (published 2020)	✓	✓	✓	✓				✓	✓	✓	H
National Spatial Strategy for Ireland 2002-2020 (Department of the Environment and Local Government)		✓	✓								H
River Basin Management Plan 2018 - 2021	✓	✓	✓	✓							H
Draft River Basin Management Plan 2022-2027	✓	✓	✓	✓							H

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Fifth Nitrates Action Programme 2022-2025	✓	✓	✓	✓							H
Project Ireland 2040 National Marine Planning Framework (2021)	✓	✓	✓	✓		✓	✓		✓	✓	H
Marine Planning Act 2021	✓	✓	✓	✓		✓	✓		✓	✓	H
EPA Drinking Water Advice Note No. 8: Developing Drinking Water Safety Plans (2011)	✓	✓									H

Groundwater Protection Schemes (published 1999)	✓							✓			H
Healthy Ireland Framework 2013-2025	✓	✓							✓		H
Draft Agri-Food Strategy	✓		✓	✓							H
Food Vision 2030		✓	✓								L
Food Wise 2025		✓	✓								L
Food Harvest 2020		✓	✓								L
Fáilte Ireland's 10 Year Tourism Strategy		✓									L
Fáilte Ireland Visitor Experience Development Plans		✓									L
National Outdoor Recreation Strategy 2023-2027	✓	✓		✓							L

National Countryside Recreation Strategy (published 2018)		✓	✓								L
People, Place and Policy- Growing Tourism to 2025		✓									L
Tourism Development and Innovation. A Strategy for Investment 2016-2022		✓									L
Tourism Action Plan 2019-2021		✓	✓								L
Tourism Recovery Plan 2020-2023		✓	✓								L
Town Centre First: A Policy for Irish Towns (published 2022)		✓	✓			✓					L
Tourism Action Strategy 2016-2018		✓	✓								L
Creating Green Infrastructure for Ireland: Enhancing Natural Capital for Human Wellbeing	✓	✓	✓	✓				✓			H
National Biodiversity Action Plan 2017-2021											H

Ireland's 4 th National Biodiversity Action Plan 2023-2030			✓	✓							H
All-Ireland Pollinator Plan 2021-2025		✓		✓				✓			L
Biodiversity Climate Change Sectoral Adaptation Plan (published 2019)	✓		✓	✓							L
Infrastructure and Capital Investment Plan 2016-2021	✓	✓						✓			H
CAP Strategic Plan 2023-2027	✓	✓	✓								H
National Development Plan 2021-2030		✓			✓						H
Healthy Cities Project (WHO)		✓			✓						H
National Peatlands Strategy 2015-2025	✓	✓	✓	✓				✓			L

Policy, Plans and Programmes	SEA Topics										Review Screening
International, National, Regional and transboundary - Legislation and Policy/Plans/Strategies	Water Environment	Population, Economy, Tourism and Recreation, and Human Health	Climate Change	Biodiversity, Flora and Fauna	Material Asset	Landscape, Townscape and Seascape	Cultural Heritage - Archaeological and Architectural	Geology and Soils	Air Quality	Noise and Vibration	Policy, Plans or Programmes with some relevance to the GWS and SEA - screening Direct /higher relevance- H Indirect relevance - L
Forestry Programme 2023-2027		✓	✓	✓							L
Waste Action Plan for a Circular Economy 2020	✓	✓	✓	✓		✓		✓	✓		H
National Hazardous Waste Management Plan 2021 - 2027 (EPA)	✓	✓	✓	✓				✓	✓		L
Circular Economy and Miscellaneous Provisions Act (2022)	✓		✓	✓				✓			H

Whole of Government Circular Economy Strategy 2022	✓		✓	✓				✓			H
National Landscape Strategy for Ireland 2015/2025	✓	✓	✓	✓		✓	✓	✓			L

Policy, Plans and Programmes	SEA Topics										Review Screening
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International, National, Regional and transboundary - Legislation and Policy/Plans/Strategies											Policy, Plans or Programmes with some relevance to the GWS and SEA - screening Direct /higher relevance- H Indirect relevance - L
Regional Seascape Character Assessment for Ireland (published 2020)	✓	✓									L
National Climate Change Adaptation Framework (published 2012)	✓	✓	✓	✓		✓	✓	✓	✓		H
Ireland's National Policy Position on Climate Action and Low Carbon Development 2014	✓	✓	✓	✓				✓			H
National Mitigation Plan (published 2017)	✓	✓	✓	✓				✓	✓		H

Energy White Paper: Delivering a Sustainable Energy Future for Ireland – The Energy Policy Framework 2007-2020		✓	✓								H
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Policy, Plans and Programmes	SEA Topics										Review Screening
International, National, Regional and transboundary - Legislation and Policy/Plans/Strategies	Water Environment	Population, Economy, Tourism and Recreation, and Human Health	Climate Change	Biodiversity, Flora and Fauna	Material Asset	Landscape, Townscape and Seascape	Cultural Heritage - Archaeological and Architectural	Geology and Soils	Air Quality	Noise and Vibration	Policy, Plans or Programmes with some relevance to the GWS and SEA - screening Direct /higher relevance- H Indirect relevance - L
Offshore Renewable Energy Development Plan (2014) and Interim Review (2018)		✓	✓	✓		✓					L
Ireland's Second National Energy Efficiency Action Strategy 2009-2020		✓									L
National Energy and Climate Plan 2021-2030		✓									L

Uisce Éireann Interim Pesticide Strategy: A collaborative approach with catchment stakeholders (published 2021)	✓	✓						✓			H
Heritage Ireland 2030	✓	✓	✓	✓		✓	✓	✓			L

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Regional and Local											
Regional Spatial and Economic Strategy (RSES) for the Northern and Western Assembly	✓	✓	✓	✓		✓	✓	✓			H
Regional Tourism Strategy (currently being developed by Fáilte Ireland)	✓	✓									L
Catchment Flood Risk Management (CFRAM) Programme	✓	✓	✓	✓	✓	✓	✓	✓			H

The Planning System and Flood Risk Management – Guidelines for Planning Authorities (the 'FRM Guidelines') (published 2009)

✓

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International, National, Regional and transboundary - Legislation and Policy/Plans/Strategies	Water Environment	Population, Economy, Tourism and Recreation, and Human Health	Climate Change	Biodiversity, Flora and Fauna	Material Asset	Landscape, Townscape and Seascape	Cultural Heritage - Archaeological and Architectural	Geology and Soils	Air Quality	Noise and Vibration	Policy, Plans or Programmes with some relevance to the GWS and SEA - screening Direct /higher relevance- H Indirect relevance - L
Adopted Galway County Development Plan 2022-2028	✓	✓	✓	✓		✓	✓	✓			H
Galway City Development Plan 2023-2029	✓	✓	✓	✓		✓	✓	✓			H
Galway County Climate Action Plan 2024-2029	✓	✓	✓	✓							H
Galway City Climate Action Plan 2024-2029	✓	✓	✓	✓							H

Galway Local Economic and Community Framework Plan 2024 - 2029		✓									H
Galway County Heritage and Biodiversity Plan 2017 - 2022	✓	✓	✓	✓			✓				H
Galway Heritage Plan 2015-2020		✓				✓	✓				L
Galway Noise Action Plan 2019-2023										✓	L

Policy, Plans and Programmes	SEA Topics										Review Screening
International, National, Regional and transboundary - Legislation and Policy/Plans/Strategies	Water Environment	Population, Economy, Tourism and Recreation, and Human Health	Climate Change	Biodiversity, Flora and Fauna	Material Asset	Landscape, Townscape and Seascape	Cultural Heritage - Archaeological and Architectural	Geology and Soils	Air Quality	Noise and Vibration	Policy, Plans or Programmes with some relevance to the GWS and SEA - screening Direct /higher relevance- H Indirect relevance - L
Planning Act (NI) 2011		✓					✓				H
Climate Change Act (Northern Ireland) 2022		✓	✓								H
The Water Environment (Floods Directive) Regulations (Northern Ireland) 2009	✓				✓						H

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International, National, Regional and transboundary - Legislation and Policy/Plans/Strategies	Water Environment	Population, Economy, Tourism and Recreation, and Human Health	Climate Change	Biodiversity, Flora and Fauna	Material Asset	Landscape, Townscape and Seascape	Cultural Heritage - Archaeological and Architectural	Geology and Soils	Air Quality	Noise and Vibration	Policy, Plans or Programmes with some relevance to the GWS and SEA - screening Direct /higher relevance- H Indirect relevance - L
Water Abstraction and Impoundment (Licensing) (Amendment) Regulations (Northern Ireland) 2007	✓			✓							H
The Water Supply (Water Quality) Regulations (North Ireland) 2017	✓	✓									H
The Private Water Supplies Regulations (Northern Ireland) 2017	✓	✓									H
Fisheries Act (NI) 1966 (as amended)	✓			✓							H

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International, National, Regional and transboundary - Legislation and Policy/Plans/Strategies											Policy, Plans or Programmes with some relevance to the GWS and SEA - screening Direct /higher relevance- H Indirect relevance - L
Marine Act (Northern Ireland) 2013	✓			✓							H
Historic Monuments and Archaeological Objectives (Northern Ireland) Order 1995							✓				H
Protection of Wrecks Act	✓										L
The Wildlife (NI) Order 1985 (as amended)				✓							H
Wildlife and Natural Environment Act (NI) 2011				✓							H

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The Conservation (Natural Habitat, etc) Regulations (Northern Ireland) 1995 (as amended)				✓							H
The Environment (NI) Order 2022	✓		✓					✓	✓		H

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International, National, Regional and transboundary - Legislation and Policy/Plans/Strategies											Policy, Plans or Programmes with some relevance to the GWS and SEA - screening Direct /higher relevance- H Indirect relevance - L
The Planning (Environmental Impact Assessment) Regulations (Northern Ireland) 2017	✓	✓	✓	✓		✓	✓	✓	✓	✓	H
The Marine and Coastal Access Act 2009	✓			✓							H
Convention for the Conservation of Salmon in the North Atlantic Implementation Plan for the period 2019 - 2024	✓			✓							H

Marine and Coastal Access Act 2009	✓			✓							H
Regional Development Strategy: Building a Better Future, 2035	✓	✓	✓				✓		✓		L

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Northern Ireland’s Climate Change Adaptation Programme 2019 – 2024		✓	✓	✓							L
Climate Risk Independent Assessment 2021	✓		✓	✓				✓			L
NI Water (2020) Our Strategy 2021-2046	✓	✓	✓								H
NI Water (2020) Water Resource and Supply Resilience Plan	✓	✓	✓								H

Sustainable Water – A Long term water strategy for Northern Ireland (2015 –2040)	✓	✓									H
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NI Draft Flood Risk Management Plan 2021 – 2027	✓	✓	✓				✓				H
UK Marine Policy Statement	✓			✓			✓				H
The Marine Strategy Regulations 2010	✓										H
Climate Change Risk Assessment 3 Report		✓	✓								H
Adapting to Climate Change – Progress in Northern Ireland Report		✓	✓								H

Archaeology 2030 – A Strategic Approach for Northern Ireland		✓					✓				H
The Historic and Archaeological Heritage and Miscellaneous Provisions Act 2023							✓				L
Draft 3rd cycle River Basin Management Plan 2021-2027	✓			✓				✓			H
The Strategic Planning Policy Statement (SPPS) for Northern Ireland		✓	✓								L
Biodiversity Strategy for NI to 2020	✓	✓		✓					✓		H
Draft Environment Strategy	✓	✓	✓	✓			✓		✓		H

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The Draft NI peatland policy	✓		✓	✓				✓			L
Strategic Planning Policy Statement		✓	✓								L
Northern Ireland Regional Landscape Character Assessment				✓		✓	✓	✓			L
The Draft Green Growth Strategy Consultation on the draft Green Growth Strategy for Northern Ireland	✓	✓	✓	✓					✓		L

Northern Ireland Energy Strategy 2050 Northern Ireland Energy Strategy 2050

✓

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Strategic Planning Policy Statement for Northern Ireland 2015		✓	✓			✓	✓				L
An Integrated Coastal Zone Management Strategy for Northern Ireland 2006-2026	✓	✓	✓	✓		✓					H
Northern Ireland Regional Seascape Character Assessment 2014	✓					✓	✓				H

Draft Northern Ireland Marine Plan (2018)	✓	✓	✓	✓		✓					H
The Water Environment (Water Framework Directive) Regulations (Northern Ireland) 2017	✓										H

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Forest Strategy 20232030				✓							L
Environmental Protection Agency (Designated Development) (Industrial Emissions) (Licensing) Regulations 2023								✓			L
Kyiv (SEA) Protocol and the European Climate Law	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	H

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Nutrient Action Programme Regulations (North Ireland) 2019	✓							✓			H
Draft Policy Statement on Geothermal Energy for a Circular Economy		✓	✓					✓			L
UK Marine Strategy	✓	✓	✓	✓		✓					H
Draft Offshore Renewable Energy Development Plan		✓	✓								L
Dumping at Sea Act Revised	✓										H
Zero Pollution Action Plan									✓		H

